June 2019 UofM Academic, Research and Student Success Committee Meeting

Schedule	Wednesday, June 5, 2019 8:30 AM — 9:30 AM CDT
Venue	University Center Fountain View Suite (UC 350)
Organizer	Jean Rakow

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1. Call to Order

Presented by David North

2. Roll Call

Presented by Melanie Murry

3. Election of ARSS Committee Chair and Vice Chair

For Approval

Presented by David North

The University of Memphis Board of Trustees

For Approval

Date: June 5, 2019

Presented by: Chair David North

Regarding: Election of the Chair and Vice Chair of the Academic, Research and Student Success Committee

Background:

When terms expire or vacancies occur in the positions of Chair and/or Vice Chair of the standing Committees of the Board of Trustees, the membership of the respective committees are authorized to replace the Chair and Vice Chair through a vote of the Committee :

4. Approval of Meeting Minutes

December 5, 2018

For Approval

THE UNIVERSITY OF MEMPHIS
BOARD OF TRUSTEES

MINUTES OF THE ACADEMIC, RESEARCH AND STUDENT SUCCESS COMMITTEE

December 5, 2018
Memphis, Tennessee

The Academic Affairs and Student Success Committee of The University of Memphis Board of Trustees met at 9:00 a.m. CDT, on Wednesday, December 5, 2018, at the University of Memphis in Memphis, Tennessee.

- **CALL TO ORDER**

  Trustee North called the meeting to order.

- **ROLL CALL**

  University Counsel and Board Secretary Murry called the roll, and the following Academic Affairs and Student Success Committee members were present:

  Trustee Douglas Edwards*
  Trustee Marvin Ellison* (call in)
  Trustee David Kemme*
  Trustee R. Brad Martin* (call in)
  Trustee David North*
  Trustee Charles (Drew) Gilmore

  Non-voting Trustees present for the meeting
  Trustee Graf
  Trustee Johnson

  *Voting members

  Secretary Murry announced the presence of a quorum.

  Administrative staff, faculty and members of the media were also present.

- **Approval of Minutes – September 5, 2018**

  Trustee North moved to approve the minutes of the September 5, 2018 Academic, Research and Student Success Committee meeting. The motion was made by Trustee Kemme and was properly seconded. A roll call vote was taken and the motion passed with unanimous consent.

- **Tenure**

  Trustee North recognized Dr. Henry Kurtz, President of the Faculty Senate to discuss tenure of faculty.

  Dr. Kurtz presented data representing tenured, tenure-track, and non-tenured faculty. Two-thirds of University faculty are tenured/tenured-track. He also reviewed the various faculty classifications, such as professors, instructors, and clinical faculty. Historically, the institution of tenure began in the 1920s/30s to ensure academic freedom and to protect the national reputation of the university against outside influence or political retribution. It also helps to attract talented individuals to the University while considering a lower salary. Trustee North asked if major universities have stepped away from tenure. Dr. Kurtz responded that he knows of none, especially of research caliber. Tenure is not designed to be a job for life but a guarantee of due process through annual reviews, post-tenure reviews, and a de-tenuring process. Tenure is difficult to obtain through a six-year probation window where annual and mid-term reviews and standard dossiers outlining accomplishments with respect to teaching, research, and service are required. For many, faculty promotion to professor never happens. Trustee Edwards asked what percentage of faculty come to the university with tenure. Dr. Kurtz replies that it is a very small percentage, mainly when hiring deans and chairs of excellence. Dr. Kurtz presented a few concerns and issues of the Faculty Senate such as providing tenure teaching faculty, examining the demographics of faculty, updating departmental guidelines to match the ever-evolving issues such as online courses, and creating a more robust post-tenure review. Trustee North states one of the Board's most important responsibilities is granting tenure, therefore understanding the process is important. Dr. Weddle-West mentioned that in President's Council it was discussed nominating a member of the Board to serve ad-hoc on a tenure committee.

- **Student mental health and counseling**

  Trustee North recognized Trustee Gilmore to make a presentation on student mental health and counseling issues.

  Trustee Gilmore presented statistics regarding mental illness in college students, such as one in three students suffer with prolonged depression where the effects include declining grades and even suicide. The University provides counseling through the Counseling Center with services such as crisis counseling, assessments, and relaxation zone. Ninety-five percent (95%) of students report feeling less stressed after using the relaxation zone and 91% of clients would recommend the center to fellow students. Eight hundred students have used the zone this fall to date; there were 600 walk-in visits; and 2,747 students scheduled visits last fall with a significant increase this fall. Trustee Gilmore presented possible solutions for increasing mental health initiatives, such as funding grants or allocations and supporting awareness initiatives such as the Student Government Association's distribution of snacks and stress balls during finals. Trustee North stated that many of the Trustees have healthcare backgrounds and recognize the pressures and continue to keep this issue on their minds. Trustee Brad Martin gave two thoughts for planning and consideration; online resources with digital platform for therapy (considering the mobile student body) to compliment the current staff and the funding of

student participation in peer to peer counseling processes to compliment current services. Dr. Rudd responded that the University is bringing forward a digital platform soon (as a test site). Dr. Jane Clement mentioned that they are piloting a program within Student Affairs to include thrive and mental health programs. They also have a student peer group from the student health center to assist in health and mental health issues.

- **UofM Mission Statement**

  Trustee North recognized Dr. David Rudd to make a presentation on the University of Memphis Mission Statement.

  Dr. Rudd stated that the President's Council recently completed a review of the University's mission statement. The University's mission and value statements were updated as provided in the meeting materials. The University is entering the final phase of implementation that will happen at the local unit levels.

  The motion was made by Trustee Edwards and was properly seconded. A roll call vote was taken and the motion passed with unanimous consent.

  Committee Recommendations:
  The Academic, Research & Student Success Committee recommends approval of the University Mission Statement, as contained in the meeting materials.

- **Expanding University's Campus School to include a middle school**

  Trustee North recognized Dr. David Rudd to make a presentation to discusses expanding the University's Campus School to include a middle school and request that authority to contract with the local school board to provide a middle school be provided tat the University of Memphis be delegated to the President.

  Dr. Rudd stated that developing a middle school as an expansion of campus school is consistent with the core mission of the University by providing and establishing education throughout the community. A working group looked at the issue and is ready to move forward, with a final Shelby County School Board approval in January. The middle school will be located at St. Anne (Highland Avenue) and the model negotiated looks to ensure a diverse student body. The funding model is established by State statue (replicating the same funding requirements for county schools). The University will bring a formal financial model forward soon; however, the building needs renovation and should be funded by county and private investments. Trustee Johnson applauds this move and states it is good for the community. Trustee Edwards asked who will acquire the property. Dr. Rudd responded that the University is still in discussion but it appears to be a long-term lease.

  The motion was made by Trustee Edwards and was properly seconded. A roll call vote was taken and the motion passed with unanimous consent.

  Committee Recommendation:

The Academic, Research & Student Success Committee recommends the delegation of authority to the President to contract with the local school board to provide a middle school at the University of Memphis, pursuant to T.C.A. § 49-8-105.

- **Immunization and Residence Life Rule**

Trustee North recognized Dr. Darrell Ray to present for approval the immunization rule and the residence life rule.

Darrell Ray stated they are working to make different platforms available to students for affording and obtaining immunizations. Dr. Rudd stated this is critical point, creating platforms such as pop-up clinics on campus and establishing partners to provide immunizations. Secretary Murray stated it is not just a local problem but a problem across the state.

The motion was made by Trustee Kemme and was properly seconded. A roll call vote was taken and the motion passed with unanimous consent.

Committee Recommendation:
The Academic, Research, & Student Success Committee recommends approval of the Immunization Rule and Residence Life Rule.

- **Next Steps for Carnegie I**

Trustee North recognized Dr. Jasbir Dhaliwal to present the next steps to the Carnegie I classification.

Dr. Dhaliwal stated that for the past thirty years, the University has included research in its mission; however, we now need to review our research focus in order to move to a Carnegie 1 classification, highest research activity. Our goal is, in five years, to the have the profile of a Carnegie tier 1 (R1) research university. The largest benefit would be the global attraction of higher quality students and faculty. Dr. Dhaliwal presented median data to how we will need meet the Carnegie metrics for a tier 1 classification. In reviewing our own metrics, the University is knocking on the door to a tier 1 classification. However, there are several dimensions of research that the University needs to focus on such as research expenditures and number of doctoral students in order to meet this goal. Trustee North asked how do the specific Carnegie measurements tie to our strategic initiatives. Dr. Dhaliwal stated that where we put our next research dollars have to tie to the community and align to research excellence within the University and Carnegie. Trustee North asked what is the context of comparing the University of Memphis to the University of North Texas (UNT)? Dr. Dhaliwal stated that UNT is a good model for moving from R2 to R1 (with the large infusions of money in research). Dr. Rudd stated that the expansion of doctorate programs and infrastructure was the basis of their (UNT) improvement. Trustee Kemme stated that building research culture can take time. Trustee North appreciates that it is a journey. Dr. Dhaliwal's final points were to highlight some of the many strategic initiatives his department is embarking on to reach the R1 classification.

- **Update on LIFE program**

  Trustee North recognized Dr. Richard Irwin to present an update on the growth of the LIFE program.

  Dr. Irwin presented several updates regarding the growth of the LIFE program that included expanding LIFE to several FedEx hubs across the country and specific marketing tools in the hubs to promote the program and encourage interest. They have received 2,600 inquiries since August 2018 across all hubs; 250 have enrolled in credit-baring or continuing education courses; 1,500 are in prep academy (200 working on GED). Trustee North stated that this is a partnership that enhances the University's goals and is aspirational for other businesses.

- **New business**

  Secretary Murray asked that Dr. Darrell Ray speak to the Residence Life agenda item that had been skipped earlier. Dr. Ray stated that Student Affairs has engaged in various activities to develop a strategy and plan for the long-term growth of the residence life program. To that end, a committee of key constituents has been assembled to review current strategies and provide direct feedback in development and deployment of the plan. Key planning activities will be to assess the maximum capacity for growth, review proposed strategies around the type of inventory needed, and assessment of the current inventory. Additionally, Dr. Rudd announced that a campus dining RFP will be released soon and will incorporate components that relate to how dining relates to retention and completion.

- **Adjournment**

  With no further business, Trustee North moved to adjourn the meeting. The motion was properly seconded and passed with unanimous consent.

5. Tenure and Promotion

For Approval

Presented by Tom Nenon

Presentation to the Board of Trustees

The University of Memphis Board of Trustees
For Approval

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: Approval of Tenure and Promotion Recommendations

Presented by: Dr. Thomas Nenon, Provost and Executive Vice President for Academic Affairs

Background:
Tenure is the principle that entitles a faculty member continuation of his or her annual appointment until relinquishment or forfeiture of tenure, or until termination of tenure for adequate cause. A healthy tradition of academic freedom and awarding tenure and promotion are uniquely fundamental to the academy and essential to the proper functioning of a University. Faculty members eligible for tenure must serve a probationary period and must demonstrate continuing value to the institution.

Tenure and promotion are granted only by positive action by the Board of Trustees to faculty members in a particular department, school or college of the University of Memphis. The following summary of the tenure and promotion approval process describes the careful processes that lead to the request for Board action to grant tenure and promotion. Following the summary is the list of faculty members recommended for tenure and promotion.

Committee Recommendation:
The Academics, Research, & Student Success Committee recommends that the Board approve and grant tenure and promotion to the faculty members recommended by the Provost in the particular department, school or college of the University indicated in the meeting materials.

University of Memphis
2019 Tenure and Promotion Recommendations

	Faculty Name	Current Rank	Proposed Rank	Tenure Only	Promotion Only	Tenure & Promotion
College of Arts and Sciences						
Anthropology	Micah Trapp	Assistant	Associate			x
Biology	Jennifer Mandel	Assistant	Associate			x
Biology	Duane McKenna	Associate	Full		x	
Chemistry	William Alexander	Assistant	Associate			x
Center for Earthquake Research and Information	Eric Daub	Assistant	Associate			x
Criminal Justice	Bert Burraston	Assistant	Associate			x
Criminal Justice	Amanda Johnson	Assistant	Associate			x
Criminal Justice	James McCutcheon	Assistant	Associate			x
Earth Sciences	Ryan Parish	Assistant	Associate			x
English	Rebecca Adams	Assistant	Associate			x
English	William Duffy	Assistant	Associate			x
English	Katherine Fredlund	Assistant	Associate			x
English	Donal Harris	Assistant	Associate			x
English	Marcus Wicker	Assistant	Associate			x
History	Beverly Bond	Associate	Full		x	
Math	Su Chen	Assistant	Associate			x
Philosophy	Verena Erlenbusch	Assistant	Associate			x
Psychology	Jason Braasch	Assistant	Associate			x
Psychology	Andrew Olney	Associate	Full		x	
Psychology	Idia Thurston	Assistant	Associate			x
Psychology	Leslie Robinson	Associate	Full		x	
Social Work	Susan Elswick	Assistant	Associate			x
World Languages & Literatures	Melanie Conroy	Assistant	Associate			x
College of Communication and Fine Arts						
Architecture	Jennifer Thompson	Assistant	Associate			x
Art	Joshua Roberson	Assistant	Associate			x
Journalism	Matthew Haught	Assistant	Associate			x
Communication	Andre Johnson	Assistant	Associate			x
Music	Kyle Ferrill	Assistant	Associate			x
Music	Jack Cooper	Associate	Full		x	
Music	Kevin Sanders	Associate	Full		x	
Music	Elise Blatchford	Assistant	Associate			x
Music	Cathal Breslin	Assistant	Associate			x
Theatre and Dance	Anthony Pellicchia	Assistant	Associate			x
Fogelman College of Business and Economics						
Business Information & Technology	Jong Lee	Assistant	Associate			x
Economics	Carmen Astorne-Figari	Assistant	Associate			x
College of Education						
Counseling, Educational Psychology and Research	Susan Nordstrom	Assistant	Associate			x
Instruction and Curriculum Leadership	Brian Wright	Assistant	Associate			x
Instruction and Curriculum Leadership	DeAnna Owens	Assistant	Associate			x

University of Memphis
2019 Tenure and Promotion Recommendations

	Faculty Name	Current Rank	Proposed Rank	Tenure Only	Promotion Only	Tenure & Promotion
Instruction and Curriculum Leadership	Mary Ransdell	Associate	Full		x	
Instruction and Curriculum Leadership	Lee Allen	Associate	Full		x	
Instruction and Curriculum Leadership	Kay Reeves	Associate	Full		x	
Center for Research and Educational Policy	Carolyn Kaldon	Research Asst	Research Associate			x
Cecil C. Humphreys School of Law						
Law	Demetria Frank	Assistant	Associate			x
Law	John Newman	Assistant	Associate		x	
Lowenberg College of Nursing						
Nursing	Rosemary McLaughlin	Clinical Assoc	Clinical Professor		x	
Nursing	Rebecca Adkins	Clinical Asst	Clinical Associate		x	
Nursing	Shkendie Papraniku	Clinical Asst	Clinical Associate		x	
Nursing	Anita Boykins	Associate	Associate	x		
Nursing	Christie Manasco	Clinical Assoc	Clinical Professor		x	
Nursing	Renee Morris	Clinical Asst	Clinical Associate		x	
Herff College of Engineering						
Civil	Mihalis Gkolias	Associate	Full		x	
Electrical/Computer	Madhu Balasubramanian	Assistant	Associate			x
Engineering Technology	Kevin Berisso	Assistant	Associate			x
School of Health Studies						
Dietectics/Nutrition	Marie van der Merwe	Assistant	Associate			x
Dietectics/Nutrition	Mary Catherine Schallert	Clinical Asst	Clinical Associate		x	
Physical Education Teacher Education	Carol Irwin	Associate	Full		x	
Kemmons Wilson School of Hospitality and Resort Management						
Sport and Leisure Management	Rhema Fuller	Assistant	Associate		x	
School of Public Health						
Health Systems Management and Policy	M. Paige Powell	Assistant	Associate			x
University Libraries						
	Gerald Chaudron	Associate	Associate	x		

6. Tenure upon Appointment

For Approval

Presented by Tom Nenon

Presentation to the Board of Trustees

The University of Memphis Board of Trustees
For Approval

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: Approval of Tenure upon Appointment

Presented by: Dr. Thomas Nenon, Provost and Executive Vice President for Academic Affairs

Background:
Dr. Wendy Atkins-Sayre will begin her position as Professor and Chair of the Department of Communication and Film in the College of Communication and Fine Arts Fall 2019. She previously served as the Interim Associate Director of the School of Communication at the University of Southern Mississippi. Dr. Atkins-Sayre's offer letter and curriculum vitae follow.

Dr. Stephen Wen-Jin will begin his position as Professor and Holder of the James T. Thompson Chair for Excellence in Accounting Education in the Fogelman College of Business and Economics Fall 2019. Dr. Wen-Jin's offer letter and curriculum vitae follow.

Dr. Damon Fleming will begin his position as Professor and Dean of the Fogelman College of Business and Economics July 1, 2019. Dr. Flemings offer letter and curriculum vitae follow.

Committee Recommendation:
The Academics, Research, & Student Success Committee met June 5, 2019, and approved a motion recommending the following action. Therefore, on the Academics, Research, & Student Success Committee's recommendation, I move that the following motion be adopted.

Motion: I move that the Board of Trustees grant tenure to Drs. Atkins-Sayre, Wen-Jin, and Fleming upon appointment.

REQUEST FOR A REDUCTION OF TENURE TRACK PROBATION PERIOD

This is a request to recommend that Wendy (First) Atkins-Sayre (Middle/Last) in the Department of Communication & Film

be granted a 6 year(s) reduction in his/her tenure probation period. A copy of his/her vita must be attached.

Date: 3/6/19 **Justification** (If necessary, use additional pages and attach to this form.)

Professor Wendy Atkins-Sayre brings to the role of Chair of the Department of Communication and Film a distinguished record of scholarly achievement as well as extensive administrative experience in leadership roles. Professor Atkins-Sayre currently serves as the Interim Associate Director of the School of Communication at the University of Southern Mississippi, where she previously served as the Chair of the Department of Communication Studies from 2016-2018.

She was promoted to full Professor in 2017, and her research outputs certainly qualify her as a full Professor in the Department of Communication and Film. She is the co-author of Consuming Identity: The Role of Food in Redefining the South (2016), and the co-editor of Communicating Advice: Peer Tutoring and Communication Practice (2015) and Communication Centers and Oral Communication Programs in Higher Education (2012). She has published six peer-reviewed articles, seven book chapters, numerous book reviews and presentations at national conferences. Among her professional awards are the Linda Hobgood Service Award (2017 National Communication Association), the J. Donald Ragsdale Mentor Award (2016 Southern States Communication Association), the Top Paper Award (2016 Southern States Communication Association), and the Top Panel Award (2014 National Communication Association Convention).

Extending to her a 6 year reduction period for tenure is appropriate and justified.

APPROVAL SIGNATURES:

		COMMENTS
Departmental Chairperson	Date	
Dean	3/6/19 Date	
Provost	3/18/19 Date	
President	3/19/19 Date	

The University of Memphis is an Equal Opportunity/Affirmative Action University

TDPD FORM Revised 5/2006

THE UNIVERSITY OF MEMPHIS

College of Communication and Fine Arts
Office of the Dean

232 CFA Building
Memphis, Tennessee 38152

Office: 901.678.2350
Fax: 901.678.5118

www.memphis.edu/ccfa

Date: March 6, 2019

To: M. David Rudd, Ph.D., ABPP
President, University of Memphis

Dr. Thomas J. Nenon
Interim Provost

From: Anne F. Hogan AFH
Dean, College of Communication and Fine Arts

Re: Request for Tenure Track Probation Period: Wendy Atkins-Sayre

Professor Wendy Atkins-Sayre brings to the role of Chair of the Department of Communication and Film a distinguished record of scholarly achievement as well as extensive administrative experience in leadership roles. Professor Atkins-Sayre currently serves as the Interim Associate Director of the School of Communication at the University of Southern Mississippi, where she previously served as the Chair of the Department of Communication Studies from 2016-2018.

She was promoted to full Professor in 2017, and her research outputs certainly qualify her as a full Professor in the Department of Communication and Film. She is the co-author of *Consuming Identity: The Role of Food in Redefining the South* (2016), and the co-editor of *Communicating Advice: Peer Tutoring and Communication Practice* (2015) and *Communication Centers and Oral Communication Programs in Higher Education* (2012). She has published six peer-reviewed articles, seven book chapters, numerous book reviews and presentations at national conferences. Among her professional awards are the Linda Hobgood Service Award (2017 National Communication Association), the J. Donald Ragsdale Mentor Award (2016 Southern States Communication Association), the Top Paper Award (2016 Southern States Communication Association), and the Top Panel Award (2014 National Communication Association Convention).

Extending to her a 6-year reduction period for tenure to Full Professor is appropriate and justified.

THE UNIVERSITY OF MEMPHIS

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February 12, 2019

Dr. Wendy Atkins-Sayre
103 Regency Drive
Hattiesburg, MS 39402

Dear Dr. Atkins-Sayre:

I am very pleased to offer you an appointment as Chair/Professor in the Department of Communication and Film at the University of Memphis. The appointment will commence on August 19, 2019. Your compensation package will include a 9-month base salary (institutional base pay) of $101,650 for the fall and spring semesters to be paid in twelve monthly payments, with the first monthly payment at the end of September 2019. This amount includes 7% for administrative duties as Chair. The initial term as Chair is for a period of 5 years. Near the end of this term, we will meet and upon mutual agreement, this appointment may be extended, normally at three-year intervals. Should the time arise that you no longer serve as Chair, you will relinquish the 7% adjustment.

Summer salary is determined as follows: You may earn 5/32 of your base salary, if you administer the department during the summer. You may earn an additional $7,000 during the summer if you teach a three-hour course or its equivalent. Summer teaching is contingent upon the instructional needs of the Department and minimal enrollment standards.

The research compensation program may allow faculty to supplement their 9-month institutional base pay upon successful solicitation of external grants and contracts. This compensation would come from the salary recovery received by your department as the result of your externally funded research program.

Your normal teaching load will be one three-hour course each semester. You will not be expected to teach during the fall semester 2019.

The University of Memphis offers a comprehensive benefits program. To learn about the benefits available to faculty, please visit the Human Resources website at http://www.memphis.edu/benefits/info/faculty.php.

In addition, the department will provide a moving allowance of $3,000, subject to federal taxes. Please sign the attached moving allowance form and return it with this offer letter.

THE UNIVERSITY OF MEMPHIS

College of Communication and Fine Arts
Office of the Dean

232 CFA Building
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Once you have accepted the position, we will request tenure upon appointment at the rank of Full Professor, to be approved by our Board of Trustees.

To process your appointment, an official transcript is required. Please have the institution that awarded your highest degree submit an official transcript directly to The University of Memphis, Office of Faculty Administrative Services, 374 Administration Building, Memphis, TN 38152-3120.

Shortly after you return this offer letter, you will receive an email from "Application Station" asking you to fill out a form. Please watch for this email as it triggers the final step in the hiring process.

The foregoing contract terms are contingent upon the approval of the Provost, the President of the University, and the Board of Trustees, if necessary. Please return your acceptance as soon as possible so that processing of your appointment can proceed.

Sincerely,

Anne Hogan

Anne Hogan, Dean

I accept this offer of employment.

Wendy Atkins-Sayre

2.16.19

Date

Wendy Atkins-Sayre

118 College Dr., #5121
Hattiesburg, MS 39406
601-467-2339 (cell)

wendy.atkinssayre@usm.edu
http://atkinssayre.wordpress.com/

Education

2005	PhD	University of Georgia, Department of Communication Studies Dissertation title: *Identity Shifting: People for the Ethical Treatment of Animals and the Erosion of the Animal/Human Divide*
1996	MA	Texas State University, Department of Communication Studies Thesis title: *Bootblacks, Butchers, and Barbers: The Use of Racism in the Rhetoric of Elizabeth Cady Stanton*
1994	BA	Texas State University, Department of Communication Studies Honors: Sallie Beretta Outstanding Senior Woman Award, *Magna Cum Laude*

Administrative Experience

Interim Associate Director July 2018-present	University of Southern Mississippi School of Communication
Department Chair July 2016-July 2018	University of Southern Mississippi Dept. of Communication Studies
Speaking Center Director 2007-2016	University of Southern Mississippi
Speaking Center Director 2005-2007	Agnes Scott College Center for Writing and Speaking

Academic Experience

Professor 2017-present Associate Professor 2012-2017 Assistant Professor 2007-2012	University of Southern Mississippi Dept. of Communication Studies Hattiesburg, MS
Visiting Assistant Professor 2005-2007	Agnes Scott College Dept. of Theatre Decatur, GA
Graduate Assistant Editorial Assistant	University of Georgia, Dept. of Communication Studies *Communication Education*

2001-2005	Athens, GA
Director of New Media 2000-2001	Kenyon College, Office of Public Affairs Gambier, OH
Adjunct Instructor 1999-2000	Denison University, Dept. of Communication Granville, OH
Instructor 1996-1999	Del Mar College, Speech Communication Dept. Corpus Christi, TX

Publications

Books

Stokes, Ashli Q., & Atkins-Sayre, Wendy. (2016). *Consuming Identity: The Role of Food in Redefining the South*. Jackson, MS: University Press of Mississippi.

Atkins-Sayre, Wendy, & Yook, Eunkyong. (Eds.). (2015). *Communicating Advice: Peer Tutoring and Communication Practice*. New York: Peter Lang.

Yook, Eunkyong L., & Atkins-Sayre, Wendy (Eds.). (2012). *Communication Centers and Oral Communication Programs in Higher Education: Advantages, Challenges, and New Directions.* Lanham, MD: Lexington Books.

Peer Reviewed Articles

Atkins-Sayre, Wendy, & Brown, Victoria L. (2018). Hijacking History: Reading Animal Rights through Public Memory. *Texas Speech Communication Journal, 42*, 26-37.

Stokes, Ashli, & Wendy Atkins-Sayre. (2018). PETA, Rhetorical Fracture, and the Power of Digital Activism. *Public Relations Inquiry*, *7*, 149-170.

Atkins-Sayre, Wendy, & Stokes, Ashli Q. (2014). Crafting the Cornbread Nation: The Southern Foodways Alliance and Southern Identity. *Southern Communication Journal, 79*, 77-93. [**lead article**]

Atkins-Sayre, Wendy. (2012). Snapshots of the South: Eudora Welty's Photography and Contested Images of Race. *Southern Communication Journal*, *77*, 77-93. [**lead article; winner of the Southern States Communication Association's Rose B. Johnson Award**, given to the top essay published that year in the journal]

Atkins-Sayre, Wendy. (2010). Articulating Identity: People for the Ethical Treatment of Animals and the Animal/Human Divide. *Western Journal of Communication, 74*, 309-328.

Atkins-Sayre, Wendy. (2005). Naming Women: The Emergence of Ms. as a Liberatory Title. *Women and Language, 28,* 8-16.

Book Chapters

Atkins-Sayre, Wendy, & Yook, Eunkyong L. (2015). Training the Trainers: Improving Peer Tutoring through Communication Education. In W. Atkins-Sayre & E. L. Yook,

Communicating Advice: Peer Tutoring and Communication Practice (pp. 3-14). New York: Peter Lang.

Atkins-Sayre, Wendy. (2012). Speaking our Minds: Communication Centers and Critical Thinking. In E. L. Yook & W. Atkins-Sayre (Eds.), *Communication Centers and Oral Communication Programs in Higher Education: Advantages, Challenges, and New Directions* (pp. 13-22). Lanham, MD: Lexington Books.

King, Michael, & Atkins-Sayre, Wendy. (2012). Focusing on Faculty: The Importance of Faculty Support to Communication Center Success. In E. L. Yook & W. Atkins-Sayre (Eds.), *Communication Centers and Oral Communication Programs in Higher Education: Advantages, Challenges, and New Directions* (pp. 147-160). Lanham, MD: Lexington Books.

Atkins-Sayre, Wendy. (2012). Recognizing the Past, Celebrating Change: The "Mississippi, Believe It!" Campaign Redefines the South. In A. Slade, D. Givens-Carroll, & A. Narro (Eds.), *Mediated Images of the South: The Portrayal of Dixie in Popular Culture* (pp. 107-122). Lanham, MD: Lexington Books.

Atkins-Sayre, Wendy. (2010). Protection from "Animal Rights Lunatics": The Center for Consumer Freedom and Animal Rights Rhetoric. In G. Goodall & J. E. Black (Eds.), *Arguments About Animal Ethics* (pp. 147-162). Lanham, MD: Lexington Books.

Atkins-Sayre, Wendy. (2009). Governor Mom: Jane Swift and the Body Politic. In J. Edwards (Ed.), *Gender and Political Communication in America: Rhetoric, Representation, and Display* (pp. 129-147). Lanham, MD: Lexington Books.

Popular Publication Outlets

Stokes, Ashli Q., and Wendy Atkins-Sayre. (2017). Our revelatory culinary road trip through the new south: What chorizo, hummus, and chiles rellenos say about a changing region. Part of the "What it means to be American" series, hosted by the Smithsonian and Zocalo Public Square. http://www.whatitmeanstobeamerican.org/identities/our-revelatory-culinary-road-trip-through-the-new-south/

Book reviews

Atkins-Sayre, Wendy. (2005). Review of *The Masculine Woman in America, 1890-1935*, by Laura L. Behling. *Women's Studies in Communication, 28*, 151-154.

Atkins-Sayre, Wendy. (2004). Review of *The Words of Cesar Chavez*, by Richard J. Jensen and John C. Hammerback (Eds.). *Quarterly Journal of Speech*, *90*, 253-254.

Atkins-Sayre, Wendy. (2003). Review of *Viewers Like You?: How Public TV Failed the People*, by Laurie Ouellette. *Southern Communication Journal, 68,* 349-350.

Atkins-Sayre, Wendy. (2000). Review of *Untying the Tongue: Gender, Power, and the Word*, by Linda Longmire (Ed.). *Middle East Women's Studies Review*, *15*(1/2), 12.

Research in Progress

Atkins-Sayre, Wendy, & Stokes, Ashli Q. (Eds.). (Expected 2019). *"City Slickers" and "Rednecks": Critically Exploring the Urban/Rural Divide*. Under contract with Peter Lang (Frontiers in Political Communication series).

Atkins-Sayre, Wendy, & Stokes, Ashli Q. The Rhetorical Constructions of Urban and Rural. Book chapter in edited volume (above).

Sayre, Owen, & Atkins-Sayre, Wendy. The NRA, Hunting, and "Facing" the Rural. Book chapter in edited volume (above).

Atkins-Sayre, Wendy, & Stokes, Ashli Q. The Changing Skillet: Creating Relational Identity through Food. In C. L. Moss & B. Inabinet (Eds.), *Reconstructing the South: Critical Regionalism and Southern Rhetoric*. Book chapter being prepared for edited volume. Book proposal under contract with University Press of Mississippi.

Funderburk, Casey Malone Maugh, & Atkins-Sayre, Wendy. (Under review; contract signed). Forgetting the 1960 Biloxi, Mississippi Wade-Ins: Collective Memory, Forgetting, and the Politics of Remembering Protest. In S. P. O'Rourke & L. K. Pace (Eds.), *Like Wildfire: The Rhetoric of the Civil Rights Sit-Ins*. Columbia, SC: University of South Carolina Press.

Professional Awards

2017 **Linda Hobgood Service Award**, National Communication Association, Communication Center Section

2016 **J. Donald Ragsdale Mentor Award**, Southern States Communication Association

2016 Top Paper Award, Southern States Communication Association, Rhetoric and Public Address Division, Austin, TX

2014 Top Panel Award, National Communication Association Convention, Communication Centers Section

2014 Sabbatical Research Grant, University of Southern Mississippi

2014 Joyce Ferguson Paper Award, National Association of Communication Centers conference, Phoenix, AZ

2013 **Rose B. Johnson Award**, Given to the top paper published in the *Southern Communication Journal* that year, Southern States Communication Association

2012 **Preston Award for Leadership**, Communication Centers Section, National Communication Association, Orlando, FL

2012 Joyce Ferguson Paper Award, National Association of Communication Centers conference, Richmond, KY

2012 Top paper panel, Rhetoric and Public Address Division, Southern States Communication Association, San Antonio, TX

2012 **Outstanding Alumni Award,** Texas State University, Department of Communication Studies

2005 Rhetoric Society of America Biennial Institute, Social Movement Rhetoric Workshop invited participant, Kent, OH

2004 National Communication Association Doctoral Honors Seminar selected participant, Albuquerque, NM

2003 Top paper panel, Gender Communication Division, Southern States Communication Association, Birmingham, AL

1995 Outstanding Graduate Teaching Assistant Award, Texas State University—San Marcos, Department of Communication Studies

1994 Sallie Beretta Outstanding Senior Woman Award

Grants

2014 Mississippi Humanities Council Grant (part of the National Endowment for the Humanities), Funded Lecture Series: "The Culinary Communities of Mississippi: Farm, Table, and Campus." Project Coordinators: Wendy Atkins-Sayre, Andrew Haley (History). $1,589.00

2014 Mississippi Community Cookbook Project Grant, College of Arts and Letters at the University of Southern Mississippi, Project Coordinators: Andrew Haley (History), Wendy Atkins-Sayre, Dana Fennel (Sociology). $5,000

2014 Proposal Development Grant, Vice President for Research, University of Southern Mississippi. $2,000

2013 Proposal Development Grant, Vice President for Research, University of Southern Mississippi. $2,000

2013 Proposal Development Grant, College of Arts and Letters, University of Southern Mississippi. $250

Service

Disciplinary Service

Review work

2013-present Editorial board member, *Quarterly Journal of Speech*

2014-present Editorial board member, *Southern Communication Journal*

2014-present Editorial board member, *Communication Center Journal*

2017	Manuscript reviewer for University of Arkansas Press
2016	Guest reviewer, *Communication Reports*
2016	Guest reviewer, *Western Journal of Communication*
2014	Manuscript reviewer for Lexington Books
2012	Manuscript reviewer for Oxford University Press
2010	Manuscript reviewer for Polity Press
2010	Guest Reviewer for special joint issue of *Communication Monographs* and *Journal of Applied Communication Research*
2009	Guest reviewer for *Western Journal of Communication*
2009-2014	Reviewer for National Communication Association Communication Centers Section
2007-2018	Reviewer for Southern States Communication Association Public Address Division
2006-2010	Reviewer for National Communication Association Feminist and Women Studies Division
2007, 2012	Reviewer for Southern States Communication Association Undergraduate Honors Conference
2002-2005	Editorial Assistant, *Communication Education*
2002-2003	Guest Reviewer, *Critical Studies in Media Communication*

Committee and division work

2017-present	Southern States Communication Association Finance Committee Committee chair 2018-2019
2015-2017	**Stephen E. Lucas Debut Publication Award committee member**, National Communication Association, nominated and selected by Committee on Committees; Chair 2017
2013-2016	Michael M. Osborn Teacher-Scholar Award committee member, Southern States Communication Association
2012-2014	**National Communication Association Committee on Committees** (association-wide elected position)
2012-2013	National Communication Association Nominating Committee member

2011-2014	**Chair (vice chair and vice-chair elect before that) of Southern States Communication Association Rhetoric and Public Address Division** (program planner for 2013)
2010-2011	Invited participant in the National Communication Association Developing Leaders Program
2010-2011	Legislative Assembly member for the National Communication Association, representing the Communication Center Section
2008-2011	Chair (vice chair and vice chair elect before that) for the National Communication Association Communication Centers Section/National Association of Communication Centers (serve on Legislative Assembly, served as program planner for NCA 2010)
2008-2011	Southern States Communication Association Resolutions Committee
1999-2001	Newsletter Editor, Feminist and Women Studies Division and Women's Caucus, National Communication Association

External review work

Tenure/promotion review: University of Oklahoma; University of Arkansas, Little Rock; Indiana University Kokomo

Communication center review: Shippensburg University, Randolph-Macon University

University Service

2016	University Sabbatical Review Committee
2015	Hiring committee member, Osher Lifelong Learning Institute Director
2014-2017	**University of Southern Mississippi Graduate Council,** By-laws subcommittee 2016-2017
2014-current	University of Southern Mississippi Honors College Advisory Group and Scholarship Review Committee
2013	Speaker for the provost's workshop on tenure and promotion
2013	Completed training for and serve as Southern Miss Allies Representative, supporting faculty, staff, and students who are gay, lesbian, bisexual, transgender, or questioning
2012-present	Southern Miss Center for Undergraduate Research Faculty Affiliate
2011	uTab committee, Honors College, acting as part of faculty focus group assessing the effectiveness of tablets in the classroom
2009	Capstone Faculty Workshop Leader: "Designing, Supporting, and Grading Oral Assignments"

2009-2010, 2013	University Commencement Reader
2007-present	Director of the University of Southern Mississippi Speaking Center
2007-2012	**Quality Enhancement Plan Advisory Board, Executive Committee**
2007-2010	Advising on major renovations and upgrading of technology of the University Speaking Center

College Service

2015-2016	**College Advisory Committee** (determining college awards and tenure and promotion decisions)
2013-2014	**College Council Chair**
2013-2014	College Council BA/BS Subcommittee (tasked with creating a college core and setting guidelines for BA and BS degrees across the college)
2012-2014	College Council
2011-2012	College Welfare Committee (tasked with determining a structure for faculty salary increases)

Departmental Service

2016	Chair of the search committee for rhetoric/speaking center director
2015-2016	Chair of the graduate, undergraduate, and policies committee
2015	Chair of the search committee for rhetoric/director of forensics position
2013-2014	Hiring committee for applied communication position
2013-2014	Undergraduate Curriculum Committee Chair
2011-2013	Advisor to the Southern Miss Debate Society (worked with other faculty and students to re-establish the team)
2011-2016	Graduate Curriculum Committee
2011-2016	Co-facilitator for the Southern Miss Communication Studies Writing Boot Camp/Graduate Program Orientation (2-day writing workshop for graduate students)
2007-2011 2013-2016	Undergraduate Curriculum Committee
2007-present	Faculty advisor to Communication Studies undergraduate majors

Graduate Committees

In progress

Brandon Knight, PhD, ABD; chair
Seth Fendley, PhD, ABD; co-chair with Paul Strait
Sean Fourney, PhD, ABD

Completed

Victoria Brown, PhD, 2018; chair
Niya Pickett-Miller, PhD, 2017; chair
Elizabeth Wellings Smith, PhD, 2016
Carl Brown, PhD, 2016
Shaunda French, PhD, 2015
Angela McGowan, PhD, 2015, chair
Nicole Magee, MA, 2015, co-chair with Ashley Mack
Vikki Spann, PhD, 2014
Michael King, PhD, 2013
Hannah Rachal, MA, 2012
Leslie Rodriguez, PhD, 2012
Patrick Richey, PhD, 2012
Dan Shabot, PhD, 2012

Honors Thesis Advisor

Jonathan Bridenbaker, 2018, Religious Responses to Mississippi's "Religious Freedom" Bill

Lakelyn Taylor, 2017, completing MA in Communication Studies at University of Central Florida

Josie Burks, 2014, completing PhD in Communication Studies at University of Alabama

Community Service (related to expertise in communication studies)

2018	Elected Board of Directors Member of Forward365MS, Committee chair for Education and Activism
2015-current	PR and judge coordinator and Hattiesburg High School Forensics Team Booster Club
2012-2013 2017-2018	Vice-president of the Hattiesburg High School Forensics Team Booster Club
2015	Southern Pines Animal Shelter Pet Photography Project team member
2012	Advisory Member on the Southern Pines Animal Shelter Board
2011-present	Coordinated service learning projects with area non-profits (Edwards Street Fellowship Center and Food Pantry, Extra Table, Southern Pines Animal Shelter, Habitat for Humanity, DREAM, Christian Services), Hattiesburg, MS
2007-2008 2015-2018	Parents' Advisory Council, Hattiesburg Public School District, Hattiesburg, MS

Professional Memberships

National Communication Association
Southern States Communication Association
Rhetoric Society of America
National Association of Communication Centers

Courses Taught

Undergraduate:

- Advanced Public Address
- Communicating through Technology
- Capstone Experience (service learning class designed to give students consulting experience)
- Honors Oral Communication (active learning section; focus on Civil Rights Movement)
- Public Advocacy
- Rhetorical Criticism
- Women and Public Discourse
- Rhetoric of Social Protest
- Public Speaking (both general required course and specialized course for majors/minors only)
- Argumentation and Debate
- Group Communication
- Introduction to Communication

Graduate:

- Professionalization Seminar
- Communication Pedagogy
- Rhetorical Criticism
- Independent Studies: Social Movements, Burke

Faculty:

- Improving Oral and Written Competencies (Interdisciplinary 6-10-week Faculty Seminar)

Public Presentations

Invited/Public Lectures

Featured Author Talk, Louisiana Book Festival, Baton Rouge, LA, October 2017, "Consuming Identity: The Role of Food in Redefining the South"

Keynote Address, Alabama Communication Association, Birmingham, AL, July 2017, "Authenticating Southernism: Creating a Sense of Place through Food"

Osher Lifelong Learning Institute, University of Southern Mississippi, Hattiesburg, MS, April 2016, "Grits, Greens, and Southern Grown Identity"

Communication Week Guest Speaker, Texas State University—San Marcos, February 2012, "Articulating Identity: People for the Ethical Treatment of Animals and the Animal/Human Divide" and "Visual Rhetoric: Critical Techniques for Understanding Images"

Osher Lifelong Learning Institute, University of Southern Mississippi, Hattiesburg, MS, October 2011, "Eudora Welty's Snapshots of the South"

University of Louisiana at Monroe Traveling Lecturers Series, November 2010, "Articulating Identity: People for the Ethical Treatment of Animals and the Animal/Human Divide" (general lecture on visual rhetoric, NPR interview, and public lecture on animal rights rhetoric)

Conference Presentations

Owen Sayre & Wendy Atkins-Sayre. City Slickers Selling the South: The NRA, Hunting, and Southern Heritage. Southern States Communication Association, Nashville, TN, 2018.

Wendy Atkins-Sayre and others. Dispatches from "the Field": Rhetoric *In Situ*. Roundtable discussion. National Communication Association, Dallas, TX, 2017.

Ashli Q. Stokes & Wendy Atkins-Sayre. PETA, Rhetorical Fracture, and the Power of Digital Activism. National Communication Association, Dallas, TX, 2017.

Wendy Atkins-Sayre. Blueberry Queens and Hot Tamales: The Epideictic Function of Regional Festivals. Southern States Communication Association, Greenville, SC, 2017.

Wendy Atkins-Sayre and others. Feminist Perspectives on Hillary Clinton and the 2016 Election: A Roundtable. National Communication Association Convention, Philadelphia, PA, 2016.

Wendy Atkins-Sayre & Victoria L. Brown. Reading Animal Atrocities: Public Memory and Recontextualization. Rhetoric Society of America, Atlanta, GA, 2016.

Ashli Q. Stokes & Wendy Atkins-Sayre. The Rhetorical Potential of Southern Baking: Expanding Notions of Material Rhetoric. Rhetoric Society of America, Atlanta, GA, 2016.

Ashli Stokes & Wendy Atkins-Sayre. Barbecue's Rhetorical Expression of Southern Identity. Southern States Communication Association, Austin, TX, 2016. **Top paper award from the Rhetoric and Public Address Division.**

Wendy Atkins-Sayre & Ashli Stokes. President's Spotlight: Crafting Personal and Community Identity through Southern Food Traditions. Southern States Communication Association, Austin, TX, 2016. **President's Spotlight Panel.**

Wendy Atkins-Sayre. LBJ's Voting Rights Act Speech at 50: Southern Colloquium on Rhetoric Roundtable. Southern States Communication Association, Austin, TX, 2016.

Wendy Atkins-Sayre & Ashli Stokes. "SeaWorld of Hurt": PETA, the Blackfish Effect, and the Power of Digital Activism. Southern States Communication Association, Austin, TX, 2016.

Wendy Atkins-Sayre. Book It! At the Center. Roundtable discussion about publishing in the communication center world. National Association of Communication Centers, Fredericksburg, VA, 2015.

Wendy Atkins-Sayre & Ashli Stokes. Authenticating Southernism: Authenticity and Regionalism through Southern Food. Southern States Communication Association, Tampa, FL, 2015.

Ashli Stokes & Wendy Atkins-Sayre. Food and Funerals. Southern States Communication Association, Tampa, FL, 2015.

Wendy Atkins-Sayre. Effectively Directing Graduate Work: A Roundtable Discussion (panel organizer and moderator). National Communication Association, Chicago, IL, 2014. **NCA First Vice President panel.**

Wendy Atkins-Sayre. Planning for the Next 100 years: Moving Communication Center Research Forward (panel organizer and chair). National Communication Association, Chicago, IL, 2014. **Top panel award from the Communication Center Section.**

Wendy Atkins-Sayre & Esther Yook. Training the Trainers: Using Communication Centers to Improve Peer Tutoring. National Association of Communication Centers, Phoenix, AZ, 2014. **Joyce Ferguson Paper Award.**

Wendy Atkins-Sayre & Kathleen Turner. Getting Centered to Reach Out: Communication Centers as Disciplinary Advocates. Southern States Communication Association, New Orleans, LA, 2014.

Wendy Atkins-Sayre. Effectively Directing Graduate Work: A Roundtable Discussion (panel organizer and moderator). Southern States Communication Association, New Orleans, LA, 2014.

Ashli Q. Stokes & Wendy Atkins-Sayre. Sipping on Southern Hospitality: Drink as a Rhetorical Invitation. Southern States Communication Association, New Orleans, LA, 2014.

Ashli Q. Stokes & Wendy Atkins-Sayre. Gather 'Round the Table: Recreating the South Through Southern Foodways. Southern States Communication Association, Louisville, KY, 2013.

Wendy Atkins-Sayre. Building a Knowledgeable and Supportive Community: Faculty Development and the Communication Center. Roundtable discussion (panel planner) at the National Communication Association Convention, Orlando, FL, 2012.

Ashli Q. Stokes & Wendy Atkins-Sayre. Cooking up Southern Identity: Rhetorical Tensions in Contemporary Southern Cookbooks. Pre-conference seminar presentation at the National Communication Association, Orlando, FL, 2012.

Ashli Q. Stokes & Wendy Atkins-Sayre. Consuming Rhetoric: Constituting Identity Through Southern Food. Presented at the National Communication Association Convention, Orlando, FL, 2012.

Wendy Atkins-Sayre. Speaking our minds: Communication centers and critical thinking. Presented at the National Association of Communication Centers conference. Richmond, KY, 2012. **Top paper award.**

Wendy Atkins-Sayre, Esther Yook, Kim Cuny, Amy Gaffney, Luke LeFebvre, & Susan Wilson. "Understanding the Communication Center: Findings on Center Practices and Outcomes" Roundtable discussion (panel organizer) at the National Association of Communication Centers Conference, Richmond, KY, 2012.

Wendy Atkins-Sayre & Ashli Q. Stokes. Crafting the Cornbread Nation: The Southern Foodways Alliance and Southern Identity. Presented at the Southern States Communication Association Convention, San Antonio, TX, 2012. **Top paper panel.**

Michael King, Kathleen Turner, Theodore Sheckels, Wendy Atkins-Sayre, and Luke LeFebvre. "Communication Center Research and Assessment: A Discussion of Methodological Pitfalls and Potential Paradigms." Roundtable discussion at the National Communication Association Convention, New Orleans, LA, 2011.

Michael King & Wendy Atkins-Sayre. "Targeting Teachers: The Importance of Faculty Support to Communication Center Success." Presented at the National Association of Communication Centers Conference, Richmond, VA, 2011.

Kathleen Turner, Wendy Atkins-Sayre, Theodore Sheckels, and Karen Sindelar. "What's a Rhetorician To Do? A Roundtable Discussion of Communication Center Research Possibilities for Those in the Discipline Who 'Don't Do Numbers'." National Association of Communication Centers Conference, Richmond, VA, 2011.

Wendy Atkins-Sayre. "Snapshots of the South: Eudora Welty's Photography and Contested Images of Race." Presented at the National Communication Association Convention, San Francisco, CA, 2010.

Michael King & Wendy Atkins-Sayre. "The Theory of Reasoned Action and Planned Behavior Applied: Faculty and Student Motivators for Communication Center Usage." Presented at the National Communication Association Convention, San Francisco, CA, 2010.

Theodore F. Sheckels, Wendy Atkins-Sayre, Jennifer Ellis, and Kathleen Turner. "Planning a Research Agenda for Communication Center Directors and Staff: A Roundtable Discussion." National Association of Communication Centers Conference, Greencastle, IN, 2010.

Wendy Atkins-Sayre & Deborah Smith. "Help From Afar: Experimenting With Online Tutoring." Presented at the National Association of Communication Centers Conference, Greencastle, IN, 2010.

Wendy Atkins-Sayre. "The New "New South": The "Mississippi, Believe It!" Campaign Redefines the South." Presented at the Southern States Communication Association Convention, Memphis, TN, 2010.

Wendy Atkins-Sayre. "Teaching Dissent Through Civic Engagement in the Speaking Center: Part of a Roundtable Discussion." Presented at the Southern States Communication Association, Memphis, TN, 2010.

Wendy Atkins-Sayre & Kathleen J. Turner. "Centered on Positive Communication: How Communication Centers Enhance Eloquence (Roundtable Discussion)." Presented at the Southern States Communication Association Convention, Memphis, TN, 2010.

Wendy Atkins-Sayre, Kyle B. Love, & Kathleen J. Turner. "Communication and the Disciplines: Serving the Communities by Understanding Their Standards (Roundtable Discussion)." Presented at the National Association of Communication Centers Conference, Philadelphia, PA, 2009.

Wendy Atkins-Sayre. "Drudgery, Dependence, and Difference: Second Wave Feminists Redefine the Maternal Role." Presented at the National Communication Association Convention, San Diego, CA, 2008.

Laura P. Rodgers, Wendy Atkins-Sayre, & Jalynn G. Roberts. "Reaching Different Disciplines: A Catch-22?" Presented at the National Communication Association Convention, San Diego, CA, 2008.

Wendy Atkins-Sayre. "Employing the Procedures and Criteria for Evaluation: Public and Private Perspectives (Roundtable Discussion)." Presented at the National Association of Communication Centers, Colorado Springs, CO, 2008.

Wendy Atkins-Sayre. "Attacking Food Radicals: Center for Consumer Freedom Reacts to Animal Rights Campaign." Presented at the Southern States Communication Association, Savannah, GA, 2008.

Wendy Atkins-Sayre. "What's Rhetoric? Reflecting on our Worldviews, Identities, and Practices: A Roundtable Discussion." Presented at the National Communication Association Convention, Chicago, IL, 2007.

Wendy Atkins-Sayre. "A Process-Centered Approach to Tutoring: Strengthening the Writing, Speaking, and Critical Thinking Connection." Presented at the National Communication Center Association Conference, Greensboro, NC, 2007.

Wendy Atkins-Sayre. "Crafting Conversations: Making Connections Between Writing and Speaking." Presented at the National Communication Association Convention, San Antonio, TX, 2006.

Wendy Atkins-Sayre, Vanessa Beasley, Bonnie Dow, Tasha Dubriwny, Roseann Mandziuk, & Ashli Stokes. "Public Discourses of Mothering and Work and their Effect on Women: A Roundtable Discussion." Presented at the National Communication Association Convention, San Antonio, TX, 2006.

Wendy Atkins-Sayre, Sonal Chaddha, Brittney Kohler, Erin Linsenmeyer, & Brittany Rast. "'The Story Behind the Photos': Making Connections Across Campus (Great Idea for the Center Discussion)." Presented at the National Association of Communication Centers Conference, Omaha, NE, 2006.

Wendy Atkins-Sayre. "The Story of the Farmworker: Cesar Chavez's Narrative." Presented at the National Communication Association Convention, Boston, MA, 2005.

Wendy Atkins-Sayre. "'Complete Press Sluts': PETA's Use of Image Events in Questioning Identity." Presented at the National Communication Association Convention, Boston, MA, 2005.

Wendy Atkins-Sayre. "Changing Images of Humans and Animals: PETA's Strategy of Paradox." Presented at the National Communication Association Convention, Chicago, IL, 2004.

Wendy Atkins-Sayre. "The Emergence of 'Ms.': Tracing the Stories of the Second Wave." Presented at the National Communication Association Convention, Chicago, IL, 2004.

Wendy Atkins-Sayre. "Changing Images of Human and Animals: PETA's Strategy of Paradox." Presented at the National Communication Association's Doctoral Honors Seminar, Albuquerque, NM, 2004.

Wendy Atkins-Sayre. "Identification and Myth: Overcoming Cultural Obstacles." Presented at the Southern States Communication Association Convention, Tampa, FL, 2004.

Wendy Atkins-Sayre. "Governor Mom: Jane Swift's Pregnancy as a Site of Contention." Presented at the National Communication Association Convention, Miami Beach, FL, 2003.

Wendy Atkins-Sayre. "'Don't Call Me Mrs.!': The Emergence of 'Ms.' as a Liberatory Title." Presented at the Southern States Communication Association Convention, Birmingham, AL, 2003. **Top paper panel.**

Wendy Atkins-Sayre. "Vicious Vivisectors and Reformed Researchers: Conflicting Images of Science in the Rhetoric of PETA." Presented at the National Communication Association Convention, New Orleans, LA, 2002.

Wendy Atkins-Sayre. "Silent Protest: The Rhetoric of the Women in Black." Presented at the National Communication Association Convention, Seattle, WA, 2000.

Wendy Atkins-Sayre, Sonya Hopkins, Sarah Mohundro, & Ward Sayre. "Rewards and Liabilities of Presentation Software as an Ancillary Tool." Presented at the National Communication Association Convention, New York, NY, 1998.

Wendy Atkins-Sayre. "Elizabeth Cady Stanton's 'The Solitude of Self': The Natural Rights Position Examined." Presented at the National Communication Association Convention, San Diego, CA, 1996.

Wendy Atkins-Sayre. "The Devil and Mr. Bush: Implications of the Demonization of Saddam Hussein in Presidential Gulf War Rhetoric." Presented at the Middle East Studies Association Convention, Washington, DC, 1995.

Wendy Atkins-Sayre. "Bootblacks, Butchers, and Barbers: The Use of Racism in the Rhetoric of Elizabeth Cady Stanton." Presented at the National Communication Association Convention, San Antonio, TX, 1995.

REQUEST FOR A REDUCTION OF TENURE TRACK PROBATION PERIOD

This is a request to recommend that Stephen Wen-Jin LIN in the Department of Accountancy (SOA)
First Middle Last

be granted a 6 year(s) reduction in his/her tenure probation period. A copy of his/her vita must be attached.

Date: 11/29/2018 **Justification** (If necessary, use additional pages and attach to this form.)

Dr. Stephen (Steve) Lin is a nationally leading academician in Accounting Education. He has been selected as the incoming Professor and Holder of the James T. Thompson Chair for Excellence in Accounting Education. He has more than fulfilled all of the tenure-track probationary period (teaching, research, and service) performance requirements, currently in place, at the University of Memphis. He is a prolific scholar publishing in the very top, nationally leading "A+ and A" rated, peer-refereed academic journals. His long-sustained record of teaching excellence and related student-success accomplishments at the undergraduate and graduate Masters & Ph.D. Program levels are exemplary. From all indications, he is most likely to continue performing at a high level of productivity at the University of Memphis. Consequently, we are requesting that Professor Lin be considered for tenure review at the June 2019 meeting of the University's Board of Trustees. If granted, his tenure will become effective on September 1, 2019.

APPROVAL SIGNATURES:

K. B. Walker — 12/16/18
Departmental Chairperson — Date

Dean — 12/16/18
Date

Provost — 12/17/18
Date

President — 12/18/18
Date

COMMENTS

THE UNIVERSITY OF MEMPHIS

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TO: Dr. M. David Rudd, University President
Dr. Thomas Nenon, University Provost

FROM: Albert Okunade, FCBE Interim Associate Dean for Administration & Faculty

RE: MEMO SUPPORTING '*REQUEST FOR A REDUCTION OF TENURE TRACK PROBATION PERIOD*' FOR DR. STEVE LIN

DATE: March 11, 2019

On behalf of the Dean's Office in the Fogelman College of Business & Economics, I am writing in full support of Dr. Kenton Walker's request that Dr. Steve Lin, the incoming (fall semester, 2019) Professor of Accountancy & The James T. Thompson Chair for Excellence in Accounting Education, be granted 6 (six) years reduction in his tenure-track probationary period. This present Memo is fully consistent with the justifications contained on the "*Request for a Reduction of Tenure Track Probationary Period*' form that was already approved and signed (in December of 2018) by Dr. Kenton Walker (*Director, School of Accountancy*), Dr. Marla Stafford (*Interim Dean of The FCBE*), Dr. Thomas Nenon (Provost), and Dr. Rudd (University President).

Justification for this request is as follows.

Dr. Steve Lin is a nationally leading academician in Accounting Education. He has been selected as the incoming Professor of Accountancy and The James T. Thompson Chair for Excellence in Accounting Education. He has more than fulfilled all of the current tenure-track probationary period (teaching, research, and service) performance requirements at The University of Memphis. Dr. Lin is a prolific scholar publishing in the very top, nationally leading "A+ and A" quality peer-refereed academic journals in the fields of Accountancy and related academic disciplines of Economics and Finance in business administration. Examples include but are not limited to the *Journal of Accounting and Economics*, *Contemporary Accounting Review*, *Journal of Accounting and Public Policy*, *The Accounting Review*, etc., His long-sustained record of teaching excellence and related student-success achievements at the undergraduate and graduate Masters & Ph.D. Program levels are also exemplary. From all indications, he is highly likely to continue performing at a high level of productivity at the University of Memphis.

Thank you for your attention and further consideration.

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THE UNIVERSITY OF MEMPHIS

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December 5, 2018

Dr. Stephen Wen-Jin Lin
15841 SW 14TH Street
Pembroke Pines, FL 33027

Dear Dr. Lin:

On behalf of the Fogelman College of Business & Economics, we are pleased to offer you a tenure-track position in the School of Accountancy. Upon receipt of your signed intent to accept the position and the completed documents referenced below, we will recommend that the President of the University of Memphis extend a formal contract of employment. The terms of the proposed agreement are:

1. Appointment as Professor and Holder of the James T. Thompson Chair for Excellence in Accounting Education in the School of Accountancy at an annual salary of $280,000. This is a twelve (12)-month contract with no additional compensation during the summer months. Your appointment is expected to begin August 19, 2019. The University pays the salary in 12 monthly installments with the first installment paid at the end of September 2019.

2. You will be eligible for expedited tenure consideration. Upon acceptance of this offer, your dossier for tenure will be submitted to the Board of Trustees for review and approval at the June 2019 meeting.

3. The James T. Thompson Chair for Excellence in Accounting Education is an appointed position. Continuance in the Chair position is dependent upon favorable annual performance reviews, a positive seven (7)-year review, and the reaffirming decision of the Provost.

4. Your teaching load will be one three (3)-hour course per semester or two courses for the academic year. These courses may be at the undergraduate or graduate level and will be arranged through the Director of the School. To the extent possible given the instructional needs of the Department, you will be given consideration to fulfill your teaching responsibilities in either the fall or spring semester to facilitate your research program and other professional activities. All faculty teaching loads are subject to change based upon productivity in research and scholarship and budgetary conditions within the University.

5. Your responsibilities in the position will include:

a. offering high-quality in-class instruction and mentoring,
b. providing continuing academic and research leadership in the School of Accountancy,
c. maintaining a high level of research productivity with a focus on top-quality publications in accounting journals,
d. serving as coordinator for the PhD program in the School of Accountancy for the first term of your appointment as Chair of Excellence,
e. serving as a research mentor to doctoral students, junior and other faculty members, and working collaboratively with faculty colleagues,
f. developing relationships with the external business and professional community to produce productive partnerships and encourage financial contributions,
g. seeking opportunities for external support of faculty research, and
h. promoting opportunities for School of Accountancy program graduates.

6. A graduate assistant with tuition waiver and stipend will be provided to you each academic year.

7. Funds will be made available from the James T. Thompson Chair of Excellence endowment to provide an annual operating expense budget of $50,000 to be used for your professional travel, other expenses related to your appointment, and expenses in connection with your management of the PhD program.

8. A one-time allowance of $15,000 will be provided for office upgrades, furnishings, and computer hardware.

9. The College will provide a moving expense allowance of $13,000. The allowance will be paid on your first payroll disbursement in September 2019. Please sign the enclosed moving expense allowance form and return it with the offer letter.

10. The University offers a comprehensive benefits program. To learn more about the benefits available to faculty, please visit the Human Resources website at: http://bf.memphis.edu/hr/benefits/faculty.php .

11. Individuals beginning employment with the University of Memphis must furnish proof of employment eligibility. The offer is contingent upon demonstration of your authorization to work in the United States for the University of Memphis during the entire term of your employment. Ongoing employment will require your continuing ability to demonstrate that you remain authorized to work in the U.S. for the University.

12. Also, employment offers and continued employment are contingent upon a satisfactory background report. Shortly after you return this offer letter you will receive an email from "Application Station" asking you to fill out a form. Please watch for the email as it triggers the final step in the hiring process.

13. To process your appointment, we will need to have an official transcript and at least two letters of recommendation. Please have the institution at which you earned your doctorate submit an official transcript directly to me at 426 Fogelman College Administration Building, The University of Memphis, Memphis, TN 38152-3120.

14. The foregoing contract terms are contingent upon approval of the Provost, the President of the University, and the Board of Trustees, if necessary. Please return your acceptance as soon as possible so that processing of your appointment can proceed.

We believe you can play an important role in helping the School of Accountancy and the Fogelman College achieve their goals, and we are excited about you joining our faculty. If you have any questions, please contact me at aokunade@memphis.edu or (901) 678-4563.

Sincerely,

Albert A. Okunade
Interim Associate Dean for Faculty and Administration

Accepted: _____ Date: January 9 2019
Stephen Lin

Curriculum Vitae

Stephen Lin

Part I: Personal Information

Contact Addresses:

Office:
School of Accounting
College of Business
Florida International University
11200 S.W. 8th Street
Mango Building 314
Miami, Florida 33199-0001
USA
Office Telephone: 305-348-3253
Email: lins@fiu.edu

Home:
15841 SW 14th Street
Pembroke Pines
Florida FL 33027

Cell phone: 786-210-3688

Current Academic Position:

Knight Ridder Eminent Scholar Chair in Accounting, School of Accounting, College of Business, Florida International University, Miami, Florida since August 2012.

Education:

1994-1999	Doctor of Philosophy in Accounting and Finance from the Victoria University of Manchester, United Kingdom Title of PhD dissertation: *Empirical Analysis of the Informativeness of UK Financial Reporting Standard No. 3: Reporting Financial Performance* PhD adviser: Professor Martin Walker
1990-1991	Master of Arts in Accounting and Finance from Lancaster University, United Kingdom

Title of M.A. dissertation:

Earnings Management through Foreign Currency Translation: Evidence from Polly Peck Plc

Dissertation adviser: Professor John O'Hanlon

1983-1987	Bachelor of Business Administration major in Accounting from Soochow University, Taiwan
1978-1983	Diploma in Public Finance and Tax from National Taipei University of Business, Taiwan

Professional qualification :

C.P.A. Taiwan (inactive)

Work experience:

Date	**Job Title**
August 2012- present	Knight Ridder Eminent Scholar Chair in Accounting
March-August 2015 (Sabbatical Leave)	Visiting Professor Hong Kong Polytechnic University Hong Kong
February-March 2015 (Sabbatical Leave)	Visiting Professor University of Oklahoma Norman, Oklahoma, U.S.
April-May 2012, 2013, and 2014	Visiting Professor National Cheng Kung University Tainan, Taiwan
August 2011- present	Full Professor School of Accounting Florida International University, Miami, FL.

August 2005 – July 2011	Associate Professor School of Accounting Florida International University, Miami, FL.
June 2008 – July 2008	Visiting Professor Gakushin University Tokyo, Japan
August 2004 – July 2005 (Sabbatical leave)	Visiting Professor Kenan-Flagler Business School University of North Carolina at Chapel Hill, U.S.
June-July 2004	Visiting Professor Department of Accountancy and Taxation University of Houston, U.S.
September 2000 – July 2005	Lecturer/Senior lecturer Accounting and Finance Division Manchester Business School Manchester University, U.K.
December 1998 – August 2000	ESRC Research Associate International Centre for Research in Accounting, Management School, Lancaster University, U.K.
November 1997 – October 1998	Leverhulme Research Fellow International Centre for Research in Accounting, Management School, Lancaster University, U.K.
February 1992 – December 1994	Audit supervisor, Ernst & Young, Taipei, Taiwan
June 1983 – August 1990	Tax investigator, Internal Revenue Office, Taipei, Taiwan

Part II: Teaching

My teaching interest is in Financial Accounting and Reporting.

Courses Taught:

PhD program:

PhD seminars in Accounting Theory and Empirical Research in Financial Accounting from 2007 to present

PhD seminars in Financial Accounting Theory in 2010 and 2012

Master of Accounting program:

Global Accounting, Financial Strategy and Auditing from 2005 to present (Master of Accounting program)

Accounting for Managers 2017 (Master of International Business Program)

International Accounting 2012-2014 (Master of International Business program)

Undergraduate:

Intermediate Accounting I from 2005 to 2010

Teaching Awards:

Academic Year	Awards	From
	Teaching award was discontinued from 2015	
2014	The most dedicated faculty member	Master of Accounting Program
2013	The most dedicated faculty member	Master of Accounting Program
2012	The most outstanding faculty member	Master of Accounting Program
2011	The most challenging professor	Beta Alpha Psi
2010	The most challenging professor	Beta Alpha Psi
2010	The most dedicated faculty member	Beta Alpha Psi
2010	The most dedicated faculty member	Master of Accounting Program
2009	The most dedicated faculty member	Beta Alpha Psi
2006	The most challenging professor	Master of Accounting Program

Part III: Research activities

Research Areas of Interest

My main area of research is financial accounting and reporting. The following are my current research interests:

- The use of Accounting information in capital market
- Convergence between U.S. GAAP and IFRS
- Earnings management through accounting classifications
- Analyst forecasts and recommendations

Publications:

Chan, J., S. Lin, Y. You, and W. Zhao, Analysts' Stock Ownership and Recommendations, forthcoming in *Journal of Accounting and Economics*.

Lin, S.J., Riccardi, W., Wang, J., (2018), Relative Effects of IFRS Adoption and IFRS Convergence on Financial Statement Comparability, forthcoming in *Contemporary Accounting Research*.

Lin, S., J. Payne, and L. You (2018), Do Multiple Foreign Listings Create Value for Firms, forthcoming in *Quarterly Review of Economics and Finance*.

H-Y, Lin, Fornaro, J., Lin, S. and Huang, S. (2017), Fair value accounting and restatement, *Advances in Accounting*, Vol. 38, pp.30-45.

Lin, S. J. Wang and Y-W, Yang (2016), Is other comprehensive income reported in the income statement more value relevant? *Journal of Accounting, Auditing, and Finance, OCT 4, 1-23.*

Hua-Wei Huang, Steve Lin, and K. Raghunandan (2016) The Volatility of Other Comprehensive Income and Audit Fees. *Accounting Horizons*: Vol. 30, No. 2, pp. 195-210.

Lin, S (2015), Discussion of 'The Effects of Financial Reporting on Bank Loan Contracting in Global Markets: Evidence from Mandatory IFRS Adoption', *Journal of International Accounting Research*, Vol. 14, No. 2 pp. 83-87.

Wu, S-H., Li, S-H, Lin, S. (2014), The effects of Harmonization and Convergence with IFRS on the Timeliness of Earnings Reported under Chinese GAAP, *Journal of Contemporary Accounting & Economics*, 10 (2014) 148–159

Elizabeth A., Greiner, A., Kohlbeck, M., Lin, S, and Skaife, H. (2013) Challenges and Opportunities in Cross-Country Accounting Research, *Accounting Horizons*, Vol. 27, Issue 1, pp. 141-154.

Lin, S., Riccardi, W., and Wang, C., (2012), Does Accounting Quality Change Following a Switch from U.S. GAAP to IFRS? *Journal of Accounting and Public Policy*, Vol. 31, pp. 641-659.

Lin, S. (2012), Discussion of 'the Determinants and Consequences of Heterogeneous IFRS Compliance Levels Following Mandatory IFRS Adoption: Evidence from a Developing Country', *Journal of International Accounting Research*, Vol. 11, Issue 1, pp. 113-118.

Wu, S., Lin, S., Li, S., and Koo, M. (2012), Impact of market segmentation on value-relevance of accounting information: evidence from China, *Asia-Pacific Journal of Accounting and Economics*, Vol. 19, Issue 2, pp. 82-96.

Hsu, A. and Lin, S. (2012), A test of the market's pricing of nontransitory dirty surplus flows, *Asia-Pacific Journal of Accounting and Economics*, Vol. 20, Issue 2. pp. 1-26.

Chan, A. and Lin, S. Strong, N. (2011), Earnings components and the asymmetric timeliness of earnings: the case of FRS 3 in the UK, *Accounting and Business Research*, Vol. 41, Issue 4, September, pp. 393-410.

Khurshed. A., Lin, S., and Wang, M. (2011), Institutional Investment in UK Firms: Do Corporate Internal Control Mechanisms Matter? *European Journal of Finance*, Volume 17, Issue 2, pp. 133-152.

Barua, B. Lin, S., and Sbaraglia, A. (2010), Earnings management using discontinued operation, *The Accounting Review*, Vol. 85, Issue 5, pp. 1485-1509.

Wang, C., Strong, N., Tung, S., and Lin, S. (2009), Share repurchases, Clustering Problem, and Free Cash Flow Hypothesis, *Financial Management*, Vol. 38, Issue 3, pp. 487-505.

Elaine, H., Lin, S., and Yang, Y. (2009), The European-U.S. GAAP Gap: Amount, type, homogeneity, and value relevance of IFRS to U.S. GAAP Form 20-F reconciliations, *Accounting Horizons,* Vol. 23 Issue 2, pp.121-150.

Chan, A, Lee, E., and Lin, S. (2009), The impact of accounting information quality on the mispricing of accruals: The case of FRS 3 in the UK, *Journal of Accounting and Public Policy*, Vol. 28, Issue 3, pp. 189-206.

Frost, C.A., Henry E., and Lin, S. (2009), Response to the U.S. Securities and Exchange's Proposed Rule: ROADMAP FOR THE POTENTIAL USE OF FINANCIAL STATEMENTS PREPARED IN ACCORDANCE WITH INTERNATIONAL FINANCIAL REPORTING STANDARDS BY U.S. ISSUERS", *Journal of International Accounting Research*, Issue 8, pp. 40-64.

Chan A. Lin, S., and N. Strong (2009), Earnings Conservatism and Cost of Equity Capital, *Managerial Finance*, Vol. 35, Issue 4, pp. 325-345.

Dedman, E., Lin, S., Prakash, A., Chang, C. (2008), Voluntary Disclosure and its Impact on Share Prices: Evidence from the UK Biotechnology Sector, *Journal of Accounting and Public Policy,* March, Vol. 27, Issue 3, pp. 195-216.

Lee, E. and Lin, S. (2008), Corporate sell-offs in the UK: use of proceeds, financial distress, and long-run impact on shareholders' wealth, *European Financial Management* Vol. 14, Issue 2, pp. 222-242.

Choi, Y., Lin, S., Walker, M., and Young, S. (2007), Disagreement over the Persistence of Earnings Components: Evidence on the Properties of Management-Specific Adjustments to GAAP Earnings, *Review of Accounting Studies,* Vol. 12, Issue 4, pp. 595-623

Henry, E., Lin, S., Yang, Y. (2007), Weak Signal: Evidence of IFRS and U.S. GAAP Convergence from Nokia's 20-F Reconciliations, *Issues in Accounting Education*, Vol. 22, Issue 4, pp. 709-720.

Lin, S. (2006), Testing the Information Set Perspective of UK Financial Reporting Standard No. 3: Reporting Financial Performance", *Journal of Business Finance and Accounting, September/October issue*, pp.1110-1141.

Lin, S., Pope, P., and Young, S. (2003), The Market Reaction to the Appointment of Non-executive Directors: UK Evidence, *Journal of Business Finance and Accounting, April*, pp. 351-382.

Dedman, E. and Lin, S. (2002), Market Reaction to CEO Departures: Further Evidence from the UK", *Journal of Corporate Finance,* Vol.8 pp.81-104.

Lin, S., (2002). The Association between Analysts Forecast Revisions and Earnings Components: the Evidence of FRS 3, *British Accounting Review*, 2002, V. 34, pp. 1-34. (The Best paper of the year)

Lin, S. and Walker, M. (2000), FRS 3 Earnings, Headline Earnings, and the Accounting-Based Accounting Valuation Model, *Accounting and Business Research, Vol. 30, No.4.* pp. 299-306.

Papers Currently under Review

20-F Readability and Earnings Response Coefficient (with Audrey Hsu and Wenli, Huang), *European Accounting Review* (2nd round)

Does Rules-Based and Principles-Based Standards Provide Different Accounting Quality? Evidence from the U.S. and U.K. (with Agnes Cheng and Amanda Li), *Journal of Business Finance and Accounting* (2st round).

Market Reaction to Auditor Changes in Hong Kong: Evidence from the Regulation Change (with Zhenfeng Liu), *Journal of Contemporary Accounting and Economics* (2nd round)
The Effect of the Convergence Projects between FASB and IASB on the Nature of U.S. GAAP and IFRS (with Assma Sawani and C.J. John Wang), *The Accounting Review* (1st round)

IFRS Adoption and Accrual Anomaly (with Jung Hoon Kim), *Journal of Business Finance and Accounting* (1st round).

Complete Working Papers

Scope of Discontinued Operations, Analysts' Attributes, and Earnings Persistence (with Eric Yeung and Chao Kang)

Market Reaction to Accelerated Form 20-F Filing Deadline (with Zhenfeng Liu and Yicheng Kang).

Market Reaction to OTCQX International Market Listing (with Martin Kim)

The Effect of PCAOB's Restriction over Auditor Provided Tax Services on Audit Quality, Earnings Quality and Tax Avoidance (With Ran Ling)

Restatements Caused by Principles-based and Rules-based Accounting Standards (with Solomon Huang)

Managerial Ownership and Debt covenants (with John Wang).

Ongoing Research Projects

Convergence between U.S. GAAP and IFRS

Reporting discontinued operations and earnings prospects

Other comprehensive income

Social Networking and Analysts Attributes

Best Paper Awards:

Best paper prize from the *British Academy of Management* 2006 conference in London:
Dedman, E., Cheng, C., Lin, S., and Prakash, A., Independence and Quality of Non-Executives: Do They Add to Firm Value in the UK?

Best paper of the year from the *British Accounting Review* 2002:

Lin, S., 2002, The Association between Analysts Forecast Revisions and Earnings Components: the Evidence of FRS 3", Volume 34, pp. 1-34.

Invited Presentations

Chang Jung Christian University, Tainan, Taiwan (May 2017)
Chang Jung Christian University, Tainan, Taiwan (May 2016)
National Cheng Kung University, Tainan, Taiwan (May 2015)
University of Oklahoma (March 2015)
Hong Kong Polytechnic University, Hong Kong (June 2014)
University of Texas at Arlington (November 2013)
National Cheng Kung University, Tainan, Taiwan (May 2013)
National Cheng Kung University, Tainan, Taiwan (May 2012)
National Cheng Chi University, Taipei, Taiwan (June 2012)
Hong Kong Polytechnic University, Hong Kong (May 2012)
University of Manchester, England (March 2012)
National Chen Kung University, Tainan, Taiwan (June 2011)
Louisiana State University, Barton Rouge, USA (July 2011)
Louisiana State University, Barton Rouge, USA (July 2010)
National Taiwan University, Taiwan (May 2010)
National Cheng Chi University, Taiwan (May 2010)
National Central University, Taiwan (May 2010)
National Chen Kung University, Tainan, Taiwan (May 2010)
University of Florida, Gainsville, USA (April 2010)
Iowa State University, USA (February 2010)
Syracuse University, USA (January 2010)
University of South Florida, USA (February 2010)
Gakushin University, Tokyo, Japan (June 2008)
Wasada University, Tokyo, Japan (June 2008)
University of Arkansas, USA (February 2005)
Oklahoma State University, USA (February 2005)
Lehigh University, USA (January 2005)
University of Houston, USA (June 2004)
Queen's University, Belfast, Northern Ireland (March 2003)
University of Wales at Swansea, Wales, UK (October 2002)

Main Conference Presentations (after 2010):

2018

2018 European Accounting Association annual meeting in Milan, Italy June 2018

The Effect of PCAOB's Restriction over Auditor Provided Tax Services on Audit Quality, Earnings Quality and Tax Avoidance

2018 Journal of International Accounting Research conference in Venice, Italy July 2018

Market Reaction to Accelerated Form 20-F Filing Deadline

2018 IAS mid-year conference in Long Beach, California January 2018

Market reaction to accelerated 20-F filing deadline

2017

Journal of Accounting, Auditing, and Finance Conference in Otago, New Zealand in July 2017

IFRS adoption and accrual anomaly

2016

AAA mid-year Financial Accounting Reporting conference, Newport Beach, CA, January 2016:

Analyst Stock Ownership and Stock Recommendations

Journal of Accounting, Auditing, and Finance Conference in Banff, Canada in July 2016:

Analyst Stock Ownership and Stock Recommendations

Transfer of coverage and Analyst forecast accuracy

2015

Journal of Accounting, Auditing, and Finance Conference in Chengdu, China in May 2015:

Is Other Comprehensive Income Reported in the Income Statement More Value Relevant?

American Accounting Association Mid-Year International Accounting Section Conference in Palm Springs, CA in January 2015:

Readability and Earnings Response Coefficient: The Role of Accounting Differences and IFRS-US GAAP Reconciliation Disclosure

2014

American Accounting Association Annual Conference in Atlanta, GA. August. 2014:

Is Other Comprehensive Income Reported in the Income Statement More Value Relevant?

2013

American Accounting Association Mid-Year International Accounting Conference in Savannah, Georgia, Feb. 2013:

Does IFRS adoption provide incremental effect on the increased comparability beyond convergence?

2012:

American Accounting Association Annual Conference in Washington DC, August 2012:

Does accounting quality change following a switch from US GAAP to IFRS?

2011:

American Accounting Association Annual Conference in Denver, August 2011:

Fair value measurement and restatement and *panel discussion: IFRS, Opportunities and Challenges.*

2011:

International Accounting Research at the Journal of International Accounting Research Conference in Xiamen China in July 2011:

Discussion of 'the Determinants and Consequences of Heterogeneous IFRS Compliance Levels Following Mandatory IFRS Adoption: Evidence from a Developing Country'.

2011:

AAA Ohio regional conference at Columbus, Ohio, May 2011: *Income statement format and earnings management*

2010:

South Florida Accounting Research Conference at Florida International University, Miami, Florida in March, 2010:

Market reaction to the potential adoption of IFRS in the US

FIU Research Seminars (after 2010)

School of Accounting research seminar, November 2015:

IFRS adoption and accrual anomaly

School of Accounting research seminar, November 2012:

Does IFRS adoption provide incremental effect on the increased comparability beyond convergence?

School of Accounting research seminar, September 2011:

Fair value measurement and restatement

School of Accounting research seminars, January 2010:

Market reaction to the potential adoption of IFRS in the US

Funded Research

Research grant of $30,000 (with Dr. Barua and Dr. Wang) from the PricewaterhouseCoopers Charitable Foundation, Inc in 2010 to integrate IFRS to undergraduate accounting courses

Research grant of $10,000 (with Dr. Arif Khurshed) from Yale University in 2006 to work on a comparison study on the determinants of institutional shareholding in the U.K. and U.S.

Research grant from the U.K. Economic Social Research Council (a total fund of £100,000, i.e. $180,000) on Financial Reporting Standard No. 3 "Reporting Financial Performance" during 2001-2004 (with Professor Martin Walker at Manchester Business School in the U.K.)

Research grant of £9,400 from University of Manchester in 2004 to work on the role of non-financial performance measures in determining top management incentive scheme in the U.K.

PhD Dissertation Chair

Florida International University/Manchester Business School

Current doctoral students

Mengyu Ma (second year student)

Paul Liu (second year student)

Past doctoral students

Ran Ling (2018), Assistant professor of *Accounting at Texas A & M University at Commerce*

Martin Kim (2018), Assistant professor of Accounting at *St. Joseph University* in Philadelphia

Assma Sawani (2016): Assistant professor of Accounting at *University of Colorado Colorado Springs*

Zhenfeng Liu (2016): Assistant professor of Accounting at *University of Michigan, Flint.*

Ruonan Liu (2013): Assistant professor of Accounting at *University of Pacific,* Stockton, California.

Ann Chan (2007), Associate Professor of Accounting, *National Chen Chi University*, Taiwan

Bruce Wang (2007), Associate Professor of Accounting, *National Taiwan University*, Taiwan

Mingzhu Wang (2005), Associate Professor of Accounting, *King's College*, U.K.

I was also the member the dissertation committee of Dr. Xiaoli Yuan (now a Full professor at Elizabeth City University in North Carolina) and Dr. Islam Elshahat (now an Assistant professor at Towson University) in 2007 and 2010, respectively.

Other Research Related Services

Editorial Board:

I am currently serving the editorial board of *Journal of International Accounting Research, Journal of Accounting, Auditing, and Taxation*, *China Accounting and Finance Review*, and *Asia-Pacific Management Review*.

I am the guest editor of *Review of Accounting and Finance* special issue in 2020.

Research Committee:

I served the AAA International Accounting Research Committee during the periods of 2008-2009 and 2013-2014.

Conference Committee:

President of IAS from August 2018

IAS President-elect August 2017 – August 2018

IAS Member of Strategic Planning Committee August 2015 – present

IAS Member of Executive Council August 2015 – present

IAS Secretary August 2015 – August 2017

IAS Mid-year Conference co-chair August 2014 – August 2015

IAS Membership Committee Chair August 2012 – August 2014

IAS Member of Research Committee 2008 – 2009 and 2013 – 2014

Track chair of International Finance for the Southern Finance Association 2009 annual conference.

Paper Reviews

I have been an ad hoc reviewer for the following journals:

The Accounting Review
Accounting, Organization, and Society
Journal of Business Finance and Accounting
Journal of Accounting, Auditing, and Finance

Journal of Accounting and Public Policy
European Accounting Review
Journal of International Accounting Research
Abacus
British Accounting Review
Accounting and Finance
Accounting and Business Research
Review of Accounting and Finance
Advances in International Accounting
Journal of Accounting, auditing, and Taxation
Research in Accounting Regulation

Honours

Knight Ridder Eminent Scholar Chair in Accounting from July 2011.

Morrison, Brown, Argiz and Farra Professorship in Accounting from August 2010 to July 2011.

Knight Ridder Center Research Professor from August 2009 to July 2010.

External Tenure and Promotion Reviewer

Professor Austin Reitenga University of Alabama (Full)
Professor Harrison Liu University of Texas at San Antonio (Associate)
Professor Linna Shi University of Cincinnati (Associate)
Professor Kenneth Riechelt Louisiana State University (Full)
Professor Sami Trabelsi, Brock University, Canada (Full)
Professor Feng Tian Hong Kong Polytechnic University (Associate)
Professor Qiang Wu Rensselaer Polytechnic University (Associate)
Professor Yuan Huang Hong Kong Polytechnic University (Associate)
Professor Jennifer Yin University of Texas at San Antonio (Full)
Professor Chan Du University of Massachusetts Dartmouth (Associate)
Professor Xu Wang St Louis University (Associate)
Professor Daniel Gyung Paik University of Richmond (Associate)
Professor Georgia Siougle Athens University of Economics and Business (Associate)
Professor Maria Caban Garcia University of South Florida at St Peterborough (Associate)
Professor Jia Wu University Massachusetts Dartmouth (Associate)
Professor Mingzhu Wang King's College, London (Associate)

External Dissertation Examiner

Debbie CHUA BUN PHO University of New South Wales, Australia.

Professional Memberships

European Accounting Association
American Accounting Association
British Accounting Association (inactive)
Financial Management Association (inactive)

Part IV: University Services

University level

Member of the University Library Committee 2009-2011

Member of the Global Learning Curriculum Oversight Board (AHGLCO) 2009-2011

College level

Chair of the College Faculty Tenure and Promotion Committee 2014-2015

Member of the Faculty Tenure and Promotion Committee 2010-2013

Search and Screen Committee member for the College of Business's Dean position 2012

Member of the College's Strategic Plan Committee 2011-2012

School level

Chair of the Search and Screen Committee 2007-present

Chair of the Faculty Development Committee 2007-present

SOA Tenure and Promotion Committee member 2008-present

PhD Accounting program coordinator 2010-2013

Search and Screen Committee member for the SOA director position 2010

Research seminar organizer 2008-2012

Founder of the South Florida Accounting Research Conference from 2008-2013. The conference eventually became annual Florida State wide accounting research conference based in University of Miami, University of Florida, and Florida State University.

Honours and awards:

Outstanding service award from the College of Business at FIU in 2009. This is the first college service award ever rewarded to a faculty member.

Curriculum Vitae

Stephen Lin

Part I: Personal Information

Contact Addresses:

Office:
School of Accounting
College of Business
Florida International University
11200 S.W. 8th Street
Mango Building 314
Miami, Florida 33199-0001
USA
Office Telephone: 305-348-3253
Email: lins@fiu.edu

Home:
15841 SW 14th Street
Pembroke Pines
Florida FL 33027

Cell phone: 786-210-3688

Current Academic Position:

Knight Ridder Eminent Scholar Chair in Accounting, School of Accounting, College of Business, Florida International University, Miami, Florida since August 2012.

Education:

1994-1999	Doctor of Philosophy in Accounting and Finance from the Victoria University of Manchester, United Kingdom Title of PhD dissertation: *Empirical Analysis of the Informativeness of UK Financial Reporting Standard No. 3: Reporting Financial Performance* PhD adviser: Professor Martin Walker
1990-1991	Master of Arts in Accounting and Finance from Lancaster University, United Kingdom

Title of M.A. dissertation:

Earnings Management through Foreign Currency Translation: Evidence from Polly Peck Plc

Dissertation adviser: Professor John O'Hanlon

1983-1987 Bachelor of Business Administration major in Accounting from Soochow University, Taiwan

1978-1983 Diploma in Public Finance and Tax from National Taipei University of Business, Taiwan

Professional qualification :

C.P.A. Taiwan (inactive)

Work experience:

Date	Job Title
August 2012- present	Knight Ridder Eminent Scholar Chair in Accounting
March-August 2015 (Sabbatical Leave)	Visiting Professor Hong Kong Polytechnic University Hong Kong
February-March 2015 (Sabbatical Leave)	Visiting Professor University of Oklahoma Norman, Oklahoma, U.S.
April-May 2012, 2013, and 2014	Visiting Professor National Cheng Kung University Tainan, Taiwan
August 2011- present	Full Professor School of Accounting Florida International University, Miami, FL.

August 2005 – July 2011	Associate Professor School of Accounting Florida International University, Miami, FL.
June 2008 – July 2008	Visiting Professor Gakushin University Tokyo, Japan
August 2004 – July 2005 (Sabbatical leave)	Visiting Professor Kenan-Flagler Business School University of North Carolina at Chapel Hill, U.S.
June-July 2004	Visiting Professor Department of Accountancy and Taxation University of Houston, U.S.
September 2000 – July 2005	Lecturer/Senior lecturer Accounting and Finance Division Manchester Business School Manchester University, U.K.
December 1998 – August 2000	ESRC Research Associate International Centre for Research in Accounting, Management School, Lancaster University, U.K.
November 1997 – October 1998	Leverhulme Research Fellow International Centre for Research in Accounting, Management School, Lancaster University, U.K.
February 1992 – December 1994	Audit supervisor, Ernst & Young, Taipei, Taiwan
June 1983 – August 1990	Tax investigator, Internal Revenue Office, Taipei, Taiwan

Part II: Teaching

My teaching interest is in Financial Accounting and Reporting.

Courses Taught:

PhD program:

PhD seminars in Accounting Theory and Empirical Research in Financial Accounting from 2007 to present

PhD seminars in Financial Accounting Theory in 2010 and 2012

Master of Accounting program:

Global Accounting, Financial Strategy and Auditing from 2005 to present (Master of Accounting program)

Accounting for Managers 2017 (Master of International Business Program)

International Accounting 2012-2014 (Master of International Business program)

Undergraduate:

Intermediate Accounting I from 2005 to 2010

Teaching Awards:

Academic Year	Awards	From
	Teaching award was discontinued from 2015	
2014	The most dedicated faculty member	Master of Accounting Program
2013	The most dedicated faculty member	Master of Accounting Program
2012	The most outstanding faculty member	Master of Accounting Program
2011	The most challenging professor	Beta Alpha Psi
2010	The most challenging professor	Beta Alpha Psi
2010	The most dedicated faculty member	Beta Alpha Psi
2010	The most dedicated faculty member	Master of Accounting Program
2009	The most dedicated faculty member	Beta Alpha Psi
2006	The most challenging professor	Master of Accounting Program

Part III: Research activities

Research Areas of Interest

My main area of research is financial accounting and reporting. The following are my current research interests:

- The use of Accounting information in capital market
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- Earnings management through accounting classifications
- Analyst forecasts and recommendations

Publications:

Chan, J., S. Lin, Y. You, and W. Zhao, Analysts' Stock Ownership and Recommendations, forthcoming in *Journal of Accounting and Economics*.

Lin, S.J., Riccardi, W., Wang, J., (2018), Relative Effects of IFRS Adoption and IFRS Convergence on Financial Statement Comparability, forthcoming in *Contemporary Accounting Research.*

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Lin, S. J. Wang and Y-W, Yang (2016), Is other comprehensive income reported in the income statement more value relevant? *Journal of Accounting, Auditing, and Finance, OCT 4, 1-23.*

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Wu, S-H., Li, S-H, Lin, S. (2014), The effects of Harmonization and Convergence with IFRS on the Timeliness of Earnings Reported under Chinese GAAP, *Journal of Contemporary Accounting & Economics*, 10 (2014) 148–159

Elizabeth A., Greiner, A., Kohlbeck, M., Lin, S, and Skaife, H. (2013) Challenges and Opportunities in Cross-Country Accounting Research, *Accounting Horizons*, Vol. 27, Issue 1, pp. 141-154.

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Lin, S. (2012), Discussion of 'the Determinants and Consequences of Heterogeneous IFRS Compliance Levels Following Mandatory IFRS Adoption: Evidence from a Developing Country', *Journal of International Accounting Research*, Vol. 11, Issue 1, pp. 113-118.

Wu, S., Lin, S., Li, S., and Koo, M. (2012), Impact of market segmentation on value-relevance of accounting information: evidence from China, *Asia-Pacific Journal of Accounting and Economics*, Vol. 19, Issue 2, pp. 82-96.

Hsu, A. and Lin, S. (2012), A test of the market's pricing of nontransitory dirty surplus flows, *Asia-Pacific Journal of Accounting and Economics*, Vol. 20, Issue 2. pp. 1-26.

Chan, A. and Lin, S. Strong, N. (2011), Earnings components and the asymmetric timeliness of earnings: the case of FRS 3 in the UK, *Accounting and Business Research*, Vol. 41, Issue 4, September, pp. 393-410.

Khurshed. A., Lin, S., and Wang, M. (2011), Institutional Investment in UK Firms: Do Corporate Internal Control Mechanisms Matter? *European Journal of Finance*, Volume 17, Issue 2, pp. 133-152.

Barua, B. Lin, S., and Sbaraglia, A. (2010), Earnings management using discontinued operation, *The Accounting Review*, Vol. 85, Issue 5, pp. 1485-1509.

Wang, C., Strong, N., Tung, S., and Lin, S. (2009), Share repurchases, Clustering Problem, and Free Cash Flow Hypothesis, *Financial Management*, Vol. 38, Issue 3, pp. 487-505.

Elaine, H., Lin, S., and Yang, Y. (2009), The European-U.S. GAAP Gap: Amount, type, homogeneity, and value relevance of IFRS to U.S. GAAP Form 20-F reconciliations, *Accounting Horizons,* Vol. 23 Issue 2, pp.121-150.

Chan, A, Lee, E., and Lin, S. (2009), The impact of accounting information quality on the mispricing of accruals: The case of FRS 3 in the UK, *Journal of Accounting and Public Policy*, Vol. 28, Issue 3, pp. 189-206.

Frost, C.A., Henry E., and Lin, S. (2009), Response to the U.S. Securities and Exchange's Proposed Rule: ROADMAP FOR THE POTENTIAL USE OF FINANCIAL STATEMENTS PREPARED IN ACCORDANCE WITH INTERNATIONAL FINANCIAL REPORTING STANDARDS BY U.S. ISSUERS", *Journal of International Accounting Research*, Issue 8, pp. 40-64.

Chan A. Lin, S., and N. Strong (2009), Earnings Conservatism and Cost of Equity Capital, *Managerial Finance*, Vol. 35, Issue 4, pp. 325-345.

Dedman, E., Lin, S., Prakash, A., Chang, C. (2008), Voluntary Disclosure and its Impact on Share Prices: Evidence from the UK Biotechnology Sector, *Journal of Accounting and Public Policy,* March, Vol. 27, Issue 3, pp. 195-216.

Lee, E. and Lin, S. (2008), Corporate sell-offs in the UK: use of proceeds, financial distress, and long-run impact on shareholders' wealth, *European Financial Management* Vol. 14, Issue 2, pp. 222-242.

Choi, Y., Lin, S., Walker, M., and Young, S. (2007), Disagreement over the Persistence of Earnings Components: Evidence on the Properties of Management-Specific Adjustments to GAAP Earnings, *Review of Accounting Studies,* Vol. 12, Issue 4, pp. 595-623

Henry, E., Lin, S., Yang, Y. (2007), Weak Signal: Evidence of IFRS and U.S. GAAP Convergence from Nokia's 20-F Reconciliations, *Issues in Accounting Education*, Vol. 22, Issue 4, pp. 709-720.

Lin, S. (2006), Testing the Information Set Perspective of UK Financial Reporting Standard No. 3: Reporting Financial Performance", *Journal of Business Finance and Accounting, September/October issue*, pp.1110-1141.

Lin, S., Pope, P., and Young, S. (2003), The Market Reaction to the Appointment of Non-executive Directors: UK Evidence, *Journal of Business Finance and Accounting, April,* pp. 351-382.

Dedman, E. and Lin, S. (2002), Market Reaction to CEO Departures: Further Evidence from the UK", *Journal of Corporate Finance,* Vol.8 pp.81-104.

Lin, S., (2002). The Association between Analysts Forecast Revisions and Earnings Components: the Evidence of FRS 3, *British Accounting Review*, 2002, V. 34, pp. 1-34. (The Best paper of the year)

Lin, S. and Walker, M. (2000), FRS 3 Earnings, Headline Earnings, and the Accounting-Based Accounting Valuation Model, *Accounting and Business Research, Vol. 30, No.4.* pp. 299-306.

Papers Currently under Review

20-F Readability and Earnings Response Coefficient (with Audrey Hsu and Wenli, Huang), *European Accounting Review* (2nd round)

Does Rules-Based and Principles-Based Standards Provide Different Accounting Quality? Evidence from the U.S. and U.K. (with Agnes Cheng and Amanda Li), *Journal of Business Finance and Accounting* (2st round).

Market Reaction to Auditor Changes in Hong Kong: Evidence from the Regulation Change (with Zhenfeng Liu), *Journal of Contemporary Accounting and Economics* (2nd round)
The Effect of the Convergence Projects between FASB and IASB on the Nature of U.S. GAAP and IFRS (with Assma Sawani and C.J. John Wang), *The Accounting Review* (1st round)

IFRS Adoption and Accrual Anomaly (with Jung Hoon Kim), *Journal of Business Finance and Accounting* (1st round).

Complete Working Papers

Scope of Discontinued Operations, Analysts' Attributes, and Earnings Persistence (with Eric Yeung and Chao Kang)

Market Reaction to Accelerated Form 20-F Filing Deadline (with Zhenfeng Liu and Yicheng Kang).

Market Reaction to OTCQX International Market Listing (with Martin Kim)

The Effect of PCAOB's Restriction over Auditor Provided Tax Services on Audit Quality, Earnings Quality and Tax Avoidance (With Ran Ling)

Restatements Caused by Principles-based and Rules-based Accounting Standards (with Solomon Huang)

Managerial Ownership and Debt covenants (with John Wang).

Ongoing Research Projects

Convergence between U.S. GAAP and IFRS

Reporting discontinued operations and earnings prospects

Other comprehensive income

Social Networking and Analysts Attributes

Best Paper Awards:

Best paper prize from the *British Academy of Management* 2006 conference in London:
Dedman, E., Cheng, C., Lin, S., and Prakash, A., Independence and Quality of Non-Executives: Do They Add to Firm Value in the UK?

Best paper of the year from the *British Accounting Review* 2002:

Lin, S., 2002, The Association between Analysts Forecast Revisions and Earnings Components: the Evidence of FRS 3", Volume 34, pp. 1-34.

Invited Presentations

Chang Jung Christian University, Tainan, Taiwan (May 2017)
Chang Jung Christian University, Tainan, Taiwan (May 2016)
National Cheng Kung University, Tainan, Taiwan (May 2015)
University of Oklahoma (March 2015)
Hong Kong Polytechnic University, Hong Kong (June 2014)
University of Texas at Arlington (November 2013)
National Cheng Kung University, Tainan, Taiwan (May 2013)
National Cheng Kung University, Tainan, Taiwan (May 2012)
National Cheng Chi University, Taipei, Taiwan (June 2012)
Hong Kong Polytechnic University, Hong Kong (May 2012)
University of Manchester, England (March 2012)
National Chen Kung University, Tainan, Taiwan (June 2011)
Louisiana State University, Barton Rouge, USA (July 2011)
Louisiana State University, Barton Rouge, USA (July 2010)
National Taiwan University, Taiwan (May 2010)
National Cheng Chi University, Taiwan (May 2010)
National Central University, Taiwan (May 2010)
National Chen Kung University, Tainan, Taiwan (May 2010)
University of Florida, Gainsville, USA (April 2010)
Iowa State University, USA (February 2010)
Syracuse University, USA (January 2010)
University of South Florida, USA (February 2010)
Gakushin University, Tokyo, Japan (June 2008)
Wasada University, Tokyo, Japan (June 2008)
University of Arkansas, USA (February 2005)
Oklahoma State University, USA (February 2005)
Lehigh University, USA (January 2005)
University of Houston, USA (June 2004)
Queen's University, Belfast, Northern Ireland (March 2003)
University of Wales at Swansea, Wales, UK (October 2002)

Main Conference Presentations (after 2010):

2018

2018 European Accounting Association annual meeting in Milan, Italy June 2018

The Effect of PCAOB's Restriction over Auditor Provided Tax Services on Audit Quality, Earnings Quality and Tax Avoidance

2018 Journal of International Accounting Research conference in Venice, Italy July 2018

Market Reaction to Accelerated Form 20-F Filing Deadline

2018 IAS mid-year conference in Long Beach, California January 2018

Market reaction to accelerated 20-F filing deadline

2017

Journal of Accounting, Auditing, and Finance Conference in Otago, New Zealand in July 2017

IFRS adoption and accrual anomaly

2016

AAA mid-year Financial Accounting Reporting conference, Newport Beach, CA, January 2016:

Analyst Stock Ownership and Stock Recommendations

Journal of Accounting, Auditing, and Finance Conference in Banff, Canada in July 2016:

Analyst Stock Ownership and Stock Recommendations

Transfer of coverage and Analyst forecast accuracy

2015

Journal of Accounting, Auditing, and Finance Conference in Chengdu, China in May 2015:

Is Other Comprehensive Income Reported in the Income Statement More Value Relevant?

American Accounting Association Mid-Year International Accounting Section Conference in Palm Springs, CA in January 2015:

Readability and Earnings Response Coefficient: The Role of Accounting Differences and IFRS-US GAAP Reconciliation Disclosure

2014

American Accounting Association Annual Conference in Atlanta, GA. August. 2014:

Is Other Comprehensive Income Reported in the Income Statement More Value Relevant?

2013

American Accounting Association Mid-Year International Accounting Conference in Savannah, Georgia, Feb. 2013:

Does IFRS adoption provide incremental effect on the increased comparability beyond convergence?

2012:

American Accounting Association Annual Conference in Washington DC, August 2012:

Does accounting quality change following a switch from US GAAP to IFRS?

2011:

American Accounting Association Annual Conference in Denver, August 2011:

Fair value measurement and restatement and *panel discussion: IFRS, Opportunities and Challenges.*

2011:

International Accounting Research at the Journal of International Accounting Research Conference in Xiamen China in July 2011:

Discussion of 'the Determinants and Consequences of Heterogeneous IFRS Compliance Levels Following Mandatory IFRS Adoption: Evidence from a Developing Country'.

2011:

AAA Ohio regional conference at Columbus, Ohio, May 2011: *Income statement format and earnings management*

2010:

South Florida Accounting Research Conference at Florida International University, Miami, Florida in March, 2010:

Market reaction to the potential adoption of IFRS in the US

FIU Research Seminars (after 2010)

School of Accounting research seminar, November 2015:

IFRS adoption and accrual anomaly

School of Accounting research seminar, November 2012:

Does IFRS adoption provide incremental effect on the increased comparability beyond convergence?

School of Accounting research seminar, September 2011:

Fair value measurement and restatement

School of Accounting research seminars, January 2010:

Market reaction to the potential adoption of IFRS in the US

Funded Research

Research grant of $30,000 (with Dr. Barua and Dr. Wang) from the PricewaterhouseCoopers Charitable Foundation, Inc in 2010 to integrate IFRS to undergraduate accounting courses

Research grant of $10,000 (with Dr. Arif Khurshed) from Yale University in 2006 to work on a comparison study on the determinants of institutional shareholding in the U.K. and U.S.

Research grant from the U.K. Economic Social Research Council (a total fund of £100,000, i.e. $180,000) on Financial Reporting Standard No. 3 "Reporting Financial Performance" during 2001-2004 (with Professor Martin Walker at Manchester Business School in the U.K.)

Research grant of £9,400 from University of Manchester in 2004 to work on the role of non-financial performance measures in determining top management incentive scheme in the U.K.

PhD Dissertation Chair

Florida International University/Manchester Business School

Current doctoral students

Mengyu Ma (second year student)

Paul Liu (second year student)

Past doctoral students

Ran Ling (2018), Assistant professor of *Accounting at Texas A & M University at Commerce*

Martin Kim (2018), Assistant professor of Accounting at *St. Joseph University* in Philadelphia

Assma Sawani (2016): Assistant professor of Accounting at *University of Colorado Colorado Springs*

Zhenfeng Liu (2016): Assistant professor of Accounting at *University of Michigan, Flint.*

Ruonan Liu (2013): Assistant professor of Accounting at *University of Pacific,* Stockton, California.

Ann Chan (2007), Associate Professor of Accounting, *National Chen Chi University*, Taiwan

Bruce Wang (2007), Associate Professor of Accounting, *National Taiwan University*, Taiwan

Mingzhu Wang (2005), Associate Professor of Accounting, *King's College*, U.K.

I was also the member the dissertation committee of Dr. Xiaoli Yuan (now a Full professor at Elizabeth City University in North Carolina) and Dr. Islam Elshahat (now an Assistant professor at Towson University) in 2007 and 2010, respectively.

Other Research Related Services

Editorial Board:

I am currently serving the editorial board of *Journal of International Accounting Research, Journal of Accounting, Auditing, and Taxation*, *China Accounting and Finance Review*, and *Asia-Pacific Management Review*.

I am the guest editor of *Review of Accounting and Finance* special issue in 2020.

Research Committee:

I served the AAA International Accounting Research Committee during the periods of 2008-2009 and 2013-2014.

Conference Committee:

President of IAS from August 2018

IAS President-elect August 2017 – August 2018

IAS Member of Strategic Planning Committee August 2015 – present

IAS Member of Executive Council August 2015 – present

IAS Secretary August 2015 – August 2017

IAS Mid-year Conference co-chair August 2014 – August 2015

IAS Membership Committee Chair August 2012 – August 2014

IAS Member of Research Committee 2008 – 2009 and 2013 – 2014

Track chair of International Finance for the Southern Finance Association 2009 annual conference.

Paper Reviews

I have been an ad hoc reviewer for the following journals:

The Accounting Review
Accounting, Organization, and Society
Journal of Business Finance and Accounting
Journal of Accounting, Auditing, and Finance

Journal of Accounting and Public Policy
European Accounting Review
Journal of International Accounting Research
Abacus
British Accounting Review
Accounting and Finance
Accounting and Business Research
Review of Accounting and Finance
Advances in International Accounting
Journal of Accounting, auditing, and Taxation
Research in Accounting Regulation

Honours

Knight Ridder Eminent Scholar Chair in Accounting from July 2011.

Morrison, Brown, Argiz and Farra Professorship in Accounting from August 2010 to July 2011.

Knight Ridder Center Research Professor from August 2009 to July 2010.

External Tenure and Promotion Reviewer

Professor Austin Reitenga University of Alabama (Full)
Professor Harrison Liu University of Texas at San Antonio (Associate)
Professor Linna Shi University of Cincinnati (Associate)
Professor Kenneth Riechelt Louisiana State University (Full)
Professor Sami Trabelsi, Brock University, Canada (Full)
Professor Feng Tian Hong Kong Polytechnic University (Associate)
Professor Qiang Wu Rensselaer Polytechnic University (Associate)
Professor Yuan Huang Hong Kong Polytechnic University (Associate)
Professor Jennifer Yin University of Texas at San Antonio (Full)
Professor Chan Du University of Massachusetts Dartmouth (Associate)
Professor Xu Wang St Louis University (Associate)
Professor Daniel Gyung Paik University of Richmond (Associate)
Professor Georgia Siougle Athens University of Economics and Business (Associate)
Professor Maria Caban Garcia University of South Florida at St Peterborough (Associate)
Professor Jia Wu University Massachusetts Dartmouth (Associate)
Professor Mingzhu Wang King's College, London (Associate)

External Dissertation Examiner

Debbie CHUA BUN PHO University of New South Wales, Australia.

Professional Memberships

European Accounting Association
American Accounting Association
British Accounting Association (inactive)
Financial Management Association (inactive)

Part IV: University Services

University level

Member of the University Library Committee 2009-2011

Member of the Global Learning Curriculum Oversight Board (AHGLCO) 2009-2011

College level

Chair of the College Faculty Tenure and Promotion Committee 2014-2015

Member of the Faculty Tenure and Promotion Committee 2010-2013

Search and Screen Committee member for the College of Business's Dean position 2012

Member of the College's Strategic Plan Committee 2011-2012

School level

Chair of the Search and Screen Committee 2007-present

Chair of the Faculty Development Committee 2007-present

SOA Tenure and Promotion Committee member 2008-present

PhD Accounting program coordinator 2010-2013

Search and Screen Committee member for the SOA director position 2010

Research seminar organizer 2008-2012

Founder of the South Florida Accounting Research Conference from 2008-2013. The conference eventually became annual Florida State wide accounting research conference based in University of Miami, University of Florida, and Florida State University.

Honours and awards:

Outstanding service award from the College of Business at FIU in 2009. This is the first college service award ever rewarded to a faculty member.

REQUEST FOR A REDUCTION OF TENURE TRACK PROBATION PERIOD

This is a request to recommend that Damon M. Fleming in the Department of FCBE, Accountancy

First Middle Last

be granted a 6 year(s) reduction in his/her tenure probation period. A copy of his/her vita must be attached.

Date: 5/29/19 **Justification** (If necessary, use additional pages and attach to this form.)

Dr. Fleming previously served as Director of the Charles W. Lamden School of Accountancy at San Diego State University where he secured over $2 million of endowment funding to support student scholarships, endowed faculty fellowships, and general operation. He developed transparent financial management and budget processes for the School, developed a plan to recruit new tenure-track faculty and led the successful AACSB Continuous Improvement Review in AY 2017-18. He also developed an advanced certificate program in taxation for working accounting professionals as well as a joint master of cybersecurity management degree program. Dr. Fleming has received several influential and outstanding faculty member awards, secured over $50,000 in funded research grants, led several university and school committees and is a member of the American Accounting Association, the California Society of CPA's and the Institute of Management Accountants.

Dr. Fleming earned a Ph.D. in Accountancy from Virginia Polytechnic Institute and State University, a Master of Science in Accountancy and a Bachelor of Science in Business Administration both from San Diego State University. He has published over 25 papers in accounting journals including: Journal of Accountancy and Strategic Finance, Accounting Horizons, Behavioral Research in Accounting, Journal of the American Taxation Association, The International Journal of Accounting, Issues in Accounting Education and Journal of Business Ethics.

Prior to entering academia, Dr. Fleming worked in venture capital where he focused on financial due diligence and valuation. He is a Chartered Financial Analyst and a certified Management Accountant.

Dr. Fleming's teaching areas include financial reporting, financial statement analysis, accounting research, management accounting and accounting judgement and decision making.

Dr. Fleming's research uses theories from psychology, behavioral decision research and economics to investigate accounting issues in the areas of auditing ethics, financial reporting and taxation as well as cross-cultural issues in these areas. In addition, Dr. Fleming has presented at numerous refereed and non-refereed meetings and conferences.

APPROVAL SIGNATURES:

COMMENTS

Departmental Chairperson — Date

Dean — Date

Provost — Date 5/29/19

President — Date 5/29/19

The University of Memphis is an Equal Opportunity/Affirmative Action University

TDPD FORM Revised 5/2006

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January 8, 2019

Dr. Damon M. Fleming, Ph.D., CMA, CFA
4494 Alamo Drive
San Diego, CA 92115

Dear Dr. Fleming:

I am very pleased to offer you the position of Dean of the Fogelman College of Business and Economics along with a tenured position as Full Professor in the School of Accountancy at the University of Memphis effective July 1, 2019. Granting of tenure is subject to consideration and approval by our Board of Trustees. Your compensation package includes a salary of $309,000 for this twelve-month position and a comprehensive benefits package. To learn more about the employee benefit program, please visit http://www.memphis.edu/benefits.

The University further agrees to provide a moving allowance of $35,000, net of taxes. Please note that the moving allowance payments are subject to federal taxes, which the University will calculate and pay based on applicable IRS rates. To facilitate the payment of both disbursements, please complete the enclosed Direct Deposit and Moving Allowance forms and return them with this offer letter. Shortly after you return this offer letter, you will receive an email from "Application Station" asking you to complete a form to authorize a background check.

To finalize your appointment, an official transcript is required. Please have the institution that awarded your highest degree submit a transcript directly to the University of Memphis, Office of Faculty Administrative Services, 374 Administration Building, Memphis, TN 38152-3120. Please also return your acceptance and other enclosed forms as soon as possible to complete the appointment process.

If for any reason it is determined that you will no longer serve in the Dean's position and should you move to a nine-month faculty position, your then-current annual salary will be reduced by 30%, so that it will be 70% of your salary at the time. You would then be eligible for the research compensation program which allows a faulty member to enhance his/her academic year base salary upon successful solicitation of external grants and contracts.

We are excited about your acceptance of this position. I am confident that the considerable talents, vision, and experience that you bring will extend the mission, facilitate increased

scholarly productivity amongst the faculty, and enhance the success of the Fogelman College of Business and Economics.

Sincerely,

M. David Rudd
President

I accept the terms of the offer contained in this letter.

Dr. Damon M. Fleming

8 JAN 2019
Date

CURRICULUM VITAE

Damon M. Fleming, Ph.D., CMA, CFA

Charles W. Lamden School of Accountancy
San Diego State University

EDUCATION

Ph.D.	Accountancy, Virginia Polytechnic Institute and State University, 2006 (December)
M.S.	Accountancy, San Diego State University, 2003
B.S.	Business Administration (Major: Accounting), San Diego State University, 2001
Dip.	Point Loma High School, San Diego, CA, 1994

ACADEMIC POSITIONS

Director, Charles W. Lamden School of Accountancy, August 2016 to Present
Professor, San Diego State University, August 2016 to Present
Associate Professor, San Diego State University, August 2010 to August 2016
Assistant Professor, San Diego State University, January 2007 to July 2010

ACADEMIC LEADERSHIP EXPERIENCE

Director, Charles W. Lamden School of Accountancy, San Diego State University, August 2016 to Present

Public AACSB Accredited School of Accountancy with 1,000 undergraduate accounting majors and 100 graduate (masters-level) students.

- *Strategic planning*: Developed strategic priorities plan in concert with the faculty, advisory board, staff, and college administration.
- *Private fundraising*: Secured over $2 million of endowment funding to support student scholarships, endowed faculty fellowships, and general operations.
- *Financial management*: Developed transparent financial management and budget process for the School, and encouraged transparency in the budget process for the college.
- *Recruiting and retaining faculty*: Managed 16 tenure-track and 20 lecturers. Developed a plan to recruit new tenure-track faculty and successfully hired one new tax faculty in AY 2016-17. Redesigned faculty summer research support program to reward high quality research.
- *AACSB accreditation*: member of the school's AACSB reaccreditation team in AY 2012-13. Led the successful AACSB Continuous Improvement Review in AY 2017-2018.
- *Graduate education*: Managed admission and oversight for the Master of Science in Accountancy program. Developed an advanced certificate program in taxation for working accounting professionals as well as a joint master of in cybersecurity management degree program with the Department of Management Information Systems.
- *Community engagement*: Redesigned accountancy advisory board to promote action-oriented engagement with faculty, students, and alumni. Member of the SDSU Mission Valley site planning team for a proposed $3 billion expansion of the SDSU campus through public-private partnerships.

PROFESSIONAL CERTIFICATION AND EMPLOYMENT

Chartered Financial Analyst® (CFA Charter No. 154940)

Certified Management Accountant (CMA Certificate No. 24574)

AFI Capital. 1999 – 2003. Duties included due diligence, financial modeling, valuation, mergers and acquisitions, and registration of securities for initial public offerings.

SELECTED HONORS

Most Influential Faculty Member, selected by 2018 Outstanding MSA Student (Mohammed Shirazi)

Most Influential Faculty Member, selected by 2016 Outstanding MSA Student (Victoria Gustafson)

Most Influential Faculty Member, selected by 2014 Outstanding MSA Student (John Hayes)

Outstanding Faculty Contribution Award (Teaching), College of Business Administration, 2013

Institute of Management Accountants Lybrand Certificate of Merit, 2012, "Accounting for Income Taxes: A Misfit in the Convergence of Standards," *Strategic Finance* (2011), with S. Gill and S. Gillan.

Journal of Contemporary Accounting, Best Paper Award, "Exploring Taiwanese Auditors' Ethical Challenges," with Chow, C. W., G. C-J. Huang, and A. Wu, 2010

Outstanding Faculty Contribution Award (Teaching, Research and Service), College of Business Administration, 2009

Ernst & Young Faculty Fellow, Charles W. Lamden School of Accountancy, 2009-2016

American Accounting Association New Faculty Consortium Fellow, 2007

American Accounting Association/Deloitte/J. Michael Cook Doctoral Consortium Fellow, 2005

California Society of CPAs Doctoral Scholarship, 2005

California State University Chancellor's Doctoral Incentive Program, 2005

RESEARCH

Citations of research: 124 SCOPUS citations and a SCOPUS H-index of 4.

Publications in Referred Journals

Anderson, J. C., and D. M. Fleming, 2016. Analytical procedures decision aids for generating explanations: Current state of theoretical development and implications of their use. *Journal of Accounting and Taxation* 8 (5): 51-58.

Fleming, D. M. and S. Gill. 2014. Impact of Lookup Tables on Use Tax Reporting. *Journal of the American Taxation Association* 36 (2): 117-136.

Fleming, D. M., K. Hee, and R. N. Romanus. 2014. Auditor Industry Specialization and Audit Fees Surrounding Section 404 Implementation. *Review of Accounting and Finance* 13 (4): 353-370.

Anderson, J. C., and D. M. Fleming. 2014. Client Ethical Behavior Contrast Effects on Auditors' Evaluations of Real Earnings Management. *Research on Professional Responsibility and Ethics in Accounting* 18: 69-87.

Anderson, J. C., S. M. Crocker, D. M. Fleming. 2012. Effect of Principal-based Standards on Auditor-Client Negotiation. *Journal of Business and Behavioral Sciences* 24 (2): 79-85.

Fleming, D. M., S. L. Gill, and S. Gillan. 2011. Accounting for Income Taxes: A Misfit in the Convergence of Standards. *Strategic Finance* 92 (11): 49-53.

Su, W., Q. Zhou, D. M. Fleming, and B. Wang. 2011. Audit ethical measurement and a comparison between china and US accounting students in audit-specific ethical reasoning. *Journal of Audit & Economics* 26 (6): 37-44. [Published in Chinese]

Chow, C. W., D. M. Fleming, G. C-J. Huang, and A. Wu. 2010. Exploring Taiwanese Auditors' Ethical Challenges. *Journal of Contemporary Accounting* 11 (Special Issue): 301-332.

Fleming, D. M., C. W. Chow, and W. Su. 2010. An Exploratory Study of Chinese Accounting Students' and Auditors' Audit-Specific Ethical Reasoning. *Journal of Business Ethics* 94: 353-369.

Allport, C. D., D. M. Fleming, and W. Kerler. 2010. The Impact of Task and Evidence Frames on Profitability Expectations. *Journal of Business and Behavioral Sciences* 22 (1): 25-40.

Gill, S. L., D. M. Fleming, and G. E. Whittenburg. 2010. Medical Marijuana Tax Issues: Federal-State Law Conflict. *Practical Tax Strategies* 85 (2): 82-86.

Fleming, D. M., S. L. Gill, and J. C. Anderson. 2010. Update on Financial Reporting Developments. *Oil, Gas, & Energy Quarterly* 59 (2): 267-272.

Gill, S. L., and D. M. Fleming. 2010. Update on the Status of International Guidance for Accounting for Income Taxes. *Tax Notes International* 59 (8): 595-598. [re-print]

Gill, S. L., and D. M. Fleming. 2010. Update on the Status of International Guidance for Accounting for Income Taxes. *Tax Notes* 128 (5): 539-544.

Fleming, D. M. 2009. Management Forecast Characteristics: Effects on Venture Capital Investment Screening Judgments. *Behavioral Research in Accounting* 21 (2): 13-36.

Fleming, D. M., C. W. Chow, and G-M. Chen. 2009. Strategy, Performance Measurement Systems, and Performance: A Study of Chinese Firms. *The International Journal of Accounting* 44 (3): 256-278.

Gill, S., D. M. Fleming, and G. E. Whittenburg. 2009. Uncertain Tax Positions: Reconciling the Existing Evidence. *Journal of Legal Tax Research* 7: 121-132.

Chow, C. W., G. Huang, and D. M. Fleming. 2009. An Exploratory Study of Taiwanese Auditors' Ethical Reasoning. *Accounting Research Monthly* 280 (March): 92-99. [Published in Chinese]

Fleming, D. M., R. N. Romanus, and S. M. Lightner. 2009. The Effect of Professional Context on Accounting Students' Moral Reasoning. *Issues in Accounting Education* 24 (1): 13-30.

Romanus, R. N., J. J. Maher, and D. M. Fleming. 2008. Auditor Industry Specialization and Accounting Restatements. *Accounting Horizons* 22 (4): 389-413.

DeBoskey, D., D. M. Fleming, and G. E. Whittenburg. 2008. Dynamism of the Largest Firms Over the Last 100 Years on In-House Research and Development—A Historical Synthesis. *Journal of Business and Accounting* 1 (1): 138-148.

Fleming, D. M., S. Gill, and G. E. Whittenburg. 2008. Notice 2008-13 Clarifies Sec. 6694 Preparer Penalties. *TAXES – The Tax Magazine* 86 (5): 29-32.

DeBoskey, D., D. M. Fleming, and G. E. Whittenburg. 2008. Inter-Firm Alliances vs. Mergers and Acquisitions: The Impact of Learning on Innovation. *Journal of Business and Behavioral Sciences* 17 (2): 100-108.

Bunn, R., G. E. Whittenburg, and D. M. Fleming. 2007. Planning For the Kiddie Tax After the 2006 and 2007 Tax Act Revisions. *Journal of Business and Behavioral Sciences* 16 (2): 71-79.

Fleming, D. M., and G. E. Whittenburg. 2007. Accounting for Uncertainty. *Journal of Accountancy* 204 (4): 68-72.

Fleming, D. M., G. E. Whittenburg, and R. Bunn. 2007. New Law Raises Tax Return Preparer Standard and Penalties. *Practical Tax Strategies* 79 (3): 132-138.

Fleming, D. M., M. Doran, G. E. Whittenburg, and W. A. Raabe. 2007. The Problem Tax Client: Opinions from the Field. *Journal of Tax Practice and Procedure* 9 (April/May): 33-40.

Fleming, D. M. 2006. Academia Asks the Profession: Is There a Doctor in the House? *California CPA* 75 (October): 27-28.

Work in process

"Accounting student selection of professional practice areas," with S. Gill and B. Kawada.

- Preparing for submission to Journal of *Accounting and the Public Interest*

"A study of work arrangements in accounting with promotion decisions," with J. Anderson and H. Smith.

- Target journal for manuscript submission is *Behavioral Research in Accounting*

Refereed Presentations and Published Proceedings

"Consumer Use Tax, Polices, and Compliance" with S. Gill, J. Baumunk, and H. Smith. *2018 American Taxation Association's Journal of Legal Tax Research Conference,* February 2018.

"Impact of Lookup Tables on Use Tax Reporting" with S. Gill. *2012 American Accounting Association Annual Meeting*, August 2012.

"The Impact of Task and Evidence Frames on Profitability Expectations," with C. D. Allport and W. Kerler. *2009 American Accounting Association Annual Meeting*, August 2009.

"An Exploratory Study of Chinese Accounting Students' and Auditors' Audit-Specific Ethical Reasoning," with C. W. Chow and W. Su. *2009 American Accounting Association Annual Meeting*, August 2009.

"An Exploratory Study of Chinese Accounting Students' and Auditors' Audit-Specific Ethical Reasoning," with C. W. Chow and W. Su. *2009 China Accounting and Finance Review International Symposium*, Nanjing, PRC, June 2009.

"Strategy, Performance Measurement and Reward Systems, and Performance: A Study of Chinese Firms," with C. W. Chow and G. Chen. *2008 American Accounting Association Annual Meeting*, August 2008.

"An Examination of Chinese Accounting Students' and Auditors' Audit-specific Ethical Reasoning," with C. W. Chow and W. Su. *13th Annual Ethics Research Symposium*, August 2008.

"Auditor Industry Specialization and Audit Fees Surrounding Section 404 Implementation," with R. N. Romanus. *2008 AAA Auditing Section Midyear Conference*, January 2008.

"Strategy, Performance Measurement and Reward Systems, and Performance: A Study of Chinese Firms," with C. W. Chow and G. Chen. *2008 AAA Management Accounting Section Conference*, January 2008.

"The Effects of Management Disclosure Decisions on Venture Capitalist Investment Screening Judgment." *2007 American Accounting Association Annual Meeting*, August 2007.

"The Effect of Professional Context on Accounting Students' Moral Reasoning: A Research Note," with R. N. Romanus and S. M. Lightner. *12th Annual Ethics Research Symposium*, August 2007.

"Auditor Industry Specialization and Accounting Restatements," with R. N. Romanus and J. J. Maher. *2007 AAA Auditing Section Midyear Meeting*, January 2007.

"Risk Attitude: Development and Validation of a Context-Specific Measure for Tax Compliance," with R. N. Romanus. *2006 AAA American Tax Association Midyear Meeting*, February 2006.

Funded Research Grants

College of Business Administration, San Diego State University, $10,000, April 2013

Project title: "Effects of Safe Harbor Provisions on use Tax Reporting" with S. Gill (SDSU, Accounting).

College of Business Administration, San Diego State University, $10,000, June 2011

Project title: "MBA Benchmarking" with H. Honea (SDSU, Marketing).

College of Business Administration, San Diego State University, $24,562, June 2010

Project title: "An Investigation of the Implementation of Tax Tables for Collection of State Use Tax" with S. Gill (SDSU, Accounting).

California Society of CPAs (San Diego Chapter), $10,000, March 2010

Project title: "The Effects of Contextual Ethics Training on Auditors' Evaluations of Clients' Earnings Management Behavior" with J. Anderson (SDSU, Accounting).

Non-Referred Publications and Invited Presentations

"U.S. GAAP Frontiers." Sempra Energy Finance and Accounting Conference, May 2010.

"Using Median Sale Price is Misleading Measurement," with C. W. Chow and J. Williamson. *San Diego Business Journal* (9 November 2009, p. 39).

"Future U.S. GAAP Initiatives." Sempra Energy Finance and Accounting Conference, May 2008.

"Trends in Financial Reporting." Sempra Utilities Controllers Conference, November 2007.

"Future U.S. GAAP Initiatives." Sempra Energy Finance and Accounting Conference, May 2007.

"FASB Update." 36th Annual Virginia Accounting and Auditing Conference, November 2006.

Academic Journal Reviewer

Editorial Board, *Review of Accounting and Finance*, 2012 – Present
Editorial Board, *Issues in Accounting Education*, 2010 – 2015
Ad hoc Reviewer, *Accounting and Business Research*, 2015
Ad hoc Reviewer, *Advances in Accounting Behavioral Research*, 2014-15
Ad hoc Reviewer, *Behavioral Research in Accounting*, 2010, 2012, 2014
Ad hoc Reviewer, *Journal of Business Ethics*, 2012 – 2015
Ad hoc Reviewer, *Strategic Finance*, 2012
Ad hoc Reviewer, *Journal of Contemporary Accounting*, 2011
Ad hoc Reviewer, *European Accounting Review*, 2010
Ad hoc Reviewer, *Journal of International Accounting Research*, 2009
Ad hoc Reviewer, *Review of Accounting and Finance*, 2007 – 2012
Ad hoc Reviewer, *Advances in Accounting*, 2008

Research Conference Reviewer and Discussant

2015 AAA Auditing Section Midyear Conference, Reviewer
2014 AAA Annual Meeting, Reviewer
2013 AAA Accounting, Behavior, and Organizations Section Conference, Reviewer
2013 AAA Annual Meeting, Reviewer and Discussant
2012 AAA Annual Meeting, Reviewer
2011 AAA Annual Meeting, Reviewer
2010 AAA Accounting, Behavior, and Organizations Section Conference, Reviewer and Discussant
2010 AAA Annual Meeting, Reviewer
2010 AAA Auditing Section Midyear Conference, Reviewer
14th Annual (2009) AAA Ethics Symposium, Reviewer
2009 AAA Auditing Section Midyear Conference, Reviewer
2008 AAA Auditing Section Midyear Conference, Reviewer and Discussant
13th Annual (2008) AAA Ethics Symposium, Reviewer and Discussant

UNIVERSITY TEACHING

Courses

ACCTG 790 Case Studies in Accounting Practice (MSA program capstone course)
ACCTG 729 Accounting Research and Communication (graduate)
ACCTG 663 Financial Statement Analysis (graduate)
ACCTG 660 Seminar in Accounting Theory (graduate)
ACCTG 651 Seminar in Corporate Tax (graduate)
ACCTG 650 Tax Research and Planning (graduate)
ACCTG 620 Financial Measurement and Reporting (graduate)
ACCTG 409 Field Study in Taxation (undergraduate)
ACCTG 322 Integrative Accounting Topics II (undergraduate)
BA 604 Executive Management Accounting (Executive MBA Program)

Theses and Special Study Projects

University Honors Program Thesis (Chair), Gagandeep Singh, Fall 2008 – Spring 2009
Directed Readings in Accounting Theory, Special Study Supervisor, Vita Martin, Fall 2007
MBA Consulting Field Experience (BA 795), Co-Advisor (five semester projects)

ACADEMIC SERVICE

University

SDSU Mission Valley Site Team, University President Appointment, Spring 2017 – Present

University Senate, San Diego State University, Elected College of Business Senator, Fall 2012 – 2018.

Graduate Council, San Diego State University, Elected College of Business Senator, Fall 2012 – 2018.

Graduate Curriculum Committee, San Diego State University, Elected Graduate Council Member, Fall 2013 – 2018; Chair, Fall 2013 and AY 2015-16.

Dean Search Committee, Fowler College of Business, San Diego State University, AY 2016-17.

College of Business Administration

Graduate Curriculum Committee, College of Business Administration, San Diego State University, Elected School Representative, Member, Fall 2009 – 2016; Chair, Fall 2011 – 2015.

SDSU-CGU Joint MIS Doctoral Program Task Force, College of Business Administration, San Diego State University, Fall 2013.

Charles W. Lamden School of Accountancy

Graduate Committee, Charles W. Lamden School of Accountancy, San Diego State University, Chair, Spring 2010 – Present.

MSA Program Graduate Adviser, Charles W. Lamden School of Accountancy, San Diego State University, Fall 2010 – Present.

Peer Review Committee, Charles W. Lamden School of Accountancy, San Diego State University, Member, Fall 2010 – Spring 2013.

Professional Leave Committee, Charles W. Lamden School of Accountancy, San Diego State University, Member, Fall 2011 – Spring 2016.

AACSB Accreditation Coordinator, Charles W. Lamden School of Accountancy, San Diego State University, Fall 2013 – Spring 2014.

Scholarship Committee, Charles W. Lamden School of Accountancy, San Diego State University, Member, Spring 2007 – 2012, Co-Chair 2007-08, Fall 2015 – Spring 2016.

Curriculum Assessment Committee, Charles W. Lamden School of Accountancy, San Diego State University, Member, Fall 2008 – Spring 2012.

Director Evaluation Committee, Charles W. Lamden School of Accountancy, San Diego State University, Chair, Spring 2010.

Graduate Teaching Associate Coordinator, Charles W. Lamden School of Accountancy, San Diego State University, Spring 2007 – Spring 2009.

PROFESSIONAL SERVICE

American Accounting Association

Nominations Committee, Accounting, Behavior and Organizations (ABO) Section of the American Accounting Association, AY 2015-17.

2009 American Accounting Association Annual Meeting Annual Meeting, Research Conference Liaison, Accounting, Behavior and Organizations (ABO) Section.

2008 American Accounting Association Annual Meeting Annual Meeting, Assistant Research Conference Liaison, Accounting, Behavior and Organizations (ABO) Section.

CFA Institute

Education Advisory Committee (EAC) Working Body, 2015 – Present.

Institute of Management Accountants

Campus Advocate, 2014 – Present.

PROFESSIONAL ENGAGEMENT

American Accounting Association, 2003 – Present

- Accounting, Behavior and Organizations Section
- Auditing Section
- Management Accounting Section
- American Taxation Association Section

California Society of CPAs, 2005 – Present
CFA Institute, 2014 – Present
Financial Executives International, 2013 – 2014
Institute of Management Accountants, 2001 – Present

PERSONAL INTERESTS

Kenpo Karate Black Belt (training since 1997)
Brazilian Jiu Jitsu Purple Belt (training since 2013)
Waterman for over 25 years (i.e., surfing, free-diving, scuba diving, ocean swimming, fishing)
Spending as much time as possible with my family (wife and two children)

7. Academic Programs

Presented by Tom Nenon

New Academic Programs

Academic, Research and Student Success Committee

Dr. Thomas Nenon
Provost and Executive Vice President for Academic Affairs
June 5, 2019
University Center



Board of Trustees
JUNE 2019

PhD in Applied Physics

- PhD in Applied Physics will be first in Tennessee; study of physics from fundamentals to practical purpose
- Interdisciplinary nature, with Physics and Materials Science, Biology, Chemistry, Mechanical, Electrical, and Biomedical Engineering
- Prepare students for careers in industry, government, national labs, and academic positions in universities and colleges
- Hands-on skills in technology that fulfil workforce needs in high-tech companies
- Enhances external research funding and research capacity (R1)
- Will further enhance research collaborations with high-tech industries in the Mid-South and supply the workforce in STEM-related employment opportunities

PhD in Health Sciences

- STEM PhD program in School of Health Studies that will train candidates to independently and collaboratively provide focused conceptual and scientific analyses within a variety of sub-disciplines undergirding Health, Nutrition, Physical Performance and Rehabilitation Sciences
- Two concentrations: Applied Physiology and Nutrition and Performance Biomechanics
- Increases research productivity within the School by enhancing the organizational structure, intensifying the focus of the academic culture to embrace these pursuits, and facilitating the acquisition of external funding to help support these activities.
- Supports local, regional, national and international medical/clinical research communities through innovative research findings and by supplying graduates who can function in biomedical research settings

BS in Public Health

- First undergraduate program for School of Public Health; Bachelor of Science in Public Health with emphasis on urban health
- Program was developed in response to the growing recognition that communities across Tennessee, and the country as a whole, require a well-trained public health workforce in order to protect the public's health
- Will equip undergraduate students for entry-level positions in government and private health agencies, community organizations, industry, and secondary education
- Will prepare students who plan to enter a master's program in public health or a degree in medicine, nursing, pharmacy, or other biomedical science

MS in Data Science

- Demand for Data Science master's degrees has exploded in the last couple of years; master's degrees awarded in this area has quadrupled from around 5,000 to around 20,000 between 2016 and 2018
- Program will train students for positions in government and private agencies, industry, and research institutes
- Will prepare students who plan to enter a doctoral program in Data Science and related fields
- Program model offers foundational training as well as discipline-specific training in Data Science thus enabling students to become Data Scientists in specific areas such as Biology, Economics, Public Health, Government Policy, Logistics and Transportation, Inventory Management, Information Technology, inter alia, and a variety of other data driven fields

University College Name Change

- New name: College of Professional & Liberal Studies (CPLS)
- More clearly defines types of programming offered
- Will help student better identify and recognize the College as a destination for programs unique to undergraduate and graduate curriculum with two distinct academic paths – Professional and Liberal Studies

7.1. PhD in Applied Physics

For Approval

Presentation to the Board of Trustees

The University of Memphis Board of Trustees
For Approval

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: Approval of New Academic Programs: PhD in Applied Physics

Presented by: Dr. Thomas Nenon, Provost and Executive Vice President for Academic Affairs

Background:
Among the powers given to the Board of Trustees by the FOCUS Act is the power "to prescribe curricula and requirements for diplomas and degrees." The University of Memphis has the authority to create new courses, terminate existing courses, determine course content or design, and carry out less extensive curriculum revisions. The Tennessee Higher Education Commission (THEC) must review and approve new academic programs, off-campus extensions of existing academic programs, new academic units (divisions, colleges, and schools), and new instructional locations as specified in THEC Policy No. A1:0: New Academic Programs - Approval Process and A1:1: New Academic Programs.

The proposed PhD degree in Applied Physics is the first such program in the state of Tennessee. The other PhD programs currently offered in Tennessee are PhD in Physics from the University of Tennessee Knoxville and PhD in Physics and Astrophysics from Vanderbilt University. The terminal degree in Applied Physics will prepare students for careers in industry, government, national laboratories as well as for academic positions in universities, colleges, and high schools. Applied physics is the study of physics from fundamentals to a practical purpose, as opposed to other programs in physics motived solely for an improved fundamental understanding. It bridges physics with various areas of engineering but differs from engineering because applied physicists use physics or conduct physics research to develop new technologies or solve engineering problems, while engineers solve well-defined problems. The proposed program is carefully designed to provide a high-level of research experience and academic training to students. The program relies on the nationally recognized faculty of the DPMS at UofM.

One of the major thrusts of UofM is to enhance research and achieve the status of Research One (R1) Doctoral University, according to the Carnegie Classification of Institutions of Higher Education. A strong research-grade university must have a strong PhD program in physics. Therefore, another crucially important motivation of offering a PhD program in Applied Physics is to improve the national and international visibility of the research activities in physics at UofM. This will align UofM programs with other peer institutions, attract better graduate students to our program, stimulate cross-disciplinary research at UofM, further enhance research collaborations with high-tech industries in the Mid-South, and supply the workforce in STEM-related employment opportunities. Due to the interdisciplinary nature of Applied Physics, which involves research related to applications of materials, biomaterials, engineering physics, and so on, this program will enhance research collaboration among several

departments such as Physics and Materials Science, Biology, Chemistry, Mechanical, Electrical, and Biomedical Engineering. This program will produce PhD graduates with hands-on skills in technology that fulfill the workforce needs in high-tech companies. The proposed PhD program echoes the university's Vision and Mission statements, viz. "The University of Memphis is an internationally recognized, urban public research university preparing students for success in a diverse, innovative, global environment." and "We provide the highest quality education by focusing on research and service benefiting local and global communities."

This proposal has been considered and approved by the respective College or School faculty and Deans. Subsequently, the proposal was considered and approved by the University Council for Graduate Studies, which are the highest governing body that has representation across all colleges and schools. The proposal was also considered and approved by the Provost and President of the University.

Committee Recommendation:
The Academics, Research, & Student Success Committee recommends approval of the PhD in Applied Physics as contained in the meeting materials and delegates authority to the Provost to make any changes necessary to facilitate program approval by THEC.



College of Arts and Sciences
Department of Physics and Materials Science

Letter of Notification &
New Academic Program Proposal (NAPP)

Doctor of Philosophy in Applied Physics (PhD)

Proposed Implementation Date: January 2020

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Letter of Notification

Institution:	The University of Memphis
Program Name:	Doctor of Philosophy (PhD) in Applied Physics
CIP AND SOC CODES:	14.1201 (Applied Physics)
Proposed Implementation Date:	January, 2020
Academic Program Liaison (APL) name and contact information:	Dr. Robin Poston Dean of Graduate School University of Memphis 201 FedEx Institute of Technology Memphis, TN 38152 901-678-5739 rposton@memphis.edu

Background Concerning Academic Program Development

The Department of Physics and Materials Science (DPMS) at the University of Memphis (UofM) is a highly research-active department with excellent faculty, facility, and a track record of research in applied physics and educational achievements. The Department currently offers BS and MS programs and is the only department without a PhD program in the natural sciences at UofM. Its MS program was ranked as one of the top programs in the nation by the American Institute of Physics. However, the lack of a PhD program in DPMS has hampered the full realization of the Department's potential in research and education and has inhibited UofM's growth in physics and related areas that are important to innovative technology development and skillful workforce training. UofM has formulated its strategic plan to enhance research and achieve the status of Research One (R1) Doctoral University. A PhD program in applied physics will greatly strengthen the university's position in achieving its goal. It will also provide the much-needed support for Tennessee's economic development, workforce, and research needs, especially in greater Memphis metropolitan area and West Tennessee. Therefore, the DMPS at UofM proposes to offer a PhD degree program in Applied Physics (thereafter, PhD Program).

Purpose and Nature of Academic Program

The proposed PhD degree in Applied Physics is the first such program in the state of Tennessee. The other PhD programs currently offered in Tennessee are PhD in Physics from the University of Tennessee Knoxville and PhD in Physics and Astrophysics from Vanderbilt University. The terminal degree in Applied Physics will prepare students for careers in industry, government, national laboratories as well as for academic positions in universities, colleges, and high schools. Applied physics is the study of physics from

fundamentals to a practical purpose, as opposed to other programs in physics motived solely for an improved fundamental understanding.[1] It bridges physics with various areas of engineering but differs from engineering because applied physicists use physics or conduct physics research to develop new technologies or solve engineering problems,[2] while engineers solve well-defined problems. The proposed program is carefully designed to provide a high-level of research experience and academic training to students. The program relies on the nationally recognized faculty of the DPMS at UofM.

One of the major thrusts of UofM is to enhance research and achieve the status of Research One (R1) Doctoral University, according to the Carnegie Classification of Institutions of Higher Education. A strong research-grade university must have a strong PhD program in physics. Therefore, another crucially important motivation of offering a PhD program in Applied Physics is to improve the national and international visibility of the research activities in physics at UofM. This will align UofM programs with other peer institutions, attract better graduate students to our program, stimulate cross-disciplinary research at UofM, further enhance research collaborations with high-tech industries in the Mid-South, and supply the workforce in STEM-related employment opportunities. Due to the interdisciplinary nature of Applied Physics, which involves research related to applications of materials, biomaterials, engineering physics, and so on, this program will enhance research collaboration among several departments such as Physics and Materials Science, Biology, Chemistry, Mechanical, Electrical, and Biomedical Engineering. This program will produce PhD graduates with hands-on skills in technology that fulfill the workforce needs in high-tech companies. The proposed PhD program echoes the university's Vision and Mission statements, viz. "*The University of Memphis is an internationally recognized, urban public research university preparing students for success in a diverse, innovative, global environment*." and "*We provide the highest quality education by focusing on research and service benefiting local and global communities.*"

The target audience of the proposed PhD program are local, national, and international students who are interested in Applied Physics. The purpose of the proposed program is to provide a high-level of research experience and academic training to students. The outcome of the program are PhD graduates with advanced skills that fulfill the workforce needs in high-tech industry, government, and education. The program will be delivered on-ground.

Vision and Mission

The Department of Physics at UofM was established as a separate instructional department of Memphis State University in 1966. Its name was changed to DPMS in 2015 to reflect the important research and education thrust in materials science at both undergraduate and graduate levels. The following statement reflects the vision and mission of the department:

> Our vision is to become a nationally recognized department with a commitment to excellence in innovative teaching, advanced research, and dedicated community engagement. Our excellent faculty provide unique educational programs in a

[1] Nature: https://www.nature.com/subjects/applied-physics
[2] American Institute of Physics: https://www.aip.org/jobs/profiles/applied-physics-jobs

supportive learning environment and conduct cutting-edge research with outstanding infrastructures.

Our primary mission is to advance and convey the knowledge of physics and to apply that knowledge for the benefit of our students, the physics community, and society as a whole. The Department strives to provide a stimulating academic environment for our students through excellence in undergraduate and graduate instruction and research. The Department currently offers bachelor and master's degrees in Physics and seeks to provide majors with a background for either advanced study or immediate employment in the related field. The current BS and MS programs will form a pipeline for the proposed PhD program to advance the education of our students. On the other hand, the PhD students can help advise undergraduate research and lab training which will again strengthen our BS program.

We are committed to building a welcoming environment and maintaining diversity in the composition of faculty, staff, and students and to the advancement of scientific literacy required to meet the needs of the community, the region, and the nation.

The Department seeks to contribute to the advancement of knowledge through its research activities and is committed to its contribution to scientific advancements by disseminating research through peer-reviewed publications and conference presentations. The involvement of graduate and undergraduate students in the research program, as part of their education, is of one of the most effective means of teaching physics and the department has been practicing this belief successfully, for decades.

The Department is eager to collaborate with other departments in interdisciplinary and multidisciplinary research, teaching, and service. These include the Departments of Chemistry, Biology, Electrical Engineering, Mechanical Engineering, and Biomedical Engineering.

As is evident from the above mission statement, the department's pursuits resonate with the Motto of UofM's strategic plan: *Leading through Innovation* and UofM's vision and mission: "*The University of Memphis is an internationally recognized, urban public research university preparing students for success in a diverse, innovative, global environment*." and "*We provide the highest quality education by focusing on research and service benefiting local and global communities.*" The department's goals also resonate with UofM highest priorities, viz:

- Student Success, Access and Affordability
- Academic Excellence
- Research and Innovation
- Diversity and Inclusion
- Community, Alumni, and External Collaboration
- Brand Enhancement and Global Visibility
- Sustainability

Significant Distinction of the Proposed PhD Program in Applied Physics:

Physics is the foundation of many burgeoning fields such as nanotechnology, photonics, biotechnology, renewable energy, and nanoelectronics, biophysics which have profound technological and societal implications. The Applied Physics program is designed to extend knowledge of the principles of pure physics to the development of new technologies.

Research in applied physics focuses primarily on problems of technological importance. The interdisciplinary nature of this option allows considerable flexibility in coursework, training, and individual research interests to enhance maximum breadth and depth. Since the advances in most branches of technology lead to rapid changes in state-of-the-art techniques, the Applied Physics program provides the student with a broad base of fundamental science and mathematics while retaining the opportunity for specialization through technical electives.

The proposed PhD program relies on the Department's strength of uniquely qualified research faculty with internationally recognized expertise in nanoscience and nanotechnology including magnetic nanomaterials and composites, energy and electronic materials, space materials, optics in nonlinear optics and plasmonics, computational physics in quantum mechanical materials modeling and computational soft matter and biophysics, biomaterials in advanced polymers for bioimplants, biocompatible materials, drug delivery systems, biophysics and soft materials in active matter, liquid crystals and microfluidics, and astrophysics in observational instruments and data analysis. The qualification of faculty is partially reflected by about 400 publications and presentations in the last five years and over $12 million external grants for research with Physics faculty as PI or Co-PI since 2011 (project ending date). Currently, five of the nine tenured/tenure-track faculty members are PIs or co-PIs of major external research grants from Federal Funding Agency such as NSF and NASA. The proposed program also benefits from the exceptional research laboratories equipped with advanced fabrication and characterization tools, and collaborative research opportunities with industries, local universities, and colleges. The Department of Physics and Materials Science has about 40 pieces of the shared instrument and support facilities for research, and dedicated faculty research labs with state-of-the-art instrumentations.

Strategically, the proposed PhD program at the UofM will fill the current void in Applied Physics in the State of Tennessee by offering an advanced degree in this area. The UofM is a major educational hub serving several bordering states including Arkansas, Missouri, Mississippi, Illinois, and Kentucky, thus providing unique opportunities to students in the region who seek an advanced degree in physics and in particular Applied Physics. Offering an advanced degree in Applied Physics will unequivocally enhance UofM's research ranking in productivity, funding, education quality, enrollment, and will address the shortage of local and highly trained scientists and engineers for the local high-tech industries.

American Physical Society recently published a report on the contributions physics makes to U.S. industry, which indicates the significant impact of industrial physics on the U.S. Economy (see https://www.aps.org/programs/industrial/impact-economy.cfm). Industial physics is considered a part of broad applied physics field. It directly produced an estimated 12.6% of the U.S. GDP, about $2.3 trillion, direct employment about 11,500,000 people (6% of total U.S. employment) in 2016. U.S. exports by physics-based sectors are about $1.1 trillion in 2016, which is approximately 20% of the value added (GDP) by those sectors. Including indirect and induced contributions, industrial physics contributed approximately 30% of the U.S. GDP in 2016, or about $5.5 trillion. Between 1966 and 2016, the value added (GDP) in physics-based sectors of U.S. industry grew by a factor of 22. At the same time, the GDP grew by a factor of about 4 (both in 2016 constant dollars). Those numbers clearly indicate the importance of this proposed Ph.D in Applied Physics for local and national economy.

The need for such a program and the readiness of the department to successfully run and manage such a program are corroborated by Letters of Support from Oak Ridge Nationals Laboratory (ORNL), Vanderbilt University, Sandia National Laboratory (SNL), Case Western University, and many others as shown in **Appendix G** as well as by the results of the surveys we conducted as shown in **Appendix I**. As indicated by the letters from SNL, "*The educational and research experience provided by your new PhD program would allow the US to address key economic needs for the coming years. Indeed, we are experiencing an urgent need to hire Applied Physics PhD graduates in the DOE complex, a tread that is also predicted for industry as more exotic approaches become transitioned into technologies (e.g. nanotechnologies). It is imperative to have PhD graduates who have the basics physics training as well as the ability to translate this knowledge to applied research, a key niche that your program would be providing*."

Alignment with State Master Plan and Institutional Mission-

Explain how the proposed academic program is consistent with the state's economic development, workforce development, and research needs (as applicable) as well as the mission and strategic direction statement of the institution.

One of the primary goals of the State of Tennessee is to increase the educational attainment levels of all Tennesseans while addressing the state's economic development, workforce development, research needs, and to ensure an increased degree production within the state's capacity to support higher education. In particular, the State of Tennessee recognizes that while the focus of undergraduate education is at the center of the state's college completion agenda for the decade 2015-25, the state acknowledges the critical need for distinct academic programs to adequately address Tennessee's economic development, workforce, and research needs. Since Physics is the backbone of all STEM education programs, it is clear that a qualified PhD in Applied Physics is needed to educate the future workforce in the state of Tennessee and particular Western region of TN. This proposed PhD program fits this aim of the State of Tennessee 2015-2015 Master Plan through the preparation of highly trained educators of physics and related STEM fields at the university, college, and high school levels.

UofM strives to be recognized as one of the country's great metropolitan research universities, noted for its comprehensive, innovative academic programs, and for capitalizing on its urban setting. One of UofM's highest priorities is to increase the number of research activities as well as external research funding. In particular, UofM strives to attain an R1 status (Highest Research Activity) according to the Carnegie Classification of Higher Education Institutions. A careful survey of active research universities in the nation reveals that every R1 university has a PhD program in physics or applied physics. As such, the establishment of such a program at UofM is warranted, not only to attain an R1 status but also to further stimulate innovation within the western region of Tennessee and Memphis metropolitan area through university-industry collaboration and the placement of its PhD graduates in local industries.

The metropolitan area of Memphis has a diverse population of over 1 million and is a hub to major industries such as FedEx, AutoZone, International Papers, Service Master, and Orthopedic industries such as Smith and Nephew, Wright Medical, Medtronic, and many service industries. Memphis was recently added to the new Forbes list that ranks the top cities for business and career growth and ranks 100 out of the 200 cities as per the Forbe's list. Forbes noted Memphis' cost of living as being 5 percent below the national

average. One thing that counted against Memphis was the low percentage of people with college degrees, which is about 27% of its metro population.[3] The Memphis economy has been growing steadily since 2009, with a growth rate of 3.08% in 2017. Strong growth in exports over the past 10 years (64.15%) indicates that the globalization of the Memphis economy is a reality. The GDP growth comparisons for the last 5 years indicate that Memphis grew by 12.62%. Memphis patents increased by 10.14% over the last 5 years (through 2015) while the national rate of growth was 35.88% and the Tennessee growth rate was 8.96%.[4] A strong PhD program in Applied Physics at UofM will help address the need for technological innovations and ensure the competitiveness and sustainability in economic growth in the Memphis metropolitan area and beyond in the future.

Institutional capacity to deliver the proposed academic program – Address how the proposed program will impact the overall capacity of the institution, including potential lost enrollment to other majors/programs, collaborative agreements between departments, etc.

The proposed Applied Physics PhD program will have a significant positive impact on the overall capacity of UofM by enhancing its capability in sponsored research, graduate education, and community engagement. It will strengthen the existing collaborations between the DPMS and other departments on campus, such as the Departments of Chemistry, Biology, Electrical Engineering, Mechanical Engineering, and Biomedical Engineering.

Since there is no such a program as Applied Physics PhD on campus or in the State of Tennessee, the potential loss in enrollment to other majors/programs is minimal due to the addition of this new PhD program. In fact, this new program will actually help other programs to recruit students interested in advanced study in applied physics, who otherwise will move to other states with similar programs.

Existing Programs Offered at Public and Private Tennessee Institutions- Provide list of all programs within the same CIP code definition at the same level (bachelor's, master's, doctoral) currently offered in public and private higher education in Tennessee:

There is no program within the same CIP code 14.1201 at the doctoral level at any public or private higher educations in Tennessee.

The University of Tennessee Knoxville offers a PhD program in Physics while Vanderbilt University offers PhD programs in Physics and Astrophysics.

Feasibility Study

Student Interest can be demonstrated through student surveys, enrollments in similar programs/concentrations, etc.

The majority of graduate students at UofM's DPMS have expressed a strong desire to continue their education through a PhD program in Applied Physics at UofM. A large

[3] https://wreg.com/2016/11/04/memphis-recognized-by-forbes-for-business-city-growth/
[4] http://thememphiseconomy.com/economy/

number of applicants to our graduate MS program inquire about an opportunity for a PhD study in physics at UofM. The desire of potential students to enter a PhD program in our department is so strong that over the years, we have to frequently turn them down simply because we do not offer a PhD program. Most of the students who are pursuing MS studies in DPMS are also interested in pursuing a PhD degree. During the last few years, many of the undergraduate students and more than 25 MS students went to other institutions to pursue a PhD degree in physics or related disciplines.

In order to have concrete data on the demand for this new PhD program, we have surveyed potential students of the PhD program in Applied Physics, including our current undergraduate and MS students, and the alumni of the department. The results of the survey show very strong interest in pursuing a PhD degree in Applied Physics among the students, with 77% of the 110 survey respondents stating that they would be/would have been interested to enroll in the PhD program, 86% of respondents saying that a PhD degree would have enhanced/will enhance their career opportunities, and 88% of the respondents stating that the faculty of the department are well qualified to run and manage a successful PhD program. Also, 99% of the respondents agreed that a PhD program in Applied Physics would improve the university's reputation and research productivity, and 91% agreed that this PhD program would be beneficial to local employers by providing them with needed skilled workforce locally. Detailed survey results are shown in **Appendix I(a)**.

Local and regional need/demand

Should be supported by evidence preferably using current quantitative data to support present and future needs of the State's workfoce If similar academic programs exist, how is the local and regional need/demand for the proposed academic program being met by these institutions?

As will be discussed in the next section, overall the growth of job opportunities and needs for physics is very positive. However, the number of physics degrees awarded to US citizens each year has declined at the national level. This trend may create a challenge for the job market and may hinder technological and industrial growth both locally and nationally. **The Applied Physics PhD program, which we are proposing, is a vital step towards ensuring that at least at the local level students have access to advanced scientific training in both experimental and computational areas and, that businesses will have access to a pool of highly skilled employees locally.** The need for the proposed Applied Physics PhD program is further demonstrated by the projected growth of Memphis technology sector. According to a report from an e-commerce software platform for small and medium-sized businesses, Memphis is the third most enterprising city.[5] The state of TN has also been listed as one of the fastest growing states for technology-related job opportunities.[6] The potential shortage of PhDs at the national level, and the local and national projected need for applied scientists/physicist further substantiate the immediate need for such a program.

[5] https://www.bizjournals.com/memphis/news/2018/06/26/memphis-one-of-most-enterprising-cities-for-small.html

[6] https://www.comptia.org/about-us/newsroom/press-releases/2018/03/27/tennessee-technology-industry-added-more-than-2-500-jobs-in-2017-boosted-contribution-to-state-s-economy

Employer need/demand

Physics is central to society. It provides a fundamental understanding of the world that we live in and underpins the development of the technologies that we take for granted in our daily lives, from health care to the digital economy. The applied science workforce is essential to technological innovation, which in turn drives economic development and enables advances in national security, medicine, education, transportation, energy, and other components of the standard of living in the United States. Physics-educated workers are a critical part of the science and engineering (S&E) workforce[7]. Applied physics creates a vital bridge between the fundamental nature of physics and itsapplicability to industry and community needs, which is what we are committed to creating. In addition to traditional research jobs, prospects for physicists in applied research, development, and related technical fields is very strong**. The United State Department of Labor estimates that during the decade 2016-26, the number of jobs for physics PhDs will increase by 14%, which is 7% higher than the average growth rate for all occupations.**[8] Physicists are projected to have employment growth in scientific research and development services, educational services, and healthcare and social assistance. Statistics also show more tangible payoffs for PhD recipients when they enter the labor force. Unemployment rates are consistently lower and earnings are significantly higher for people with a PhD in physics, which highlights the benefits of the transferable skills that can be gained from studying physics at an advanced level, i.e. the ability to grasp concepts quickly; the determination to find coherent answers; the aptitude for problem solving using analytical, mathematical and computational skills among others. These make physicists an asset to many employers and employment sectors as evident by Figure 1, which demonstrates the versatility of physicist and their training.

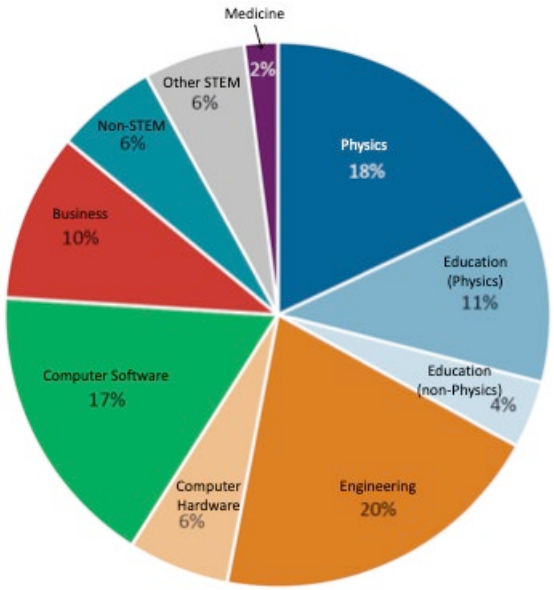


Figure 1. Employment fields for new physics PhD recipients in potentially permanent

Future sustainable need/demand

To further demonstrate the need for the proposed PhD program in Applied Physics, we have surveyed the potential employers of the PhDs in Applied Physics. The results of the

[7] American Institute of Physics (AIP). The Physics-Educated Workforce. In: Government-University-Industry Research Roundtable (US); National Academy of Sciences (US); National Academy of Engineering (US); Institute of Medicine (US); Fox MA, editor. Pan-Organizational Summit on the US Science and Engineering Workforce: Meeting Summary. Washington (DC): National Academies Press (US); 2003. Available from: https://www.ncbi.nlm.nih.gov/books/NBK36358/

[8] https://www.bls.gov/ooh/life-physical-and-social-science/physicists-and-astronomers.htm#tab-6

surveys show a strong need (over 80%) for Applied Physics PhDs in industry and education based on employers' response, locally and regionally. Detailed survey results are shown in **Appendix I(b)**. The need and demand for individuals with a strong background and training in Physics are further emphasized by a report published by Business Insider in 2017 reporting that unemployment rate among physicists is one of the lowest numbers reported.[9] This strong need is corroborated by support letters from local and regional employers including companies, industry partners, and educational institutes, which are provided in Appendix G.

Program Cost/Revenue – Provide a budget narrative for the THEC Financial Projection Form. The narrative should address costs associated with hiring new faculty and staff, marketing and recruitment, equipment needs, accreditation costs, and any other relevant expenses. Revenue projections should include tuition and fees, potential research and grant activity, expected gifts, and any other expected revenues.

The PhD Program will be sustained by generating revenues from student tuitions and fees, by reallocation of resource, mainly teaching assistantships, from the UofM and the College of Arts and Sciences, and by external and internal research grants. The details of the cost/revenue are shown in the THEC Financial Projection Form, which covers the cost for marketing and recruitment, students office upgrade, tuition and fees, and graduate assistantship. No new faculty/staff and accreditation costs are allocated.

THEC Financial Projection Form - The THEC Financial Projection Form must be included in the appendix with the LON submission and provide detailed information regarding internal reallocations, tuition and fees, specific program costs, etc. If no costs/revenues are projected an explanation should be provided in the LON and the form should still be included with a note as to why there will be no costs/revenues.

The details of the financial projection are shown in **Appendix A**.

[9] https://www.businessinsider.com/college-majors-with-the-lowest-unemployment-rates-2017-11

New Academic Program Proposal (NAPP)

CHAPTER I: Implementation Timeline

Provide a timeline which includes the following items:

- Accreditation considerations for professional disciplinary accreditation organizations and/or SACSCOC, if applicable

  A PhD program in Applied Physics does not need professional accreditation. The DPMS will follow the periodic peer evaluation of PhD programs recommended by the UofM Graduate School and the requirement of the Southern Association of Colleges and Schools (SACS) review for graduate programs. During the first 5 years of program implementation, the program will be evaluated annually, and external evaluation will be conducted on the 5th year to ensure the quality of the program and identify areas for continuous improvement if any.

- Proposed dates for the external judgment site visit

  August 1, 2019.

- Estimated date of submission of the external review report to THEC and the institution (within 30 days after the site visit)

  September 1, 2019

- Estimated date of institution's response to external review (within 30 days upon receipt of external reviewer report)

  October 1, 2019

- Proposed date of the institutional governing board meeting the new academic program would be considered for approval

  The PhD in Applied Physics was approved by the University of Memphis Board of Trustees on June 5, 2019. The Provost will submit a final letter of approval following the report and updates from the external reviewers.

- Proposed date of the THEC meeting for the academic program to be considered for Commission approval. (THEC Meeting Calendar)

  November 7, 2019

CHAPTER II: Curriculum

An adequately structured curriculum, which meets the stated objectives of the academic program, and reflects breadth, depth, theory and practices appropriate to the discipline and the level of the degree. The curriculum should be compatible with disciplinary accreditation, where applicable, and meet the criteria for the general education core as well as articulation and transfer (where applicable for undergraduate programs based on *Policy XX, Articulation and Transfer*).

Program learning outcomes – Provide the academic program learning outcomes. Focus on program outcomes that reflect the specific knowledge and skills one expects students to acquire as part of their educational experience in the proposed program.

The program learning outcome assessment of the proposed program will be based on students' demonstration of mastery of core physics principles in classical mechanics, electrodynamics, quantum mechanics, statistical mechanics, and materials science, and the acquirement of mathematical, computational, and experimental tools. The students are expected to be able to apply the learned core principles and analytical tools for solving theoretically, computationally or experimentally various problems in applied physics. The students are expected to demonstrate the ability to propose novel research ideas and hypotheses, develop the research tools to execute the research, perform independent research, and effectively communicate their results in both oral and written formats.

Academic Program Requirements- Include the minimum number of SCH overall, required curriculum (course prefix and number, title, SCH) and any special requirements including theses, internships.

The proposed PhD Program requires the completion of 72 semester credit hours beyond the Bachelor's Degree or 42 semester credit hours beyond Master's Degree. The following table displays program requirements, current and existing courses and new courses needed.

Table 1. General overview: Post Bachelor's

Curriculum Component	Hours Required
Physics Core	18
Focus Area Elective	6
Breadth Elective	6
Individual Study	6
Dissertation	36
TOTAL	**72**

Table 2. General overview: Post Master's

Curriculum Component	Hours Required
Physics Core	3
Focus Area Elective	3
Breadth Elective	3
Individual Study	3
Dissertation	30
TOTAL	**42**

Table 3. Detailed degree map (Post Bachelor's) – 72 credits

Course Prefix and Number	Course Title	SCH	New Course Needed (Y/N)
Core courses (18 hours)			
PHYS 8100	Classical Mechanics	3	N
PHYS 8200	Quantum Mechanics I	3	N
PHYS 8300	Electrodynamics	3	N
PHYS 8520	Statistical Mechanics	3	N
PHYS 8386	Methods of Theoretical Physics	3	N
PHYS 8090	Professional Development Workshop	3	N
Focus Area: Students are required to complete 6 hours of coursework in their Focus Area from this list of electives. 3 hours of coursework must be taken at the 8000 levels.			
Focus Area 1: Solid State Materials			
PHYS 6610	Solid State Physics	3	N
PHYS 6720	Materials Physics	3	N
PHYS 8610	Advanced Device Physics	3	Y
Focus Area 2: Biophysics			
PHYS 6020	Soft Matter and Biological Physics	3	N
PHYS 8390	Polymer Physics	3	N
Focus Area 3: Computational Physics			
PHYS 6420	Introduction to Computational Physics	3	N
PHYS 8385	Methods in Computational Physics	3	N
Focus Area 4: Astrophysics			
PHYS 6050	Astrophysics I	3	N
PHYS 6051	Astrophysics II	3	N
PHYS 6300	Advanced Topics in Astronomy	3	N

PHYS 8300	Advanced Methods in Astrophysics	3	Y
Breadth course: Students are required to complete 6 hours of coursework outside their Focus Area, or in this list of additional electives, or outside the department.			
PHYS 6021	Applied Radiation Physics	3	N
PHYS 6040	Medical Physics	3	N
PHYS 6110	Nuclear and Particle Physics	3	N
PHYS 6220	Environmental Physics	3	N
PHYS 6620	Device Physics and Microfabrication	2	N
PHYS 6230	Electronics	4	N
PHYS 6720	Materials Physics Lab	3	N
PHYS 6000 to 6009	Special Topics in Physics	3	N
PHYS 8201	Quantum Mechanics II	3	N
PHYS 8050 to 8059	Special Topics in Advanced Physics	3	N
Individual Study: Students are required to complete 6 hours of individual study under the guidance of graduate faculty.			
PHYS 8060	Individual Study in Advanced Physics	3	N
Dissertation: 36 hours			
PHYS 9000	Doctoral Dissertation	1-12	N

Table 4. Detailed degree map (Post Master's) – 42 credits

Course Prefix and Number	Course Title	SCH	New Course Needed (Y/N)
Core courses (3 hours)			
PHYS 8090	Professional Development Workshop	3	N
PHYS 8100	Classical Mechanics	3	N
PHYS 8200	Quantum Mechanics I	3	N
PHYS 8300	Electrodynamics	3	N
PHYS 8520	Statistical Mechanics	3	N
Focus Area: Students are required to complete 3 hours of coursework in their Focus Area at the 8000 levels.			
Focus Area 1: Solid State Materials			
PHYS 8610	Advanced Device Physics	3	Y

Focus Area 2: Soft Matter			
PHYS 8390	Polymer Physics	3	N
Focus Area 3: Computational Physics			
PHYS 8385	Methods in Computational Physics	3	N
Focus Area 4: Astrophysics			
PHYS 8300	Advanced Methods in Astrophysics	3	Y
Breadth course: Students are required to complete 3 hours of coursework outside their Focus Area or in this list of additional electives, or outside the department.			
PHYS 6021	Applied Radiation Physics	3	N
PHYS 6040	Medical Physics	3	N
PHYS 6110	Nuclear and Particle Physics	3	N
PHYS 6220	Environmental Physics	3	N
PHYS 6620	Device Physics and Microfabrication	3	N
PHYS 6230	Electronics	3	N
PHYS 6720	Materials Physics Lab	3	N
PHYS 6000 to 6009	Special Topics in Physics	3	N
PHYS 8201	Quantum Mechanics II	3	N
Individual Study: Students are required to complete 3 hours of individual study under the guidance of graduate faculty.			
PHYS 8060	Individual Study in Advanced Physics	3	N
Dissertation: 30 hours			
PHYS 9000	Doctoral Dissertation	1-12	N

Table 5. Descriptions of new courses

Course Number	Course Title	Course Description	SCH
PHYS 8610	Advanced Device Physics	This course focuses on the advanced aspects of solid state devices including topics such as superconductivity, strongly correlated systems, topological insulators, and quantum computing. Both theoretical descriptions and applications are discussed.	3

PHYS 8300	Advanced Methods in Astrophysics	The goal of this course is to prepare students for advanced research methods in astrophysics. Students will be exposed to a set of mini projects, with emphasis on current active areas of astrophysics research at the University of Memphis. Topics include manipulation of astronomical databases, statistical methods in astronomy, introduction to numerical simulations, design, and use of ground and space-based telescopes, computational manipulation of astronomical images and spectra, and confrontation of data with theoretical models.	3

Comprehensive Examination: Upon completion of required coursework and before enrolling in dissertation hours (PHYS 9000), the student must complete a written and oral comprehensive examination. The comprehensive examination will assess mastery of areas covered in the PhD program. Broadly, three areas will be examined: foundations of physics, knowledge in the focus area, and the dissertation topic. The Graduate Committee will be responsible for organizing and evaluating the examination.

Dissertation: To fulfill the requirements for the PhD degree in Applied Physics, the PhD candidate must write and defend a dissertation. The dissertation must adhere to the format outlined by the UofM Graduate School guidelines. The student will determine the dissertation topic in consultation with the faculty advisor and with input from the dissertation committee members.

Current Courses and Existing Programs – List current courses and existing institutional programs, which will give strength to the proposed program.

In addition to the graduate courses from DMPS that are listed above, students enrolled in the PhD Program in Applied Physics will be encouraged to take courses in other disciplines as their breadth electives. Below is a list of existing graduate courses in other departments at UofM that can be taken by the graduate students in the proposed PhD program.

Table 6. Current courses from other departments that can be taken by graduate students in the PhD program in Applied Physics

Course Prefix and Number	Course Title	Semester hours
Mathematical Sciences		
MATH 6083	Dynamical Systems/Chaos	3
MATH 6391	Partial Differential Equation I	3
MATH 6614	Probability/Statistics	3
MATH 6637	Statistical Analysis	3
MATH 6721	Numerical Analysis	3

MATH 7321	Modeling & Computation	3
Computer Science		
COMP 6601	Models of Computation	3
Mechanical Engineering		
MECH 8361	Mechanical Behavior of Materials	3
MECH 8363	Fracture Mechanics	3
MECH 8365	Corrosion	3
MECH 8341	Engineering Analysis	3
MECH 8378	Introduction to Computational Fluid Dynamics	3
Electrical and Computer Engineering		
EECE 8220	Scientific Computing	3
Chemistry		
CHEM 6201	Instrumental Analysis Lab	3
CHEM 6211	Instrumental Analysis	3
CHEM 6331	Physical Organic Chemistry	3
CHEM 6614	Polymer Chemistry	3
CHEM 8405	Advanced Biophysical Chemistry	3
CHEM 8713	Advanced Solid Sate Physics/Chemistry	3
Biomedical Engineering		
BIOM 8203	Bioelectricity	3
BIOM 8305	Biomaterials	3
BIOM 8432	Advanced Biomaterials	3
BIOM 8452	Fluid Mechanics Biomedical Engineering	3
BIOM 8501	Medical Imaging	3
BIOM 8502	Medical Imaging II	3

New Courses Needed- List any new courses and existing institutional programs, which will give strength to the proposed program.

New courses, which will further strengthen the program, is listed in the course descriptions, **Table 5** above.

Distance Learning- Indicate whether this program will be offered via distance learning and which courses are available via distance learning.

This program will not be offered via distance learning.

Course Syllabi
See **Appendix B** for detailed syllabi of all PhD level courses.

CHAPTER III: Academic Standards

ACADEMIC STANDARDS – The admission, retention, and graduation standards should be clearly stated, be compatible with institutional or governing board policy, and encourage high quality.

Admission Requirements: Admission to the PhD program in Applied Physics at the UofM is open to anyone holding a bachelor's or a master's degree from an accredited college or university. In general, applicants are considered for admission after completion of a degree in physics or closely related discipline with the required core courses in physics.

To be admitted, applicants should fulfill the following requirements:

1. A bachelor's degree in physics or closely related discipline with a minimum of 3.00 GPA in undergraduate courses, and a minimum of 20 semester hours of undergraduate physics, including upper division mechanics, electricity and magnetism, introductory quantum mechanics, and thermal physics, and approved mathematics courses in calculus and differential equations.
2. Graduate Record Examination (GRE) test results with a minimum verbal score of 145, a minimum quantitative score of 150, and a minimum writing score of 3.0.
3. Personal statement of 750-1000 words indicating the interests and career goals of the applicant. The statement should include how his/her PhD studies will prepare him/her in achieving his/her career goals. The statement should include the student's research interests in line with faculty research in the department.
4. Three recommendation letters demonstrating the student's academic strengths, research aptitude and/or capabilities, communication and interpersonal skills, and potential for success in a PhD study.
5. A résumé or curriculum vitae.
6. In addition, international students, from non-English speaking countries, are required to demonstrate proficiency in English through a minimum score of 80 in the Test of English as a Foreign Language (TOEFL) or 7.5 in the International English Language Testing System (IELTS).

In unusual circumstances, where the above admission requirements are not met, the applicant may seek exceptions by contacting the Graduate Coordinator of the DPMS.

All applications are thoroughly reviewed by the department's Graduate Committee. The admission is based on the overall quality of the applicant's academic background in physics, including GPA, GRE, etc., completed undergraduate and graduate courses in physics and closely related disciplines, research achievements and/or aptitude, and recommendation letters.

Retention Requirements: A doctoral student in Applied Physics will be retained continuously in the program provided that the following conditions are met:

1. A GPA of at least 3.0 must be maintained. If the student's GPA falls below 3.0 (on a 4.0 scale), a period of one semester or one full summer term will be allowed to correct for the deficiency. The student is dropped from the PhD program if he/she fails to regain a minimum GPA of 3.0. This period may, at the discretion of the

student's advisory committee, be extended one additional semester or full summer term.
2. Accumulation of more than 7 hours of graduate coursework with a grade of C+ or lower will result in dismissal from the PhD program.
3. Satisfactory completion of a comprehensive written examination and a satisfactory performance in the oral portion of the exam. The student's advisory committee may grant a second and final attempt. Failure to pass the second attempt will result in mandatory dismissal from the PhD program
4. Submission of a written research progress report by the student to the student's advisory committee and the Department Chair at the end of each fall and spring semester after dissertation hours have started.

Graduation Requirements: Consistent with the UofM general graduation requirements for PhD degrees, each student must earn at least 72 hours beyond the bachelor's degree or 42 hours beyond the master's degree (see **Table 7**). Students entering with a bachelor's degree can apply up to 36 semester hours of dissertation credit toward the PhD requirements. Students entering with a master's degree can apply up to 30 hours of dissertation credit. Early in each student's PhD program, an advisory committee composed of graduate faculty from the DPMS and closely related departments is appointed by the Department's Chair. The role of the advisory committee is to recommend courses to support the student's research and to guide the student in the progress of his/her dissertation research.

For students admitted with a bachelor's degree, no more than 12 semester hours of credit of 6000 level courses will be counted toward the PhD degree.

For students admitted with a master's degree, no more than three semester hours of credit of 6000 level courses will be counted toward the PhD degree.

Table 7: Credit semester hour requirements for the PhD program in Applied Physics

Option	Total Credit Hours	Course Hours (excluding dissertation)	Maximum Hours of Dissertation (PHYS 9000)	Maximum Hours of 6000 level courses	Minimum Hours of 7000-8000 level courses
Post-Bachelor's Degree	72	36	36	12	24
Post Master's Degree	42	12	30	3	9

Residence Requirements: Of the total semester hour requirement, a minimum of 24 hours must be earned while the student is at UofM. This requirement must include at least one academic year of full-time student status.

PhD Examinations: The PhD program requires three examinations:

1. PhD Qualifying Examination: The PhD Qualifying Examination consists of two exams. The first qualifying exam covers mechanics, electricity and magnetism, optics, and thermodynamics. The second qualifying exam covers quantum mechanics, statistical mechanics, and one subject in the student's focus area.

Students must pass both exams. The two exams must be taken during the same semester and before the completion of 27 hours of coursework. Both qualifying exams are given on the same day during the beginning of the fall and spring semesters.

2. PhD Comprehensive Exam: The PhD Comprehensive Exam is an oral exam that primarily covers specialized material related to the dissertation topic. Upon completion of this exam, the Comprehensive Exam Results Form must be completed by the student's Advisory Committee and returned to the Office of the DPMS.
3. PhD Dissertation Defense: All PhD students must defend their dissertation during their last year of study. Upon completion and passing of thesis defense, the "Dissertation Final Defense Results" Form must be completed by the student's Advisory Committee and returned to the Graduate School.

CHAPTER IV: Equity

– Provide information regarding how the proposed program will recruit, retain, and graduate a diverse population of students including underserved and historically underrepresented students.

The DPMS has actively pursued avenues to increase diversity in its current graduate and undergraduate programs and will continue to do so for the proposed PhD program. We are committed to increasing the cultural and gender diversity of students in all of our programs. Commitment to diversity is central to the department's mission and critical for maintaining our leadership status in research and education going forward. The department is committed to (1) seeking more effective means of recruitment and retention of minority members and (2) developing and improving methods for aiding minority students to overcome barriers to career development. The department adopted the belief "if you don't purposefully include, you exclude" noted by Dot Harris[10] and will continue to practice this approach. Our department has already demonstrated a commitment to diversity and inclusion in recruitment and mentoring at the undergraduate and MSc levels by focusing on increasing the number of minorities and women in the programs. Figure 2 shows the national trend as reported by APS of women earning BSc or PhD degrees in physics and has only recently reached 20%. For many years the national average has been very low. The DPMS, however, has been above the national average in the number of women admitted to the MS program.

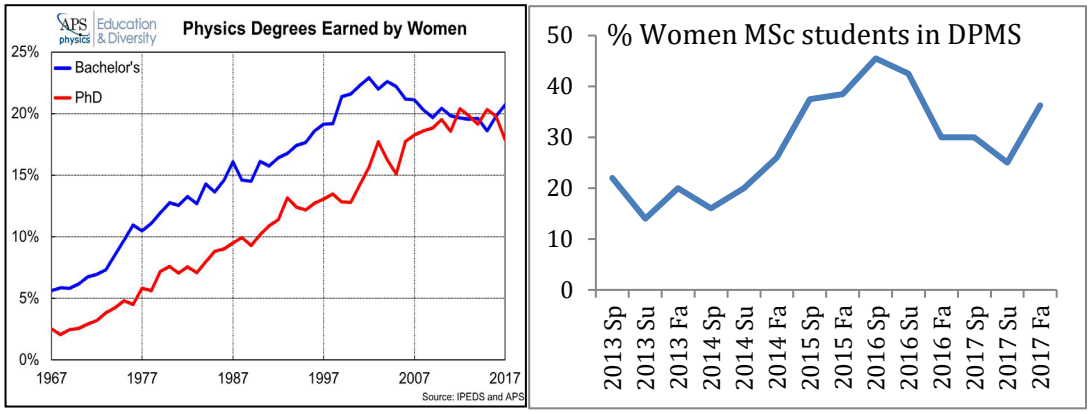


Figure 2. The national percentage of physics degree earned by women in the last 50 years from API (left), and the percentage of women MSc students in DPMS at UofM.

The proposed curriculum offers a broad selection of courses that allow for more employment options and entry into a diverse range of careers. In addition to the standard core courses (e.g., classical mechanics, electrodynamics), we plan to offer a flexible number of courses (e.g., biophysics) to ensure the success of individual PhD students in different focus areas. We will continue to review and implement admissions practices that

[10] Strategies for Improving Diversity: A Summary of the AIP Assembly of Society Officers Meeting. https://aas.org/posts/news/2013/04/strategies-improving-diversity-summary-aip-assembly-society-officers-meeting

provide a holistic evaluation of candidates, including contributions to diversity and non-traditional educational backgrounds. The faculty of the DPMS will work closely with national organizations such as the American Institute of Physics (AIP), the American Physical Society (APS), the American Astronomical Society (AAS), The Materials Research Society (MRS), and international organizations such as the Institute of Physics (IoP, UK) to stay abreast of best practices and recommendations for recruiting minorities to the PhD program. We will develop a "one-stop-shop" website that will contain all levels of information for succeeding in our program, the research foci, and links to professional organizations and institutions (e.g., APS, IoP, AIP, MRS, AAS, and NASA), newsletters, and updates.

Other recruitment efforts include:

- Sending recruitment materials targeting a diverse community of students (brochures/applications) to the Tennessee Louis Stokes Alliance for Minority Participation (TLSAMP) partnership of Tennessee colleges and universities, chairs/directors of STEM departments/divisions within the network of Hispanic Serving Universities, Historically Black Colleges and Universities, 2-year and 4-year colleges, and other universities with limited research activities. Personal phone calls and emails to the chairs/directors of STEM departments/divisions and/or faculty will also be made. The outreach program MemphiSTEM will also help in the advertisements for the proposed program.

- Contacting to the Society of Women Engineers (SWE), Women in Physics-APS, and Women Chemists Committee-ACS are planned to ensure greater outreach to attract female applicants.

- Actively recruiting students from Historically Black Colleges and Universities (HBCUs) in the local area: LeMoyne Owen College (a Memphis-based HBCU), Southwest Tennessee Community College (SWTCC), Lane College (Jackson, TN) and Jackson State Community College (JSCC).

- Making visits to colleges in western Tennessee and neighboring states to make presentations and recruit students directly, ensuring that students are aware of the options and DPMS's research capabilities. Informative and educational seminar series will also be given to the students and faculty.

Successful implementation of these efforts will result in an increase in the total number of applicants and enrollment to our proposed PhD program, the number of underrepresented minority applicants, and the number of fellowship awardees. The PhD program will take advantage of Diversity Funds, First Generation STEM Doctoral Fellowship, and the RISE Fellowship program offered by UofM to recruit qualified minorities and underrepresented applicants. The increase in the diversity and quality of students will have a longer-term impact on overall research metrics, including publication count, faculty expenditure, research grants, academic placement of PhD students, faculty hires, and university ranking.

CHAPTER V: Program Enrollment and Graduates

PROGRAM ENROLLMENT AND GRADUATES – Provide the projected number of declared majors and graduates expected over the first three years (associate and certificate), 5 years (baccalaureate and master's programs) or 7 years (doctoral programs).

Table 8. Projected students enrollment in the PhD program in Applied Physics.

Year	New Full-Time Headcount	New Part-time Headcount*	Graduates		# of Students Lost	Total # of Students Enrolled
			FT	PT		
1	9	1	0	0	0	10
2	8	0	0	0	0	18
3	7	0	0	0	2	23
4	7	1	3	0	3	25
5	7	0	4	0	2	26
6	9	0	5	0	3	27
7	7	1	4	1	2	28

*Three part-time students are expected within the first 7 years without institutional financial support.

The above enrollment projection is based on the following assumptions:

- The current graduate assistantship for the MS program will be shifted to the PhD program and new students enrolled in the MS program will be no longer supported by the graduate assistantship.
- Some of the current MS students in Physics will continue their PhD study in the new PhD program.
- Admitted PhD students will have mixed backgrounds, some have BS degrees, and some have MS degrees before admission.
- The number of graduates (PhD degrees) is predicted based on the enrollment and time needed to complete their dissertation. Students with BS may need 4-6 years and those with MS may need 3-5 years to graduate with a PhD in Applied Physics.
- Students in the PhD program will be awarded an MS degree if they meet the MS degree requirement while they pursue their PhD degree.
- The total number of enrolled student will increase quickly during the first three years of the program. The increase is expected to slow down thereafter.
- The estimated ratio of faculty to PhD students will be about 1:2.5, which is very reasonable for a PhD program in the physical sciences.
- The majority of the PhD students will be full time with only one self-supported part-time student is expected.
- As the program is fully running, the estimated student retention rate is expected to be about 90%. The loss will be mainly due to incompetence in research and failure in coursework and qualifying/comprehensive exam.
- The projections may be modified based on the actual enrollment of students.

CHAPTER VI: Administrative Structure

ADMINISTRATIVE STRUCTURE- Provide an organizational chart to include the administrative unit and program director that will be responsible for ensuring the success of the proposed program.

The DPMS is one of the Science academic units, within the College of Arts and Sciences. The College of Arts and Sciences is organized under the leadership of the Dean who serves as Chief Academic Officer of the College. Associates to the Dean for Academic Programs provide oversight for both undergraduate and graduate programs, research needs, and work closely with the faculty and chairs of respective academic programs.

The Chair of the DPMS works closely with the Graduate Coordinator (chair of the Graduate Committee) to provide student-centered services from admission to graduation. The graduate coordinator will provide leadership and oversight for the development, implementation, and evaluation of the PhD program by working with the PhD faculty to ensure the high quality of the PhD program. The Graduate Committee roles are to formulate and approve new graduate courses (6000 to 8000-level) and policies, overlook students' issues, preparation, and administration of qualifying exams, and policies about maintaining vibrant and healthy academic and research program in the department. Other important roles of the Graduate Committee are to advertise and recruit students to the program, process candidate's applications and admission of new students.

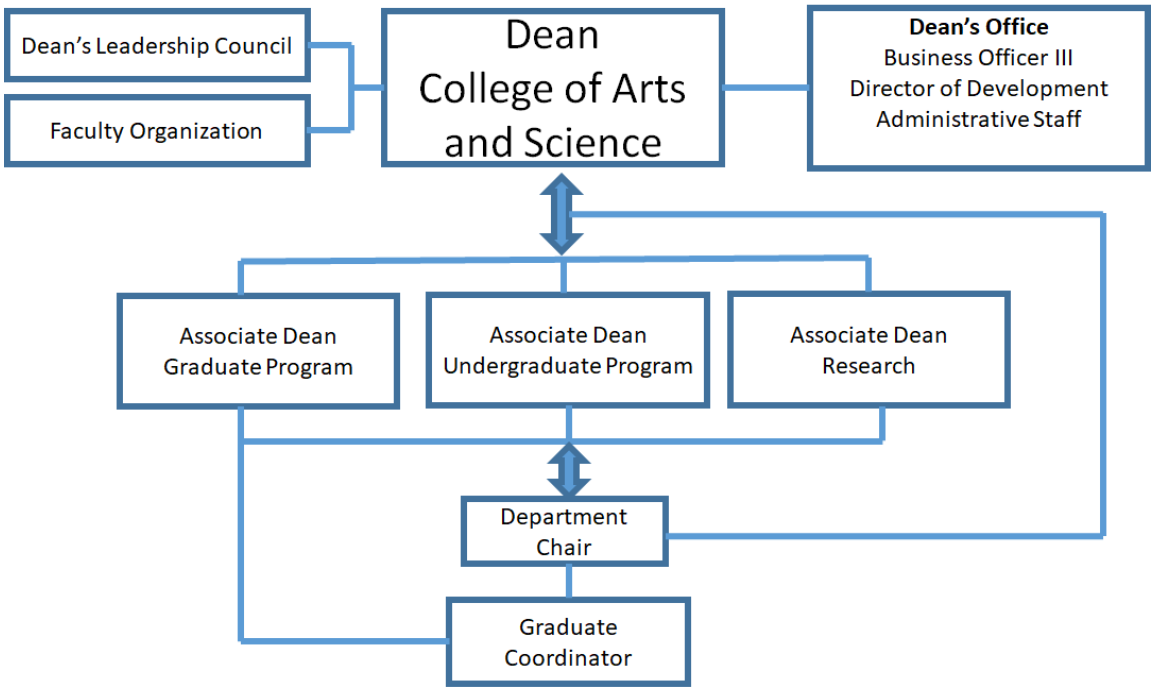
Dean of College of Arts and Science, a 12-month administrative position is held by a doctoral prepared, tenured professor. The Dean is vested with administrative authority in budget and personnel. The Dean serves on the University Deans' Council, University's SRI Advisory Committee, University's Council for Institutional Effectiveness, and works closely with the Provost and Vice President for Academic Affairs for needed resource and support to fulfill the mission and to achieve strategic goals of the College and the University. As the Chief Academic Officer of Arts and Science, the Dean is responsible and accountable for ensuring high-quality programs, sound academic policies, and regulatory requirements, and provides vision and leadership for the academic units in the college. The Dean performs annual reviews for all full-time faculty, tenure and promotion reviews, and reviews of all college administrators and staff. The Dean is vested and supported by the University's top leadership to sustain, advance, and accomplish the mission and goals of the College of Arts and Science.

The Associate Dean for Academic Programs, a 12-month administrative position is held by a doctoral prepared, tenured professor. The Associate Dean provides leadership and oversight for sustaining a high quality of all graduate programs in the college, including the proposed PhD program in Applied Physics. Currently, three Associate Deans work closely with the Dean and report to the Dean. They also work with faculty and directors of academic programs to support faculty teaching, student learning, and their research needs. The Associate Deans ensure the design and approval of curriculum and graduate program issues. The Associate Dean also serves as liaison to the UofM Undergraduate and Graduate Councils, and the academic units in the college.

Department Chair is an academic position held by a doctoral prepared, tenured professor. The Chair provides leadership and oversight for the smooth functioning of the department. The Chair overlooks entire operations of the department including, budget, teaching assignment, department committees, undergraduate and graduate students enrollments, research activity, space, outreach, staff, and facility. The Chair works closely with the Dean's office and reports to the Dean and works with all faculty and committee chairs in support of the academic unit.

Graduate Program Coordinator is a 9-month faculty position held by a tenured or tenure-track faculty with graduate status. The Graduate Coordinator will work closely with the Department Chair, Associate Dean, and PhD faculty to develop, implement, and evaluate the PhD program. The Graduate Coordinator provides leadership and oversight to ensure high quality and efficiency of the PhD program and to meet academic standards, and regulatory requirements, if any. The Graduate Coordinator heads the Graduate Committee to review and implement policies about the graduate program in the department and make curriculum changes. In consultation with the Graduate Committee, the coordinator makes plans for recruitment, process applications and make recommendations for the admission of new students. The Graduate Coordinator along with the Graduate Committee also prepares and administer the qualifying/comprehensive exams.

The Organization Chart



CHAPTER VII: Faculty Resources

FACULTY RESOURCES- Current and/or anticipated faculty resources should ensure a program of high quality. The number and qualification of faculty should meet existing institutional standards and should be consistent with external standards, where appropriate. The adequacy of the number of faculty should be paramount in the planning process as institutions build increasing numbers of interdisciplinary and cross-disciplinary academic programs. The student-faculty ratio for the proposed program should be included in the documentation.

The DPMS has nine tenured and tenure-track faculty members with PhDs and two full time instructors. It currently has one unfilled tenure-track position and anticipated to be filled by the fall of 2020. Each of the tenure-track and tenured faculty members has his/her own research program and a well-equipped research laboratory. The size of the faculty body is consistent with many other PhD programs in physics and reasonable for running a high-quality program. The DPMS has two full-time instructors and two adjunct instructors, who help with teaching lower-level undergraduate courses, thereby releasing time for the tenured and tenure-track professors to do research and teach upper-level undergraduate and graduate courses. With the PhD program, the ratio of the graduate student-faculty ratio is expected to be 2.5:1, which is a good number for maintaining high quality.

The department has a distinguished faculty body for running the proposed PhD program. The DPMS faculty have outstanding research achievements in terms of publications (see **Appendix D**), sponsored research grants (see **Appendix E**), and recognitications. Numerous awards and recognition in teaching, research, and service at all levels have been received by the DPMS faculty. Examples of recent faculty awards include one University Distinguished Research Award (2016), one University Distinguished Teaching Award (2016), two College Dunavant Professorship in 2015 and 2016, two Ralph E. Powe Junior Faculty Enhancement Awards from Oak Ridge Associated Universities (2016 and 2018).

Current Faculty- List the name, rank, highest degree, primary department and estimate of the level of involvement of all current faculty members who will participate in the program. If the proposed program is at the graduate level, designate current graduate faculty status in relation to eligibility to chair thesis and/or dissertation. Attach a three-page vita for each faculty member listed including relevant related activities for the past five years.

Table 9. Faculty participating in the proposed PhD program

Name	Rank	Highest Degree	Primary Department	Involvement	Graduate Faculty Status
Jingbiao Cui	Professor	PhD	DPMS	20%	Full
Thang Hoang	Assistant Professor	PhD	DPMS	20%	Full
M. Shah Jahan	Professor	PhD	DPMS	20%	Full
Mohamed Laradji	Professor	PhD	DPMS	20%	Full

Sanjay R. Mishra	Professor	PhD	DPMS	20%	Full
Francisco Müller-Sanchez	Assistant Professor	PhD	DPMS	20%	Full
Chenhui Peng	Assistant Professor	PhD	DPMS	20%	Full
Firouzeh Sabri	Associate Professor	PhD	DPMS	20%	Full
Xiao Shen	Assistant Professor	PhD	DPMS	20%	Full

Three-page vita of each faculty is included in **Appendix C**.

Anticipated Faculty- Describe the additional faculty needed during the next five years for the initiation of the program and list the anticipated schedule for the addition of these faculty members.

With the establishment of the program, one unfilled tenure-track faculty position is expected to be filled in 2020. No additional faculty in the DPMS is currently requested. However, depending on the growth of this program, new faculty may be needed to fullfil the needs of the program in the next five years from the initiation of the PhD program.

Faculty Mentoring Program – The faculty members have extensive experience in mentoring graduate students. All faculty members are mentoring or have mentored graduate students. Several faculty members have advised or are advising or co-advising numerous PhD students enrolled in Engineering, Chemistry, and Physics at UofM or other universities. Those faculty with mentoring experience will help mentor junior faculty on advising PhD students. The departmental policy states that all new faculty is to be assigned a faculty mentor to provide support for their research, teaching and professional development.

CHAPTER VIII: Library Information Technology Resources

LIBRARY AND INFORMATION TECHNOLOGY RESOURCES- Provide documentation to demonstrate adequate current and/or anticipated library and information technology resources to support a high-quality program, which meets recognized standards for study at a particular level or in a particular field.

The UofM Libraries is a leader in managing and providing access to information services and resources that support teaching, learning, and research. The libraries provide access to scholarly resources through the acquisition, organization, management, and preservation of the collections and supportive reference and instruction services.

The UofM Libraries receives most of its financial support (for both operating and library materials) from the University's E&G Budget. The Dean of the University Libraries presents an annual Libraries' budget review to the Provost to ascertain that the University Administration is kept abreast of the University Libraries' funding needs. The University Libraries also receives Technology Access Fee (TAF) funds, which derive from student-paid fees. These funds are specifically earmarked for the support of student use of technology and information technology. The University Libraries' TAF receipts are used to support access to electronic resources via the Libraries' website. Furthermore, the University Libraries and the University Advancement Division seek funding for endowments to support the growth of the collections within the University Libraries. In particular, the Friends of the University Libraries although small, has been a vital part of this support.

The majority of the paper monographs and serials related to physics are found in the McWherter Library on the main campus of the UofM. Many physics monographs are now accessible electronically, and most of the research articles are also accessible electronically. Every year, the University Libraries allocate a certain amount of funds toward purchasing physics monographs. The following table shows the history of physics monographs expenditure during the last 10 years.

Table 10: UofM Libraries expenditure on physics monographs

Period	Expenditure Amount
2009-2010	$4,470.84
2010-2011	$7,348.84
2011-2012	$5,756.03
2012-2013	$3,350.67
2013-2014	$1,750.58
2014-2015	$2,128.40
2015-2016	$1,922.47
2016-2017	$27,994.32
2017-2018	$2,863.49

2018-2019	$2,250.00

Table 11: UofM Libraries expenditure on physics serials

Period	Expenditure Amount
2009-2010	$112,640.57
2010-2011	$38,483.88
2011-2012	$39,991.16
2012-2013	$41,599.40
2013-2014	$62,669.57
2014-2015	$79,126.28
2015-2016	$94,515.17
2016-2017	$94,568.24
2017-2018	$103,253.81
2018-2019	N/A

Research Databases: The UofM Libraries also has many very useful search databases. The following is a partial list of the most commonly used databases by physics professors and students:

1. Web of Science
2. arXiv
3. National Center for Biotechnology Information (NCBI) PubMed

Interlibrary Loans: The UofM Libraries also provides a free-of-charge interlibrary loan (ILL) service available to all UofM faculty, students and staff. This service fills faculty, students and staff requests of books and articles not available in the UofM Libraries and not available in full text through licensed UofM databases. These requests are made through the website https://itlibloan.memphis.edu/ from over 10,000 libraries in the USA and abroad. The UofM Libraries also has reciprocal borrowing agreements with other local universities and colleges. The UofM Libraries also participates in collaborative document delivery with its fellow members of the Association of Southeastern Research Libraries and members of TENN-SHARE. These two programs ensure prompt delivery of items requested from the participating libraries.

The UofM Libraries has a Liaison faculty, which connects with a faculty representative from each department. Every year, the Library Liaison requests from the faculty representative titles of monographs that the department wishes the library to purchase. The Library Liaison solicits proposals for changes in the journals to which the university is subscribed. The DPMS also has a designated faculty member who represents the Department's needs to the University Libraries.

The UofM Libraries also has a Research and Information Services (RIS) desk, which is located on the first floor of McWherter Library in the Learning Commons. RIS's staff role is to help student and faculty users with information needs. This service is staffed during the regular hours of the library. The Learning Commons and Technical Support Desk are however open during extended hours.

The faculty of the UofM Libraries also offer various programs to enhance the information literacy of students. In particular, the faculty of the UofM Libraries often collaborate with department faculty to teach students how they can effectively obtain specifically needed information from the UofM libraries and/or its databases.

Library and Information Technology Acquisitions Needed - Describe additional library and information technology acquisitions needed during the first three years (associate and certificate), five years (undergraduate and master's programs), or seven years (doctoral programs) for the successful initiation of the academic program.

No additional library and information technology acquisitions needed during the first seven years.

CHAPTER IX: Support Resources

SUPPORT RESOURCES- Provide documentation to demonstrate adequate other existing and/or anticipated resources including clear statements of support staff, student advising, resources, arrangement for clinical or other affiliations, and professional development for faculty necessary for a successful program.

Evidence of Willingness to Partner- Provide evidence of established partnerships with appropriate entities which can include government, education, health, and business entities.

The DPMS has sustainable partnerships with local industries, healthcare institutions, and federal agencies. The DPMS faculty have established strong collaborations with local industries such as Smith and Nephew, Wright Medical Technology, Inc., Emerging Measurements Co., and health care institutions such as The University of Tennessee Health Science Center, St. Jude Children's Research Hospital, and West Cancer Center. Some researchers from these institutions are also adjunct faculty in the DPMS. By working with local industry, the department has acquired about $750,000 worth research equipment from Brothers Inc. Our sustained efforts in attracting donation have helped us to establish the Lois McGlothlin Donaldson Endowed Lecture in Physics with over $40,000 and Dr. Marchini's scholarship with over $30,000. The DPMS faculty have developed an active partnership with Oak Ridge National Laboratory (ORNL) for joint research projects. The faculty in this department currently has eight research projects supported by the FedEx Institute of Technology (FIT) to conduct advanced applied physics research. The department has a solid track record of attracting sponsored research from a number of federal funding agencies including, the National Science Foundation (NSF), the National Institute of Health (NIH), the National Aeronautics and Space Administration (NASA), United States Department of Agriculture (USD), etc. and a number of private foundations, such as the Research Corporation and the American Chemical Society Petroleum Research Fund, etc. Among our numerous research projects, four are currently supported by these agencies with total funding support of about $1.4 million (two funded by NSF and two by NASA). We will continue to expand our collaboration and partnership with local institutions and industry and to seek external funding to support our research and education efforts. The department also boasts healthy synergistic research activities with faculty from cross-disciplinary departments such as chemistry, biomedical engineering, mechanical engineering, electrical engineering and biology on campus. A list of recent external research grant can be found in **Appendix E**.

Other Support Currently Available- Include support staff, university, and non-university assistance.

Administrative Associate II, a 12-month professional staff position is held by an educationally qualified person who provides day to day administrative support, and management and oversight of all budgetary matters. The administrative associate is involved with student and adjunct contracts, faculty summer compensations, purchasing, grants management, and budgetary report. She also helps compile data, oversees daily operations, and supervises student worker. The administrative associate reports and advises the Chair on both financial and operational matters.

Instructor/Coordinator, This is 12-month faculty position with a graduate degree in physics and extensive experience in research facilities and instrumentation. The coordinator will work with faculty in the Department and other units on campus to oversee the lab safety, chemicals, maintenance, and operation of research equipment and machine shop, student training, and recruitment and outreach to the community. The coordinator will also provide the necessary support for graduate students to conduct research.

Materials Research Lab Manager, a 12-month technical staff position is held by a qualified individual with a PhD degree, who provides daily technical support to the research facilities in Materials Research Lab under Integrated Microscopic Center (IMC). He is in charge of equipment maintenance, users training, and scheduling services for the Materials Research laboratory. This staff is located in the IMC.

Local Technical Support Provider, a 12-month professional staff position is held by a qualified individual who provides daily technical support to faculty teaching, research, and student learning such as setting up Skype, webinar, testing, and troubleshooting computer and internet issues or problems. This staff is located in Scates Hall.

Faculty Advising

Selection and Qualification of Faculty Advisor **-** Once admitted to the PhD program, students will provide the Graduate Coordinator with their initial research interests during the first semester of coursework. The graduate committee will review and recommend a faculty advisor for each PhD student based on the mutual interest of both the student and the faculty. Faculty advisors must hold an associate or full graduate faculty status in the UofM Graduate School. The faculty advisor also needs to have an active research program/activity, supported by extramural funding and/or consistently productive via sustained peer-reviewed publications, or with a nationally recognized area of scholarship. Generally, one faculty advisor is assigned to each student, but in some instances, two advisors may be assigned to one student depending on the student's research area. In that case, one faculty serves as the primary advisor, and the other serves as a co-advisor. The graduate committee, in consultation with the Chair, will review all requests and make assignments based on (1) student preferences (2) availability of positions in research groups, and (3) qualifications of the faculty advisor.

Role of the Graduate Coordinator

The Graduate Coordinator, along with the Graduate committee, 1) provides orientation to all new PhD students, 2) advises and guides students regarding course selection and sequencing, 3) communicates to students the policies of the PhD program policies, including requirements and deadline dates, 4) works with the Department's staff to assist the student with course registration as needed, 5) works with the students' faculty advisors in developing goals for doctoral study, 6) monitors students' academic progress, and 7) completes an annual progress report for the student that is submitted to the graduate committee for review.

Responsibilities of the PhD Faculty Advisor

The faculty advisor:

- advises the student in his/her course learning,
- mentors the student for developing his/her original research,

- identifies funding opportunities for the student,
- works with the Graduate Committee to design and implement a comprehensive examination,
- discusses with the student about expectations of the examination content and completion,
- guides the student toward the completion of the comprehensive examination,
- works with the student and the Graduate Coordinator to form the dissertation committee and serves as the student's dissertation chair, and
- guides the student during his/her academic progress, degree completion, and career development.

Responsibilities of the Student

The PhD student:

- communicates regularly with his/her faculty advisor regarding the progress, goals, plans, and concerns of his/her dissertation,
- review relevant policies,
- review his/her curriculum plan,
- consults with the Graduate Coordinator regarding the courses to be taken and sequencing,
- reports any problems or concerns promptly to his/her faculty advisor, and if unresolved, to the Graduate Coordinator,
- participates in the selection of his/her dissertation committee,
- performs independent original research for his/her dissertation, and
- completes an annual progress report and submit it to the Graduate Coordinator

Changing the Dissertation Advisor

A change in the PhD dissertation advisor may occur during the student's course of study. For example, a student markedly changes his/her research interests. If a change of an advisor is necessary, the student and current advisor should first discuss the matter and notify the Graduate Coordinator or the Chair. The student would then be required to meet with the new potential advisor and submit an advisor change request form.

Professional Development for Faculty

The DPMS is fully dedicated to supporting the faculty for their professional development by encouraging them to attend national and international conferences, workshop, to visit funding agencies, meet with collaborators, and travel to national laboratories. Departmental funds and the indirect charges of research grants will be set aside for these purposes. The department invests considerably in hosting 20 to 24 weekly research seminars. A number of seminar speakers with the potential for collaboration with faculty are invited. Seminar speakers are invited from across the nation and within UofM. The Department also hosts the Lois McGlothlin Donaldson Endowed Lecture in Physics annually in the spring. These endowed lectures are given by world-renowned physicists and are free to the public. These lectures well attended by faculty from UofM, students, and the public. The on-campus Center for Innovative Teaching and Learning (CITL) supports faculty with innovative methods of developing, delivering, and demonstrating learning experiences. Their office provides resources for ensuring the best learning outcomes for students. The department will utilize the support from CITL in the

design, development, and delivery of new courses. The Department faculty also actively participate in the American Association of University Professors (AAUP) conferences and training, local Society of Physics Students (SPS) chapters, and on-campus training programs for honing these professional careers. The Department also encourages its faculty to take part in the Professional Development Assignment (PDA) program for faculty enrichment, which is supported and managed by the College of Arts and Science.

Other Support Needed- List additional staff and other assistance needed during the first three years (associate and certificate), 5 years (baccalaureate and master's programs), or 7 years (doctoral programs).

The DPMS will provide one Graduate Assistant and one part-time student worker to support the PhD program.

CHAPTER X: Facilities and Equipment

Existing facilities and equipment

Table 12. Shared Equipment for Applied Physics Research in the DPMS, Manning Hall

Item	Equipment	Manufacturer	Model	Use for
1	Field-emission Scanning Electron Microscope	Hitachi	S-4700II	2D surface science tool, Field emission gun
2	Energy dispersive spectrometer	EDAX	Genesis 2000 XMD	For qualitative and quantitative elemental analysis
3	Atomic Force Microscope	Pacific Nanotech	NanoR/Vibraplane	3D surface analysis tool, tomography and morphology measurements
4	Chemical vapor deposition furnace	First Nano	EasyTube 1000	For sample growth, thermal chemical vapor deposition
5	Electron Beam / Thermal Evaporator	Semicore	CHA-600	For thin film sample deposition
6	Electron gun	Kimball Physics	EMG-12	for cathodoluminescence research
7	FT-IR spectrometer	Perkin Elmer	Spectrum 100	for sample analysis in the near-infrared frequency
8	Thermogravimetric	Perkin Elmer	STA 6000	for thermogravimetric analysis
9	Planetary Micro Mill	Fritsch	Pulseverisette 7	Size reduction of particles, 100-1000 RPM
10	Blade Coater	Elcometer	4340	for film deposition
11	Rotary Evaporator	Cole-Parmer	SB-1000	for solvent deposition and removal
12	Glove box	Innovative Technology	System 1	for sample preparation
13	DLS/Zeta potential apparatus	Brookhaven Instruments	ZetaPALS	Dynamic light scattering and zeta potential measurements

14	Fluorescence spectrophotometer	Horiba Jobin Yvon	Fluoromax-4	Fluorescence spectral analysis, 250-850 nm
15	UV-VIS absorption spectrometer	Varian	Cary 100-BIO	for light absorption analysis from 190-900 nm, 0.2nm resolution
16	UV-Ozone cleaner	Jelight	144 AX	Cleaning/treating sample surfaces
17	Plasma processor	PVA Tepla	4ML	For sample processing, use O2, Ar, CF4, N2 gases
18	Spin coater	Laurell Technologies	WS-400B	For sample deposition, liquid sample treatment
19	De-ionized water supply	Alga	Purelab Ultra	18.2M-ohm resistivity water for sample cleaning
20	Optical Microscope and camera	Luxo	18712	For optical analysis.
21	Imaging system	Microvision system	KH-2200 MD	For sample optical imaging
22	Mask aligner	Tamarack	152A	for photolithography with resolution 1μm
23	Chroma meter	Konica Minolta	CS-100A	For luminance and color coordinate measurement
24	Electrometer	Keithly	6517A	For measuring electrical potential without drawing any current
25	Fuel cell test system	Scibner Assoc.	850	Fuel cell characterization
26	Potentiostat/Galvanostat	Princeton Applied Res.	263A	Electrochemical study, I-V curve
27	Fiber-optics spectrometer	Ocean Optics	USB 2000	For light frequency analysis
28	Centrifuge	Labnet	Hermle Z300	For sample centrifugation up to 13500 RMP
29	Sputter Coater	Hummer	10.2	For thin film deposition
30	Sonicator/Cleaner	Cole-Parmer	8893	For sample cleaning

31	Hot plate	Fisher Scientific	IR6000	Sample heating using infrared technology
32	Chemical refrigerator	Fisher Scientific	SR5600W-979601	Chemical storage.
33	Spectrophotometer	Konica Minolta	CM-2500d	For light analysis from samples
34	Surface tensionmeter	Fisher Scientific	Tensiomat 21	Surface tension measurements
45	Battery analyzer	LaMantia	BA-420,421,422	2-200 mA range charger/analyzer
36	Table-top glove box	Plaslabs	815-PGB	For non-critical work (N2 filled)
37	Force measurement apparatus	Imada	DS2-110 MX-110	Digital gauge and test stand for force exertion measurements
38	Laser sources	Various	Various	Various
39	pH meter	Thermo orion	520A+	Solution pH measurements
40	Particle counter	Particle measuring system	Handlaz Mini	Particle-counting and monitoring

Other equipment for research and graduate education

All tenured and tenure-track faculty at the DPMS have their own research labs with excellent facilities for advanced research (see details below). Also, the faculty and students have access to the central microscopy facility on campus Integrated Microscopy Center (IMC), which houses Materials Lab with key fabrication and characterization tools such as a class 100 Clean Room, Magnetron Sputtering, Mask Aligner, X-ray Photoemission Spectroscopy, Transmission Electron Microscope (TEM), Scanning Electron Microscope (SEM) and Field-emission Scanning Electron Microscope (FESEM).

Individual faculty lab equipment and facilities

Cui's Energy Materials Laboratory

Dr. Cui's group has individual laboratory spaces of over 1000 sq. Ft. in the DPMS, Manning Hall, equipped with the necessary instrumentation for the successful performance of the proposed project. This is a lab with infrastructures for materials research and equipped with a chemical hood and various synthesis and characterization tools. The list of instruments in Dr. Cui's lab are as follow:

1. Atomic Layer Deposition system (ALD, Ensure 9200) for ZnO, AZO, Al_2O_3 thin films and core-shell nanostructure deposition

2. Plasma-Enhanced Chemical Vapor Deposition (PECVD, MTI) for nanomaterials synthesis, processing, and post-growth treatment such as rapid annealing in different gases up to 1200 °C
3. PVD system (Edward A306 and Sharon vacuum) for thin film deposition such as ZnO, AZO, Al_2O_3, Mo and other metal layers
4. Electrochemical deposition system (Gamry interface 1000) with PWR 800 software for materials deposition and electrochemical characterization.
5. Plasma Etcher/cleaner (Diener) for surface cleaning and treatments
6. Semiconductor Analyzer system (Keithley 4200, and 2000) for electrical characterization of materials and devices
7. Raman microscope (Thermo DXR) for materials characterization.

Hoang's Nanophotonics Laboratory

Dr. Hoang's new Nanophotonics laboratory is located in the DPMS, Manning Hall. The lab is equipped with a high-performance Coherent Chameleon II ultrafast laser, optical table, and high resolution spectral, spatial and temporal spectroscopic setup, high-end computers for data acquisition. Instruments in Dr. Hoang's lab are as follow:

1. Horiba Jobin Yvon iHR550 f/6.4 high-resolution spectrometer with three gratings, 150, 600 and 1200 grooves/mm, Synapse Back-Illuminated detector with QE up to 95% in the visible frequency will be used for analyzing light emission/scattering from individual nanostructures.
2. Home built optical Bright/Dark field microscopes: 60X, 0.55 NA, 100X, 0.9NA Bright/Dark field microscope objective together with nano-positioning linear stage (Newport 9063-XYZ-PPP), 25 mm travel range, and 30 nm resolution, highly sensitive Coolsnap camera will be used for optical characterizations of single nanostructures.
3. Polarization Optics: Sets of Newport and Thorlabs polarizers and wave-plates allow us to measure various optical signals with different polarizations and frequencies.
4. Time-correlated single photon counting setup (30 ps timing resolution overall): PDM APD (Micro Photon Devices) single photon detector and Picoharp 300 (Picoquant) module allow optical measurements with single-photon sensitivity.
5. Coherent Chameleon Ultra II ultrafast Ti: Sapphire laser provides femtosecond pulses with tuning more than 400nm, from 680nm to 1080nm and peak power >3.5 W (at 800 nm). Harmonix Second Harmonic Generation, which converts the wavelengths of the Chameleon ULTRA II to 340-540 nm range. These lasers are used for sample excitation.
6. Janis closed-cycle optical cryostat allows low-temperature measurements: 8 K - 300 K, < 15 nm vibration, sample holder with a heater and temperature sensor, electrical feed-throughs.

Jahan's Biomaterials Characterization Laboratory

Dr. Jahan's Biomaterials Characterization Laboratory is located in the DPMS, Manning Hall and has more than 1500 sq. ft. Instruments in Dr. Jahan's laboratory are:

1. Electron Spin Resonance Radical Analyzer
2. UV/VIS/NIR Spectrophotometry
3. Thermoluminescence-Harshaw-Bicron
4. Bruker EMX300 EPR Spectrometer
5. Varian E4 EPR Spectrometer
6. Varian E109 EPR Spectrometer

7. Radioluminescence
8. Fluorescence
9. Phosphorescence
10. Closed cycle helium refrigeration unit designed to fit the optical and EPR spectrometer
11. Liquid nitrogen transfer line for EPR spectrometer
12. X-ray generator (10 keV)-American Instruments
13. 1000-W Xe-arc lamp
14. 500-W Hg vapor lamp
15. Gas plasma unit for surface treatment
16. Ovens and furnaces

Laradji's Computational Soft Matter and Biological Physics Laboratory

Dr. Laradji has 1200 square feet of laboratory space in the DPMS, Manning Hall. The laboratory hosts six (6) desks for students, a meeting/discussion area and two laser printers. Each desk has a desktop including 24" widescreen flat panel monitors. Dr. Laradji's lab is also equipped with a desktop supercomputer with 4 graphic cards NVIDIA GTX 570, 16 GB of RAM, 10 GB of graphics RAM. The research group uses this computer for visualization and code development. Dr. Laradji's lab also has network-attached RAID storage of 6TB. Dr. Laradji's group also uses the UofM High-Performance Computing Facility.

Mishra's Nanomaterials Laboratory

Dr. Mishra's research group has more than 2000 sq. ft. of laboratory space in the DPMS, Manning Hall that is equipped with high-end computers, chemical hoods, chemical storage space, and bench space for four individuals. Dr. Mishra's laboratories house synthesis and characterization instruments and systems listed below.

1. Chemical Hood: a platform for the nanoparticles synthesis.
2. XRD (Bruker)
3. TGA and DSC (Instrument Specialist)
4. Surface area analyzer (Quantachrome Autosorb)
5. Gamry Electrochemical system (Gamry Instruments)

Müller-Sanchez's Astronomy Laboratory

Dr. Müller-Sanchez's research group has more than 500 sq. ft. of laboratory space in the DPMS, Manning Hall, with computing resources necessary to carry out the observational and numerical modeling aspects of his research. The laboratory of Müller-Sánchez in the department has individual desktops for students with their dedicated hardware, operating systems, and astronomical applications. Dr. Müller-Sanchez's group also uses the UofM High-Performance Computing Facility.

Peng's Soft Matter Laboratory

Dr. Peng's Soft Matter group has more than 750 sq. ft. of laboratory space in the DPMS, Manning Hall. The laboratory has recently been renovated to conduct optical experiments involving soft materials such as viruses. The laboratory is equipped with refrigerators, sub-zero freezer, fume hood, vacuum pump, sink, cooling water, heavy-duty electrical outlets, gas, air, nitrogen, deionized/distilled water, and water baths. The major optical equipment and facilities in the laboratory are listed below.

1. Two optical tables in dark rooms
2. Optical light sources, broadband, and lasers
3. S-VIS0-NIR_ES Spectrometers.
4. Charge coupled device (CCD) camera, imaging cameras.
5. EXFO X-Cite 120 fluorescent illumination system
6. Amscope 40X-1000X Upright Fluorescence Microscope with Rotating Multi-FilterTurret
7. Linkam L-PE120 hot stage and controller
8. Stuart SI500 Shaking Incubator
9. Amscope 50X-1000X Advanced Upright Polarized-light Microscope
10. Clinical 100 laboratory centrifuge
11. Sheldon 1400E vacuum oven
12. Maestro ultrabright UV transilluminator
13. BD-20AC Laboratory Corona Treater
14. HNL100L - HeNe Laser, 632.8 nm, 10 mW, Polarized, Newport LQC690-30C laser
15. Agilent 33250 waveform generator
16. Trek 677B supply/Amplifier

Shen's Computational Materials Physics Laboratory

Dr. Shen has 700 square feet of laboratory space in the DPMS, Manning Hall. The laboratory hosts eight (8) desks for students. Each desk has a desktop computer. Dr. Shen's lab also has a computer workstation for small and medium-size computing jobs. The workstation is equipped with two Intel Xeon E5-2640 CPUs (total of 40 cores) and 2 NVIDIA GTX 1080 graphic cards, 128 GB of RAM, 16 GB of graphics RAM, and 6 TB of the hard drive for storage. The research group also has a high-end desktop computer (DELL XPS 8900) for visualization and code development. The desktop has an Intel i7-4790 CPU, NVIDIA GTX 745 graphic cards, 16 GB of RAM, 4 GB of graphics RAM, and 2TB of the hard drive for storage. Dr. Shen's group also uses the UofM High-Performance Computing Facility.

Sabri's Medical Materials Laboratory

Dr. Sabri research group has approximately 700 sq. ft. of laboratory space in the DPMS, Manning Hall. Her laboratory is equipped with a synthesis room, a separate characterization room, a dark room, and an adjoined student's (GA) office room. The lab contains two fume hoods. A separate space has been dedicated to experiments involving cryogenic liquids. Available instruments in Dr. Sabri's laboratory are:

1. 2 Mark 10 bench top tensile tester and all attachments needed for performing compression and extension tests
2. 2 Polaron critical point dryers (used for aerogel preparation) with their independent recirculators/chillers
3. 3 vacuum ovens and curing ovens (used for sol-gel chemistry)
4. Tenney Junior environmental chamber (control of ambient conditions)
5. 2 incubators with insulating jacket and gas inlet accommodations
6. 3 optical microscopes (phase contrast, metallurgical, stereo) as well as
7. UV Vis spectrophotometers
8. Trek Inc Kelvin Probe setup with two probe heads

9. Thermtest Thermal Property System (advanced system for measuring thermal conductivity and diffusivity).

Additional facilities and equipment required or anticipated

No additional physical facilities or equipment that will be required/anticipated during the first seven years

CHAPTER XI: Marketing and Recruitment

Provide a plan, including marketing and recruitement, to ensure all prospective students will have equitable access to the academic program so as to impede the state's commitment to diversity and accesss in higher education. Idensitify any budget implications in the THEC Financial Projection Form.

Background on the department's success: The DPMS at UofM has established itself as a leader in Physics and Materials Science locally, regionally, and nationally. It has demonstrated the ability to attract highly-achieving students, ensure adequate support and training, and achieve excellent placements after graduation. The DPMS is a research-intense department with 100% of its tenured and tenure-track faculty conducting sponsored research. It has successfully implemented recruiting and retention strategies that continue to provide admitted students with a nurturing and academically rigorous environment that prepares them well for graduate programs as well as the job market. The Department has not only invested a lot of efforts in students recruitment and the retention of the students, but also has provided them with customized mentoring plans based on student's needs, interests, and their ultimate desired career pathways. The Department is a firm believer that one of the best marketing strategies is showcasing the success of our existing and past students, both at the undergraduate and MS level, and will continue to be fully vested in student success. The department's leadership and its various committees (Undergraduate Curriculum Committee, Graduate Committee, Outreach Committee, etc.) periodically evaluate and revise program details to reflect the changing times and societal/industrial needs. Our ultimate goal is to help students seize better career opportunities without compromising the quality of our core physics training.

Student success: One of the departmental focus is student success. Undergraduate students enrolled in the Physics and Materials Science program can choose from one of four undergraduate concentrations. The curriculum requirements for each concentration has been carefully designed and updated to provide students with the skills, knowledge, and tools needed to succeed in stipulated time while providing them with a solid foundation in Physics. Students are encouraged to engage in undergraduate student research and learn valuable communication, computational, and experimental skills. Since 2014, 65% of students that graduated with a BS in Physics have continued to a graduate degree programs in the Physical Sciences, and the remaining 35% have started working for various tech industries. Examples of student achievement include numerous first place awards in Student Research Forum, Naseeb Shaheen Award, and NASA Summer Internship. The UofM Society of Physics Students (SPS) was recognized by the American Institute of Physics and earned the designation of a Society of Physics Students Distinguished Chapter for 2016-2017 and an Outstanding Chapter for 2017-2018.

Currently, the Department offers an MS degree in Physics and it has been very successful by all measures. 100% of our students are engaged in sponsored research. Our MS program has been ranked as one of the top programs in the nation as reported by the American Institute of Physics (see below) and continues to grow and produce very successful students. Since 2013, 79% of students graduating with an MS in Physics have continued to a PhD program at top universities in the country.

Master's-Granting Departments Averaging 7 or More Physics Bachelor's Degrees Per Year, Classes of 2012 through 2014.

	Annual Average		Annual Average
Northern Arizona U	26	DePaul U (IL)	9
Appalachian State U (NC)	19	San Jose State U (CA)	9
Virginia Commonwealth U	19	Cal State U, Northridge	8
Cal State U, Long Beach	18	Eastern Michigan U	8
Miami U (OH)	17	U of Massachusetts, Dartmouth	8
San Francisco State U	16	Western Kentucky U	8
(CUNY) City College (NY)	12	Creighton U (NE)	7
Christopher Newport U (VA)	11	San Diego State U (CA)	7
U of Texas, El Paso	11	Southern Connecticut State U	7
Stephen F. Austin State U (TX)	10	U of Memphis (TN)	7
U of Colorado, Colorado Springs	10	U of Texas, Brownsville	7
U of Massachusetts, Boston	10		

List includes only departments that offered a master's as their highest physics degree in 2014 and contributed degree data for all 3 years.

http://www.aip.org/statistics

The success of our MS program is based on a very successful recruiting plan. We intend to build on this platform and expand our recruiting efforts to recruit highly qualified students for the proposed PhD program. Our marketing strategies for the PhD program will include the following efforts:

Internal to UofM: Recruiting at the school level: A consolidated recruiting effort at the university level will provide UofM students with more options for PhD degrees and STEM training. Many of our top undergraduate and MS students go onto successful research careers in other institutions and have always expressed a great deal of interest in staying in the Department to pursue a PhD degree. The Department will proactively recruit its own students, both at the BS and MS levels into our PhD program.

External to UofM: A dedicated staff/faculty member will coordinate and assist recruiting efforts external to the UofM community. The department will amplify its recruiting efforts by developing and implementing strategies suitable for statewide and national/ international recruiting. At the state level, the plan will feature strategies tailored to regions, disciplines, and backgrounds while reaching out to local and regional 4-year institutions. These efforts will be organized in conjunction with open house events and panel discussions of graduate school opportunities in Physics and Materials Science at UofM, semester-based departmental newsletters that will be distributed among peer institutions, 4-Year colleges, and institutions that we have professional relationships and collaborations with. Our PhD opportunities will be advertised and promoted through methods that are

more traditional also. We will advertise with the American Institute of Physics (AIP), Institute of Physics (IoP), American Physical Society (APS), American Chemical Society (ACS), Materials Research Society (MRS) and other closely related professional organizations. PhD opportunities will also be advertised on social media outlets such as Twitter and Facebook that are maintained by the university/ department.

Colleagues at other institutions: Faculty members will reach out to colleagues and alum at other universities and institutions to advertise for our PhD program and help recruit students from these institutions. We will work closely with the Director of Development in the College of Arts and Sciences to disseminate the graduate program information to alumni and friends.

International outreach: The Department will leverage existing partnerships and establish new partnerships to continue to proactively promote the recruitment of international students to foster a pipeline of PhD candidates from strong universities and programs. We will work closely with the International Students Services office at UofM to organize a packet that demonstrates the benefits of our PhD program and the unique training that students will receive from our faculty. The department has established a dual degree program with Anhui University for undergraduate education, which may become a recruitment tool for our PhD program. Faculty at the DPMS are engaged in and/or are leading international collaborations. Faculty frequently receive requests from overseas collaborating institutions to host PhD students' intent on graduating with a PhD in Physics from UofM. These requests and student applications will create a steady stream of qualified and highly motivated students that will strengthen our department's international partnerships and scholarly outputs as well as providing a pool of students for the PhD program.

Identify any budget implications in the THEC Financial Projection Form:
Budget for marketing and recruitment is included in THEC Financial Projection Form (See Appendix A). It includes $5000 in the first year of program implementation, $3000 in the second and third years, and $1500 in the fourth and following years.

CHAPTER XII: Assessment and Evaluation

ASSESSMENT/EVALUATION- Although the primary responsibility for program quality rests with the institution and its institutional governing board or its system, THEC considers pertinent information to verify that high standards have been established for the operation and evaluation of the programs. Evidence must be proposed to demonstrate that careful evaluation is undertaken periodically throughout the lifetime of the program indicating:

The schedule for program assessments or evaluations, (including program evaluations associated with Quality Assurance, institutional program review, student evaluations, faculty review, accreditation, and employer evaluation.

Formative evaluations will include ongoing student evaluations, faculty feedbacks, an annual evaluation of the program in five major components: faculty, program, outcomes, resources, students, and an external program review every five years. The faculty and graduate committee along with the department chair will do the internal evaluation annually. Exiting survey on the quality and operation of the PhD program will also be conducted among the graduating students who may provide concrete feedback on the program. The external review will be conducted on the 5th year through campus visit by a team of at least two external reviewers from peer institutions. This review starts with an internal evaluation by completing a self-study document. This document includes student data, curriculum, faculty information, administration, facilities, resources, accomplishments, strength and weakness, and needs for the program development. The external evaluation team will critically review the self-study document and follow up with an on-site visit to the Department. During the on-campus visit, the evaluation team would perform a first-hand assessment of the program through visiting research and Department facilities and interviewing students, faculty, and staff. Following the campus visit, the review team will provide the Department with a written evaluation report, which would identify strengths, concerns, weaknesses, deficiencies, and recommendations for improvements. Based on the findings and recommendations of evaluations, the department will develop a strategic plan to address the areas under concern for improvement. These evaluations are critical to ensuring high quality and viability of the PhD program in Applied Physics.

Faculty- Faculty data will include the numbers of faculty and faculty CV, diversity, teaching quality, publication, research projects, internal and external research grants, professional development, professional services, presentations and invited talks at national and international conferences and universities, local and national recognition, student advising and participation on dissertation committees.

Program- the PhD program evaluation will be in performed according to the UofM's mission and professional standards for doctoral education. It addresses the quality and efficiency of the program related to the knowledge discovery in Applied Physics and training of the next generation scientists to fulfill the intellectual needs for advanced research, education, and technology development. The program focuses on providing formal and informal teaching and learning experience on (1) acquisition of fundamental knowledge in the area of applied physics, (2) skill set development for scientific

research, (3) researcher/scholar training through advanced research projects, (4) discovery of new knowledge and dissemination of research results, and (5) immersion experiences that foster the student's development as a researcher.

Outcomes- Advancement to candidacy is based on an assessment of the student's basic knowledge of the critical elements of physics and the ability to conduct independent research in various applied areas. The evaluation will focus on three key areas: knowledge and critical thinking, research capability, and communication skill. Candidacy exam provides a key measurement of the students' basic knowledge that is needed to be successful in completing a PhD degree. Research idea development, execution of research design, data acquisition, analysis, and presentation and dissemination of research results constitute the key elements for research training. Quality publications and presentations are indications of research accomplishments. The research findings need to be summarized as dissertations, reflecting the students' original contributions to the scholarship. These systematic evaluations of graduates and their scholarly productivity will be performed annually. The overall success of the PhD program will be measured via the success of students passing the candidacy exam, retention rate, degrees conferred over five years, and the job placement.

Resources- Evaluations of the resources for supporting the needs of the doctoral program will be conducted annually. The DPMS currently has adequate research infrastructure in support of the PhD program. As the PhD program evolves, it is important to evaluate the resources needed for the program growth and research expansion. The needs may include space for new faculty, new research projects, students' offices, maintenance funds for major equipment, travel support for attending conferences and visiting funding agencies, and support personnel. The Department will also leverage on-campus resources for furthering the PhD program, including the conference rooms in UC center, the High-Performance Computing Facility, the Integrated Microscopy Center, proposal writing and grant management services, and library resources.

Students- Evaluation covers various aspects of students' merit, student pool, and research interests, quality and success rate of students in classroom and laboratory, candidacy exam, students' competitiveness, and progress and productivity in research. Evaluation of students is based on retention, progression, degree completion, effectiveness in teaching as teaching assistants, quality research as a research assistant, and research outcomes such as publications, presentations, and recognition.

Those responsible for conducting program assessments or evaluations, and accreditation

The Department Chair in conjunction with the Graduate Committee will be responsible for both internal and external evaluations of the PhD program. The external review will be conducted by inviting an evaluation team from peer institutions. The evaluation of the doctoral program will include monitoring faculty participation, program effectivness, research and graduation outcomes, financial and laboratory resources, and student data. Alumni and employer surveys will be conducted during the evaluation process.

Accreditation

A PhD program in Applied Physics does not need professional accreditation.

CHAPTER XIII: Funding

See THEC Finical Projections Form in **Appendix A.**

APPENDIX A: Financial Projections

Tennessee Higher Education Commission

Attachment A: THEC Financial Projections

University of Memphis

PhD Program in Applied Physics

Seven-year projections are required for doctoral programs.

Five-year projections are required for baccalaureate and Master's degree programs

Three-year projections are required for associate degrees and undergraduate certificates.

Projections should include cost of living increases per year.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
I. Expenditures							
A. One-time Expenditures							
New/Renovated Space (GA office)	$ 20,000	$ 20,000	$ 20,000	$ -	$ -	$ -	$ -
Equipment	-	-	-	-	-	-	-
Library	-		-	-	-	-	-
Consultants	-	-	-	-	-	-	-
Travel	-	-	-	-	-	-	-
Other (website)	5,000	-	-	-	-	-	-
Sub-Total One-time	25,000	20,000	20,000	-	-	-	-
B. Recurring Expenditures							
Personnel							
Administration							
Salary	-	-	-	-	-	-	-
Benefits	-	-	-	-	-	-	-
Sub-Total Administration	-	-	-	-	-	-	-
Faculty							
Salary		-	-	-	-	-	-
Benefits (37.1%)	-	-	-	-	-	-	-
Sub-Total Faculty	-	-	-	-	-	-	-
Support Staff							
Salary	-	-	-	-	-	-	-
Benefits	-	-	-	-	-	-	-

Sub-Total Support Staff	-	-	-	-	-	-	-
Graduate Assistants							
Salary	144,000	272,000	352,000	368,000	384,000	400,000	416,000
Benefits (1.6%)	2,304	4,352	5,632	5,888	6,144	6,400	6,656
Tuition and Fees* (See Below)	96,273	185,486	244,841	261,090	277,891	295,259	313,211
Sub-Total Graduate Assistants	242,577	461,828	602,473	634,978	668,035	701,659	735,867
Operating							
Travel	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Printing	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-
Other (marketing & Advertising)	5,000	3,000	3,000	1,500	1,500	1,500	1,500
Sub-Total Operating	10,000	8,000	8,000	6,500	6,500	6,500	6,500
Total Recurring	**252,577**	**469,838**	**610,473**	**641,478**	**674,535**	**708,159**	**742,367**
TOTAL EXPENDITURES (A + B)	**277,577**	**489,838**	**630,473**	**641,478**	**674,535**	**708,159**	**742,367**

***If tuition and fees for Graduate Assistants are included, please provide the following information.**

Base Tuition and Fees Rate	10,697.00	10,910.94	11,129.16	11,351.74	11,578.78	11,810.35	12,046.56
Number of Graduate Assistants	9	17	22	23	24	25	26

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
II. Revenue							
Tuition and Fees[1]	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Institutional Reallocations[2]	76,718	208,337	281,318	281,655	304,030	316,960	322,459
Federal Grants[3]	20,000	30,000	40,000	50,000	60,000	164,199	192,908
Private Grants or Gifts[4]	-	-	-	-	-	-	-
Other[5]	180,859	251,501	309,155	309,823	310,505	227,000	227,000
BALANCED BUDGET LINE	**$ 277,577**	**$ 489,838**	**$ 630,473**	**$ 641,478**	**$ 674,535**	**$ 708,159**	**$ 742,367**

Notes:

(1) In what year is tuition and fee revenue expected to be generated and explain any differential fees. Tuition and fees include maintenance fees, out-of-state tuition, and any applicable earmarked fees for the program.

Tuition and fee revenue will begin year 1

(2) Please identify the source(s) of the institutional reallocations, and grant matching requirements if applicable.

Income generated from undergraduate and indirect charges of research grants. This budget will increase gradually up to $322,459 in the 7th year.

(3) Please provide the source(s) of the Federal Grant including the granting department and CFDA(Catalog of Federal Domestic Assistance) number.

A federal grant from National Science Foundation (NSF), Math and Physical Science Division (CFDA 47.049)

National Aeronautics and Space Administration (NASA), 43.001

Department of Health and Human Services, NIH 93.310

Department of Energy, 81.117

(4) Please provide the name of the organization(s) or individual(s) providing grant(s) or gift(s).

N/A

(5) Please provide information regarding other sources of the funding.

The Department of Physics and Materials Science currently has an annual graduate assistantship of 227,000 for MS program, which will phase in to support the PhD program. During year one and two, $100K and $170K will be used to support PhD students. From third year, total GA funds of $227,000 will be shifted to PhD program.

Three PhD students in the first cohort will be supported by First Generation STEM Fellowships from the Division of Research and Innovation (Office of Vice President for Research and Innovation), which amounts to $80,859 in year one with a slight increase to $83,505 in year 5. These three GAs are expected to continue in the sixth and seventh years using the Federal Grants, First Generation STEM Fellowships, Diversity Funds, and RISE Fellowship program.

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APPENDIX B: Courses Syllabi

PHYS 6020	**Soft Matter and Biological Physics**
Credit Hours	3 semester units
Prerequisites	none
Co-requisites	none
Faculty	Dr. Mohamed Laradji Location: 214 Manning Hall Office Phone: (901)-678-1676 email address: mlaradji@memphis.edu Office Hours: variable
Course Description	This is an introductory course to the exciting field of soft matter and biological physics. The material you will learn during this course will enable you to gain the essential knowledge to do research in soft matter physics as well as biological physics. Students in this course are expected to have a working knowledge of calculus, physics and chemistry.
Course Outcomes	• Learn the basic principles of soft matter and biophysics. • Be able to apply these principles to solve problems.
Textbook(s) and Resources	"Physical Biology of the Cell", by Phillipis, Kondev, Theriot & Orme (Garland, 2009)
Teaching Methods	Conventional instruction and a project, in which the students will independently complete a research project under the supervision of a faculty member.
Evaluation Methods	Homework: 40% Final exam: 30% Project: 5%
Topical Outline	• Introduction • Mechanical and Chemical Equilibrium in the Living Cell • Entropy • Structure of Macromolecules • Electrostatics • Self-assemblies of Amphiphiles • Biological Membranes • Cytoskeletons • Hydrodynamics

PHYS 6021	**Applied Radiation Physics**
Credit Hours	3 semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. M. Shah Jahan Location: 341 Manning Hall Office Phone: (901)-678-2410 email address: mjahan@memphis.edu Office Hours: Variable
Course Description	This course introduces applied radiation and radioactivity; types of radiation, radiation measurement interaction with matter, and biological effects; radiation safety aspects emphasized.
Course Outcomes	• Learn the basic principles of radiation physics. • Be able to apply these principles to solve applied problems.
Textbook(s) and Resources	Textbook: "Applied Physics for Radiation Oncology" by Robert Stanton and Donna Stinson, 1996 Medical Physics Publishing,
Teaching Methods	Conventional instruction.
Evaluation Methods	Homeworks: 30% Test 1: 20% Test 2: 20% Final exam: 30%
Topical Outline	• Ionizing Radiation and its Properties • The Production of X-Rays • Radiation Quality • X-Ray and Gamma-Ray Interaction with Matter • Principles of Radiation Detectors • Determining Radiation Intensity • Radiation Sterilization • Higher Energy Beams • Linear Accelerator • Co-60 and Other High-Energy Machines • Detectors and Radiation Safety

PHYS 6050	**Astrophysics I**
Credit Hours	3 semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Francisco Muller Sanchez Location: 328 Manning Hall Office Phone: (303)-521-6404 email address: F.Muller.Sanchez@memphis.edu Office Hours: variable
Course Description	This course is the first part of a two-semester introduction to astrophysics. The goal is to show you how we can apply basic physical principles (gravity, fluid dynamics, electromagnetism, etc.) to understand the properties of astronomical objects. The focus during this semester will be on stars and objects within our Galaxy; this will lead on to Astrophysics II which will concentrate on extragalactic astrophysics. Numerous discussions, video demonstrations, and discovery-based laboratories further enrich the learning experience. Selected topics treated in some depth, with some quantitative content appropriate to any science major.
Course Outcomes	• Learn the basic principles of astrophysics. • Be able to apply these principles to solve problems.
Textbook(s) and Resources	Textbook: "An Introduction to Modern Astrophysics" by Carroll and Ostlie, Cambridge University Press, 2nd edition. "The Cosmic Perspective" (Jeff Bennett, Pearson, 8th edition). "An Introduction to Modern Stellar Astrophysics" by Dale A. Ostlie and Bradley W. Carroll.
Teaching Methods	Conventional instruction.
Evaluation Methods	Homeworks: 30% Test 1: 20% Test 2: 20% Final exam: 30%
Topical Outline	• Characteristics of the planets in the solar system, habitable zone, life on Earth and extremophiles (life in extreme environments) • Detection and characterization of extrasolar planets • Formation, structure, and evolution of stars and planetary systems • Stars and stellar systems, binary stars, pulsating stars, red giants and brown dwarfs • Initial stages of stellar evolution (protostars, T Tauri stars) and final stages (novae and supernovae). • The physics of stellar remnants - white dwarfs, neutron stars and black holes • Galactic and planetary nebulae and their relation to stars • The black hole at the center of the Milky Way

PHYS 6051	**Astrophysics II**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Francisco Muller Sanchez Location: 328 Manning Hall Office Phone: (303)-521-6404 email address: F.Muller.Sanchez@memphis.edu Office Hours: variable
Course Description	This course is the second part of a two-semester introduction to astrophysics. The goal is to show you how we can apply basic physical principles (gravity, fluid dynamics, electromagnetism, etc.) to understand the properties of astronomical objects. The focus during this semester will be on galaxies, active galactic nuclei, and cosmology. Numerous discussions, video demonstrations, and discovery-based laboratories further enrich the learning experience. Selected topics treated in some depth, with some quantitative content appropriate to any science major.
Course Outcomes	• Learn the basic principles of astrophysics. • Be able to apply these principles to solve problems.
Textbook(s) and Resources	Textbook: "An Introduction to Modern Astrophysics" by Carroll and Ostlie, Cambridge University Press, 2nd edition. "The Cosmic Perspective" (Jeff Bennett, Pearson, 8th edition). "An Introduction to Modern Stellar Astrophysics" by Dale A. Ostlie and Bradley W. Carroll.
Teaching Methods	Conventional instruction.
Evaluation Methods	Homeworks: 30% Test 1: 20% Test 2: 20% Final exam: 30%
Topical Outline	• The Local Group and the Andromeda galaxy • Types of galaxies (elliptical, spiral and irregular) • Galaxy mergers • The large-scale distribution of galaxies • Active galactic nuclei and quasars • Hubble law • Expansion of the Universe • Dark matter and dark energy • Cosmic microwave background • Observational constraints on the Big Bang

PHYS 6110	**Nuclear Physics**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. M. Shah Jahan Location: 341 Manning Hall Office Phone: (901)-678-2410 email address: mjahan@memphis.edu Office Hours: variable
Course Description	This course introduces properties of atomic nuclei; binding energy; nuclear forces; nuclear models; radioactive transitions; alpha, beta, and gamma decays; basic fission and fusion processes.
Course Outcomes	• Learn the basic principles of radiation physics. • Be able to apply these principles to solve applied problems.
Textbook(s) and Resources	Textbook: "Introductory Nuclear Physics" by Kenneth S. Krane
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework: 40% Midterm Exam: 20% Final exam: 20% Term paper: 20%
Topical Outline	• Nuclear Constituents and Properties • Nuclear Forces • Nuclear Structure Models • Radioactive decay and reactions • Astronuclear Physics • Neutrinos • Applications of Nuclear Physics

PHYS 6220	**Environmental Physics**
Credit Hours	3 semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. M. Shah Jahan Location: 341 Manning Hall Office Phone: (901)-678-2410 email address: mjahan@memphis.edu Office Hours: variable
Course Description	This course introduces the physical laws in environmental processes and covers a set of contemporary topics in environmental physics.
Course Outcomes	• Learn the basic principles of environmental physics. • Be able to apply these principles to solve applied problems.
Textbook(s) and Resources	Textbook: "An Introduction to environmental physics" by Nigel Mason and Peter Hughes, CRC Press
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework: 40% Midterm Exam: 20% Final exam: 20% Term paper: 20%
Topical Outline	• Application of gas laws, transport laws, and heat transfer in environmental processes; • Environmental radiation (solar and terrestrial), • The energy system of atmosphere and hydrosphere, • Energy resources and their impact upon the environment.

PHYS 6230	**Electronics**
Credit Hours	4-semester units
Prerequisites	PHYS 2120
Co-requisites	None
Faculty	Dr. Sanjay R. Mishra Location: 226 Manning Hall Office Phone: (901)-678-3122 email address: srmishra@memphis.edu Office Hours: variable
Course Description	This course introduces theory and application of electronic devices; emphasis on scientific instrumentation. Laboratory-oriented course including basic semiconductors, integrated circuits, and microprocessors.
Course Outcomes	• Learn the basics of an analog circuit. • Learn the basics of a digital circuit. • To integrate analog and digital component to design and build advanced circuits.
Textbook(s) and Resources	"Principles of Electronic Instrumentation" by A. James Diefenderfer and Brian E. Holton, Saunders College Pub, 3rd edition.
Teaching Methods	The course is a combination of lecturing and lab.
Evaluation Methods	Midterm exam = 30% Final exam = 30% Lab reports = 40%
Topical Outline	• Direct Current Circuit • Capacitor and Inductors • Alternating Current Circuits I • Diodes and Some Applications • Test Equipment and Measurements • Transducers • Transistors • Operational Amplifiers • Waveform Generators • Digital Basics • Digital Circuitry • Digital And Analog I/O

PHYS 6300	**Advanced Topics in Astronomy**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Francisco Muller Sanchez Location: 328 Manning Hall Office Phone: (303)-521-6404 email address: F.Muller.Sanchez@memphis.edu Office Hours: variable
Course Description	This is a course intended to introduce students to the predicted properties of black holes and the astronomical evidence for their existence. Along the way, we will study modern ideas about the nature of space, time, gravity and the evolution of galaxies.
Course Outcomes	• Learn the basic principles of astronomy. • Be able to apply these principles to solve problems.
Textbook(s) and Resources	• "Active Galactic Nuclei" by Blandford, Netzer, Woltjer, Courvoisier, and Mayor, Springer-Verlag, 1st edition. • "Gravity's Fatal Attraction: Black Holes in the Universe" by Begelman and Rees, Cambridge University Press, 2nd edition. • "Galaxies in the Universe" by Sparke and Gallagher, Cambridge University Press, 2nd edition.
Teaching Methods	Conventional instruction.
Evaluation Methods	Homeworks: 30% Test 1: 20% Test 2: 20% Final exam: 30%
Topical Outline	• Einstein's and Newton's theories of gravity • The curvature of space and general relativity • How to detect a black hole • Stellar black holes • Intermediate-mass black holes • Supermassive black holes in galactic nuclei • Black hole mergers and gravitational waves • Active galactic nuclei • Unification models of active galactic nuclei • Black holes and cosmology: How and when did the first black holes form? • Coevolution of black holes and galaxies

PHYS 6420	**Introduction to Computational Physics**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Xiao Shen Location: 421 Manning Hall Office Phone: (901)-678-1668 email address: xshen1@memphis.edu Office Hours: variable
Course Description	The course is intended for beginning graduate students. It introduces programming in C++ and a selected set of computational physics methods
Course Outcomes	• Learn the skills of computer programming. • Be able to apply these skills to solve problems. • Develop logical thinking that will benefit the students in research.
Textbook(s) and Resources	"C++ Primer Plus" (6th edition) by Stephen Prata, Addison-Wesley Professional; "An Introduction to Computational Physics" (2nd edition) by Tao Pang, Cambridge University Press.
Teaching Methods	The course will be a combination of lecturing and lab, in which the students write codes under the guidance of the instructor.
Evaluation Methods	Homework sets = 30% Quiz = 10% Midterm exam = 20% Final exam = 40%
Topical Outline	I. Programming in C++ language: • Variables • Loops and Branching • Functions • Objects and Classes • Input and Output II. Computational physics methods: • Initial value problems in ordinary differential equations • Boundary value problems in ordinary differential equations • Monte Carlo simulations • Genetic Algorithm

PHYS 6610	**Solid State Physics**
Credit Hours	3-semester units
Prerequisites	PHYS 3010 or 4410, and PHYS 3011
Co-requisites	None
Faculty	Dr. Sanjay R. Mishra Location: 226 Manning Hall Office Phone: (901)-678-3122 email address: srmishra@memphis.edu Office Hours: variable
Course Description	The objective of this course is to understand the fundamental phenomenon governing properties of materials such as electrical and thermal conductivity, magnetism for example. The course will begin with the introduction of the Drude model, a classical model based on the kinetic theory of gases first attempted to explain the properties of materials. Slowly advance theories based on quantum mechanical approach will be introduced to unearth subtle phenomenon, which by and large govern the behavior of materials.
Course Outcomes	• Integrate the knowledge of mechanics, electricity and magnetism, optics, thermodynamics, acoustics, and quantum mechanics. • Applying the methods and theories of those fields to the behavior of solids.
Textbook(s) and Resources	"Introduction to Solid State Physics" (8th edition), by C. Kittel, John Wiley & Sons
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework sets =50% Midterm exam = 20% Final exam = 30%
Topical Outline	• Drude Model • Sommerfeld Model • Fermi-Dirac Model • Crystal structure • Lattice and reciprocal lattice • X-ray diffraction • Lattice vibrations • Quasi-free electron theory in one dimension and three dimensions • Bloch's Theorem-Electrons in periodic potentials • Band structure • Crystal binding - classification of solids, • Semiconductors • Magnetic materials

PHYS 6620	**Device Physics and Microfabrication**
Credit Hours	3-semester units
Prerequisites	PHYS 3211
Co-requisites	None
Faculty	Dr. Thang B. Hoang Location: 336 Manning Hall Office Phone: (901)-678-3122 email address: tbhoang@memphis.edu Office Hours: variable
Course Description	This course is an introduction to semiconductor devices. This has two basic purposes: (1) provide students with a sound physics-based fundamental understanding of devices, and (2) to develop the basic tools with which they can later learn about newly developed devices and applications.
Course Outcomes	Follow systematic development of device physics and acquire basic skills of device fabrication.
Textbook(s) and Resources	"Semiconductor Devices: Physics and Technology", by S. M. Sze, 3rd edition, Wiley "Microchip Fabrication", by P. Van Zant, 5th edition, McGraw Hill "Semiconductor Physics and Devices", by D. A. Neamen, McGraw Hill
Teaching Methods	The course is a combination of lecturing and lab.
Evaluation Methods	Attendance: 10% Homework: 20% Midterm: 30% Final Exam: 30% Project: 10%
Topical Outline	• Crystal Properties and growth of semiconductor • Energy bands and charge carriers in semiconductor • Excess carriers in semiconductor • Junctions • Field Effect Transistors • Bipolar Junction Transistors • Optoelectronic devices • Power Devices • Fundamentals of Microfabrication

PHYS 6720	**Materials Physics**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Sanjay R. Mishra Location: 226 Manning Hall Office Phone: (901)-678-3122 email address: srmishra@memphis.edu Office Hours: variable
Course Description	This introductory core course will enable a thorough insight into the Basic Fundamentals of Materials Science. The students will have an understanding of • Atomic and crystal structure and chemical bond types, and understand how these affect material properties. • The principle of solidification in metals and alloys. • Mechanical and physical properties of materials. • Applied Materials, Semiconductors, Magnetic, Photonic
Course Outcomes	• Learn the basic knowledge of materials physics. • Be able to apply the knowledge to solve problems.
Textbook(s) and Resources	"The Science and Engineering of Materials" (7th edition), by Donald R. Askeland and W. J. Wright, Cengage Learning
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework sets =50% Midterm exam = 20% Final exam = 30%
Topical Outline	• Introduction to Materials Science • Atomic Structure • Atomic and Ionic Arrangement • Imperfection in the Atomic and Ionic Arrangement • Atom and Ion Movements in Materials • Mechanical Properties and Behavior of Materials • Principles of Solidification • Solid solutions and Phase Equilibrium • Semiconducting Materials • Magnetic Materials • Photonic materials

PHYS 6820	**Materials Physics Lab**
Credit Hours	3-semester units
Prerequisites	none
Co-requisites	none
Faculty	Dr. Sanjay R. Mishra Location: 226 Manning Hall Office Phone: (901)-678-3122 email address: srmishra@memphis.edu Office Hours: variable
Course Description	The course is designed to give hands-on experience on learning materials properties and get familiar with the experimental methodology
Course Outcomes	• Acquire the skill to synthesis and characterization of materials • Understand basic principles of instrumentations. • Learn data acquisition and data analysis. • Learn data interpretation to apply to real-world problems.
Textbook(s) and Resources	"X-ray Diffraction: A Practical Approach" by C. Suryanarayana and M. G. Norton
Teaching Methods	The is a lab course, in which the students carry out experiments and write reports under the guidance of the instructor.
Evaluation Methods	Homework sets (Lab reports) =100%
Topical Outline	• X-ray diffraction instrumentation and analysis • Magnetic materials • Semiconductor • Aerogel • Mechanical properties

PHYS 8090	**Professional Development**
Credit Hours	3-semester units
Prerequisites	none
Co-requisites	none
Faculty	Dr. Sanjay R. Mishra Location: 226 Manning Hall Office Phone: (901)-678-3122 email address: srmishra@memphis.edu Office Hours: variable
Course Description	The purpose of this course is to provide students with the tools necessary for a successful career in physics. The emphasis of the class will be mainly on literature search ability, communication, presentation, and a broad understanding of the subject matter.
Course Outcomes	• Develop literature search ability. • Develop communication ability. • Develop presentation ability.
Textbook(s) and Resources	none
Teaching Methods	Under the guidance of a faculty member, the students will prepare and make presentations, write an abstract, and critique talks both from scientific merit and presentation skills.
Evaluation Methods	Abstract: 30% 20 minute talk: 50% Participation in class: 20%
Topical Outline	• Literature Review • Paper Submission • Presentation

PHYS 8100	**Classical Mechanics**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Thang B. Hoang Location: 336 Manning Hall Office Phone: (901)-678-3122 email address: tbhoang@memphis.edu Office Hours: variable
Course Description	This is an introductory course to classical mechanics. This is a core course for all graduate students pursuing a graduate degree in Physics. The material in this course is essential to practically all areas of physics and will be very useful to research.
Course Outcomes	• Learn the basic principles of classical mechanics. • Be able to apply these principles to solve problems. • Develop logic and intuition in physics that will benefit the students in research.
Textbook(s) and Resources	Classical Mechanics 3rd Ed., by H. Goldstein, C. Poole and J. Safko
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework sets =50% Midterm exam = 20% Final exam = 30%
Topical Outline	• Newtonian mechanics (review) • D'Alambert's principle and Lagrange's equations • Constraints and generalized coordinates • Variational calculus, Hamilton's principle. • Central force problem • Kinematic of rigid body motion • The rigid body equation of motion • Small oscillations • Hamiltonian mechanics • Canonical transformations • Hamilton-Jacobi theory and action-angle variable • Nonlinear mechanics and chaos

PHYS 8200	**Quantum Mechanics I**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Xiao Shen Location: 421 Manning Hall Office Phone: (901)-678-1668 email address: xshen1@memphis.edu Office Hours: variable
Course Description	The course is intended for doctoral students. It is mainly based on Dirac's bra-ket formalism and offers a comprehensive overview of modern quantum mechanics. The students are expected to gain (1) a working knowledge of modern quantum mechanics and applications and (2) a foundation for studies in advanced branches of physics based on quantum mechanics, such as atomic physics, solid state physics, nuclear physics, etc.
Course Outcomes	• Learn the basic principles of quantum physics. • Be able to apply these principles to solve problems. • Develop logic and intuition in physics that will benefit the students in research.
Textbook(s) and Resources	"Quantum Mechanics for Scientists and Engineers" by D. A. B. Miller, Cambridge University Press.
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework sets = 30% Quiz = 10% Midterm exam = 20% Final exam = 40%
Topical Outline	• Time-independent Schrödinger's equation • Time-dependent Schrödinger's equation • Advanced topics based on wave equation • Dirac's bra-ket formalism, operators • Approximation methods in quantum mechanics • Time-dependent perturbation theory • Angular momentum • The hydrogen atom • Spin • Multiparticle systems • Second quantization and photons • Quantum information • Feynman's path integral • Relativistic quantum mechanics • Interpretation of quantum mechanics, including Bohm's pilot wave theory

PHYS 8201	**Quantum Mechanics II**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Xiao Shen Location: 421 Manning Hall Office Phone: (901)-678-1668 email address: xshen1@memphis.edu Office Hours: variable
Course Description	The course is intended for doctoral students. It is focused on advanced topics in modern quantum mechanics. The students are expected to gain a working knowledge of modern quantum mechanics and applications
Course Outcomes	• Learn the advanced concepts and methods of quantum physics. • Be able to apply these concepts and methods to solve problems. • Develop logic and intuition in physics that will benefit the students in research.
Textbook(s) and Resources	"Quantum Mechanics: Special Chapters", by Walter Greiner, Springer "Quantum Mechanics: Symmetry", by Walter Greiner, Springer
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework sets = 30% Quiz = 10% Midterm exam = 20% Final exam = 40%
Topical Outline	• Density matrix • Phase in quantum mechanics • Decoherence • Symmetry in quantum mechanics • Green's function in quantum mechanics • Scattering problem • Many-body problems in quantum mechanics

PHYS 8300	**Electrodynamics**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Thang B. Hoang Location: 336 Manning Hall Office Phone: (901)-678-3122 email address: tbhoang@memphis.edu Office Hours: variable
Course Description	This is an introductory course to electrodynamics. This is a core course for all graduate students pursuing a graduate degree in Physics. The material in this course is essential to practically all areas of physics and will be very useful to research.
Course Outcomes	• Learn the basic principles of classical electrodynamics. • Be able to apply these principles to solve problems. • Develop logic and intuition in physics that will benefit the students in research.
Textbook(s) and Resources	"Classical Electrodynamics" 3rd Ed., by John D. Jackson
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework sets =50% Midterm exam = 20% Final exam = 30%
Topical Outline	• Introduction • Electrostatics: Potential, Laplace equation, Green's functions • Boundary-value problems in electrostatics • Multipole, electrostatics of macroscopic media, dielectrics • Magnetostatics, Faraday's law, quasi-static fields. Biot-Savart law, Ampere's law. • Maxwell's equations, macroscopic electromagnetism

PHYS 8385	**Methods in Computational Physics**
Credit Hours	3-semester units
Prerequisites	PHYS 4410/6410
Co-requisites	none
Faculty	Dr. Xiao Shen Location: 421 Manning Hall Office Phone: (901)-678-1668 email address: xshen1@memphis.edu Office Hours: variable
Course Description	The course is intended for advanced graduate students. It introduces a selected set of advanced computational physics methods.
Course Outcomes	Develop the abilities to translate physics problems into programming problems in advanced topics
Textbook(s) and Resources	"Computational Physics" (2nd edition) by N. Giordano and H. Nakanishi, Pearson Education.
Teaching Methods	The course will be a combination of lecturing and lab, in which the students write codes under the guidance of the instructor. The course also contains a project, in which the students will independently complete a research project under the supervision of a faculty member.
Evaluation Methods	Homework sets = 30% Quiz = 10% Midterm exam = 20% Project = 40%
Topical Outline	I. Computational physics methods: • Advanced methods to initial value problems in differential equations • Finite Element methods • Quantum Monte Carlo simulations • Molecular Dynamics II. Research in computational physics: Students are required to finish a research project under guidance.

PHYS 8386	**Methods of Theoretical Physics**
Credit Hours	3-semester units
Prerequisites	none
Co-requisites	none
Faculty	Dr. Mohamed Laradji Location: 214 Manning Hall Office Phone: (901)-678-1676 email address: mlaradji@memphis.edu Office Hours: variable
Course Description	This is an introductory course to mathematical physics, in which students are introduced to various mathematical methods for application to problems in physics. Computational techniques will be integrated with this course.
Course Outcomes	• Learn the basic methods of mathematical physics. • Be able to apply these methods to solve physics problems.
Textbook(s) and Resources	"Mathematical Methods for Physicists" (7th Ed.) AG.B. Arfken, H.J. Weber, and F.E. Harris, Elsevier & Academic Press.
Teaching Methods	Conventional instruction
Evaluation Methods	Homework: 30% Mid-term exam: 30% Final exam: 40%
Topical Outline	• Complex variables • Fourier transforms and Fourier Series • Laplace transforms • Calculus of variations • Partial differential equations • Numerical Methods in Physics

PHYS 8390	**Polymer Physics**
Credit Hours	3 semester units
Prerequisites	none
Co-requisites	none
Faculty	Dr. Chenhui Peng Location: 210 Manning Hall Office Phone: (901)-678-1320 email address: cpeng@memphis.edu Office Hours: variable
Course Description	This is an introductory course to the exciting field of polymer physics. The material you will learn during this course will enable you to gain the essential knowledge to do your research in materials physics, materials science, polymer physical chemistry or polymer engineering.
Course Outcomes	• Learn the basic principles of the polymer. • Be able to apply these principles to solve problems.
Textbook(s) and Resources	none
Teaching Methods	Conventional instruction
Evaluation Methods	Homework: 30% Midterm exam:30% Final exam: 30% Class attendance: 5% Weekly physics seminar: 5%
Topical Outline	• Introduction to polymers • Thermodynamics • Phase Separation • Polymer • Colloidal State of matter

PHYS 8520	**Statistical Mechanics**
Credit Hours	3-semester units
Prerequisites	None
Co-requisites	none
Faculty	Dr. Xiao Shen Location: 421 Manning Hall Office Phone: (901)-678-1668 email address: xshen1@memphis.edu Office Hours: variable
Course Description	This is an introductory course to statistical physics. This is a core course for all graduate students pursuing a graduate degree in Physics. The material in this course is essential to practically all areas of physics and will be very useful to research.
Course Outcomes	• Learn the basic principles of statistical physics. • Be able to apply these principles to solve problems. • Develop logic and intuition in physics that will benefit the students in research.
Textbook(s) and Resources	"Thermodynamics and Statistical Mechanics" by Walter Greiner, Ludwig Neise, and Horst Stöcker, Springer
Teaching Methods	Conventional instruction.
Evaluation Methods	Homework sets =25% Quiz = 5% Midterm exam = 30% Final exam = 40%
Topical Outline	• The Laws of Thermodynamics • Number of Microstates Ω and Entropy S • Ensemble Theory and Microcanonical Ensemble • The Canonical Ensemble • Applications of Boltzmann Statistics • The Macrocanonical Ensemble • Quantum Statistics

PHYS 9000	**Dissertation**
Credit Hours	1-18 semester units
Prerequisites	None
Co-requisites	none
Faculty	variable
Course Description	Independent research for the PhD degree.
Course Outcomes	• Develop a research proposal. • Conduct original research • Prepare PhD dissertation defense
Textbook(s) and Resources	variable
Teaching Methods	This course includes independent research and dissertation writing. The student dissertation committee's chair and members regularly communicate, guide, and mentor the student in this process.
Evaluation Methods	Dissertation Defense: 100%
Topical Outline	• Requirements of a PhD dissertation • Research proposal • Research questions • Significance of the study • Review of literature • Research methods • Results and analysis • Conclusions of the findings • Outlook

APPENDIX C: Faculty CVs

Jingbiao Cui

Department of Physics and Materials Science
University of Memphis
3720 Alumni Ave, Manning Hall 216, Memphis, TN, 38152
Phone: (901)678-2620, Email: jcui@memphis.edu

ACADEMIC APPOINTMENTS

Professor and Chair, Department of Physics & Materials Science, University of Memphis	2014 –
Director, Arkansas Center for Nanoplasmonic Solar Cell Research	2012 – 2013
Associate Professor, Department of Physics & Astronomy, University of Arkansas at Little Rock	2011 – 2013
Visiting Assistant Professor, Thayer School of Engineering, Dartmouth College	2008 –2008
Assistant Professor, Department of Physics & Astronomy, University Arkansas Little Rock	2006 – 2011
Research Scientist, Thayer School of Engineering, Dartmouth College	2003 – 2006
Staff Scientist, Max-Planck-Institute for Solid State Research	2001 – 2003
Lecturer/Associate Professor, University of Science and Technology of China	1994 – 1997
Postdoc Researcher, Department of Engineering, University of Cambridge, UK	1999 – 2001
Postdoc Researcher, University of Erlangen-Nuremberg, Germany	1997 – 1999

EDUCATION

Doctor of Philosophy in Physics, University of Science and Technology of China,	October 1993
Master of Science in Physics, University of Science and Technology of China	July 1992
Bachelor of Science in Physics, Anhui University, China	July 1989

RESEARCH INTEREST

Nanomaterials, Nanotechnology, Renewable Energy, and Electronic Materials

GRANTS (current)

"Silicon Telluride, A 2D Material with Unique Variable Structure", Co-PI
– National Science Foundation, 2017-2020

"Novel Thermoelectric Materials: Computational and Engineering Approach", Co-PI
– University of Memphis Research Investment Fund, 2017-2019

"Advancing and Supporting Science, Engineering, and Technology II", Co-PI,
– National Science Foundation, 2017-2020

BOOK CHAPTERS

1. X. Geng and J.B. Cui, "Large scale fabrication of high quality graphene layers by graphite intercalation", in "*Graphene Science Handbook*", (CRC Press Inc, 2016), Chapter 28, pp451-468.

2. M.A. Thomas and J.B. Cui, "Electrodeposition of ZnO: Growth, Doping, and Physical Properties", in *Handbook of Nanoelectrochemistry* (Springer Verlag, 2016), pp647-679. 10.1007/978-3-319-15266-0_22

SELECTED PUBLICATIONS

– from a total of 140 in refereed journals and proceedings (30 for the past five years)

D. George, L. Li, D. Lowell, J. Ding, J. B. Cui, H. Zhang, U. Philipose, and Y. Lin, "Electrically tunable diffraction efficiency from gratings in Al-doped ZnO", *Applied Physics Letters* 110 (7), 071110 (2017).

D. George, L. Li, Y. Jiang, D. Lowell, M. Mao, J. Ding, J. Cui, H. Zhang, U. Philipose, and Y. Lin, "Localized surface plasmon polariton resonance in holographically structured Al-doped", *Journal of Applied Physics* 120, 043109 (2016).

X. Geng, W. Sun, W. Wu, B. Chen, A. Al-Hilo, M. Benamara, H. Zhu, F. Watanabe, J.B. Cui, and T. Chen, "Realization of highly pure and ultra-stable metallic phase MoS_2 nanosheets for hydrogen evolution reaction", *Nature Communications* 7, 10672 (2016).

D. George, J. Lutkenhaus, J. Ding, H. Zhang, J.B. Cui, U. Philipose, and Y. Lin, "Holographic fabrication of nanoantenna templates through a single reflective optical element", *Applied Optics* 54 (10), 2720-2724 (2015).

F. Meng, L. Wang, J. B. Cui, A. Li, and H. Tang, "Experimental and theoretical investigations of the origin of magnetism in undoped CeO2", *Science of Advanced Materials* 7 (4), 663-669 (2015).

G. He, J. Gao, H. Chen, J.B. Cui, Z. Sun, and X. Chen, "Modulating the interface quality and electrical properties of HfTiO/InGaAs gates stack by atomic-layer-deposition", *ACS applied materials & interfaces* 6, 22013-22025 (2014).

H. H. Wei, G. He, X.S. Chen, J.B. Cui, M. Zhang, H.S. Chen, and Z.Q. Sun, "Interfacial thermal stability and band alignment of $Al_2O_3/HfO_2/Al_2O_3$/Si gate stacks grown by atomic layer deposition", *Journal of Alloys and Compounds* 591, 240–246 (2014).

G. He, X. F. Chen, J. W. Zhang, M. Zhang, X.S. Chen, Z. Q. Sun, M. Liu, J. G. Lv, J. B. Cui, "Nitridation of Metalorganic-Chemical-Vapor Deposited Al_2O_3 Gate Dielectrics by NH_3 Annealing", *Science of Advanced Materials* 6, 915-922 (2014).

X. Geng, W. Wu, N. Li, W. Sun, J. Armstrong, A. Al-hilo, M. Brozak, J.B. Cui, and T. Chen, "Three-dimensional structures of MoS2 nanosheets with ultrahigh hydrogen evolution reaction in water reduction", *Advanced Functional Materials*, 24, 6123-6129 (2014).

SELECTED PRESENTATIONS

– from a total of 80 conference presentations and seminars (20 for the past five years)

K. Wu and J.B. Cui, "Temperature dependent photoluminescence study of 2D Si_2Te_3 nanoplates" (Invited talk), XXVI International Materials Research Congress, 8/20-25, 2017, Cancun, Mexico

J.B. Cui and J. Armstrong, "Solution processed CIGS nanowire solar cells", XXVI International Materials Research Congress, 8/20-25, 2017, Cancun, Mexico

J.B. Cui, X. Geng, Y. Jiang, L. Li, and J. Chen, "Semiconductor and metallic MoS_2 nanosheets and their physical properties" (Invited Talk), XXV International Materials Research Congress, 8/14-/8/19, 2016, Cancun, Mexico

Y. Jiang and J.B. Cui, "Synthesis and characterization of 2D MoS2 nanosheets" Physical Electronics Conference (PEC), Fayetteville, June 20-23, 2016

D. George, D. Lowell, J.R. Lutkenhaus, J. Ding, Hualiang Zhang, Jingbiao Cui, Usha Philipose, Yuankun Lin, "Fabrication of AZO plasmonic nanodisks using single reflective optical element based holographic lithography", Paper 9759-54, SPIE conference "Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IX, The Moscone Center, San Francisco, California, 14 - 17 February 2016.

J. Armstrong and J.B. Cui, "Study Of Solution Processed Cu(In,Ga)S2 by Post-Deposition Treatments", H6.04, Symposium H: Defect Engineering in Thin-Film Photovoltaic Materials, MRS Spring Meeting, , San Francisco, April 21-25, 2014

W. Sun, X. Geng, J. Armstrong, J.B. Cui, and T. Chen, "Experimental and Theoretical Study on Band Gap Tuning of $Cu_2ZnSn(S_{1-x}Se_x)_4$ Absorbers for Thin-Film Solar Cells", IEEE 4th PVSC meeting, June 2014

J. Armstrong, J.B. Cui, and T. Chen, "ALD Processed MgZnO Buffer Layers for $Cu(In,Ga)S_2$ Solar Cells", IEEE 4th PVSC meeting, June 2014

SELECTED PROFESSIONAL SERVICES

- Organizing Committee, Symposium F.8, XXVI International Materials Research Congress August 20-25, 2017, Cancun, Mexico
- Board Member, 11th International Conference of Multi-functional Materials and Applications, November 16-18, 2017, Hefei, China
- Editor-in-Chief of Nanoscience and Nanotechnology (2013 – present)
- Associate Editor of open access physics books, Versita Publishing Group (2012-2014)
- Editorial Board members, ISRN Nanotechnology (2010 – present)
- Organizing Committee, International Collaborative Conference on Crystal Growth, December 11-14, 2012, Orlando
- Scientific Committee, Villa International Conference on Interaction Among Nanostructures, February 3-7, 2008, Orlando
- Who's Who in America 2011 (65th Edition)
- Reviewer for more than 20 Scientific Journals, including The Journal of Physical Chemistry, Journal of American Chemical Society, ACS Nano, Applied Physics letters, Langmuir, Journal of Applied Physics, Electrochemistry Communications, Journal of electrochemical Society, Journal of Vacuum Science and Technology, Nanoscale, Thin Solid Films, Crystal Growth and Design, Vacuum, Dalton Transactions, and Journal of Materials Chemistry.
- Reviewer for proposals from National Science Foundation, American Chemical Society, Grant Council of Hong Kong.

SELECTED TEACHING EXPERIENCE

"Sci/Engr Physics I/Calc", PHYS 2110, University of Memphis
"Sci/Engr Physics II/Calc", PHYS 2120, University of Memphis
"Modern Physics", PHYS 3010, University of Memphis
"Theoretical Physics I", PHYS 3011, University of Memphis

MENTORING (University of Memphis)

Ph.D. Students: Jiyang Chen (Fall 2017- present), Yunlung Chen (Fall 2016-present), Yasir Al-Rikabi (2013-2018), Weiwei Sun (2013-2017).

M.S. Students: Yu Zhu (Fall 2018-present), Jiyang Chen (2015-2017), Li Li (2015-2017), Jiang Yan (2014-2016).

Thang B. Hoang

Department of Physics and Materials Science
The University of Memphis, Memphis TN 38152.
Phone: (901)-678-3211
E-mail: tbhoang@memphis.edu
https://umdrive.memphis.edu/tbhoang/public/Home.html

ACADEMIC APPOINTMENTS

Assistant professor: The University of Memphis, Memphis TN. 8/2016 -pre

EDUCATION AND EXPERIENCE

Research Associate: Duke University, Durham, NC, USA 2013-201
European FP7-QUANTIP fellow: Eindhoven University of Technolo 2010-2012
the Netherlands
Norwegian Research Council fellow: Norwegian University of Scien 2008-200
and Technology, Norway
Ph.D. in Physics: 6/2008 - University of Cincinnati, Ohio, USA 2002-2008

RESEARCH INTEREST

Materials science and nanophotonics: materials physics, controlling ultrafast carrier dynamics and light-matter interaction in nanomaterials (0, 1 and 2D) for novel optoelectronic and nanophotonic applications.

AWARDS AND MEMBERSHIP

Awards: Graduate fellowship, University of Cincinnati (2002); University of Cincinnati Research Council - graduate student proposed research project (2005 and 2007, $3,000 each); Best Graduate Student Award, Ohio Nanotechnology Summit (2006); Norwegian Research Council fellowship on Nanoscience and Nanotechnologies (2008); European Commission FP7 program fellowship on Quantum Integrated Photonics Technologies (2010); Lord Foundation of North Carolina fellowship (2013); National Science Foundation Award (2017).

Membership: Member of American Physical Society (APS), Member of Dutch Physics Society (2010-2012), Member of Materials Research Society (MRS), Member of the Optical Society of America (OSA)

RESEARCH GRANTS

- Faculty Research Grant – $10,000 The University of Memphis (2017-2018)
- National Science Foundation – $361,177 (2017-2020)
- Fedex Institute of Technology - $20,000 (2018-2019)
- 2018 Ralph E. Powe Faculty Enhancement Award from Oak Ridge Associated Universities (ORAU)

TEACHING

- Classical Mechanics - PHYS 7100

- Waves and Optics - PHYS 4211
- Classical Electrodynamics - PHYS 7300
- Electricity/Magnetism I - PHYS-3211
- General Physics – PHYS-2020
- Graduate advising.

MENTORING – OUTREACH

1. PhD Student: Hassnain Asgar, University of Memphis, Spring 2018
2. PhD Student: Yuwaraj Adhikari, University of Memphis, Spring 2019-
3. MS Student: Negar Charchi, University of Memphis, Fall 2018 to present.
4. MS Student: Dipendra Khatri, University of Memphis, Fall 2017 to present.
5. Undergraduate: Anna Stocks, University of Memphis, Spring 2018 to present.
6. Undergraduate: Liyan Jacob, University of Memphis, Spring -Summer 2018.
7. Undergraduate: Kaitlynn Wetzel, University of Memphis, Summer 2018 to present.
8. High school student Shridhar Athinarayanan, Summer 2017
9. High school student Alhasan Hadidi, Summer 2017

KEY PUBLICATIONS

1. Thang B. Hoang, Gleb M. Akselrod, Maiken H. Mikkelsen, *Ultrafast and efficient single photon source at room temperature,* Nano Lett. 16 270–275 (2016).
2. Thang B Hoang, Gleb M Akselrod, Christos Argyropoulos, Jiani Huang, David R Smith, Maiken H Mikkelsen, *Ultrafast spontaneous emission source using plasmonic nanoantennas*, Nature Communications 6, 7788 (2015).
3. Ankun Yang, Thang B Hoang, Montacer Dridi, Claire Deeb, Maiken H Mikkelsen, George C Schatz, Teri W Odom, *Real-time tunable lasing from plasmonic nanocavity arrays*, Nature Communications 6 6939-6945 (2015).
4. Gleb M Akselrod, Christos Argyropoulos, Thang B Hoang, Cristian Ciracì, Chao Fang, Jiani Huang, David R Smith, Maiken H Mikkelsen, *Probing the mechanisms of large Purcell enhancement in plasmonic nanoantennas*, Nature Photonics 8, 835–840 (2014).
5. Chaoyuan Jin, Robert Johne, Milo Swinkels, Thang Ba Hoang, Leonardo Midolo, Peter van Veldhoven, and Andrea Fiore, *Ultrafast nonlocal control of spontaneous emission*, Nature Nanotechnology 9, 886-890 (2014).
6. Thang Ba Hoang, Johannes Beetz, Leonardo Midolo, Matthias Skacel, Matthias Lermer, Martin Kamp, Sven Höfling, Laurent Balet, Nicolas Chauvin, Andrea Fiore, *Enhanced spontaneous emission from quantum dots in short photonic crystal waveguides*, Appl. Phys. Lett. 100, 061122 (2012).
7. Thang Ba Hoang, Anthonysamy F Moses, Lyubomir Ahtapodov, Hailong Zhou, Dasa L Dheeraj, Antonius TJ van Helvoort, Bjørn-Ove Fimland, Helge Weman, *Engineering Parallel and Perpendicular Polarized Photoluminescence from a Single Semiconductor Nanowire by Crystal Phase Control*, Nano Lett. 10, 2927-2933 (2010).

INVITED CONFERENCES AND SEMINARS

T. Hoang, *Control of radiative processes of nanomaterials using tunable plasmonic nanostructures: towards highly efficient and ultrafast nanophotonics*, **21st Annual Southeast Ultrafast Conference**, August 14-15, 2018 Georgia Institute of Technology, Atlanta, GA

T. Hoang, *Control of radiative proceses in nanomaterials using plasmonic nanopatch antennas*, **XXVI International Materials Research Congress**, 8/21- 8/26, 2017, Cancun, Mexico.

T. Hoang, *Control of radiative proceses in nanomaterials using plasmonic nanopatch antennas*, **Oak Ridge National Laboratory**, 3/10/2017, Oak Ridge, TN, USA.

T. Hoang, Control of radiative processes of nanomaterials using tunable plasmonic nanostructures: towards highly efficient and ultrafast nanophotonics, Southeast Ultrafast Conference 2018, Georgia Institute of Technology, Atlanta, GA

T. Hoang, *Tailoring light-matter interaction at nanoscale for new generation of high efficiency optoelectronics*, Department of Physics Colliquium 2/1/2016, **University of Miami,** FL (2016).

T. Hoang, *Controlling light-matter interaction at nanoscale for new generation of high efficiency optoelectronics*, Department of Physics and Materials Science Semiar 5/3/2016, **University of Memphis,** TN (2016).

T. Hoang, *Tailoring light-matter interaction at nanoscale for new generation of high efficiency optoelectronics*, Department of Physics Seminar 4/8/2015, **University of Dayton**, OH (2015).

BOOK CHAPTER

D.L. Dheeraj, H.L. Zhou, A.F. Moses, T.B. Hoang, A.T.J. van Helvoort, B.O. Fimland and H. Weman (2010). *Heterostructured III-V Nanowires with Mixed Crystal Phases Grown by Au-Assisted Molecular Beam Epitaxy*, in book "Nanowires", Paola Prete (Ed.), ISBN: 978-953-7619-79-4, InTech, DOI: 10.5772/39503. Available online here!

CONFERENCE PROCEEDINGS

In addition to the Peer-Reviewed journal publications, my research efforts also contributed to **more than 30 publications** in professional **refereed conference proceedings** such as **MRS** (Materials Research Society), **CLEO** (Conference on Lasers and Electro-Optics), **ICPS** (International Conference on the Physics of Semiconductors), **IEEE** Nanotechnology, **META** (International Conference on Metamaterials), **SPIE** Optics and Photonics.

SELECTED PROFESSIONAL SERVICES

Reviewer for Scientific Journals, including ACS Photonics, Applied Physics Letters, Optica, Photonics, Advanced Optical Materials, Optics Express, Nano Letters, Nature Photonics.

Muhammad Shah Jahan

Department of Physics and Materials Science
University of Memphis
3720 Alumni Ave., Manning Hall 341, Memphis, TN 38152
Phone: 901-678-2410, email: mjahan@memphis.edu

ACADEMIC APPOINTMENTS

Chair	Physics	The University of Memphis	1999-2014
Site Director	NSF-IUCB Site	The University of Memphis	2001- 2011
Professor	Physics	The University of Memphis	1988 - Present
Visiting Staff Scientist	MP-14, LAMPF	Los Alamos National Laboratory	June1989-May 1990
Visiting Research Sc.	Mp-14, LAMPF	Los Alamos National Laboratory	June 1988-Aug.1988
Associate Professor	Physics	Memphis State University	1985 – 1988
Assistant Professor	Physics	Memphis State University	1980 – 1985

EDUCATION

B. Sc. Honors	Physics	Rajshahi University, Bangladesh	1963
M. Sc.	Physics (Nuclear)	Rajshahi University, Bangladesh	1964
Ph. D.	Physics (Radiation Biophysics)	The University of Alabama	1977

RESEARCH INTEREST

Free Radicals in Food/Organic Materials, Polymeric Materials, Sterilization and Oxidation of Orthopedic Biomaterials/ Application of Paramagnetic, Optical and Thermoluminescence Techs.

HONORS/AWARDS

FedEx Founding Fellow (2003), FIT; Meritorious Faculty Award (2000), CAS; Distinguished Research Award (1998) Univ. Memphis; Distinguished Research Award (1997, 1998), CAS; Superior Performance in Research Award (1987, 1988, 1989, 1992, 1994), Univ. of Memphis.

GRANT

ESR Technique, Ph. D. Research by a visiti research fellow from Pakistan	PIEAS, Pakistan	$22,000	11/09-11/10
Focused Research	Biomet Orthopedics	$95,000	06/09-05/11
Carbon-Centered Radicals in Isolated Soy Proteins	UK/USDA	$184,000	07/08-12/12
Biosurface Center	NSF IUCRC	$765,736	8/97-6/09
ESR Measurements of Estane	Los Alamos National Lab	$20,000	01/04-10/06
ESR Measurements of UHMWPE	US-Pakistan Ph. D. Scholar	$135,000	9/04-8/08
ESR Technique, Ph. D. Research by a visiti scientist from Pakistan	Program, CERF USA	$13,750	4/06-10/06
Free radical measurements in UHMWPE	Stryker	$30,000	02/07-06/08

SELECTED BOOK CHAPTERS

Food Science

Boatright W.L. and M.S. Jahan, 2010. Carbon-Centered Radicals in Soy Protein Products. In K.R. Cadwallader and S.K.C. Chang (Eds.), Chemistry Texture and Flavor of Soy. American Chemical Society, Washington, DC.

Orthopedic Biomaterials

"ESR Insight into the Macroradicals in UHMWPE", Chapter 35, Handbook of UHMWPE, 3rd edition, edited by Steve Kurtz, Elsevier publication, New York, USA. **[see** www.uhmwpe.org**]** Copyright © 2016 Elsevier Inc. All rights reserved, **Library of Congress Cataloging-in-Publication Data**, ISBN: 978-0-323-35401-1, *Publisher:* Matthew

High-Temperature Superconductors

M. S. Jahan and D. W. Cooke, Luminescent Properties of Commonly Occurring Impurity Phases in HighTemperature Superconductors, in *Luminescence: Phenomenon, Materials, and Devices*, (R. P. Rao, Ed.), Nova Science Publishers, Inc., New York, 1992.

Cosmetics/Sunscreens

M. S. Jahan, 'Physics of Optics: Terminology and Units' in *Sunscreens: Development, Evaluation and Regulatory Aspects* , (N. J. Lowe and N. A. Shaath, Eds.) Marcel Dekker, Inc. publishers, New York, 1990, Chapter 8, p. 109.

SELECTED PUBLICATIONS

Food Science

W.L. Boatright, Lei Q., and M.S. Jahan,. *Effect of Moisture, Lipids, and Select Amino Acid Blocking Agents on the Formation and Stability of Metastable Radicals in Powdered Soy Proteins,* Journal of Food Science _ Food Chemistry, Vol. 77, Nr. 6, C620-C625 (2012).

S. Jahan and K. S. McKinny, "Radiation-Sterilization and Subsequent Oxidation of Medical Grade Polyethylene: an ESR Study," Nucl. Inst. Meth. Phys. Res.B 151 (1999) 207-212.

Industrial Polymers

D. W. Cooke, R. E. Muenchausen, B. L. Bennett, E. B. Orler, D. A. Wrobleski, M. E. Smith, M. S. Jahan and **D.** E. Thomas, "Optical and Magnetic Resonance Measurements of a Segmented Poly(ester urethane)," Nucl. Inst. Meth. Phys. Res.B 151 (1999) 186-189.

M. S. Jahan, M. C. King, J. M. Gray, D. W. Cooke, B. L. Bennett, E. B. Orler, and D. A. Wrobleski, "Electron Spin Resonance of Radiation-Induced Oxidation in a Poly(ester urethane) Containing Hard and Soft Segments," Polymer Preprint, American Chemical Society, 42 (1) 2001, 379-380.

Medical-Grade Polymers

R. Baier, E. Axelson, A. Myer, L. Carter, D. Caplan, G. Picciolo, M. S. Jahan, "The Body's Response to Deliberate Implants: Phagocytic Cell Responses to Large Substrata vs Small Particles" The Journal of Adhesion, 74 (2001) 79.

M. D. Ridley and M. S. Jahan, "Effects of Packaging Environments on Free Radicals in Irradiated UHMWPE Resin Doped with Vitamin E," J. Biomed. Materials Res. A. Published online, May 2008, hard copy published in February 2009.

SELECTED PRESENTATION (INTERNATIONAL)

M.S. Mehmood, M.S. Jahan, Hafeez-ullah and M.Ikram, "*Characterization of vitamin e blended ultra-high molecular weight polyethylene (UHMWPE)"*. VI All-Russia Conference of young scientists, PhD students with the international participation "Mendeleev-2012" April 3-6, 2012, St.-Petersburg State University, Russia.

Dereje Abdi, Benjamin Michael Walters and Muhammad Shah Jahan,, *Irradiated Vitamin E-Containing UHMWPE: ESR and TSL Analyses,* 9th World Biomaterials Congress WBC Poster ID 3141, June 1-5, 2012, Chengdu, China.

Jason Brewer, Muhammad Shah Jahan and Benjamin Michael Walters**,** *15 Years Study of Free Radicals in Gamma-Irradiated UHMWPE*, WBC Poster ID 3140, 9th World Biomaterials Congress, June 1-5, 2012, Chengdu, China.

Benjamin Michael Walters and Muhammad Shah Jahan, "*Free Radicals in Gamma-Irradiated UHMWPE Stored in Vitamin E"*, 9th World Biomaterials Congress WBC Poster ID 3120, June 1-5, 2012, Chengdu, China.

M. S. Jahan, T. Riahinasab and B. M. Walters**,** *Detection of Thermally Stimulated Luminescence in PEEK (*ABSTRACT #: PEEK014), 1st International PEEK Meeting in Philadelphia, PA, USA, April 25 and 26, 2013.

M. S. Jahan, D. Adhikari and B. M. Walters, *Detection of Thermally Stimulated Luminescence in PEEK (*ABSTRACT #: PEEK031), 1st International PEEK Meeting in Philadelphia, PA, USA, April 25 and 26, 2013.

INVITED: 2nd World Congress of Food Science and Technology-2013 (Food S & T-2013), September 23-25, 2013 in Hangzhou, China,
"Effects of Vitamin E on Free Radicals in Solids," **Session 4-1: Antioxidant, Vitamin & Supplements**.

AUTHORS: M. S. Jahan, and B. M. Walters**.**
INVITED: M. Shah Jahan*, Radiation Effects on High-Performance Polymer: Poly (ether ether ketone)*, 7th Annual World Congress of Industrial Biotechnology (ibio-2014), April 25-28, 2014, Venue: International Conference Center, Dalian, China,
http://www.bitlifesciences.com/ibio2014.
Muhammad S Jahan, Benjamin M Walters, Lisa Mbati, Anuja Gawande, *Detection of Solar-Radiation-Induced Defects in Poly (ether ether ketone) PEEK,* **15th International Congress of Radiation Research, May 25-29, 2015, Kyoto, Japan.**
Afsana Sharmin, Muhammad S. Jahan, Benjamin Michael Walters, *"Free Radical Measurements in Gamma-Irradiated UHMWPE following 18 years of Aging at Elevated Temperatures"* Presented at the 10th World Biomaterials Congress, Montreal, Canada, May 17-22, 2016.
KEYNOTE SPEAKER, 8th International Conference on Image Processing, Wavelet and Applications (IWW2016), 22-24 September 2016, Istanbul-Turkey**,** Title: 18-Years of Investigation of Free Radical Reaction Pathways in Medical Grade Polyethylene.
Patent Received
US Patent No. 4, 873,444, Awarded in Oct., 1989.; Inventors: D. W. Cooke and M. S. Jahan
Title: Detection of Surface Impurity phases in High-Temperature Superconductors Using Thermally Stimulated Luminescence.

SELECTED PROFESSIONAL SERVICE
Review of Journal Manuscripts: Radiation Physics and Chemistry (RPC), J. Biomaterials (jbmt) J. Materials and Design (JMAD) and Industrial Lubrication and Tribology

SELECTED INTERNAL SERVICES
Radiation Safety Committee; College Arts & Science (CAS) Tenure and Promotion Comm.
SELECTED TEACHING EXPERIENCE
General Physics, calculus-based; General Physics, algebra-based; Applied Radiation Physics; Environmental Physics; Medical Physics; Nuclear Physics; Optics.

SELECTED MENTORING
(a) Supervision of Research of Visiting Scientists/Post-docs
January - April, 1988, Professor Jin-Sheng Peng, Huazhong Normal University, P. R. China.
October 1984 - Sept., 1985, Dr. V. K. Jain, Bhabha Atomic Research Center, India.
August 1993- May 1994, Dr. Gualin Huang, SUNY, Buffalo
Oct. 2002, 2003, 2004, Dr. Wayne Cooke, Staff Scientist, Los Alamos National Laboratory*, free radical measurements in polymers using ESR technique.*

EXTERNAL EXAMINER OF MS THESIS (SELECTED)
Sidharrth Mehta, Biomaterials Graduate Program, State University of New York at Buffalo; supervisor, Professors Robert Baier and Anne Meyer, Dec. 2004.

EXTERNAL EXAMINER OF PH. D. DISSERTATION (SELECTED)
P. Neelamegan, Bharatidasan University, India, 1992; supervisor, Reader S. Selvasekarapandian.
J. Ma, Department of Chemistry, The University of Memphis, 1995; supervisor, Professor Y. S. Li.
LVRT Capacity Enhancement Of Dfig Based Wind Farms By Controller Based Auxiliary Devices by Gilmanur Rashid, Major Professor Mohamed Hasan Ali, Department of Electrical and Computer Engineering, 2016.
SELECTED OUTREACH: Liaison, Dual Enrollment Physics for High Schools
RECOGNITION: Marquis Who's Who Life Time Achievement Award

Mohamed Laradji

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University of Memphis
Manning Hall 207, Memphis, TN, 38152
Phone: (901) 678-1676, Email: mlaradji@memphis.edu

ACADEMIC APPOINTMENTS

Professor, Department of Physics, University of Memphis		2011–present
Associate Professor of Physics, University of Memphis	2008-2011	Assistant
Professor of Physics, University of Memphis		2002-2008
Member of Technical Staff, Bell Laboratories (Lucent)		2001-2002
Assistant Professor, Physics, University of Prince Edward Island, Canada		1997-2001
Postdoctoral Research Associate, University of Toronto		1994-1997
Postdoctoral Research Associate, University of Georgia		1993-1994

EDUCATION

Ph.D. in Physics, McGill University, Canada	1993
M.S. in Physics, McGill University, Canada	1989
B.S. in Physics, Djillali Liabes University, Algeria	1986

RESEARCH INTERESTS

Computational and theoretical soft matter physics and biophysics

HONORS AND AWARDS

American Physical Society Fellow, 2014
Dunavant Professorship, University of Memphis, 2016
Alumni Association Distinguished Research Award, University of Memphis, 2016
College of Arts & Sciences Distinguished Research Award, University of Memphis, 2011
Faculty Merit Award, University of Prince Edward Island, 2000

GRANTS (during last 10 years)

"Interactions between Anisotropic Nanoparticles and Lipid Membranes", Faculty Research Grant, 2019-20 (PI)

"Plasmon-Enhanced Temperature and Humidity Sensing for Biological and Pharmaceutical Shipments" FedEx Research Grant, University of Memphis, 2018-19 (PI)

"Enhancement and Verification of Quantitative Phase-Field Crystal Modeling Using NASA-PSI Coarsening in Solid-Liquid Mixtures Experiments", NASA, 2017-19 (Co-PI)

"Molecular Modeling of Polymer-Based Gene Delivery", NIH, 2013-16 (Co-PI)

"Physics 2110 Course Revitalization", Tennessee Board of Regents, 2015-16 (Co-PI)

"Tennessee Solar Conversion and Storage using Outreach, Research, and Education-TNSCORE", 2010-15 (Senior Personnel)

"Computational Investigations of Compositional Heterogeneities in Lipid Membranes", NSF, 2008-13 (PI)

"REU Site for Multidisciplinary Research in Nanomaterials and Biomaterials", NSF, 2008-11 (PI)

"Numerical Studies of Compositional and Morphological Inhomogeneities in Lipid Membranes", Research Corporation, 2006-08 (PI)

"Dynamics and Morphology of Polymer Blends Containing Nanoscale Filler Particles", ACS Petroleum Research Fund, 2005-08 (PI)

BOOK CHAPTERS

M. Laradji and M.M. Sperotto, *Mesoscale modeling of self-assembled lipid membranes*, in Biomembrane Simulations, Ed. M. Berkowitz, Taylor and Francis, 2019 (in press)

P.B. Sunil Kumar and M. Laradji, Protein-induced morphological deformations of biomembranes, in Physics of Biological Membranes, Eds. P. Sens and P. Bassereau, Springer, 2018, pp. 561-579

M. Laradji and P.B. Sunil Kumar, *Coarse-grained computer simulations of multicomponent membranes*, in Advances in Planar Lipid Bilayers and Liposomes, Ed. A. Iglic, Vol. 14, Elsevier, 2011, pp. 201-233

D.P. Landau, B. Dünweg, M. Laradji, F. Tavazza, J. Adler, L. Cannavaccioulo, and X. Zhu, *Monte Carlo simulations of compressible Ising models: Do we understand them?* In Lect. Notes Phys. Vol. 706, Eds. Ferrario, Ciccotti and Binder, Springer, 2006, pp. 127-138

P.B. Sunil Kumar and M. Laradji, *Phase separation in two-component vesicles*, in Math. Biology: Recent Trends, Eds..P. Chandra and B.V. R. Kumar, Anshan, 2006, pp. 44-55

M. Laradji, H. Guo, M. Grant and M.J. Zuckermann, *Ternary systems containing surfactants,* in Adv. Chem. Phys. Vol. 89, Eds. Prigogine and Rice, Wiley, 1994, pp. 159-238

SELECTED PUBLICATIONS
– from a total of 73 peer-reviewed journal and proceeding articles

K.A. Moats, E. Asadi, and M. Laradji, Phase-field crystal simulations of the kinetics of Ostwald ripening in two dimensions", *Physical Review E* 99, 012803 (2019)

E.J. Spangler, P.B. Sunil Kumar, and M. Laradji, "Stability of membrane-induced self-assemblies of spherical nanoparticles*"*, *Soft Matter* 14, 5019-5030 (2018)

A.D. Olinger, E.J. Spangler, P.B. Sunil Kumar, and M. Laradji, "Membrane-mediated aggregation of anisotropically curved nanoparticles*"*, *Faraday Discussions* 186, 265-75 (2016)

E.J. Spangler, S. Upreti, N. Shrestha, P.B. Sunil Kumar, and M. Laradji, "Partial wrapping and spontaneous endocytosis of spherical nanoparticles by tensionless lipid membranes", *Journal of Chemical Physics* 144, 044901 (2016)

R.S. Davis, P.B. Sunil Kumar, M.M. Sperotto, and M. Laradji, "Predictions of phase separation in three-component lipid membranes by the MARTINI force field", *Journal of Physical Chemistry B* 117, 4072-80 (2013)

E.J. Spangler, P.B. Sunil Kumar, and M. Laradji**,** "Anomalous freezing behavior of nanoscale liposomes"*, Soft Matter* 8, 10896-904 (2012)

E.J. Spangler, C.W. Harvey, J.D. Revalee, P.B. Sunil Kumar, and M. Laradji, "Computer simulation of cytoskeleton-induced blebbing in lipid membranes*"*, *Physical Review E* 84, 051906 (2011)

J.A. Millan and M. Laradji, "Cross-stream migration of driven polymer solutions in nansocale channels: A numerical study with generalized dissipative particle dynamics*"*, *Macromolecules* 42, 803-10 (2009)

M.J.A. Hore and M. Laradji, "Prospect of nanorods as an emulsifying agent of immiscible blends", *Journal of Chemical Physics* 128, 054901 (2008)

J.D. Revalee, M. Laradji, and P.B. Sunil Kumar, "Implicit-solvent mesoscale model based on soft-core potentials for self-assembled lipid bilayer membranes, *Journal of Chemical Physics* 128, 035102 (2008)

W. Jiang, J. Huang, Y. Wang, and M. Laradji, "Hydrodynamic interaction in polymer solutions simulated with dissipative particle dynamics", *Journal of Chemical Physics* 126, 044901 (2007)

J. Huang, Y. Wang, and M. Laradji, "Flow control by smart nanofluidic channels: A dissipative particle dynamics simulation", *Macromolecules* 39, 5546-54 (2006)

M. Laradji and P.B. Sunil Kumar, "Domain growth, budding, and fission in phase separating self-assembled fluid bilayers", *Journal of Chemical Physics* 123, 224902 (2005)

M. Laradji and P.B. Sunil Kumar, "Dynamics of domain growth in self-assembled fluid vesicles*"*, *Physical Review Letters* 91, 198105 (2004)

SELECTED PRESENTATIONS
– from a total of 18 invited conference presentations, 44 invited university colloquia and seminars, and 73 conference contributed talks and posters

(Invited) "Partial Wrapping and Spontaneous Endocytosis of Spherical Nanoparticles by Tensionless Lipid Membranes", Compflu-2016, Pune, India, Jan. 2016

(Invited) "Wrapping, Aggregation and Spontaneous Endocytosis of Nanoparticles by Tensionless Lipid Membranes", ACS 2015 Joint Southeast/Southwest Regional Meeting, Memphis, TN, Nov. 2015

(Invited) Nanoparticles Spontaneous Membrane Endocytosis and aggregation, CECAM Workshop on Understanding the Interaction of Nanosized Synthetic Materials with Biological Membranes, Lausanne, Switzerland, Sept. 2014

(Invited) Computer simulations of blebbing in lipid membranes, CECAM on Mechanisms Driving Organization of intra-cellular organelles, Zaragoza, Spain, June 2012

(Invited) Coarse-grained modeling of domain formation in lipid membranes, TMS 2011 Annual Meeting, San Diego, CA, Feb. 2011

PATENTS

US Patent 7,132,297: *Multi-Layer Inductor Formed in a Semiconductor Substrate and Having a Core of Ferromagnetic Material*

US Patent 6,667,536: *Thin Film Multi-Layer High-Q Transformer Formed in a Semiconductor Substrate*,

US Patent 6,639,298: *A Multi-Layer Inductor Formed in a Semiconductor Substrate*,

SELECTED PROFESSIONAL SERVICES

Director of REU Interdisciplinary program in Nanomaterials and Biomaterials, 2008-11

Organized a workshop titled "Understanding the Organization of the Intracellular Region", June, 2011

Reviewer for 32 peer-reviewed scientific journals

Proposal Reviewer for NSF, NSERC-Canada, US-Israel Binational Science Foundation, Netherlands Organization for Scientific Research, Research Corporation, and ACS Petroleum Research Fund

SELECTED SERVICES (University of Memphis)

Research Technology Advisory Committee (University), 2018-present

Academic Advisor, Dept. of Physics and Materials Science, 2008-09 and 2015-present

Faculty Search Committees, Chair, 2007-08 and 2015-2018

Physics Seminar Coordinator, 2003-09

Undergraduate Curriculum Committee (College), 2008-11

BS and MS Materials Science Concentration Committee, 2008-09

TEACHING EXPERIENCE

Graduate courses- Polymer Physics, Statistical Mechanics, Quantum Mechanics, Computational Physics, Methods Theoretical Physics, Soft Matter and Biological Physics

Undergraduate courses-Thermal and Statistical Physics, Quantum Mechanics, Classical Mechanics, Electricity and Magnetism, Modern Physics, Computational Physics, Mathematical Physics, Numerical Analysis, Partial Differential Equations, Complex Variables, College Physics

MENTORING (University of Memphis)

2 supervised PhD students, 4 co-supervised PhD students, 14 MS students, 19 undergraduate students, and 6 high school students.

Sanjay R. Mishra

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University of Memphis
3720 Alumni Ave, Manning Hall 226, Memphis, TN, 38152
Phone: (901)678-1668, Email: srmishra@memphis.edu

ACADEMIC APPOINTMENTS

2009-Present Professor, Department of Physics, The University of Memphis, Memphis, TN
2005 – 2009 Associate Professor, Department of Physics, The University of Memphis, Memphis, TN
1999 - 2005 Assistant Professor, Department of Physics, The University of Memphis, Memphis, TN
1998 - 1999 Post-Doctoral Associate, University of Wisconsin, Madison, MD (Positioned at the Advanced Light Source, Lawrence Berkeley National Lab)
1996 - 1998 Post-Doctoral Associate, Virginia Commonwealth University, Richmond, VA (Positioned at the Advanced Light Source, Lawrence Berkeley National Lab.)
1992 - 1996 Graduate Research and Teaching Assistant, University of Missouri-Rolla, Rolla, MO
1991 - 1992 Teaching Assistant, Pittsburg State University, Pittsburg, KS

EDUCATION

Institution and Location	Degree	Year conferred	Field of study
South Gujarat University, India	B.Sc	1987	Physics
South Gujarat University, India	M.Sc	1989	Physics
Gujarat University, India	P.G. Diploma	1990	Space Sciences
Pittsburg State University, USA	MS	1992	Physics
University of Missouri-Rolla, USA	Ph.D.	1996	Physics

RESEARCH INTEREST

Magnetic materials, nanomaterials and composites for Bio and Energy Applications

HONORS AND AWARDS

National Merit Scholarship	South Gujarat University, India	1988
Dr. Y. G. Nayak Award	South Gujarat University, India	1989
Best Research Award	Pittsburg State University, Pittsburg, KS	1992
Sigma Phi Sigma	Pittsburg State University, Pittsburg, KS	1992
Tau Beta Tau	University of Missouri-Rolla, Rolla, MO	1995
Dr. Schearer Award for Best Research	University of Missouri-Rolla, Rolla, MO	1995
Who's Who in America	Marquis's Who's Who	2004
Who's Who in Sciences Higher Educatic	Academic Keys	2004
PlasmaChem Prize	Particle 2008 Conference , Orlando, FL	May 2008
College of Arts and Sciences-Distinguisl Research Award	The University of Memphis	2010
Alumni Distinguished Research Award	The University of Memphis	2012
Research "Millionaire" Award	The University of Memphis	2012
Dunavant Professor	College of Arts and Science	2014
Eminent Faculty Award-Finalist	The University of Memphis	2017

GRANTS (current)

Development of next-generation energy storage device for the biologistic, FIT 2018
Hybrid Energy System for Ultralight Weight Vehicles, FIT 2018

SELECTED PUBLICATIONS (out of 160)

Influence of La content on magnetic properties of Cu doped M-type strontium hexaferrite: Structural, magnetic, and Mossbauer spectroscopy study, M Ghimire, S. Yoon, L. Wang, D. Neupane, J. Alam, S.R. Mishra, Journal of Magnetism and Magnetic Materials, 454, 110 (2018).

Size-dependent magnetic and inductive heating properties of Fe_3O_4 nanoparticles: scaling laws across the superparamagnetic size, Jeotikanta Mohapatra, Fanhao Zeng, Kevin Elkins, Meiying Xing, Madhav Ghimire, Sunghyun Yoon, Sanjay R Mishra, J Ping Liu, Physical Chemistry Chemical Physics, 20, 12879 (2018).

Synthesis and electrochemical performance of hydrothermally synthesized Co_3O_4 nanostructured particles in presence of Urea, H. Adhikari, M. Ghimire, R. Gupta, J. Chandler, and S. R. Mishra, Journal of Alloys and Compounds, 708, 628 (2017): doi: 10.1016/j.jallcom.2017.03.056

Structural and magnetic properties of Co^{2+}-W^{4+} ions doped M-type Ba-Sr hexaferrites synthesized by a ceramic method, Rajat Joshia, Charanjeet Singh, Dalveer Kaur, Hesham Zakid, S. Bindra Narang, Rajshree Jotania, Sanjay Mishra, Jasbir Singh, Preksha Dhruv, Madhav Ghimire, Journal of Alloys and Compounds, 695, 909 (2017). doi.org/10.1016/j.jallcom.2016.10.192

Elucidation of phase evolution, microstructural, Mössbauer and magnetic properties of Co^{2+}-Al^{3+} doped M-type Ba-Sr hexaferrites synthesized by a ceramic method, Jasbir Singha, Charanjeet Singh, Dalveer Kaurd, Hesham Zakie, I. A Abdel-Latifg, S. Bindra Narang, Rajshree Jotania, Sanjay Mishra, Rajat Joshib, Preksha Dhruv, Madhav Ghimire, Sagar E. Shirsath, S. S. Meenal, Journal of Alloys and Compounds, 695, 1112 (2017). DOI: 10.1016/j.jallcom.2016.10.237

Template-free synthesis of hierarchical mixed-metal cobaltites: Electrocapacitive and Theoretical study, Hitesh Adhikari, Dipesh Neupane, C.K. Ranaweera, John Candler, Ram K. Gupta, Santosh Sapkota, Xiao Shen, Sanjay R. Mishra, Electrochemica Acta, 225, 514 (2017). DOI 10.1016/j.electacta.2016.12.108

Nanostructured cobalt oxide and cobalt sulfide for flexible, high performance and durable supercapacitors, S. Aloqayli, C. K. Ranaweera, Z. Wang, K. Siam, P. K. Kahol, P. Tripathi, O.N. Srivastava, Bipin Kumar Gupta, S. R. Mishra, Felio Perez, X. Shen, Ram K. Gupta, Energy Storage Materials, 8, 68 (2017): DOI: 10.1016/j.ensm.2017.05.006

Orange peel derived carbon: Architecting sustainable and high-performance supercapacitor electrodes, C. Ranaweera, P. Kahol, M. Ghimire, S. R. Mishra, Ram Gupta, Carbon, 3(3), 25 (2017); doi:10.3390/c3030025

Ultrathin porous hierarchically textured $NiCo_2O_4$–graphene oxide flexible nanosheets for high-performance supercapacitors, Elias Mitchell, Ashley Jimenez, Ram K Gupta, Bipin Kumar Gupta, Karthik Ramasamy, Mohammad Shahabuddin, Sanjay R Mishra, New Journal of Chemistry, 39, 2181 (2015). DOI: 10.1039/c4nj02110j

Electrochemical Energy Storage Performance of Electrospun $CoMn_2O_4$ Nanofibers, Sara Alkhalaf, C. K. Ranaweera, P. K. Kahol, H. Adhikari, Felio Perez, S. R. Mishra, Bipin Kumar Gupta, K. Ramasamy, Ram K. Gupta, Journal of Alloys and Compounds, 692, 59-66 (2017). Doi: 10.1016/j.jallcom.2016.09.005

SELECTED PRESENTATIONS (out of 100)

2017 Novel application of magnetite nanospheres as supercapacitors: Synthesis, magnetic, and Electrocapactive study, M. Ghimire and S. R. Mishra, MMM Pittsburg, PA November

2017 Novel nickel particle assisted synthesis of NiCo2O4 ferrimagnetic nanoparticles: Experimental and theoretical study on magnetic and electrocapactive performance, M. Ghimire and S. R. Mishra, MMM Pittsburg, PA November

2017 Experimental and theoretical study on magnetic and electrocapactivie performance of inverse spinel NixCo3-xO4 (x0<x<1.5) ferrimagnet, M. Ghimire and S. R. Mishra, MMM Pittsburg,

PA November.

2017 Magnetic and Mossbauer study of co-doped Si1-xRE12-xCuxO19 (RE: La and Pr) and $SrFe_{12-x}Cu_xO_{19}$ hexaferrites, M. Ghimire and S. R. Mishra, MMM Pittsburg, PA November

2017 Magnetic properties of rare-earth doped Sr0.7RE0.3Fe12-x(ClAl)xO19 (RE: la, pr, Nd, Sm, and Gd) hexaferrites, M. Ghimire and S. R. Mishra, MMM Pittsburg, PA November

SELECTED PROFESSIONAL SERVICES

- Director of Multidisciplinary center-INDIUM at the University of Memphis, Memphis, TN
- Reviewer : Kingdom of Saudi Arabia-National Science, Technology, and Innovation plan-2013, NSF-DMR March 2007, Feb 2007, 2009, 2010, 2011, DoE-BS-Reviewer, 2009, NSF-EPA Jan 2008, Feb 2008, NSF-Materials Wolds Program-Panel Reviewer, Feb 2007, NSF-SBIR/STTR Phase I and II panel Reviewer Dec 2006, NSF-DMR-Condensed Matter-Reviewer, Oct 2007, AFROC-proposal review 2006.
- T&P Reviewer for outside universities 2011, 2012, 2015,
- T&P Reviewer for foreign University, 2016.
- Ph.D. thesis reviewer Indian University, 2016
- Reviewer for many peer-reviewed journals (Journal Magnetism and Magnetic Materials, Journal of Applied Physics, Powder Technology, Sensors and Actuators, Journal of Alloys and Compounds, Journal of Phys. Chem. etc.)
- Physics Day Coordinator, Judge for "Work In Progress" program at UoM, Judge for City High school Science Fairs, Expert services to the Microscopy Center (IMC), CRESH program for High School Students.
- Organized Materials Day event at The University of Memphis. 2017, 2018

SELECTED INTERNAL SERVICES (University of Memphis)

Undergraduate Graduate Curriculum Committee-Chair, Department of Physics and Materials Science, Spring 2018-present.
Graduate Committee Chair-2000-2018
Graduate Committee-Member, Department of Physics and Materials Science, Fall 2015-present.
Tenure and Promotion Committee-Chair, 2018

SELECTED TEACHING EXPERIENCE

"Solid State Physics", PHYS 6610/4610, University of Memphis
"Materials Physics", PHYS 6720/4720, University of Memphis
"Calculus based Physics", PHYS 2110/2120, University of Memphis
"Algebra based Physics", PHYS 2010/2020, University of Memphis

MENTORING (University of Memphis)

MS. Student: Tej Paudal, 2017-Present
M.S. Students: Deepa Gaurgian, 2018

SELECTED OUTREACH

Host High School Students for Research in CRESH program
Saturday Hands-on Physics Program for High School Students, Memphis, TN Nov. 2015
Host Annual Materials Day Conference on Campus, 2017, 2018

Francisco Muller-Sanchez

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University of Memphis
3720 Alumni Ave, Manning Hall 328, Memphis, TN, 38152
Phone: (901)678-1668, Email: F.Muller.Sanchez@memphis.edu

ACADEMIC APPOINTMENTS

Assistant Professor of Physics, University of Memphis	Sep 2018–present
Research Associate, University of Colorado Boulder	Sep 2013–Aug 2018
Postdoctoral Fellow, University of California Los Angeles	Sep 2011–Aug 2013
Postdoctoral Fellow, Instituto de Astrofisica de Canarias	Sep 2008–Aug 2011

EDUCATION

Ph.D. in Astronomy, Ludwig-Maximillians University of Munich	Jun 2008
M.Sc. in Electrical Engineering, Karlsruhe Institute of Technology	Sep 2004
B.Sc. in Telecommunications Engineering, National University of Mexico	Jun 2002

RESEARCH INTEREST

Supermassive Black Holes, Galaxy Evolution,

HONORS AND AWARDS

- 2015-2018: Thirty-Meter Telescope (TMT) Corporation and NSF, two travel grants to attend the 2015 and 2018 TMT Science Meetings.
- 2013 - 2017: National Radio Astronomy Observatory (NRAO), three travel grants for VLA Observing Runs and Data Reduction.
- 2017: FAMOUS travel grant to attend the 231st Meeting of the American Astronomical Society (AAS) in Washington, DC (Jan. 2018).
- 2016: Outstanding Postdoc Award, CU-Boulder, National Postdoc Appreciation Week. Awarded to a Postdoc in North America whose research and communication skills are outstanding.
- 2002: "Medal of honour Gabino Barreda" for obtaining the highest GPA at the end of university graduate studies in Mexico.

GRANTS

- 2018: PI, NASA Astrophysics Data Analysis Program, *The Keck OSIRIS Nearby AGN Survey: Characterizing the Physical Mechanisms Driving Feeding and Feedback in Active Galaxies*
- 2017: PI, SOFIA, *Testing Unification Models in Dual AGN*
- 2017: Co-I, *HST* archive proposal, *Characterizing the Physical Mechanisms Driving Feeding and Feedback in Active Galaxies*
- 2017: Co-I, *HST*, 18 orbits, *AGN Before and After: Towards a balanced view of the connection between nuclear gas and BH activity*
- 2017: Co-I, NSF AAG, *Tackling galaxy/black hole coevolution using improved merger identifications*

- 2016: PI, SOFIA, *Testing Unification Models in Dual AGN*
- 2013: PI, *HST* archive proposal, *The Physics of the Coronal Line Region in Seyfert Galaxies and its Role in Galaxy Evolution*
- 2011: Co-I, *Chandra* archive proposal, *A serendipitous 695-ks HETG observation of the Circinus galaxy*

OBSERVING PROPOSALS AS PI (selected)

- 2016-2018: SOFIA, *Testing Unification Models in Dual AGN* (7 hours).
- 2015-2017: Keck/OSIRIS, *Evolution of the Stars and the Interstellar Medium in Confirmed Dual AGN* (2 nights).
- 2014: NRAO/VLBA: *The radio structure of galaxies with double-peaked narrow optical emission lines* (24 hours, grade C).
- 2013: VLT/SINFONI, *Evolution of the Stars and the Interstellar Medium in Confirmed Dual AGN* (2 nights).
- 2013: APO-3.5m/Triplespec, *Using the Near-IR Emission Lines to Probe AGN Feedback* (2 nights).
- 2012: Keck/OSIRIS, *Measuring AGN Feedback Parameters from Seyfert Galaxy Outflows* (15 nights over 4 semesters).
- 2012: NOAO-SOAR/OSIRIS and NOAO-Kitt Peak/FLAMINGOS, *Using the Near-IR Emission Lines to Probe AGN Feedback* (12 nights).
- 2011: Keck/OSIRIS, *Kinematics of the Narrow-Line and Coronal-Line Regions in Seyfert Galaxies* (2 nights).
- 2010: VLT/SINFONI+NACO, *Resolving the Kinematics of the Narrow-Line and Coronal-Line Regions in Seyfert Galaxies (5 nights)*

SELECTED PUBLICATIONS
– from a total of 55 in refereed journals and proceedings (32 for the past five years)

1. **Müller-Sánchez, F.,** Hicks, E., Malkan, M., Davies, R., Yu, P. C., Shaver, S., Davis, B. 2018a, *The Keck/OSIRIS Nearby AGN Survey (KONA) I. Nuclear K-band Properties of Nearby AGN,* ApJ, 858, 48
2. **Müller-Sánchez, F.,** Nevin, R., Comerford, J., Davies, R., Treister, E., Privon, G. 2018b, *Two Separate Outflows in the Dual Supermassive Black Hole System NGC 6240,* Nature, 556, 345
3. **Müller-Sánchez, F.,** Comerford, J., Stern, D., Harrison, F. 2016, *The Nature of Active Galactic Nuclei with Velocity Offset Emission Lines,* ApJ, 830, 50
4. **Müller-Sánchez, F.,** Comerford, J., Nevin, R., Barrows, R. S., Cooper, M. C., Greene, J. 2015, *The Origin of Double-Peaked Emission Lines in Active Galactic Nuclei I: Very Large Array Detections of Dual AGNs and AGN Outflows*, ApJ, 813, 103
5. **Müller-Sánchez, F.,** Prieto, A., Davies, R., **Vives-Arias, H.,** Hicks, E., Malkan, M., Tacconi, L. J., Genzel, R. 2011, *Outflows from AGN: Kinematics of the Narrow-Line and Coronal-Line Regions in Seyfert galaxies*, ApJ, 739, 69

SELECTED PRESENTATIONS (invited)
– from a total of 48 conference presentations and seminars (28 for the past five years)

- *Two Separate Outflows in the Dual Supermassive Black Hole System NGC 6240*, NRAO, Socorro, NM, May 2018
- *Dissecting the Butterfly in NGC 6240*, University of Nevada, Las Vegas, NV, May 2018

- *Feeding & Feedback in Nearby AGN,* City University of New York, NY, May 2017
- *Coevolution of Black Holes and Galaxies*, College of Charleston, SC, Feb. 2017
- *The Extraordinary Lives of Supermassive Black Holes at the Centers of Galaxies,* Brandeis University, MA, Jan. 2017
- *AGN Feedback and the Evolution of Galaxies*, Aspen Center for Physics summer workshop, Aspen, CO, Jun 2018
- *Impact of Gas Outflows in the Evolution of Galaxies,* Lorentz Center workshop "Quest for Multiple SMBHs: A Multi-Messenger View", Leiden, Netherlands, Nov. 2017
- *Impact of AGN Feedback in the Evolution of Seyfert Galaxies*, Guillermo Haro workshop, "Forming and Fueling Black Hole Seeds", Tonantzintla, Puebla, Mexico, Jul. 2015

SELECTED PROFESSIONAL SERVICES

- Referee for ApJ, ApJ Letters, ApJ Supplement, A&A, A&A Letters, MNRAS and MNRAS Letters (2011 – present).
- Reviewer for the NSF Postdoctoral Fellowship Program (AAPF).
- Reviewer for the NASA Astrophysical Data Analysis Program (ADAP).
- Reviewer for the *HST* time allocation committee.
- Reviewer for the *Chandra* time allocation committee.
- Member of the APO time allocation committee at CU-Boulder (2014 - 2018).
- Leader of the SDSS-IV/MaNGA project "Outflows of Highly-Ionized Gas and Their Role in Galaxy Evolution" (Nov. 2015 – present).

SELECTED TEACHING EXPERIENCE

"Conceptual Physics", PHYS 1010, University of Memphis

"Life in the Universe", University of California Los Angeles

"Galaxies", University of Colorado Boulder

MENTORING (total number of students: 10)

- Supervisor of 8 undergraduate research projects at IAC, UCLA, CU Boulder and the University of Memphis (since Sep. 2010)
- Doctoral Thesis Co-Advising: Rebecca Nevin (CU Boulder, current)
- Doctoral Thesis Co-Advising: James Negus (CU Boulder, current)

SELECTED OUTREACH

- TED-style talk "The extraordinary lives of supermassive black holes", CU-Boulder, National Postdoc Appreciation Week, Sep. 2016.
- Narrator of the video "Black Holes" for PHD TV: Videos and Animations about Science and Exploration (http://phdcomics.com/tv/, Nov. 2015**).**

SELECTED MEDIA COVERAGE

- "Black Holes Head for Collision As Two Galaxies Merge in Stunning Butterfly Formation", Newsweek, Apr. 2018
- "Unprecedented Dissection of Twin Galaxies in Final Stages of Merging", Scitechdaily, Apr. 2018
- "Huge Black Hole Blasts Out Double Burp", BBC, Jan. 2018
- "Masquerading as a Merger", AAS NOVA, Nov. 2015

Chenhui Peng

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ACADEMIC APPOINTMENTS

Assistant Professor of Physics, University of Memphis	2018–present
Postdoctoral Associate, Massachusetts Institute of Technology	2016–2018

EDUCATION

Ph.D. in Chemical Physics, Kent State University	November 2016
M.S. in Optics, Graduate School of Chinese Academy of Sciences, China	July 2011
B.S. in Physics, Qufu Normal University, China	July 2007

RESEARCH INTEREST

Active Soft Matter, Colloids, Self-assembly, Microfluidics.

HONORS AND AWARDS

Outstanding Scholar Abroad, top tier extraordinary award, 10 out of 500, 2017
– China Scholarship Council, Chinese Government.

Alfred Saupe Scholarship Award, 2015
– Kent State University.

Graduate Student's Domestic travel award, 2014;
– Kent State University.

Graduate Student's International travel award,2013;
– Kent State University.

Selected scholarship to attend ICAMP Summer School, 2013;
-University of Cambridge, UK.

GRANTS

Faculty Start-up Research Fund, PI
– College of Arts and Sciences, University of Memphis, 2018

SELECTED PUBLICATIONS

– from a total of 24 in refereed journals and proceedings (10 first-authorship for the past five years)

Chenhui Peng, T. Turiv, Y. Guo, Q.-H. Wei, and O. D. Lavrentovich, "Command of active matter by topological defects and patterns," *Science*, 354, 882 (2016).

Chenhui Peng, T. Turiv, Y. Guo, S. V. Shiyanovskii, Q.-H. Wei, and O. D. Laverntovich, "Control of colliodal placement and assembly by modulated molecular orientaion in nematic cells," *Science Advances*, 2, e1600932 (2016).

Chenhui Peng, Y. Guo, T. Turiv, Miao Jiang, Q.-H. Wei, and O. Lavrentovich, "Patterning of lyotropic chromonic liquid crystals by photoalignment with photonic metamasks," *Advanced Materials*, 29, 1606112 (2017).

Chenhui Peng, Y. Guo, C. Conklin, J. Viñals, S. V. Shiyanovskii, Q.-H. Wei, and O. D. Lavrentovich, "Liquid crystals with patterned molecular orientation as an electrolytic active medium," *Physical Review E* 92, 052502 (2015).

Chenhui Peng and O. D. Lavrentovich, "Chirality amplification and detection by tactoids of lyotropic chromonic liquid crystals," *Soft Matter* 11, 7257-7263 (2015).

SELECTED PATENTS

Chenhui Peng, et. al, "Liquid Crystal with patterned Molecular Orientation as an electrolytic Active Medium," US Patent App. 15/358,532, 2017.

Y. Guo, M. Jiang, Chenhui Peng, et. al, "Photopatterning of Molecular Orientation," US Patent App. 15/750,847, 2018.

SELECTED PRESENTATIONS
– from a total of 10 conference presentations and seminars for the past five years

(Invited) "Active fluids and their bioengineering applications", Fedex Institute of Technology, University of Memphis, USA, Oct. 2018.

(Invited) "Active fluids and their bioengineering applications",
Department of Physics and Materials Science, University of Memphis, USA, Sep. 2018.

(Invited) "Active fluids and their bioengineering applications"
Department of Civil and Environmental Engineering, MIT, USA, Mar. 2018.

(Invited) "Active fluids and their bioengineering applications"
Department of Physics and Materials Science, University of Memphis, USA, Mar. 2018.

(Invited) "Active fluids and their bioengineering applications"
Department of Physics & Astronomy in City University of New York, New York City, USA, Mar. 2018.

SELECTED PROFESSIONAL SERVICES

Journal Reviewer for 15 scientific journals:

Nature Communications, Advanced Materials, Advanced Functional Materials, 2D Materials, Soft Matter, Physical Review E, Langmuir, ACS Applied Materials and Interfaces, Scientific Reports, Optics Letters, Optics Express, RSC Advances, Liquid Crystals, European Journal of Physics, Applied Physics Express, Journal of SID.

SELECTED TEACHING EXPERIENCE

"Polymer Physics", PHYS 7390, University of Memphis

MENTORING (University of Memphis)

M.S. Students: Kamal Ranabhat (Fall 2018-present), Netra Prasad Dhakal (Fall 2018-present).

B.S. Students: Shelby Yenson (Fall 2018-present).

MENTORING (before joining University of Memphis)

M.S. Students: Alex Barksdale (from MIT, Fall 2017)
B.S. Students: Avery Tishue (from Kenyon College, Summer 2015), Rachel Ligas (from Stark State College, Summer 2015)

SELECTED OUTREACH

Mentor and Judge in high school STEM Science Fair sponsored by the NEOHSTEM Alliance and Kent State University, 2013-2015.

SELECTED MEDIA COVERAGE

Marc S. Lavine, "Directing traffic with patterns", paper published in *Science* 354, 882 (2016). was introduced by the Science editor Marc Lavine in the published issue.

The paper "High-Resolution and High-Throughput Plasmonic Photopatterning of Complex Molecular Orientations in Liquid Crystals" published in *Advanced Materials* 28, 2353(2016), is highlighted as Frontispiece image.

Jacob Runnels, "Researchers study moving particles in liquid crystals", Kentwired.com, published on Feb. 25, 2015.

The paper "Chirality amplification and detection by tactoids of lyotropic chromonic liquid crystals" published in *Soft Matter* 11, 7257(2015), is highlighted as Cover image

The paper "Induced-charge electro-osmosis around metal and Janus spheres in water: Patterns of flow and breaking symmetries" published in *Phys. Rev. E* 90, 051002(R) (2014), Highlighted by WIKIPEDIA, in the title "Induced-charge electrokinetics".

The paper published in *Nature Communications* 5, 5033 (2014), Highlighted by Kent State University Advanced Materials Research Directory page 12.

Image from the paper published in *Phys. Rev. E* 90, 051002(R) (2014) was selected by the journal editor to be displayed as "Kaleidoscope" based on aesthetic merit.

Firouzeh Sabri

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University of Memphis
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ACADEMIC APPOINTMENTS

Associate Professor of Physics, University of Memphis	2014–present
Assistant Professor of Physics, University of Memphis	2009–2014
Instructor of Physics, University of Memphis	2007–2009

EDUCATION

Ph.D. in Physics, University of Cambridge	August 2002
MPhil. in Physics, University of Cambridge	August 1998
BSc. in Physics, University of Wales, Swansea	August 1995

POSTDOCTORAL TRAINING

NIH/ NIDCD, Bethesda, MD	Biophysics	2003-2004
Univ. of Florida, Gainesville, FL	Polymer Chemistry	2005-2006

RESEARCH INTEREST

Polymer Composites, Aerogels, Biophysics, Porous Structures, Smart Material/ Sensors.

HONORS AND AWARDS

Alumni Association Eye of the Tiger Award, 2016, In Recognition of Service and Outreach, University of Memphis, (2) Charles Stark Draper II Award 2015 and 2016, Best Paper at the 60th and 61st International Instrumentation Symposium (IIS) of the ISA, 2008 Recipient of the APS Hildred Blewett Award (one of four recipients for USA and Canada) 2000, Admitted to the status of "Fellow"-Cambridge Overseas Society1995, Overseas Research Students (ORS) Award,1995 Cambridge Commonwealth Trust (CCT) Award, 1995Trinity College Bursary Award , 1994 Nuffield Foundation Research Bursary Award

GRANTS (past 10 years)

Internal: Approximately $270,000 from internal sources including Memphis Research Consortium, FedEx Institute of Technology, College or Arts and Sciences

(External)

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
TBR Course Revitalisation Grant (Co-PI)	TBR	$16000	2014-2015
MemphisCRESH Fellowship (PI)	TN-SCORE	4,200	2014-2015
Electric-field induced morphology of covalently-bound peptide surfaces: Toward switchable biological interfaces (Co-PI)	NSF TN-SCORE Seed Program in Collaborative Quantitative Biology	20,000	2014-2015
FESEM (Senior Personnel)	NSF-MRI	(Approx.) $500,000	2013
MemphisCRESH Fellowship (PI)	TN-SCORE	$5,000	2013-2014
Aerogel-based Nanomaterial Insulation	(NSF) TN-SCORE	$50,000	2012-

for Energy Conservation of Industrial Burners (PI)			2013
MemphisCRESH Fellowship (PI)	TN-SCORE	$5,000	2012-2013
Development, Characterization, and Validation of an Aerogel/RTV Based Cryogenic Propellant Tank" (Co-PI)	NASA TN EPSCoR	$260,000	2010-2013
Simulation of Magnetically Induced Fluid Motion in Reduced Gravity (Co-PI)	TN Space Grant Consortium	$14,000	2012
Magnetically Induced Fluid Motion in Reduced Gravity (Co-PI)	TN Space Grant Consortium	$18,000	2011
Ultraviolet Radiation on RTV 655 and Silica Aerogels (PI)	American Physical Society	$39,000	2009-2010

BOOK CHAPTERS

Chapter Title: In Vivo Biomedical Applications of Aerogels, The Springer Handbook of Aerogels 2nd Edition, Michel A. Aegerter Editor-in-Chief Nicholas Leventis, Matthias M. Koebel, and Stephen Steiner. To be published in 2019.

PATENTS

- Issued patent: Cell growth apparatus and use of aerogels for directed cell growth, Inventor: Firouzeh Sabri Patent number 9962468 Publication date: 2018/5/8
- Light weight flexible temperature sensor kit, Inventor: Firouzeh Sabri and Steve Allison, U.S. Prov. App. No. 62/476,938, U.S. App. No. 15/937,457

SELECTED PUBLICATIONS

**** Undergraduate author***

- ** Martina Sala Rodriguez*, Kyle J Lynch, Swetha Chandrasekaran, Omar Skalli,Marcus Worsley, **Firouzeh Sabri** ,2018. PC-12 cells adhesion and differentiation on carbon aerogel scaffolds, MRS Communications, doi:10.1557/mrc.2018.206
- Lynch, K.J., Skalli, O. and **Sabri, F**., 2018. Growing Neural PC-12 Cell on Crosslinked Silica Aerogels Increases Neurite Extension in the Presence of an Electric Field. Journal of functional biomaterials, 9(2), p.30. doi:10.3390/jfb9020030
- Issued patent: Cell growth apparatus and use of aerogels for directed cell growth, Inventor: **Firouzeh Sabri** Patent number 9962468 Publicaiton date: 2018/5/8
- Lynch, K.J., Skalli, O. and **Sabri, F.,** 2017, Investigation of surface topography and stiffness on adhesion and neurites extension of PC12 cells on crosslinked silica aerogel substrates. PloS One, 12(10), p.e0185978. https://doi.org/10.1371/journal.pone.0185978
- **Sabri, F.,** Gerth, D., **Tamula, G.R.M., *Phung, T.C.N.,* Lynch, K.J.* and Boughter Jr, J.D., 2014. Novel technique for repair of severed peripheral nerves in rats using polyurea crosslinked silica aerogel scaffold. Journal of Investigative Surgery, 27(5), pp.294-303. https://doi.org/10.3109/08941939.2014.906688
- **Sabri, F**., Sebelik, M.E., Meacham, R., Boughter Jr, J.D., Challis, M.J. and Leventis, N., 2013. In vivo ultrasonic detection of polyurea crosslinked silica aerogel implants. PloS one, 8(6), p.e66348. https://doi.org/10.1371/journal.pone.0066348
- Benjamin M Walters, Ramón V León, Muhammad S Jahan, **Firouzeh Sabri**, 2017, ESR Detection of X-Ray-Induced Free Radicals in Crosslinked Silica Aerogels, MRS Advances, 2, 57, 3521-3529, https://doi.org/10.1557/adv.2017.450
- Allison, S.W., **Baker, E.S., *Lynch, K.J.* and **Sabri, F**., 2017. In vivo X-Ray excited optical luminescence from phosphor-doped aerogel and Sylgard 184 composites. Radiation Physics and Chemistry, 135, pp.88-93. doi: 10.1016/j.radphyschem.2017.01.045

- **Sabri F,** **Lynch KJ*, Allison S., 2015, Polymer-encapsulated phosphor particles for in vivo phosphor luminescence applications. International Journal of Polymeric Materials and Polymeric Biomaterials. 64(13):690-4. http://dx.doi.org/10.1080/00914037.2014.1002096
- **Sabri, F**., Cole, J.A., **Scarbrough, M.C*. and Leventis, N., 2012. Investigation of polyurea-crosslinked silica aerogels as a neuronal scaffold: a pilot study. PloS one, 7(3), p.e33242. https://doi.org/10.1371/journal.pone.0033242

SELECTED PRESENTATIONS

14 invited professional presentations. 10 invited outreach presentations.

SELECTED PROFESSIONAL SERVICES (Internal to UofM and External to UoM):

- **External peer Reviewer for**: World Biomaterials Congress (http://www.wbc2016.org) Montreal, Canada 2015, NASA Postdoctoral Program -Universities Space Research Association (since 2012, every funding cycle), and more than 20 journals including Functional Materials Letters, Applied Materials and Interfaces, Materials Design, Biomaterials Journal of Biomechanics, Composites Science and Technology, ACS Nano, Advances in Colloid and Interface Science, Journal of Noncrystalline Solids, ACS Sustainable Chemistry & Engineering, Journal of Luminescence.
- **2010 Workshop Leader**: International Space University (ISU), Workshop on Nanomaterials and Space Materials: Introduction to Aerogels, Strasbourg, France
- **Graduate Committee**, Member, Department of Physics and Materials Science, 2017-present.
- **Director and Founder**, January 2012-Present, MemphisCRESH (College Research Experience for Students from High school) http://www.memphis.edu/cresh/
- **Faculty Mentor**: Center for Research on Women (CROW), University of Memphis
- **Program Coordinator**, REU Program in Nanomaterials and Biomaterials, University of Memphis, 2009-2011
- **Co-Director** Biologistics Research Cluster, FedEx Institute of Technology, University of Memphis 2017-present
- **Undergraduate Curriculum Committee**: College representative, and Chair (Department), 2015-2017

SELECTED TEACHING EXPERIENCE

Calculus-based Physics I, Calculus-based Physics II, Trig-based Physics I,Trig-based Physics II, upper division Mechanics, upper division Electricity and Magnetism, Materials Physics (graduate), Research in Physics

MENTORING (University of Memphis)
No. of students mentored:
Graduate: 12 (primary mentor), 3 (co-mentor)
Undergraduate: 26
High school: 14

Xiao Shen

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Phone: (901)678-1668, Email: xshen1@memphis.edu

ACADEMIC APPOINTMENTS

Assistant Professor of Physics, University of Memphis	2015–present
Research Assistant Professor of Physics, Vanderbilt University	2014–2015
Postdoctoral Scholar, Vanderbilt University	2009–2014

EDUCATION

Ph.D. in Physics, State University of New York at Stony Brook	August 2009
B.S. in Physics, Fudan University, China	July 2001

RESEARCH INTEREST

Energy and Electronic Materials, Defects and Interfaces, Electronic Structure Theory.

HONORS AND AWARDS

Early Career Research Award, 2017
– College of Arts and Sciences, University of Memphis.

The Ralph E. Powe Jr. Faculty Enhancement Awards, 2016
– Oak Ridge Associated Universities (ORAU).

GRANTS

Faculty Research Grant, PI
– College of Arts and Sciences, University of Memphis, 2018

"Silicon Telluride, A 2D Material with Unique Variable Structure", PI
– National Science Foundation, 2017-2020

"Novel Thermoelectric Materials: Computational and Engineering Approach", PI
– University of Memphis Research Investment Fund, 2017-2019

"Physics-Based Models for Mid-IR Bismides Semiconductor Lasers", Co-PI
– DOD Air Force STTR Phase I, 2015

BOOK CHAPTERS

D. M. Fleetwood, E. X. Zhang, X. Shen, C. X. Zhang, R. D. Schrimpf, S. T. Pantelides, "Bias-Temperature Instabilities in Silicon Carbide MOS Devices", in *Bias Temperature Instability for Devices and Circuits*, edited by T. Grasser, Springer, 2013, pp. 615-637.

SELECTED PUBLICATIONS
– from a total of 53 in refereed journals and proceedings (23 for the past five years)

X. Shen, T. J. Pennycook, D. Hernandez-Martin, A. Prez, Y. S. Puzyrev, Y. Liu, S. G. E.

te Velthuis, J. W. Freeland, P. Shafer, C. Zhu, M. Varela, C.S. Leon, Z. Sefrioui, J. Santamaria, and S. T. Pantelides, "High On/Off ratio memristive switching of manganite/cuprate bilayer by interfacial magnetoelectricity", *Advanced Materials Interfaces* 3, 160086 (2016).

X. Shen, K. Yin, Y. S. Puzyrev, Y. Liu, L. Sun, R.-W. Li, and S. T. Pantelides, "2D nanovaristors at grain boundaries account for memristive switching in polycrystalline $BiFeO_3$", *Advanced Electronic Materials* 1, 1500019 (2015).

X. Shen, E. A. Hernandez-Pagan, W. Zhou, Y. S. Puzyrev, J. C. Idrobo, J. E. MacDonald, S. J. Pennycook, and S. T. Pantelides, "Interlaced crystals having a perfect Bravais lattice and complex chemical order revealed by real-space crystallography", *Nature Communications* 5, 5431 (2014).

X. Shen and S. T. Pantelides, "Atomic-scale mechanism of efficient hydrogen evolution at SiC nanocrystal electrodes", *Journal of Physical Chemistry Letters* 4, 100 (2013).

X. Shen, P. B. Allen, J. T. Muckerman, J. W. Davenport, and J.C. Zheng, "Wire versus tube: stability of small one-dimensional ZnO nanostructures", *Nano Letters* 7, 2267 (2007).

SELECTED PRESENTATIONS
– from a total of 31 conference presentations and seminars (15 for the past five years)

(Invited) "Atomistic-scale mechanism of the electrical dipole switching in functionalized glasses", International Materials Research Congress, Cancun, Mexico, Aug. 2018.

(Invited) "Theoretical investigation of boron and barium at the SiC/SiO_2 Interface", Eleventh Annual SiC MOS Workshop, College Park, MD, Aug. 2016.

(Invited) "Atomic origin of high temperature electron trapping in SiO_2"
Ninth Annual SiC MOS Workshop, College Park, MD, Aug. 2014.

(Invited) "Band tail states at the SiC/SiO_2 interface"
Seventh Annual SiC MOS Workshop, College Park, MD, Aug. 2012.

(Invited) "Metastable defects and recoverable degradation in InAs/AlSb HEMTs"
AVS 58th International Symposium and Exhibition, Nashville, TN, Nov. 2011.

(Invited) "Phosphorus and oxygen reactions at the $SiC-SiO_2$ interface"
Sixth Annual SiC MOS Workshop, College Park, MD, Aug. 2011.

(Invited) "Excess carbon in silicon carbide"
Fifth Annual SiC MOS Workshop, College Park, MD, Aug. 2010.

SELECTED PROFESSIONAL SERVICES

Journal Reviewer for 22 scientific journals: (alphabetical order)

Advanced Functional Materials, Applied Physics Letters, Applied Surface Science, Carbon, Chemical Physics, IEEE Transaction on Electron Devices, Journal of Applied Physics, Journal of Materials Science, Journal of Physical Chemistry, Journal of Physical Chemistry Letters, Materials Chemistry and Physics, Microelectronics Journal, Microelectronics Reliability, Nature Nanotechnology, Physical Chemistry Chemical Physics, Physical Review Applied, Physical Review B, Physical Review Letters, Scientific Report, Solid State Electronics, Surface Sciences, and Thin Solid Films.

Proposal Reviewer for National Science Foundation, Division of Materials Research:

Electronic and Photonic Materials (EPM) program;
Condensed Matter and Materials Theory (CMMT) program;
Designing Materials to Revolutionize and Engineer Our Future (DMREF) program.

Conference Reviewer for IEEE Nuclear & Space Radiation Effects Conference, 2014

SELECTED INTERNAL SERVICES (University of Memphis)

High-Performance Computing (HPC) Steering Committee, Summer 2018-present.

Graduate Program Coordinator, Department of Physics and Materials Science, Spring 2018-present.

Advisor to Society of Physics Students (SPS), Fall 2015-present.

Graduate Committee, Department of Physics and Materials Science, Fall 2015-present.

SELECTED TEACHING EXPERIENCE

"Methods in Computational Physics", PHYS 7386, University of Memphis

"Introduction to Computational Physics", PHYS 4420, University of Memphis

"Statistical Mechanics", PHYS 7520, University of Memphis

"Quantum Mechanics I", PHYS 7200, University of Memphis

MENTORING (University of Memphis)

Ph.D. Students: Romakanta Bhattarai (Spring 2018-present), Caleb Gallops (Summer 2017-present, Chemistry, co-mentor with Yongmei Wang).

M.S. Students: Juan Chen (Fall 2018-present), Laura Nichols (Fall 2017-present), Zhi Song (Fall 2016-present).

A total of 5 B.S. Students

SELECTED OUTREACH

Mentoring High School Students for Research:

Simeon Betapudi (Memphis University School, TN, Fall 2018);
Kathy Cui (Collierville High School, TN, Summer 2018);
William K. Egglestony (White Station High School, TN, Summer 2018);
Zachary Hodge (Mississippi School for Mathematics & Science, MS, Summer 2016).

Family Science Night: Earth & Space, Pink Palace Museum, Memphis, TN, Jul. 2018.

Saturday Hands-on Physics Program for High School Students, Memphis, TN Nov. 2015

SELECTED MEDIA COVERAGE

"US Scientists Find New Crystalline Order in CIS Nanoparticles",
Compound Semiconductor, November 14, 2014.

"Peering into Water Photolysis",
Chemical & Engineering News, September 14, 2009.

Samuel L. Mensah

Department of Physics and Materials Science
338 Manning Hall, University of Memphis, Memphis TN 38152
Email: slmensah@memphis.edu

EDUCATION

Ph.D. in Microelectronic Engineering and Photonics
University of Arkansas, Fayetteville, AR (2011)

Master of Science in Physics
Michigan Technological University, Houghton, MI (2006)

Master of Philosophy in Microelectronic Engineering and Semiconductor Physics
University of Cambridge, Cambridge, UK (2003)

Bachelor of Science in Physics
University of Cape Coast, Ghana (1999)

EMPLOYMENT

Instructor Coordinator, (August 2013 – Present)
Laboratory Supervisor, (February 2012 – July 2013)
Conceptual Physics Instructor (Spring Term 2013)
Adjunct Astronomy Professor (Fall Semester 2012)
Post-Doctoral Research, (August 2011 – February 2012)

RESEARCH EXPERIENCE

Max-Planck Institute of Physics, Halle, Germany (2009 –2011)

Research focus: III-V Material Synthesis

University of Arkansas, Fayetteville, AR (2007 –2011)

Research Focus – Plasma Diagnostics

Michigan Technological University, Houghton, MI (2004 –2006)

Research Focus: II-VI semiconductor materials and device fabrication

University of Cambridge, Cambridge, United Kingdom (2001 – 2002)

Research Focus: Semiconductor materials and device fabrication

TEACHING EXPERIENCE

University of Memphis, Memphis TN (August 2013 – Present)
Instructor Coordinator / Department of Physics

Missouri State University, Springfield MO (February 2012 – July 2013)

Laboratory Supervisor / Department of Physics

Michigan Technological University, Houghton, MI (August 2003 – May 2006)
Teaching Assistant / Department of Physics

AWARDS AND FELLOWSHIPS

- TBR Course Redesign Grant (Spring 2015)
- University of Arkansas, International Cultural Team Scholarship (2007)
- Honorable Mention (2nd place) - Arkansas Academy of Mechanical Engineers research Symposium 2008
- Honorable Mention 2nd place) - Arkansas Academy of Mechanical Engineers research Symposium 2007
- Travel Grant – National Society of Black Physicist (2004, 2005, 2006 and 2008)

SELECTED PUBLICATIONS

Book Contribution

- A. Prasad, **S. Mensah**, Z. W. Pan, Y. K. Yap, "Alternative Nanostructured Sensors: Nanowires, Nanobelts, and Novel Nanostructures," in Chapter 4 of *Sensors Based onNanostructured Materials,* Francisco J. Arregui (Ed), Springer, pp. 59-79 (2009). (**http://www.springer.com/materials/book/978-0-387-77752-8**)

Refereed Articles

1. **S. L. Mensah,** Matt Gordon and Hameed Naseem, "Investigating the plasma parameters of an Ar/O2 discharge during the sputtering of Al targets in an Inverted Cylindrical Magnetron" Phys. Of Plasmas, **21**, 093510 (2014)
2. **S. L. Mensah**, H. A. Naseem, H. H. Abu-Safe and M. H. Gordon, "Investigating the role of Hydrogen in Silicon Deposition Using an Energy-resolved mass spectrometer and a Langmuir Probe in an Ar/H2 Radio Frequency Magnetron Discharge" Phys. of Plasmas, **19**, 073521, (2012)
3. C. Yan, X. Li, K. Zhou, A. Pan, P. Werner, S. L. Mensah, A. T. Vogel, and V. Schmidt, "Heteroepitaxial Growth of GaSb Nanotrees with an Ultra-Loww Reflectivity in a Broad Spectral Range", Nano Letters, **12**, 1799, (2012)
4. S. P. Koirala, H. H. Abu-Safe, **S. L. Mensah**, H. A. Naseem and M. H. Gordon, "Langmuir probe and Optical emission studies in a radio frequency (rf) magnetron plasma used for the deposition of hydrogenated armorphous silicon", Surf. & Coat. Technol. **203**, 602, (2008)
5. **Samuel L. Mensah**, Abhishek Prasad, Jiesheng Wang, Yoke Khin Yap, "ZnO Nanosquids: Branching Nanowires from Nanotubes and Nanorods," in *A Special Section on Nanowires*, J. Nanosci. Nanotechno. 8, 233 (2008).
6. Abhishek Prasad, **Samuel Mensah**, Jiesheng Wang, Archana Pandey, and Yoke Khin Yap, "Growth of Single Crystalline ZnO Nanotubes and Nanosquids," Mater. Res. Soc. Symp. Proc. Vol. 1057, paper 1057-II13-02.
7. **Samuel L. Mensah**, Vijaya K. Kayasta, Ilia N. Ivanov, David B. Geohegan and Yoke Khin Yap, "Formation of Single Crystalline ZnO Nanutubes without Catalyst and Templates" Appl. Phys. Letts. 90, (2007) 113108
8. Jason Mascatello, Jiesheng Wang, Benjamin Ulmen, Vijaya Kayasta, Ming Xie, **Samuel Mensah**, Shun Wu, Archana Pandey, Chee Lee, Abhishek Prasad and Yoke Khin Yap, "Growth of Carbon, Boron, Nitride Nanotubes for Biosensors," ECS Transactions 3,(26), 1-13, (2007)
9. **Samuel L. Mensah**, Vijaya K. Kayasta and Yoke Khin Yap, "Selective Growth of Pure and Long ZnO nanowires by Con trolled Vapor Concentration Gradients" J. Phys. Chem. C (Letter) 111 (2007) 16092

SELECTED PRESENTATIONS

Conference Presentations

- **Samuel L. Mensah** "Growth and Characterization of ZnO Nanostructures" 2005 National Society of Black Physicist Annual Meeting, Orlando Florida (February 2005)
- **Samuel L. Mensah**, "Growth of Pure ZnO nanowires Without a mixture of Nanobelts and Nanocombs" 2006 National Society of Black Physicist, San Jose, California (February 2006)
- **Samuel L. Mensah**, Vijaya K. Kayasta, Ilia N. Ivanov, David B. Geohegan and Yoke Khin Yap, "Formation of Single Crystalline ZnO Nanutubes without Catalyst and Templates" 2006 America Physical Society Annual Meeting, Baltimore Maryland (March 2006)
- **Samuel L. Mensah**, Vijaya K. Kayasta and Yoke Khin Yap, "Growth of ZnO nanowires without a mixture of other ZnO Nanostructures", 2006 America Physical Society Annual Meeting, Baltimore Maryland (March 2006)
- Paula Likpa, **Samuel L. Mensah**, D. G. Bhat and Matt Gorgon, "Absolute Calibration of Ar Excited States" ICMCTF Annual Meeting, San Diego, California (April 2007)
- **S. L. Mensah** and M. H. Gordon, "Investigation of Ar-Excited State Population in an Argon Discharge with the aid of a Langmuir Probe and a Collisional-Radiation Model." Annual Meeting of the National Society of Black Physicist. Washington DC. (February 2008)
- **S. L. Mensah**, H. H. Abu-Safe, and M. H. Gordon, "Langmuir Probe Investigation of the Effect of Pressure and Hydrogen Concentration in an Ar-H-Si Plasma." Society of Vacuum Coaters. Chicago, IL. (April 2008).
- **S. L. Mensah**, H. H. Abu-Safe and M. H. Gordon, "Ion Energy Distribution and Langmuir Probe Studies in an Ar/O2 discharge during Al2O3 deposition", ICMCTF, San Diego CA (April 2009).
- **S. L. Mensah**, H. H. Abu-safe, H. Naseem, and M. H. Gordon, "Investigation of the role of Hydrogen in Silicon Deposition Using an Energy-resolve mass spectrometer in an Ar/H2 Radio Frequency Magnetron Discharge", ICMCTF, San Diego CA (April 2009)

PROFESSIONAL MEMBERSHIPS

- American Association of Physics Teachers (AAPT)
- National Society of Black Physicist (NSBP)
- Material Research Society (MRS)
- American Physical Society (APS)
- Optical Society of America (OSA)
- Society of Metallurgical Coatings and Thin Film
- Society of Vacuum Coaters

SERVICE

- Visits to county schools in recruitment Efforts
- Organize Saturday physics programs for high school students
- Organize on-campus activities with SPS for recruitment.

Joanne Farley Rhodes

Department of Physics and Materials Science
The University of Memphis, Memphis TN 38152

EDUCATION

MS in Physics, University of Memphis (1988)
BS in Physics, University of Memphis (1984)
BSEE in Electrical Engineering, University of Memphis (1980)

PROFESSIONAL EXPERIENCE

RANK/POSITION	DEPARTMENT	INSTITUTION	PERIOD
Instructor, Adjunct Faculty	Mathematics	St. Louis Community College	1990-1995
Instructor, Adjunct Faculty	Mathematics and Science	Webster University	1990-1995
Tutor	Physics and Mathematics	self	1995-1999
Instructor, Adjunct Faculty	Physics and Mathematics	University of Memphis	1995-1997
Instructor, Adjunct Faculty	Physics	University of Memphis	Jan 2009-Dec 2011
Instructor, Full Time Faculty	Physics	University of Memphis	Jan 2012-May 2012
Instructor, Full Time Faculty	Physics	University of Memphis	Aug 2013-present

HONORS/AWARDS

Briggs Excellence in Teaching Award	Briggs Foundation at the University of Memphis	2016
Invention Award for Optical Adaptive Filter Patent	National Security Agency	1986
U. S. Patent US004579421 for Optical Adaptive Filter	U.S. Patent office/ National Security Agency	1986
Sigma Xi Member	Sigma Xi	1980

TEACHING EXPERIENCE

Mathematics	St. Louis Community College
Physics	Webster University
Mathematics	Webster University
Mathematics	Christian Brothers University
Mathematics	University of Memphis
Physics	University of Memphis

REFEREED JOURNAL PUBLICATIONS

1. Thermoluminescence and emission spectra studies of 6-methylmercaptopurine and 6-methylmercaptopurine riboside x irradiated at 10 K," D. Wayne Cooke, Joanne F. Rhodes, and Ronald S. Santi, *Journal of Chemical Physics **73** (8), 15 Oct. 1980, pp.3573 - 3579.*
2. Thermoluminescence studies of LiF (TLD-100) in the temperature interval 10-300 K, D. Wayne Cooke and Joanne F. Rhodes, *Journal of Applied Physics **52**(6), June 1981, pp.4244-4247.*
3. Adaptive filter with a time-domain implementation using correlation cancellation loops, Joanne F. Rhodes, *Applied Optics **22**(2), 15 January 1983, pp.282-287*
4. Thermoluminescence governed by simultaneous thermal stimulation of electrons and holes, R. Chen, V. K. Mathur, Joanne F. Rhodes, M. D. Brown, S. W. S. McKeever, and R. K. Bull*, Physica Status Solidi (b)**126**, 1984, pp.361-369.*
5. Temperature dependence of fluorescence spectra from x-ray-excited single-crystal CaF2:Mn(x) (x= 0.1, 1.0 3.0 at.%), Joanne F. Rhodes, R. J. Abbundi, D. Wayne Cooke, V. K. Mathur, and M. D. Brown, *Physical Review **B 31**(8), 15 April 1985, pp.5393-5398.*

6. Numerical solutions to the rate equations governing the simultaneous release of electrons and holes during thermoluminescence and isothermal decay, S. W. S. McKeever, Joanne F. Rhodes, V. K. Mathur, R. Chen, and M. D. Brown, *Physical Review **B 32**(6) 15 September 1985, pp.3835-3843.*
7. Vibronic properties of manganese in calcium fluoride, Joanne F. Rhodes, D. W. Cooke, R. J. Abbundi, V. K. Mathur, and M. D. Brown, *Physical Review **B 33**(8), 15 April 1986, pp.5889-5890.*
8. Thermoluminescence kinetics for multipeak glow curves produced by the release of electrons and holes, R. K. Bull, S. W. S. McKeever, R. Chen, V. K. Mathur, Joanne F. Rhodes, and M. D. Brown, *Journal of Physics D: Applied Physics **19**, 1986, pp.1321- 1334*.
9. "Stimulated luminescence in rare-earth doped MgS," K. Chakrabarti, V. K. Mathur, Joanne F. Rhodes, and R. J. Abbundi*, Journal of Applied Physics **64**(3), 1 August 1988, pp.1363-1366.*
10. Research Reviewed in the book: Perspectives in Optoelectronics Ed. By Sudhanshu S. Jha *World Scientific Publishing Co., Singapore 1995 pp 422-425*
11. Research Reviewed in the book: Optical Signal Processing Ed. By *Joseph Horner Academic Press, San Diego,CA 1987 pp 542-543 and pp 552-554*

Refereed Conference Publications

12. Adaptive filtering with correlation cancellation loops, Joanne F. Rhodes and Douglas E. Brown, *Proceedings of the Society of Photo-Optical Instrumentation Engineers, 341 East Conference, May 1982, pp.140-147.*
13. Temperature dependence of fluorescence spectra from x-ray-excited single-crystal CaF_2 :Mn(x) (x= 0.1, 1.0 3.0 at.%)," Joanne F. Rhodes, R. J. Abbundi, D. Wayne Cooke, V. K. Mathur, and M. D. Brown, Physical Review B 31(8), 15 April 1985, pp.5393-5398. I presented this in a poster session at the International conference on Luminescence in Madison, WI, August 1984.
14. Adaptive filtering with correlation cancellation loops, Joanne F. Rhodes and Douglas E. Brown, Proceedings of the Society of Photo-Optical Instrumentation Engineers, 341 East Conference, May 1982, pp.140-147. I was the presenter.

INTERNAL SUPPORT

ACTIVITY	SOURCE	AMOUNT	PERIOD
Currently developing Gold Online Course for PHYS 1020 and PHYS 1002	College of Arts and Sciences	Funds for Online Course Development	Fall 2016 - present

SERVICE

UNIVERSITY	COMMITTEE/ACTIVITY	PERIOD
University of Memphis	Chaperoned Physics majors to AR Museum of Discovery	Day trip in October 2014
University of Memphis	Re-established Facebook Page for Dept. of Physics	Spring 2015
University of Memphis	Organized and Showed first screening of Particle Fever for Physics Faculty, physics majors, and physics students	Spring 2015
University of Memphis	Encouraged students from my class who expressed interest in switching major to physics	Fall 2014-present
University of Memphis	Outreach Committee	2015-2018

CONSULTING

Webster University	1993-1995
Harper Collins College Publishers	1993-1995

COURSE DEVELOPMENT

Development of online course for PHYS 1020, Survey of Astronomy and lab Development of new course that is a continuation of PHYS 1020 Requested an astronomical observatory on campus to enrich Astronomy courses and science exposure of all UM students and the public and researched what to get and where to put it.

APPENDIX D: Publications and Patents

List of Patents, Books, Journal Publications, Conference Proceedings, & Presentations by Physics & Materials Science since 2013. Student authors mentored by faculy members are highlighted by *.

I. Patents

1. Firouzeh Sabri, *Cell growth apparatus and use of aerogels for directed cell growth*, **US Patent number: 9962468,** May 08, 2018**.**

2. Firouzeh Sabri and S.W. Allison, *Light Weight Flexible Temperature Sensor Kit*, **US Patent pending, 15/937,457**, 2018.

3. Ankita Mohapatra, Greg McGraw, Michael Harris, J Amber Jennings, Warren O Haggard, Tomoko Fujiwara, Sanjay Mishra, Joel D Bumgardner, Bashir I. Morshed, *Microbead compositions and methods for delivering an agent,* **USSN: 62/401,751**, 2016.

4. C.M. Hardman, S.R. Mishra, *System and method for detecting specific binding reactions using magnetic labels,* **US Patent number: 8529837**, September 10, 2013.

5. Jingbiao Cui, *Solar cells comprising hierarchal core-shell nanostructures, and methods of making same*, **US patent pending, 61/624,854**, 2013.

II. Books and Book Chapters

1. M. Laradji and M.M. Sperotto, *Mesoscopic particle-based modelling of self-assembled lipid membranes*, in **Biomembranes Simulations**, Ed. M.L. Berkowitz (Taylor& Francis, in press, 2019)

2. P. B. Sunil Kumar and M. Laradji, *Protein-induced morphological deformations of biomembranes* (Chapter 20), in **Physics of Biological Membranes**, Eds. Sens and Basserau, pp. 561-579 (Springer, 2018)

3. K. Biswas, G. Bohannan, R. Caponetto, A. M. Lopes, J. A. Tenreiro Machado, *Fractional Order Devices,* ISBN 978-3-319-54460-1 (Springer, 2017)

4. X. Geng and J. Cui, *Large scale fabrication of high quality graphene layers by graphite intercalation* (Chapter 28), in **Graphene Science Handbook**, pp. 451-468 (CRC Press, 2016)

5. M. A. Thomas and J. B. Cui, *Electrodeposition of ZnO: Growth, Doping, and Physical Properties*, in **Handbook of Nanoelectrochemistry,** pp. 647-679 (Springer, 2016)

6. D. M. Fleetwood, E. X. Zhang, X. Shen, C. X. Zhang, R. D. Schrimpf, and S. T. Pantelides, *Bias-Temperature Instabilities in Silicon Carbide MOS Devices,* in **Bias Temperature Instability for Devices and Circuits**, Eds. T. Grasser, pp. 615-637 (Springer, 2013)

7. D. R. Franceschetti (editor), *Principles of Programming and Coding* (**Salem Press,** 2018)

8. D. R. Franceschetti (editor), *Principles of Robotics and Artificial Intelligene* (**Salem Press,** 2018)

9. D. R. Franceschetti (editor), *Careers in Chemistry* (**Salem Press,** 2013)
10. D. R. Franceschetti (editor), *Applied Sciences: Science and Medicine*, **Grey House Publishing/Salem Press**, Armenia NY, 2013.
11. D. R. Franceschetti (editor), *Applied Science: Engineering and Mathematics*, **Grey House Publishing/Salem Press**, Armenia NY, 2013.
12. D. R. Franceschetti (editor), *Applied Science: Technology,* **Grey House Publishing/Salem Press**, Armenia, NY, 2013.
13. B. N. N. Achar, *Rgveda: Its Chronology on the basis of Astronomical References in Perspectives on the Origin of Indian Civilization*, Eds. A. Marcantonio and G.N. Jha, in **Perspectives on the Origin of Indian Civilization**, pp. 155-192 (D.K. Printworld, 2013)

III. Journal Publications

2019

1. *M. Ghimire, S. Bhoyate, R. K. Gupta, X. Shen, F. Perez, J. Alam, and S. R. Mishra. *Physical Properties and Theoretical Study of* $Ni_xCo_{3-x}O_4$ *(0 ≤ x ≤ 1.5) Nanostructures as High-Performance Electrode Materials for Supercapacitors*, **J Nanosci Nanotechnol 19,** 4481 (2019).
2. *J. Chen, K. Wu, X. Shen, T.B. Hoang, J. Cui, *Probing the dynamics of photoexcited carriers in* Si_2Te_3 *nanowires*, **J. Appl. Phys.125,** 024306 (2019)
3. *K.A. Moats, E. Asadi, and M. Laradji, *Phase field crystal simulations of the kinetics of Ostwald ripening in two dimensions,* **Phys. Rev. E 99**, 012803 (2019)
4. *S.A. Etesami, M. Laradji, and E. Asadi, *Interatomic potentials transferability in predicting temperature dependency of elastic constants for titanium, zirconium and magenesium*, **Mod. Simul. Mat. Sci. Eng. 27**, 025005 (2019)
5. D.M. Alqahtani, C. Zequine, C.K. Ranaweera, K. Siam, P.K. Kahol, T.P. Poudel, S.R. Mishra, and K. Ram K, *Effect of metal ion substitution on electrochemical properties of cobalt oxide,* Gupta, **J. Alloys Compds. 771**, 951-959 (2019)
6. C. Peng and O.D. Lavrentovich, *Liquid crystals-enhanced AC electrokinetics*, **Micromachines 10**, 45 (2019)
7. C. Peng, F. Sousa, H. Gan, H. Kwon, S. Park, L. Kilpatrick-Liverman, S. Wang, S Lavender, S. Pilch, and J. Han, *Enhanced delivery of* F^-, Ca^{2+}, K^+, *and* Na^+ *ions into enamel electrokinetic flows*, **J. Dent. Res. 98**, 430 (2019)
8. J. Al Dream, C Zequine, K. Siam,P.K. Kahol, S.R. Mishra, and R.K. gupta, *Electrochemical properties of graphenenanoribbons/polypyrrole nancomposites,* **J. Carbon Res. 5**, 18 (2019)
9. J.N. Dahal, D. Neupane, and S.R. Mishra, *Exchange coupling behavior in* $SrFe_{12}O_{19}/La_{0.7}Sr_{0.3}MnO_3$ *nanocomposites*, **Ceramics 2** 100 (2019)

10. C. Zequine, F. Wang, Z. Li, D. Guragain, S.R. Mishra, K. Siam, P.K. Kahol, and R.K. gupta, *Nanosheets of $CuCo_3O_4$ as a high performance electrocatalyst in urea oxydation*, **Appl. Sci. 9, 7983** (2019)

11. M. Adewole, J. Cui, et al., *Electrically tunable, sustainable, and erassable broadband light absorption in graphene sandwitched in Al_2O_3 oxides*, **Opt. Mat. Exp. 9**, 1095 (2019)

2018

1. J. Mohapatra, F.H. Zheng, K. Elkins, M.Y. Xing, *M. Ghimire, S. Yoon, and S.R. Mishra, *Size-dependent magnetic and inductive heating properties of Fe_3O_4 nanoparticles: scaling laws across the superparamagnetic size*, **Phys. Chem. Chem. Phys. 20**, 12879-12887 (2018)

2. C. Zhang, S. Bhoyate, M. Hyatt, Brooks L. Neria, K. Siam, P.K. Kahol, *M. Ghimire, S.R. Mishra, F. Perez, and R.K. Gupta, *Nitrogen-doped flexible carbon cloth for durable metal free electrocatalyst for overall water splitting*, **Surf. Coat. Tech. 347**, 407 (2018)

3. A. Mohapatra, M.A. Harris, *D. Levine, *M. Ghimire, J.A. Jennings, B.I. Morshed, W.O Haggard, J.D. Bumgardner, S.R. Mishra, and T. Fujiwara, *Magnetic stimulus responsive vancomycin drug delivery system based on chitosan microbeads embedded with magnetic nanoparticles*, **J. Biomed. Mat. Res. B 106**, 2169-2176 (2018)

4. S. Bhoyate, P.K. Kahol, *B. Sapkota, S.R. Mishra, F. Perez, and R.K. Gupta, *Polystyrene activated linear tube carbon nanofiber for durable and high-performance supercapacitors*, **Surf. Cot. Tech. 345**, 113-122 (2018)

5. *M. Ghimire, S. Yoon, L. Wang, *D. Neupane, J. Alam, and S.R. Mishra, *Influence of La content on magnetic properties of Cu doped M-type strontium hexaferrite: Structural, magnetic, and Mossbauer spectroscopy study*, **J. Mag. Mag. Mat. 454**, 110-120 (2018)

6. S. Bhoyate, M. Ionescu, P.K. Kahol, J. Chen, S.R. Mishra, and R.K. Gupta, *Highly flame-retardant bio-based polyurethanes using novel reactive polyols*, **J. Appl. Pol. Sci. 135**, 46224 (2018)

7. H. Kaur, C. Singh, A. Marwaha, S.B. Narang, R. Jotania, S.R. Mishra, Y. Bai, K.C.J. Raju, D. Singh, *M. Ghimire, P. Dhruv, and A.S.B. Sombra, *Elucidation of microwave absorption mechanisms in Co-Ga substituted Ba-Sr hexaferrites in X-band*, **J. Mat. Sci. Mat. Electr. 29**, 14995-15005 (2018)

8. J. Dahal, K.S. Seyed Ali, S.R. Mishra, and J. Alam, *Structural, Magnetic, and Mössbauer Studies of Transition Metal-Doped Gd2Fe16Ga0.5TM0.5 Intermetallic Compounds (TM = Cr, Mn, Co, Ni, Cu, and Zn)*, **Magnetochem. 4**, 54 (2018)

9. *S.A. Etesami, M.I. Baskes, M. Laradji, and E. Asadi, *Thermodynamics of solid Sn and Pb-Sn liquid mixures using molecular dynamics simulations*, **Acta Materialia 161**, 320-330 (2018)

10. *E.J. Spangler, P.B. Sunil Kumar, and M. Laradji, *Stability of membrane-induced self-assemblies of spherical nanomparticles*, **Soft Matter 14**, 5019-5030 (2018)

11. R. Jiang, X. Shen, J.T. Fang, P. Wang, E.X. Zhang, D.M. Fleetwood, R.D. Schrimpf, S.W. Kaun, E.C.H. Kyle, J.S. Speck, and S.T. Pantelides, *Multiple Defects Cause*

Degradation After High Field Stress in AlGaN/GaN HEMTs, **IEE Trans. Dev. Mat. Rel. 18,** 364-376 (2018)

12. A. Jayawardena, X. Shen, P. M. Mooney, and S. Dhar, *Mechanism of phosphorus passivation of near-interface oxide traps in 4H-SiC MOS devices investigated by CCDLTS and DFT calculation*, **Semiconductor Sci. Tech. 33**, 065005 (2018)
13. C.E. Marvinney, X. Shen, J.R. McBride, D. Critchlow, Z. Li, D.C. Mayo, R.R. Mu, S.T. Pantelides, and R.F. Haglund, *Effect of Material Structure on Photoluminescence of ZnO/MgO Core-Shell Nanowires*, **Chem. NanoMat 4**, 291 (2018)
14. C. Cao, G. Zhang, J. Ye, Z. Sun, R. Hua, and J.B. Cui, *CdS decorated titania nanotube arrays by ultrasonic assistance and covered with ZnO film: enhanced transient photoelectric stability*, **J. Mat. Sci.: Mat. Elect. 29**, 1123-1130 (2018)
15. K. Wu, *J. Chen, X. Shen, and J. Cui, *Resistive switching in Si_2Te_3 nanowires*, **AIP Advances 8**, 125008 (2018)
16. K.Y. Wu and J.B. Cui, *Synthesis of TiO_2 nanocrystals with exposed {001} facets and improved photocatalytic activity***, Optik 164**, 556-560 (2018)
17. S.W. Shi, P.H. Wang, J.B. Cui, and Z.Q. Sun, *Microstructure and Doping/Temperature-Dependent Photoluminescence of ZnO Nanospears Array Prepared by Hydrothermal Method*, **Nanoscale Res. Lett. 13, 223** (2018)
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21. *A. A. Al-Hilo, *M. Z. Mohammed, *J. C Armstrong, J. Cui, T. Chen, *Fabrication and characterization of Si/ZnO branched heterojunction structures*, **IEEE 39th Photovoltaic Specialist Conference Proceedings,** 2628-2632 (2013).

22. *W. Sun, *M. Brozak, *J. C. Armstrong, J. Cui, *Solar Cell Structures Based on ZnO/CdS Core-Shell Nanowire Arrays Embedded in Cu2ZnSnS4 Light Absorber*, **IEEE 39th Photovoltaic Specialist Conference Proceedings**, 2042-2046 (2013).

23. C. A. Manogue, E. Gire, & Roundy, D. T. Metaphors. In P. Engelhardt, A. D. Churukian & D. L. Jones (Eds.) **Physics Education Research Conference**. Melville, New York: AIP Conference Proceedings (2013).

V. Invited Conference Talks

1. X. Shen, *Atomistic-scale Mechanism of the Electrical Dipole Switching in Functionalized Glasses,* **XXVII International Materials Research Congress**, 8/19-8/24, 2018, Cancun, Mexico.

2. J. Cui, *Tempeature dependent photoluminescence study of 2D Si2Te3 nanoplates,* **XXVI International Materials Research Congress**, 8/21- 8/26, 2017, Cancun, Mexico.

3. F. Sabri, *Aerogels as Scaffolds—Response of PC 12 Neuronal Cells to Surface Topography and Substrate Stiffness,* **MRS 2017 SESSION NM3.17**: Biomedical and Bionic Applications April 17 - April 21, 2017.

4. T. Hoang, *Control of radiative proceses in nanomaterials using plasmonic nanopatch antennas*, **XXVI International Materials Research Congress**, 8/21- 8/26, 2017, Cancun, Mexico.

5. (Keynote Speaker) Muhammad S. Jahan*, 18-Years of Investigation of Free Radical Reaction Pathways in Medical Grade Polyethylene***. 8th International Conference on Image Processing, Wavelet and Applications** (IWW2016), 22-24 September 2016, Istanbul-Turkey.

6. M. Laradji, *Partial Wrapping and Spontaneous Endocytosis of Spherical Nanoparticles by Tensionless Lipid Membranes*, **Compflu-2016**, January 2-4, 2016 Pune, India.

7. J. Cui, *Semiconductor and metallic MoS_2 nanosheets and their physical properties*, **XXV International Materials Research Congress**, 8/14-/8/19, 2016, Cancun, Mexico.

8. X. Shen, *Theoretical Investigation of Boron and Barium at the SiC/SiO2 Interface,* **Eleventh Annual SiC MOS Workshop**, College Park, MD, Aug. 2016.

9. M. Laradji, *Wrapping, Aggregation and Spontaneous Endocytosis of Nanoparticles by Tensionless Lipid Membranes***, ACS 2015 Joint Southeast/Southwest Regional Meeting**, Nov. 4-7, 2015, Memphis, TN.

10. M. Laradji, *Nanoparticles Spontaneous Membrane Endocytosis and aggregation***, CECAM Workshop on Understanding the Interaction of Nanosized Synthetic Materials with Biological Membranes**, Sept 1-3, 2014, Lausanne, Switzerland.

11. X. Shen, *Atomic origin of high temperature electron trapping in SiO2,* **Ninth Annual SiC MOS Workshop**, College Park, MD Aug. 2014.

12. M. S. Jahan, *Effects of Vitamin E on Free Radicals in Solids*, **2nd World Congress of Food Science and Technology** (Food S & T-2013), September 23-25, 2013 in Hangzhou, China.

13. M. S. Jahan*, Radiation Effects on High-Performance Polymer: Poly (ether ether ketone)*, **7th Annual World Congress of Industrial Biotechnology** (ibio-2014), April 25-28, 2014, Venue: International Conference Center, Dalian, China.

VI. Invited Seminars and Colloquia

1. X. Shen, *Boost Materials Research with Atomic-Scale Modeling,* Department of Chemistry, **University of Memphis**, Memphis, TN September 4th, 2018.

2. T. Hoang, *Control of radiative proceses in nanomaterials using plasmonic nanopatch antennas*, **Oak Ridge National Laboratory**, 3/10/2017, Oak Ridge, TN, USA.

3. T. Hoang, *Tailoring light-matter interaction at nanoscale for new generation of high efficiency optoelectronics*, Department of Physics Colliquium 2/1/2016, **University of Miami,** FL (2016).

4. T. Hoang, *Controlling light-matter interaction at nanoscale for new generation of high efficiency optoelectronics*, Department of Physics and Materials Science Semiar 5/3/2016, **University of Memphis,** TN (2016).

5. M. Laradji, *Wrapping, Aggregation and Enodcytosis of Nanoparticles by Lipid Membranes*, **University of Vermont, Department of Chemistry**, March 17, 2016.

6. X. Shen, *Boost Materials Research with Atomic-Scale Modeling,* Department of Mechanical Engineering, **University of Memphis**, Memphis, TN Jan. 2015.

7. P. Pradhan, *Photonic transport properties of a biological cell: application to early cancer detection,* **St. Jude Children's Research Hospital**, Memphis, August 26th, 2016.

8. T. Hoang, *Tailoring light-matter interaction at nanoscale for new generation of high efficiency optoelectronics*, Department of Physics Seminar 4/8/2015, **University of Dayton**, OH (2015).

9. M. Laradji, *Wrapping, Aggregation and Spontaneous Endocytosis of Nanoparticles by Tensionless Lipid Membranes,* **Case Western Reserve University, Dept. of Macromolecular Science and Engineering**, Nov. 20, 2015

10. P. Pradhan, *Mesoscopic light transport properties of a biological cell and its applications for early cancer detection,* **Department of Physics, University of Southern Kentucky**, Bowling Green, KY, August, 31st, 2015

11. J. Cui, *Introduction to education and research in the Department of Physics and Materials Science at UM*, **Anhui University**, June 18, 2015

12. J. Cui, *Nanomaterials for Energy Applications*, **Shanghai University**, June 30, 2015.

13. M. Laradji, *Wrapping, Aggregation and Spontaneous Endocytosis of Nanoparticles by Tensionless Lipid Membranes,* **University of Memphis**, Nov. 13, 2015

14. M. Laradji, *Computational Study of Blebbing in Lipid Membranes*, **Mahidol University, Thailand**, Sept. 22, 2014

15. J. Cui, *Current status and challenge of nanowire solar cells*, **Missouri State University**, April 9, 2014

16. J.T. Schmelz, *Gender Issues I Physics: Unconscious Bias, Stereotype Threat, and Impostor Syndrome*, **Northeast Conference for Undergraduate Women in Physics, Penn State University**, University Park, PA, Jan 18, 2014
17. E. Gire, *Learning to "Think Like a Physicist: Solving Problems with Multiple Representations,* Talk given at **California State University at Fullerton**, December 10, 2014
18. J. B. Cui, *Semiconductor Nanostructures for Solar Energy Applications*, **University of Memphis**, Feb 27, 2013
19. M. Laradji, *Cytoskeleton-Induced Blebbing in Erythrocyte Membranes,* **Vanderbilt University, Dept. of Cell and Developmental Biology**, July 3, 2013
20. J.T. Schmelz, *Unconscious Bias in Hiring, Promotions, and Tenure*, **Indiana University Bloomington**, Astronomy Department, Feb 12, 2013
21. J.T. Schmelz*, Some Like it Hot: What Observations can tell us about Coronal Heating*, **Indiana University Bloomington**, Physics Department, Feb 13, 2013
22. J.T. Schmelz, *Unconscious Bias in Hiring, Promotions, and Tenure* (2013), **MIT, Physics Department**, Oct 28, 2013
23. J.T. Schmelz, *Some Like it Hot: What Observations can tell us about Coronal Heating*, **MIT, Physics Department**, Oct 29, 2013
24. J.T. Schmelz, *Unconscious Bias in Hiring, Promotions, and Panel Reviews,* **NASA HQ, Astronomy Division**, Nov 7, 2013

VII. Contributed Conference Talks and Posters

2019

1. X. Shen, *Quantum Mechanical Calculations of the Dielectric Properties of Metallic 2D Transition Metal Dichalcogenides,* **American Physical Society March Meeting**, March 5-9, 2018, Boston MA.

2018

1. X. Shen, *First-principles Investigation of the Dielectric Response of Gold-Silver Alloy,* **American Physical Society March Meeting**, March 5-9, 2018, Los Angeles, CA.
2. S. Xu and X. Shen, *Band Theory Description of SrVO3 and CaVO3*, **American Physical Society March Meeting**, March 5-9, 2018, Los Angeles, CA.A. Olinger, E.J. Spangler, P.B. Sunil Kumar, and M. Laradji,*The Binding and Aggregation of Anisotropic Nanoparticles on Cylindrical Lipid Membranes*, Biophs. Soc. Meeting, San Francisco, Feb. 17-21 (2018)
3. E.J. Spangler, P.B. Sunil Kumar, and M. Laradji, *Membrane-Mediated Cooperative Behavior of Spherical Nanoparticles*, **Biophs. Soc. Meeting**, San Francisco, Feb. 17-21 (2018)

2017

1. J. Cui, J. Armstrong, *Solution processed CiGs nanowire solar cells,* **XXVI International Materials Research Congress**, 8/21-/8/26, 2017, Cancun, Mexico.

2. B. M. Walters, R. V. León, M. S. Jahan, and F. Sabri, *ESR Detection of X- Ray-Induced Free Radicals in Crosslinked Silica Aerogels, PEEK, and UHMWPE*, **MRS Meeting** 2017.
3. P. Sahay, *H. M. Almabadi, P. Pradhan, *Correlation study of real delay time and imaginary delay time in 1-dimensional weak disorder optical media,* **American Physical Society March Meeting**, March 13-17, 2017, New Orleans, LA.
4. *H. Almabadi, P. Sahay, P. K. B. Nagesh, M. M. Yallapu, M. Jaggi, S. C. Chauhan, and P. Pradhan, *Partial wave spectroscopy based nanoscale structural disorder analysis for cancer diagnosis and treatment,* **American Physical Society March Meeting**, March 13-17, 2017, New Orleans, LA.
5. *E. Avery, P. Sahay, *M. Robinson, P. Pradhan, *Characterizing Scattering Properties of Fractal Systems via Their Light Localization Properties*, **American Physical Society March Meeting**, March 13-17, 2017, New Orleans, LA.
6. *A. D. Olinger, P. B. Kumar, M. Laradji*, Binding, Curvature-Sensing, Curvature-Generation and Self-Assembly of Anisotropically Curved Nanoparticles on Lipid Membranes,* **APS March Meeting**, New Orleans, March 13-17, 2017.
7. *E. J. Spangler, P. B. Kumar, M. Laradji, *Membrane-Mediated Self-Assemblies of Spherical Nanoparticles,* **APS March Meeting**, New Orleans, March 13-17, 2017.
8. F. Sabri**,** *College Research Experience for Students from High School: Inquiry-based Learning of Laboratory Sciences*, **AAPT Winter Meeting in Atlanta**, Georgia, Feb 18-21 (2017).
9. F. Sabri, *M. Rodriguez Sala, *H. Aguayo, Stephanie S. Ivey, *The Influence of Experiential Learning of Applied Sciences on Scientific Skills and Career Interests*, **AAPT Winter Meeting in Atlanta**, Georgia, Feb 18-21 (2017).
10. *K. Mitchell, *Development and characterization of phosphor-doped silica aerogel as a thermographic sensor*, **31st National Conference on Undergraduate Research (NCUR)**, 2017, University of Memphis, 3720 Alumni Ave, Memphis, TN 38152.
11. *J. Hadley, *An advanced aerogel packaging solution for cold-chain biologics materials handling*, **31st National Conference on Undergraduate Research (NCUR)**, 2017, University of Memphis, 3720 Alumni Ave, Memphis, TN 38152.
12. **M Rodriguez,* Effect of surface topography on neuronal response*, **31st National Conference on Undergraduate Research (NCUR)**, 2017, University of Memphis, 3720 Alumni Ave, Memphis, TN 38152.*
13. B. M. Walters, R. V. León, M. S. Jahan, and F. Sabri, *ESR Detection of X- Ray-Induced Free Radicals in Crosslinked Silica Aerogels*, Poster Presentation- **MRS 2017**, Phoenix, Arizona, Aerogels and Aerogel-Inspired Materials April 17 - April 21, 2017.
14. X. Shen, *Atomistic-Scale Mechanism of Electrical Dipole Switching in Phosphosilicate Glasse,* **APS March Meeting**, New Orleans, LA, Mar. 2017.
15. S. R. Mishra, *Synthesis and electrochemical performance of hydrotherally prepared Co_3O_4 in presence of Urea***, Fall MRS International Conference**, EC2.11.17 (2017), Boston, MA.

16. S. R. Mishra, *Template free synthesis and electrocapacitive study of hierarchical mixed-metal oxides*, **Fall MRS International Conference**, EC2.11.15 (2017), Boston, MA.

17. S. R. Mishra, *Synthesis and characterization of co-doped* $SrFe_{12-x}(DyAl)_xO_{19}$, **Fall MRS International Conference**, EM11.10.26 (2017), Boston, MA.

18. F. Sabri, S. Allison, *M. Aryal, and P. Parajuli, *Thermoluminescence-based heat flux measurements across a composite polymer structure,* American Physical Society (2017). **48th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics Vol. 62, No. 8. Sacramento, CA.**

19. *H. Gore, *Stacking Fault Energies OF Ni3Al,* **31st National Conference on Undergraduate Research (NCUR)**, 2017, University of Memphis, 3720 Alumni Ave, Memphis, TN 38152.

20. *Z, Song, *Computational Investigation of the Atomic-Scale Mechanism of Electrical Dipole Switching in Phosphosilicate Glass,* **31st National Conference on Undergraduate Research (NCUR)**, 2017, University of Memphis, 3720 Alumni Ave, Memphis, TN 38152.

2016

1. *Y. Jiang and Jingbiao Cui, *Synthesis of two-dimensional* MoS_2 *by a CVD process*, **XXV International Materials Research Congress**, 8/14-/8/19, 2016, (SA.7-PO10) Cancun, Mexico.

2. *Y. Jiang and Jingbiao Cui, *Synthesis and characterization of 2D MoS2 nanosheets* **Physical Electronics Conference** (PEC), Fayetteville, June 20-23, 2016.

3. David George, David Lowell, Jeffrey R. Lutkenhaus, Jun Ding, Hualiang Zhang, Jingbiao Cui, Usha Philipose, Yuankun Lin, *Fabrication of AZO plasmonic nanodisks using single reflective optical element based holographic lithography***,** Paper 9759-54, SPIE conference **Advanced Fabrication Technologies for Micro/Nano Optics and Photonics IX**, San Francisco, California, 14 - 17 February 2016.

4. *A. Sharmin, Muhammad S. Jahan, Benjamin Michael Walters, *Free Radical Measurements in Gamma-Irradiated UHMWPE following 18 years of Aging at Elevated Temperatures,* **10th World Biomaterials Congress**, Montreal, Canada, May 17-22, 2016.

5. P. Sahay, A. Ganju, *H. M. Almabadi, O Skalli, M. Yallapu, S. Khan, M. Jaggi, S. Chauhan, P. Pradhan, *A Novel Method for Quantifying Intracellular Structural Alterations Using Confocal Fluorescence Imaging*, **Workshop on Recent advances in Drug Delivery Technology**, April 25, 2016, UTHSC, Memphis, TN.

6. S. Khan, M. Ebeling, M. Sikander, M. Yallapu, T. Ise, S. Nagata, S. Behrman, N. Zafar, J. Wan, *H. M. Ghimire, P. Sahay, P.Pradhan, M. Jaggi, S. Chauhan, *MUC13 interaction with Receptor Tyrosine Kinase HER2 drives pancreatic ductal adenocarcinoma progression*, **Annual meeting of the American Association of Cancer Research (AACR)**, April 16-20, 2016, New Orleans, LA.

7. T. Hoang, A. Yang, G. Schatz, T. Odom, M. Mikkelsen, *Dynamic tuning of lattice plasmon lasers with long coherence characteristics,* **APS March Meeting,** Baltimore, MD, Mar. 2016.

8. Jiani Huang, Thang Hoang, Tian Ming, Jing Kong, Maiken Mikkelsen, *Probing ultrafast valley dynamics in 2D semiconductors via time-resolved Kerr rotation*, **APS March Meeting,** Baltimore, MD, Mar. 2016.
9. M. Laradji, *Membrane-Mediated Aggregation of Anisotropically Curved Nanoparticles*, **Faraday Discussions Meeting**, Mumbai, India, Jan. 7-9, 2016.
10. S. R. Mishra, *Rare-earth (RE: Tb/Dy) doped SrFe12-xRExO19: Magnetic and XPS study*, **Magnetic and Magnetic Materials Conference**, BT-06, New Orleans, Oct 2016.
11. S. R. Mishra, *Synthesis and study of magnetic properties of hard-soft SrFe12-xAlxO19-x Wt. % Ni0.5Zn0.5Fe2O4 nanocomposite Ferrite*, **Magnetic and Manetic Materials Conference**, CU-07, New Orleans, Oct 2016.
12. S. R. Mishra, *Synthesis and characterization of co-doped SrFe12-x(DyAl)xO19 hedaferrite*, **Magnetic and Magnetic Materials Conference**, DS-09, New Orleans, Oct 2016.
13. S. R. Mishra, *Synthesis and study of magnetic properties of hard-soft $SrFe_{12-x}Al_xO_{19}$-x Wt. % $Ni_{0.5}Zn_{0.5}Fe_2O_4$ nanocomposite Ferrite*, **Fall MRS International Conference**, EM10.5.08 (2016), Boston, MA.
14. S. R. Mishra, F*acile hydrothermal synthesis of hollow Fe_3O_4 nanospheres: Advanced electrodes for Super capacitive applications*, **Fall MRS International Conference**, EC2.11.16 (2016), Boston, MA.
15. *D. Neupane, *H. Dhikari, R. Gupta, and S. R. Mishra, *Surfactant assisted synthesis of $SrFe_{10}Al_2O_{19}$: Magnetic and Supercapacitor ferrite*, **Spring MRS International Conference**, 2016, Boston, MA.
16. *H. Adhikar, R. Gupta, and S. R. Mishra, *Facile Hydrothermal Synthesis of Molybdenum Disulfide (MoS_2) as Advanced Electrodes for Super Capacitors Applications*, **Spring MRS International Conference**, 2016 Boston, MA.
17. G. Gonzales, J. Bumgardner, J. Babu, J. Jennings, W. Haggard, H. Adhikari, DAV Pulgarin, T. Martin, V. Murali, and S. Mishra, *Use of calcium phosphate- silver nanoparticles in chitosan coatings on titanium and for drug delivery*. **World Congress of Biomaterials,** Montreal, 2016.
18. S. W. Allison, F. Sabri, and *P. Parajuli, *Exploration of Thin Polymer Films for Phosphor Thermometry*, **Proceedings of the 62nd International Instrumentation Symposium of the International Society of Automation**, Dayton, OH, May 24-26, 2016.
19. X. Shen, *Band Theory for the Electronic and Magnetic Properties of VO2 Phases,* **APS March Meeting**, Baltimore, MD, Mar. 2016.
20. X. Shen, *Computational Research of Revolutionary and Evolutionary Materials for Electronic and Energy Applications*, Department of Physics and Materials Science, **University of Memphis,** Memphis, TN Sept. 2015.
21. S. W. Allison, F. Sabri, and *P. Parajuli, *Non-invasive Thermal Sensing using Thermographic Phosphors,* **AVS 63rd International Symposium & Exhibition**, Nashville, TN November 6-11, 2016.
22. F. Sabri, *K. Lynch, Omar Skalli, *Response of PC 12 Cells to Mesoporous Substrates with and without DC Bias*, **AVS 63rd International Symposium & Exhibition**, Nashville, TN November 6-11, 2016.
23. Firouzeh Sabri, *Effect of triboluminescent and thermographic phosphor powders on the thermal, mechanical, and optical properties of elastomeric composite materials*,

International Conference on Physics, June 27-29, 2016 New Orleans, Louisiana, USA.

24. Stephen Allison, Firouzeh Sabri, *Pratikshya Parajuli, *Exploration of Thin Polymer Films for Phosphor Thermometry*, **62nd International Instrumentation Symposium (IIS) and MFPT 2016 Joint Conference**, 24-26 May, 2016 Dayton Convention Center, Dayton, Ohio, USA.
25. Stephen Allison, Firouzeh Sabri, *Pratikshya Parajuli, *Decay Time Measurement and the Effect of Excitation Pulse Width*, **62nd International Instrumentation Symposium and MFPT 2016 Joint Conference**, 24-26 May, 2016 Dayton Convention Center, Dayton, Ohio, USA.
26. *Kate Mitchell, *Development and Characterization of a "Peel and Stick" Thin Film Thermal Sensor,* **APS Conference for Undergraduate Women in Physics**, Georgia Tech 2016.

2015

1. T. Hoang, G. Akselrod, C. Argyropoulos, J. Huang, D. Smith, M. Mikkelsen, *Controlling spontaneous emission rates of quantum dots with plasmonic nanopatch antennas,* **American Physical Society March Meeting**, March 2–6, 2015; San Antonio, TX.
2. J. Huang, T. Hoang, M. Mikkelsen, *Temperature and polarization dependence of photoluminescence in monolayer tungsten diselenide*, **American Physical Society March Meeting**, March 2–6, 2015; San Antonio, TX.
3. P. Sahay, *H. M. Ghimire, *H. Almabadi, V. Tripathi, J. Alam, L. Thompson, O. Skalli, P. Pradhan, *Quantitative analysis of confocal images to characterize structural disorder in biological cells: a novel method to analyze cancerous and noncancerous cells*, **Photonics West**, February 12-17, 2015, San Francisco, CA.
4. *H.M. Ghimire, P. Sahay, *H. Almabadi**,** P. Pradhan, *Quantitative analysis of mass density fluctuation inside biological cells under the effect of alcohol using light localization properties*, **American Physical Society March Meeting**, March 2–6, 2015; San Antonio, TX.
5. P. Sahay, *H.M. Ghimire, *H. Almabadi, P. Pradhan, *Light localization properties of biological cells via confocal imaging*, **American Physical Society March Meeting**, March 2–6, 2015, San Antonio, TX.
6. *H. Almabadi, P. Sahay, P. Pradhan, *Enhanced partial wave spectroscopy (EPWS) for nanoscale sensitive structural disorder measurement in weakly disordered media*, **American Physical Society March Meeting**, March 2–6, 2015, San Antonio, TX.
7. Muhammad S Jahan, Benjamin M Walters, Lisa Mbati, Anuja Gawande, *Detection of Solar-Radiation-Induced Defects in Poly (ether ether ketone) PEEK,* **15th International Congress of Radiation Research**, May 25-29, 2015, Kyoto, Japan.
8. *E.J. Spangler and M. Laradji, *Aggregation of Spherical Nanoparticles on Lipid Membranes*, **ACS 2015 Joint Southeast/Southwest Regional Meeting**, Memphis, TN, Nov. 4-7, 2015.
9. *A. Poursouroush, *.J. Spangler, and M. Laradji, *Anomalous Gel-Fluid Phase Transition of Substrate-Supported Lipid Membranes*, **ACS 2015 Joint Southeast/Southwest Regional Meeting**, Memphis, TN, Nov. 4-7, 2015.

10. *A.D. Olinger, *E.J. Spangler, P.B. Sunil Kumar and M. Laradji, *Membrane-Mediated Aggregation of Anistropically Curved Nanoparticles,* **ACS 2015 Joint Southeast/Southwest Regional Meeting**, Memphis, TN, Nov. 4-7, 2015
11. *D. Neupane, *L. Wang, S. R. Mishra, *Low Temperature Surfactant (CTAB) Assisted Synthesis of Multiferroic $BiFeO_3$,* TT5.22, **MRS Spring 2015**, San Francisco, CA.
12. *D. Neupane, *L. Wang, S. R. Mishra, *Synthesis and the Study of Magnetic Properties of DyAl Co-Doped $SeFe_{12-x}(DyAl)_xO_{19}$ Hexaferrite*, TT10.29, **MRS Spring 2015**, San Francisco, CA.
13. *A. Brock, Jeffrey Marchetta, Firouzeh Sabri, *Investigation of NOx and CO Effects on Thermal and Mechanical Properties of Aerogels and Foams,* **TN SCORE Annual Conference**, June 2015, Nashville, TN.
14. *K. Lynch, Steve Allison, Firouzeh Sabri, *Phosphor-doped polymeric removable thermal sensors: A luminescence study*, **TN SCORE Annual Conference**, June 2015, Nashville, TN.
15. *K. Mitchell, S. Allison, F. Sabri, *Thermal, mechanical, and optical characterization of luminescence-doped PDMS thin film sensors*, **The 67th Southeastern and 71st Southwest Regional Meeting of the American Chemical Society** November 4-7, 2015, Memphis, TN.
16. W.A. Alexander, D.C. Grigsby, F. Sabri, *Tuning cell/surface interactions on microporous materials for neuronal scaffolds using organic surface coating strategies: Surface properties of emerging aerogel biomaterials and planar substrates*, **The 67th Southeastern and 71st Southwest Regional Meeting of the American Chemical Society** November 4-7, 2015, Memphis, TN.
17. F. Sabri, W.A. Alexander, D.C. Grigsby, *Differences between the surface properties of emerging aerogel biomaterials and planar substrates: Tuning cell/surface interactions on microporous materials for neuronal scaffolds using organic surface coating strategies,* **250th American Chemical Society National Meeting & Exposition** August 16 – 20, 2015, Boston, MA.
18. S. W. Allison, *E. Baker, F. Sabri, and *K. Lynch, W. A. Hollerman, and R. Fontenot, *Phosphor-Doped PDMS and Aerogel Investigations,* **The 61st International Instrumentation Symposium** (IIS) 11-14, 2015, The Westin Huntsville - Huntsville, Alabama 35806*(The peer-reviewed paper that accompanied the presentation was given The Charles Stark Draper II Award for Best Paper at the symposium).*
19. *K. Lynch, O. Skalli, F. Sabri, *Cell Culture Investigation of the Effects of Aerogel Surface Topography on PC12 Cell Neurite Growth*, **Materials Science & Technology** 2015 October 4-8, 2015 Greater Columbus Convention Center Columbus, OH.
20. F. Sabri, S. Allison, *E. Baker, *K. J. Lynch, *Investigation of polymer-embedded thermographic phosphors for biomedical applications: An aerogel study,* **Second Annual Conference of the International Society for Biomedical Polymers and Polymeric Biomaterials**, July 8-10, 2015, Windham Resort, Orlando, FL.
21. *W. Parker, *D. Pumroy and *D. Williams, *A Feasibility Experiment of a Small Scale RTV-655 Cryogenic Liquid Container for Space Applications,* **Proc. 66th Annual AIAA Southeast Regional Student Conference**, 9 - 10 April 2015, Savannah, GA 2015. *(Mentors: Sabri + Marchett, First Place Award).*

22. D.W. Pumroy, *Design of a Small Scale RTV-655/Aerogel Cryogenic Liquid Tank,* **Proc. 66th Annual AIAA Southeast Regional Student Conference**, 9 - 10 April 2015, Savanah, GA, (*Mentors: Sabri + Marchetta).*

23. *E. Baker, *Characterization of Silica Aerogel and PDMS as Substrates to Thermoluminescent Phosphor Particles,* **29th National Conference on Undergraduate Research (NCUR)**, Eastern Washington University, 2015.

24. X. Shen, *High On/Off Ratio Memristive Switching of Manganite-Cuprate Bilayer by Interfacial Magnetoelectricity,* **MRS Fall Meeting**, Boston, MA, Dec. 2015.

25. X. Shen, *Memristive Switching and Interfacial Magnetoelectricity in LCMO/PBCO Heterostructure,* **APS March Meeting**, San Antonio, TX Mar. 2015.

26. E. Gire, and E. Price, *Structural Features of Quantum Notations and Representational Fluency,* Poster presented at the 2015 **American Association of Physics Teachers National Winter Meeting**, January 6, 2015, San Diego, CA.

2014

1. J, Cui, *A. Thomas, *J. Armstrong, *Unique Zinc Oxide Materials for Solar Energy Applications*, **1st International e-Conference on Energies**, March 14-31, 2014.

2. *J. Armstrong and Jingbiao Cui, *Study Of Solution Processed Cu(In,Ga)S2 by Post-Deposition Treatments*, H6.04, Symposium H: **Defect Engineering in Thin-Film Photovoltaic Materials, MRS Spring Meeting,** San Francisco, April 21-25, 2014.

3. *M. Mohammed, *J. Armstrong, Tarpin Chen, and Jingbiao Cui, *Fabrication of CdS Nanorods and Nanoparticles with PANI for Dye-Sensitized Solar Cells*, B9.41, Symposium B: **Organic and Inorganic Materials for Dye-Sensitized Solar Cells, MRS Spring Meeting**, San Francisco, April 21-25, 2014.

4. *W. Sun, Xiumei Geng, Johnathan C. Armstrong, Jingbiao Cui, and Tar-pin Chen, *Experimental and Theoretical Study on Band Gap Tuning of $Cu_2ZnSn(S_{1-x}Se_x)_4$ Absorbers for Thin-Film Solar Cells*, **IEEE 4th PVSC Meeting**, June 2014.

5. *J. C Armstrong, Jingbiao Cui, Tar-Pin Chen, *ALD Processed MgZnO Buffer Layers for $Cu(In,Ga)S_2$ Solar Cells*, **IEEE 4th PVSC Meeting**, June 2014.

6. K. Sornbundit and M. Laradji, *A Study of Domain Registration Dynamics in Lipid BilayerMembranes Using DPD Method*, **27th Annual CSP Workshop on "Recent Development in Computer Simulation Studies in Condensed Matter Physics**, Athens, GA, Feb. 23-28, 2014.

7. M. Laradji, *A computational study of blebbing in lipid membranes*, **27th Annual CSP Workshop on "Recent Development in Computer Simulation Studies in Condensed Matter Physics**, Athens, GA, Feb. 23-28, 2014.

8. C. M. Shiver, *E. Spangler and M. Laradji, *Effect of lipid recycling on the finite size of lipid rafts in symmetric and asymmetric bilayers,* **58th Biophys. Society Meeting**, San Francisco, CA, Feb. 15-19, 2014.

9. M. Laradji, *E. Spangler, and P.B. Sunil Kumar, *Computational studies of blebbing and vesiculation via weak adhesion of the cytoskeleton in an erythrocyte model*, **58th Biophys. Society Meeting**, San Francisco, CA, Feb. 15-19, 2014.

10. *G. Pokharel and S.R. Mishra, *Structural and magnetic characterization of YCo_5/FeNi composite powder prepared by mechanical alloying and subsequent annealing*, **58th MMM Conference,** Denver, Colorado 2014.

11. *J. Dahal and S. R. Mishra, *Synthesis and Magnetic Properties of exchange-coupled $SrFe_{12}O_{19}$ - x Wt.%- $La_{0.7}Sr_{0.3}MnO_3$ nanocomposites via autocombusiton method*, **58th MMM Conference,** Denver, Colorado 2014.

12. S. R. Mishra, Structural, *Magnetic, and Mossbauer Spectral Study of $Gd_2Fe_{16}Ga_{0.5}TM_{0.5}$ (TM = Cr, Mn, Co, Ni, Cu, Zn) Compounds*, **MRS Spring** April 2014, San Francisco, CA.

13. S. R. Mishra, *Structural, Magnetic and Mossbauer Studies of Dy2Fe17-xZrx (0 ≤ x ≤ 1) and Dy2Fe16Ga1-xZrx (0 ≤ x ≤1)*, **MRS Spring** April 2014, San Francisco, CA.

14. S. R. Mishra, *Synthesis and Magnetic Properties of Hard-Soft $SrFe_{12}O_{19}$ -$La_{1-x}Sr_xMnO_3$ (x=0, 0.25, 0.5, 0.75, 1) Nanocomposites via Autocombusiton Route*, **MRS Spring** April 2014, San Francisco, CA.

15. S. R. Mishra, *Structural, Magnetic and Mossbauer Studies of and $Dy_2Fe_{16}Ga_{1-x}Nb_x$ (0 ≤ x ≤1),* **MRS Spring** April 2014, San Francisco, CA.

16. D. Kunwar, *L. Wang, S. Mishra, N. Poudyal and P. Liu, *Influence of rare-earth on structural, magnetic and electrical properties of aluminum doped Strontium Ferrite*. **MMM International Conference**, Hawaii, Nov 3 - 8 2014

17. *D. Neupane, *L. Wang, S. R. Mishra, N. Paudyal and P. Liu, *Improving magnetization of high coercivity SrFe10Al2O19 ferrite via surfactant - assisted synthesis,* **MMM International Conference,** Hawaii, Nov 3 - 8 2014.

18. F. Sabri, *K. Lynch, W. R, Allison SW, *Sensing with Phosphor-Doped PDMS,* **IET & ISA 60th International Instrumentation Symposium** 2014, January 2014 page 3.1.1 London, UK 24-26 June 2014 DOI: 10.1049/cp.2014.0539.

19. F. Sabri, *K. Lynch, R. Wilson, S.W. Allison, *Sensing with Phosphor-doped PDMS*, **60th International Instrumentation Symposium** (IIS) 2014, 24-26 June 2014, London, UK (*The peer-reviewed paper that accompanied the presentation was given **The Charles Stark Draper II Award for Best Paper at the symposium**).*

20. *K. J Lynch, O. Skalli, F. Sabri, *Extension of PC12 Cells Neurites on Crosslinked Aerogels Substrates*, **First Annual Conference of the International Society for Biomedical Polymers and Polymeric Biomaterials**, July 9-12, 2014, Crowne Plaza Dulles Airport Hotel.

21. *A. Brock, J. Marchetta, F. Sabri, *Investigation of Gas Adsorption Mechanics of porous Materials*, **Annual TN SCORE Conference**, July 2014, Nashville, TN.

22. *R. Wilson, *Electrical and Optical Characterization of Metal-Polymer Bilayer systems*, **28th National Conference on Undergraduate Research (NCUR)**, 2014.

23. X. Shen, *Interlaced Crystals: Perfect Bravais Lattices with Interlaced Chemical Order,* **MRS Spring Meeting**, San Francisco, CA April. 2014.

24. X. Shen, *Competing atomic and molecular mechanisms of thermal oxidation of Si vesus SiC,* **MRS Spring Meeting**, San Francisco, CA April. 2014.

25. X. Shen, *Recombination driven vacancy motion - a mechanism of memristive switching in oxides*, **APS March Meeting**, Denver, CO Mar. 2014.

26. *K. Goering, and E. Gire, *Efficacy of "A-La-Carte" Research-Based Curricular Elements,* Poster presented at the P**hysics Education Research Conference**, Minneapolis, MN, 2014.

27. *K. Goering, and E. Gire, *An Introductory Physics Course that Combines Several Research-based Curricula,* Poster presented at **American Association of Physics Teachers National Summer Meeting**, July 26 - 30 2014, Minneapolis, MN.

28. E. Gire, *Overview: Thinking outside the course.* Talk given at the **Workshop on the Status of the Upper Division Physics Curriculum**, June 8, 2014, Corvallis, OR.

29. E. Gire, *Classical Mechanics Activities Across the Paradigms in Physics*. Talk given at the **American Association of Physics Teachers National Winter Meeting**, January 7, 2014, Orlando, FL.

30. J. Mestre, J.L. Docktor, E. Gire, S. Rebello, *Using Eye Tracking to Explore Expert-Novice Differences,* Talk given at the **American Association of Physics Teachers National Winter Meeting**, January 6, 2014, Orlando, FL.

2013

1. *M. A. Thomas and J. B. Cui, *Improving Thin Film Solar Cells with Atomic Layer Deposited ZnO: Highly Tunable Buffer, Intrinsic, and Top Contact Layers in a Single Fabrication Process*, **IEEE 39th Photovoltaic Specialist Conference**, Tampa, June 16-21, 2013.

2. *J.C. Armstrong, and J.B. Cui, *Solution processed Cu(In,Ga)$S_2$for nanowire solar cells*, **IEEE 39th Photovoltaic Specialist Conference**, Tampa, June 16-21, 2013.

3. *S. AbdulAmohsin, *W.W. Sun, *J. Armstrong, and J. B. Cui, *Study on ZnO/P3HT:PCBM Nanowire Solar Cells*, **IEEE 39th Photovoltaic Specialist Conference**, Tampa, June 16-21, 2013.

4. W. Sun, M. Brozak, J. C. Armstrong, Jingbiao Cui, *Solar Cell Structures Based on ZnO/CdS Core-Shell Nanowire Arrays Embedded in Cu_2ZnSnS_4 Light Absorber*, **IEEE 39th Photovoltaic Specialist Conference**, Tampa, June 16-21, 2013.

5. M. S. Jahan, T. Riahinasab and *B. M. Walters**,** *Detection of Thermally Stimulated Luminescence in PEEK (*ABSTRACT #: PEEK014), **1st International PEEK Meeting** in Philadelphia, PA, USA, April 25 and 26, 2013.

6. M. S. Jahan, D. Adhikari and B. M. Walters, *Detection of Thermally Stimulated Luminescence in PEEK (*ABSTRACT #: PEEK031), **1st International PEEK Meeting** in Philadelphia, PA, USA, April 25 and 26, 2013.

7. B. K. Kunar, S. R. Mishra and Z. Celenski, *High frequency study of ZnO coated and Uncoated CoFe2O4 for biomedical applications*, **Current trend in medical applications of nanoparticles**, New Delhi, Oct 2013.

8. S. R. Mishra, *Structural, Magnetic and Mössbauer study of $Nb_2Fe_{17-x}Nb_x$ intermetallic compounds*, **12th joint intermag conference**, Chicago, IL, January 14-19, 2013.

9. J. Dahal, B. K. Rai, and S. R. Mishra, *A Structural, Magnetic, and Mössbauer study of the $Dy_2Fe_{17-x}Nb_x$ Solid Solutions*, Poster presentation on **12th Joint MMM/Intermag Conference** on 14-18 Jan 2013.

10. J. Dahal and S. R. Mishra, *Synthesis and magnetic properties of $SrFe_{12-x-y}Al_xCo_yO_{19}$ (x = 0, 1, 2, 3, 4; y = 0, 0.5, 1, 1.5, 2) nanocomposites prepared via autocombustion technique*, **MT-23 Continental Conference** on July 14-19, 2013 Boston MA.

11. *G. Pokharel and S.R. Mishra, *Structural and magnetic characterization of YCo5/FeNi composite powder prepared by mechanical alloying and subsequent annealing,* **MRS Conference**, Boston 2013.

12. *J. Dahal and S. R. Mishra, *Synthesis and Magnetic Properties of exchange-coupled $SrFe_{12}O_{19}$ - x Wt.%- $La_{0.7}Sr_{0.3}MnO_3$ nanocomposites via autocombusiton method,* **MRS Conference**, Boston 2013.

13. *J. Dahal and S. R. Mishra, *Synthesis and Magnetic Properties of exchange-coupled SrFe12O19 - x Wt.%- La0.7Sr0.3MnO3 nanocomposites via autocombusiton method*, poster presentation at **25th Annual Student Research Forum at The University of Memphis** on April 1, 2013.

14. *J. Dahal and S. R. Mishra, *Synthesis and Magnetic Properties of exchange-coupled SrFe12O19 - x Wt.%- La0.7Sr0.3MnO3 nanocomposites via autocombusiton method*, poster presentation at **TN-SCORE annual conference** on 10-11, June 2013.

15. S. Al Soyeb, B. I. Morshed, and F. Sabri, *Numerical Study of Electrical Stimulation for Neuronal Cell Growth on Silica Aerogel Substrate Biomedical Sciences and Engineering Conference* (BSEC), **Oak Ridge**, TN 21-23 May 2013.

16. F. Sabri, *R Wilson, *Low Temperature Electrical and Optical Characterization of Lithographically-Defined Au Microchannels on an Elastomeric Substrate*, **EIPBN** May Nashville, TN (2013).

17. F. Sabri; J. G. Marchetta; *D. Pumroy, *Thermal Characterization of Polyimide Aerogels for Cryogenic Tank Applications*, **64th Southeastern Regional Student Conference AIAA** 8-9th April, Raleigh, NC (2013).

18. *R. Wilson, *Metal-Polymer Bilayer System Characterization Under Low Temperature Conditions,* **27th National Conference on Undergraduate Research (NCUR)**, April 11-13, 2013 University of Wisconsin-La Crosse.

19. F. Sabri; J. G. Marchetta; *D. Pumroy, *Thermal Characterization of Polyimide Aerogels for Cryogenic Tank Applications,* **64th Southeastern Regional Student Conference AIAA** 8-9th April, Raleigh, NC (2013).

20. X. Shen, *New crystal structures in hexagonal CuInS2 nanocrystals,* **APS March Meeting**, Baltimore, MD Mar. 2013.

21. J. L. Docktor, J. Mestre, E. Gire, N. S. Rebello, A. Madsen, *Eye Movements While Interpreting Graphical Representations of Motion,* Talk given at the **American Association of Physics Teachers National Winter Meeting,** January 5 - 9 2013, New Orleans, LA.

22. J. L. Docktor, J. Mestre, E. Gire, N. S. Rebello, A. Madsen, *Tracking eye Movements While Viewing Motion Graphs,* Talk given at the **American Association of Physics Teachers National Summer Meeting** July 16, 2013 Portland, OR.

23. J. L. Docktor, J. Mestre, E. Gire, N. S. Rebello, A. Madsen, *Eye Movements While Interpreting Graphical Representations of Motion*. Poster presented at the **American Association of Physics Teachers National Summer Meeting** July 16, 2013 Portland, OR.

24. E. Price, E. Gire, *Understanding External Representations as Computational Tools,* Talk given at the **American Association of Physics Teachers National Summer Meeting** July 16, 2013 Portland, OR.

25. J. L. Docktor, J. Mestre, E. Gire, N. S. Rebello, A. *Eye Movements While Interpreting Graphical Representations of Motion*. Talk given at the **American Association of**

Physics Teachers (AAPT) National Winter Meeting January 5-9, 2013, New Orleans, LA.

26. E. Gire, *Confessions of First-Year Faculty,* Panel discussion at the **American Association of Physics Teachers (AAPT) National Winter Meeting**, January 9, 2013, New Orleans, LA.
27. J.T. Schmelz*, Welcome to the Dark Side: the Astrophysics of Black Holes*, **University of Memphis**, Memphis, TN, Math Honors Seminar, Mar 7 (2013).
28. J.T. Schmelz, *Unconscious Bias, Stereotype Threat, and Impostor Syndrome*, **AAS Meeting** CSWA Town Hall, Indianapolis, IN, Jun 4 (2013).
29. J.T. Schmelz, *Coronal Cooling and Multithermal Analysis of AIA Loops,* **6th Coronal Loops Workshop**, La Roche, Belgium, Jun 25 (2013).
30. J.T. Schmelz, *Grand Unified Speculation: Coronal Cooling and Multithermal Analysis of AIA Loops,* **Harvard Smithsonian Center for Astrophysics**, Cambridge, MA, Aug 12 (2013).
31. J.T. Schmelz, *Unconscious Bias, Stereotype Threat, and Impostor Syndrome,* **Harvard Smithsonian Center for Astrophysics**, Cambridge, MA, Aug 13 (2013).
32. J.T. Schmelz, *Unconscious Bias in Hiring, Promotions, and Panel Reviews,* **NSF, Astronomy Division**, Nov 19 7 (2013).
33. J.T. Schmelz, *Grand Unified Speculation: Coronal Cooling and Multithermal Analysis of AIA Loops,* **NASA Goddard Space Flight Center**, Greenbelt, MD, Dec 16 (2013).

Appendix E: External Research Grant

Start Date	End Date	Source	Faculty	Title	Amount	Role	Percentage	net amount
2004	2012	NSF	Schmelz	Coronal Energetics and Loop Dynamics	$488,276.00	PI	100%	$488,276.00
2007	2015	Smithsonian Astro Observatory	Schmelz	Solar B XRT	$509,337.00	PI	100%	$509,337.00
2007	2018	Smithsonian Astro Observatory	Schmelz	Solar B X Ray Telescope	$94,200.00	PI	100%	$94,200.00
2008	2011	NSF	Laradji	REU Site for Multidisciplinary Research in Nanomaterials & Biomaterials	$293,118.00	PI	100%	$293,118.00
2008	2013	NSF	Laradji	Computations Investigations of Compositional Heterogeneities in Lipid Membranes	$200,000.00	PI	100%	$200,000.00
2008	2012	USDA	Jahan	Formation & Reactivity of Carbon-Centered Radicals in Isolated Soy Proteins	$419,378.00	Co-PI	44%	$184,000.00
2009	2011	Biomet Orthopedics	Jahan	Focused Research	$95,000.00	PI	100%	$95,000.00
2010	2015	NSF	Laradji	TN Solar Conversion and Storage Using Outreach, Research, & Education (TN Score)	$1,200,000.00	Co-PI	20%	$240,000.00
2010	2014	NSF	Mishra	Grain Refined Nanocomposites: A Study on the Effect of Additives on Microstructure and Magnetic Properties of Permanent Magnets	$298,481.00	PI	100%	$298,481,00
2011	2014	NIH/R01	Pradhan	Mechanism of Light Scattering in Living Tissue	$100,000.00	PI	100%	$100,000.00
2011	2011	Oak Ridge Associated Universities	Laradji	Workshop: Understanding the Organization of the Intracellular Region	$3,000	PI	100%	$3,000
2011	2013	Zimmer	Jahan	Free Radicals in UHMWPE	$40,000.00	PI	100%	$40,000.00
2011	2013	Cambridge Polymer Group	Jahan	ESR Test	$60,000.00	PI	100%	$60,000.00

2011	2013	Stryker Orthopedics	Jahan	Free Radical Measurements of UHMWPE	$52,825.00	PI	100%	$52,825.00
2012	2013	NSF TN Score	Sabri	Aerogel-Based Nanomaterial Insulation for Energy Conservation of Industrial Burners	$50,000.00	PI	100%	$50,000.00
2009	2010	American Physical Society	Sabri	Ultraviolet Radiation on RTV 655 and Silica Aerogels	$39,000	PI	100%	$39,000
2010	2013	NASA	Sabri	Development, Characterization, and Validation of an Aerogel/RTV Based Cryogenic Propellant Tank	$260,000	Co-PI	50%	$130,000
2012	2013	NSF TN Score	Sabri	Memphis CRESH Fellowship	$5,000.00	PI	100%	$5,000.00
2012	2012	TN Space Grant Consortium	Sabri	Simulation of Magnetically Induced Fluid Motion in Reduced Gravity	$14,000.00	Co-PI	10%	$1,400.00
2008	2013	NSF	Frances-chetti	MemphiStem: A Stem talent expansion program at the University of Memphis	$2,000,000.00	PI	100%	$2,000,000.00
2010	2014	Institute of Learning Sciences	Frances-chetti	Deep tutor, an intelligent tutoring system based on deep language and discourse and advanced tutoring strategies	$1,650,277.00	Co-PI	30%	$495,083.10
2010	2014	TN Higher Ed Commission	Frances-chetti	Uteach Replication	$1,500,000.00	PI	100%	$1,500,000.00
2012	2015	TN Higher Ed Commission	Frances-chetti	Professional Development for Grade 5-8 STEM Teachers in Three TN Counties	$141,766.00	PI	100%	$141,766.00
2012	2014	TN Higher Ed Commission	Frances-chetti	Partic Costs Dev Grade 5 to * Stem	$46,656.00	PI	100%	$46,656.00
2013	2017	NIH/R01	Pradhan	High-Throughput Molecular Specific Cell Nanocytology for Cancer Screening	$14,000.00	Co-PI	100%	$14,000.00
2013	2016	NIH	Laradji	Multiscale Modeling of Polymer-Based Gene Delivery	$314,493.00	Co-PI	20%	$62,898.60
2013	2014	NSF-MRI	Mishra	Acquisition of Field-Emission Scanning Electron Microscope	$464,800.00	Co-PI	25%	$116,200.00

				(FESEM) for Teaching and Research				
2013	2017	NSF	Mishra	Materials for Solar Energy (TN Score)	$1,250,000.00	Co-PI	20%	$250,000.00
2013	2015	NSF	Schmelz	Intergovernmental Personnel Act	$311,641.00	PI	100%	$311,641.00
2014	2015	APS	Laradji	APS International Travel Grant Awards Program	$2,000.00	PI	100%	$2,000.00
2014	2015	NSF TN Score	Sabri	Memphis CRESH Fellowship	$4,200.00	PI	100%	$4,200.00
2014	2015	NSF TN Score	Sabri	Electric-Field Induced Morphology of Covalently-Bound Peptide Surfaces: Toward Switchable Biological Interfaces	$20,000.00	Co-PI	10%	$2,000.00
2014	2017	VW - Chattanooga	Sabri	VW Education Funds for Memphis CRESH	$15,000.00	PI	100%	$15,000.00
2015	2016	TBR	Mensah Laradji Sabri	PHYS 2210 TBR Course Revitalization	$17,550.00	PI	100%	$17,550.00
2016	2017	Oak Ridge Associated Universities	Shen	Theory & Microscopy of Structural and Optical Properties of 2D Si2Te3	$5,000.00	PI	100%	$5,000.00
2017	2018	NASA	Laradji	Enhancement & Verification of Quantitative Phase-Field Crystal Modeling Using NASA-PSI Coarsening in Solid-Liquid Mixtures Experiments Data	$200,000.00	Co-PI	40%	$80,000.00
2017	2020	NSF	Hoang	Directional Superradiant Light Emission from Epsilon-Near-Zero Plasmonic Nanochannels	$361,177.00	PI	100%	$361,177.00
2017	2020	NSF	Shen	Silicon Telluride, A 2D Material with Unique Variable Structure	$392,679.00	PI	100%	$392,679.00
2018	2021	NASA	Muller-Sanchez	The Keck OSIRIS Nearby AGN Survey: Characterizing the Physical Mechanisms Driving Feeding and Feedback in Active Galaxies	$418,000.00	PI	100%	$418,000.00

Total grant involved **$12,932,854.00**

total amount for physics faculty (PI 100%+Co-PI percentage) **$9,119,478.70**

APPENDIX F: Library Resources

Current physics periodicals in physics and closely related disciplines available from the University of Memphis Libraries

1. Physical Review Letters
2. Physical Review X
3. Reviews of Modern Physics
4. Physical Review A
5. Physical Review B
6. Physical Review C
7. Physical Review D
8. Physical Review Accelerators and Beams
9. Physical Review Applied
10. Physical Review Materials
11. Physical Review Fluids
12. Physical Review Physics Education Research
13. Europhysics Letters
14. American Journal of Physics
15. Applied Physics Letters
16. Journal of Applied Physics
17. Journal of Fluid Mechanics
18. Journal of Rheology
19. The Physics Teacher
20. Physics of the Solid State
21. Physics of Fluids
22. Physics of Plasmas
23. The Journal of Chemical Physics
24. Biophysical Journal
25. Journal of Magnetism and Magnetic Materials
26. Advances in Atomic, Molecular, and Optical Physics
27. Chemical Physics Letters
28. Chemical Physics
29. Langmuir
30. Macromolecules
31. Journal of Colloid and Interface Science
32. Journal of Physical Chemistry A
33. Journal of Physical Chemistry C
34. Nano Letters
35. Journal of Physical Chemistry Letters
36. CRC Handbook of Chemistry and Physics
37. ACS Applied Materials and Interfaces
38. ACS Macro Letters
39. ACS Nano
40. Colloids and Surfaces B: Biointerfaces
41. Nature Nanotechnology

42. Nature Materials
43. Materials Letters
44. Applied Radiation and Isotopes
45. Journal of Vacuum Science & Technology A
46. Journal of Vacuum Science & Technology B
47. Biointerphases
48. Surface Science Spectra
49. Applied Solar Energy
50. Applied Surface Science
51. IEEE Journal of Quantum Electronics
52. IEEE Journal of Selected Topics in Quantum Electronics
53. IEEE Photonics Journal
54. IEEE Photonics Technology Letters
55. IEEE Transactions on Applied Superconductivity
56. IEEE Transactions on Magnetics
57. IEEE Transactions on Nanobioscience
58. IEEE Transactions on Nanotechnology
59. IEEE Transactions on plasma science
60. IET nanobiotechnology

Appendix G: Letters of Support

1. Dr. Michael Hore (Alum), Assistant Professor
   Dept. of Macromolecular Science and Engineering
   Case Western University
2. Dr. Francois Leonard, Distinguished Member of Technical Staff
   Materials Physics Dept.
   Sandia National Laboratories
3. Dr. Yaohua Liu, Neutron Scattering Scientist
   Oak Ridge National Laboratories
4. Dr. Tom Berlijn, Member of Research Staff
   Center for Nanophase Materials Sciences
   Oak Ridge National Laboratories
5. Dr. Jon Mosley, Director of Applied Research
   Wright Medical
6. Dr. Suzan Gronemeyer, Associate Director
   Pediatric Oncology Education Program
   St. Jude Children's Research Hospital
7. Dr. Wallace Puckett, Director
   Research Technology and Innovation
   Smith & Nephew
8. Dr. Steven Bares, President and Executive Director
   Memphis Bioworks Foundation
9. Dr. Richard Treharne, Vice President
   Clinical and Regulatory
   Active Implants
10. Dr. Daniel Fleetwood, Professor of Electrical Engineering, Professor of Physics,
    Chair, Dept. of Electrical Engineering and Computer Science
    Vanderbilt University
11. Dr. Junzhong Xu, Assistant Professor, Institute of Imaging Science
    Dept. of Physics and Dept. of Biomedical Engineering
    Vanderbilt University
12. Dr. Ronald Schrimpf, Professor of Engineering
    Director, Institute for Space and Defense Electronics
    Vanderbilt University
13. Mr. Robert Mullins, MSc
    Advanced Placement Physics Instructor
    Memphis University School

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think beyond the possible

Michael J. A. Hore
Assistant Professor

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E-mail: hore@case.edu

October 19, 2018

Professor Jingbiao Cui
Department of Physics and Materials Science
The University of Memphis
216 Manning Hall
Memphis, TN 38152

Dear Professor Cui,

During my recent visit to The University of Memphis, I learned of an initiative to create a Ph.D. program within the Department of Physics and Materials Science. I am writing today, as an alumnus of your department, to express my **strong support** for such a program.

To provide some background on myself, I graduated from The University of Memphis in 2005 with a B.S. degree in Physics / Mathematical Science, and worked with Prof. Mohamed Laradji as an undergraduate research scholar investigating thin film polymer blends using DPD simulations. I am currently a polymer physicist, and was introduced to the field by Prof. Laradji in 2003. I would also like to highlight the role that Prof. Bob Marchini played in convincing me to major in physics, instead of electrical engineering, in 2002. This was truly life altering and set me on the path I follow today. Later, I received my M.S. degree from the Department of Physics in 2007, performing research solely in Prof. Laradji's research group. My experience in Prof. Laradji's group exposed me to cutting-edge research that was recognized on an international scale. In 2007, much like today, the M.S. degree was the terminal degree, and I left The University of Memphis to attend the University of Pennsylvania. I received my Ph.D. degree in 2012 in Materials Science and Engineering. Since 2014, I have been an assistant professor in the Department of Macromolecular Science and Engineering at Case Western Reserve University.

In my opinion, a Ph.D. program in your department would be a huge asset to many parties. From the perspective of a current faculty member at another university, the existence of a Ph.D. program would allow faculty members within your department to target funding opportunities from national sources that are currently reserved for Ph.D. granting departments. This has the obvious advantage of allowing you to attract Ph.D. students, and to support research infrastructure from the indirect costs associated with such grants. Thinking to when I was searching for a faculty position, this has the added advantage of being able to attract a wider range of candidates for positions. In my own job search, I focused *only* on those departments that granted a Ph.D., and so I would not have considered your department despite my strong respect for it. From the perspective of a former student, if a Ph.D. program had been available, I would have strongly considered remaining at The University of Memphis to receive my doctorate. In 2007, Prof. Laradji and I were making a lot of headway in computer simulations of polymeric systems. In fact, I left the university with several projects unfinished, and just now I am seeing colleagues from other institutions beginning to investigate the very same systems that we were focusing on, but never published. One example is the use of nanorods as surfactants to help emulsify polymer blends. Our research at The University of Memphis was ahead of many peer institutions at the time, and over 10 years later, others are only beginning to investigate the problems that were central to our work.

Since I graduated from your department, I have seen you attract many excellent researchers. From what I observed at the 2018 Materials Day this month, the research in the department has broadened in scope, and I am genuinely excited at the scholarly activity! The University of Memphis has an excellent opportunity to create a hub of physics research within the Memphis area. At my current university, we have observed that many undergraduates wish to stay after their undergraduate years for family reasons, or due to strong research ties that they form as undergraduate students. In the Memphis area, there is currently no such opportunity. This could be remedied with a Ph.D. program in your department. I had strong personal reasons to remain in Memphis in 2007, and that, combined with my research progress, would have made The University of Memphis very attractive for doctoral studies. In my opinion, despite the presence of a Ph.D. program at the University of Tennessee and other private institutions within the state, a Ph.D. program at Memphis would be unique and an asset to the community.

In closing, I wish to reaffirm my strong support for a Ph.D. program in the Department of Physics and Materials Science at The University of Memphis. A combination of strong research activity, quality students, high standards for teaching, and the prospects of increased research funding make this a critical addition to the department. In addition, attracting more funds from federal funding sources is likely to benefit the mid-south as a whole as outreach programs associated with such sources create new opportunities for residents in the area. I sincerely hope that the Ph.D. program within your department can come to fruition.

With sincere regards,



Michael J. A. Hore, Ph.D.

Sandia National Laboratories

Operated for the United States Department of Ene
by National Technology and Engineering
Solutions of Sandia, LLC.

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November 25, 2018

Dr. Jingbiao Cui, Chair
Department of Physics and Materials Science
University of Memphis
Memphis, TN 38018

Dear Dr. Cui,

I was delighted to hear about your plan to develop a Graduate program in Applied Physics. In recent years, Applied Physics has gained prominence as a discipline with the versatility to contribute to fundamental science discovery as well as technological applications. I can attest to this from my educational training and professional experience. I hold a PhD degree in Physics, and I have been working as a researcher at Sandia National Laboratories for the past 18 years. As you may know, Sandia is a Department of Energy research laboratory with emphasis on Applied Science and Engineering. In my role at Sandia, I have become familiar with a broad range of research topics, and I consistently see the impact of Applied Physics in research programs. I am also very familiar with Applied Physics through my own research—indeed, I was elected fellow of the American Physical Society under the Forum on Industrial and Applied Physics.

From an educational perspective, I am quite familiar with the requirements of PhD programs in the US and abroad: I have supervised graduate students as well as numerous postdoctoral scholars; I regularly host visiting graduate students for collaborative research; I have served on PhD defence committees; and I help graduate students and postdocs find employment. Based on this experience and considerations of the educational foundation of your Department, I am confident that your PhD program in Applied Physics will be very successful. A strength of your Department is the combination of Physics and Materials Science in the same department, a natural intersection for Applied Physics. The existing educational infrastructure in these two areas (courses, instructors) can be readily expanded into graduate courses for the planned PhD program. The research conducted by the faculty is also directly related to Applied Physics (as discussed below) and can be readily translated into timely graduate courses.

Of course, a PhD program goes much beyond instructional courses, and must also offer a high-quality research experience to the students. This requires two main ingredients: (1) faculty advisors who are doing cutting edge research, and (2) infrastructure. Your department has clearly attracted world-class researchers which cover many areas relevant to Applied Physics: nanomaterials, nanophotonics, polymeric systems, biomaterials, and computational physics. This is clearly demonstrated through numerous publications in peer-reviewed journals, as well as recognitions from the external scientific community. Regarding infrastructure, the department already has significant experimental resources and can access those of the university (e.g. Integrated Microscopy Centre for characterization and

fabrication), as well as the High Performance Computing resources on campus and through National facilities.

The educational and research experience provided by your new PhD program would allow the US to address key economic needs for the coming years. Indeed, we are experiencing an urgent need to hire Applied Physics PhD graduates in the DOE complex, a trend that is also predicted for industry as more exotic approaches become transitioned into technologies (e.g. nanotechnology). It is imperative to have PhD graduates who have the basic physics training as well as the ability to translate this knowledge to applied research, a key niche that your program would be providing.

In summary, it appears to me that a PhD program in Applied Physics at The University of Memphis would be a natural addition to your already strong department. It would not only provide students from Tennessee with new opportunities, but would also significantly improve the ability to recruit students and faculty from other states.

Best regards,



Dr. François Léonard
Distinguished Member of Technical Staff
Materials Physics Department
Sandia National Laboratories
Livermore, CA

OAK RIDGE National Laboratory

PO Box 2008
Oak Ridge, TN 37831-6473
(410)-522-8030 | ynl@ornl.gov

November 15th, 2018

Jingbiao Cui
Professor and Chair
Department of Physics and Materials Science
216 Manning Hall
The University of Memphis
Memphis, TN 38152

Dear Dr. Jingbiao Cui,

I am writing to express my strong support for the proposal to establish a PhD program in Applied Physics in the Department of Physics and Materials Science at the University of Memphis.

I visited the department in Spring 2017. I had toured the research labs and met both the faculty and students. I was very impressed by the department's high research productivity despite without a PhD program. I also learned from the students about their positive education and research experiences in the department. These demonstrate the excellent quality your faculty members and their sincere dedication to both research and education. I believe that your department is ready to run a PhD program in Applied Physics and it is beneficial for both the University of Memphis and the State of Tennessee to have such a program.

A PhD program housed in the Department of Physics and Materials Science will be a significant advantage for the University of Memphis to achieve the goal of becoming an R1 University (the highest level of research university according to the Carnegie Classification of Institutions of Higher Education). PhD students are generally much more productive than MS students in research. The proposed PhD program will help to unleash the full potential of the excellent faculty members of your department. A complete set of doctoral programs in natural sciences is a hallmark of all major universities that are recognized as research powerhouses. The University of Memphis has multiple PhD programs in natural sciences and the long-awaited PhD program in your department will fulfill the last piece of the puzzle.

Having the Applied Physics PhD program at the University of Memphis will significantly benefit the State of Tennessee. It will provide the highest-quality science and technology workforce for industrial research and STEM education in the region. The applied nature of the program will equip the graduates with useful skill sets and experience for research and development in industries. Meanwhile, the physics core will train the students with a strong scientific background, which will enable them to become superior educators. STEM education is the key to the U.S.'s economic future and there is a strong demand to enhance STEM education nationwide. However, high schools, technical and two-year colleges have been suffering from a shortage of highly trained instructors in physics, and the graduates from the Applied Physics PhD program will help offset this shortage. The PhD program will also help the state of Tennessee keep many brightest local

students and attract businesses to the region. All these benefits will enhance both the economy and education in the state.

Overall, a PhD program in Applied Physics housed at your department will be highly rewarding to both the University of Memphis and the State of Tennessee, and I believe that your department is ready to run such a program successfully. I strongly support the proposal.

Best Regards,

Yaohua Liu

Dr. Yaohua Liu
Neutron Scattering Scientist
Oak Ridge National Laboratory

OAK RIDGE National Laboratory

PO Box 2008
Oak Ridge, TN 37831
(865) 765-8793 | berlijn@ornl.gov

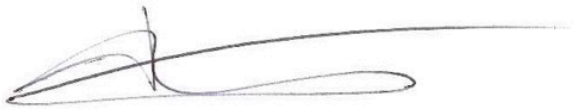
Dear Prof. Jingbiao Cui:

I am providing this letter in support of a proposed Ph.D. program in Applied Physics by the Department of Physics and Materials Science at the University of Memphis. Last year I had the pleasure of visiting the department. Before that I was already familiar with several of the faculty and their research. During my visit I got to know the department more closely by having fruitful discussions with the faculty, visiting state-of-the-art laboratories, and interacting with the students. I have to say that I am impressed with the level of research activity being pursued by a department which does not have a full-fledged graduate program. I believe that a Ph.D. program would allow the department to even further expand its number of publications and research funding and that it would open new learning opportunities for the students.

The proposed Ph.D. program in the Department of Physics and Materials Science at the University of Memphis is well thought of and unique in that it is focused on Applied Physics, a program of this kind does not exist in the state of Tennessee. The proposed program will be able to produce doctoral students who are not only well versed in fundamental physics but also on the application of physics into emerging applied fields including nanotechnology, energy conversion, energy storage and biomaterials. Students graduating from this program will be well equipped with the tools to participate in local and statewide high tech industries, educational units, and research institutions. Furthermore, the program is strategically poised to serve students in Western Tennessee region who have been devoid of pursuing higher studies in physics.

I sincerely hope that your proposed Ph.D. program in applied physics will be approved. Without reservation, I enthusiastically support this move by the University of Memphis.

Best regards,



Tom Berlijn
Research Staff Member
Center for Nanophase Materials Sciences
Oak Ridge National Laboratory
(865) 576-8793
https://www.ornl.gov/staff-profile/tom-berlijn

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November 16, 2018

Dr. Thomas J. Nenon, Dean
College of Arts and Sciences
University of Memphis
Memphis, TN 38152

Dear Dr. Nenon:

My name is Jon Moseley, and I am the director of Applied Research for Wright Medical, an Orthopedics company headquartered in Memphis. I am writing to give my enthusiastic support for the proposal to create a doctoral degree program in Applied Physics at the University of Memphis.

Wright Medical has had a long and productive relationship with the faculty and students of the University's Physics department, spanning more than two decades. We have collaborated on projects such as investigations of the mechanisms of oxidation in biomaterials used for permanent implants, and we have also hired students of the Physics department, both as interns and as full time employees. One of Dr. Jahan's former students, Mr. Ben Walters, is a valued member of my research team.

I have always been impressed that the students of the University's Physics department are well grounded in the practical aspects of physics and materials science, in addition to having a solid theoretical foundation. In that respect I believe that the University already has a strong program in Applied Physics, and creating a formal degree program is simply the next logical step. I believe it would serve to enhance the already strong relationship between the University and local Industry.

Sincerely,

Jon Moseley

Jon Moseley, Ph.D.
Sr. Director, Applied Research
Wright Medical
1034 Cherry Rd.
Memphis, TN 38002

St. Jude Children's Research Hospital

November 19, 2018

Dr. Thomas J. Nenon, Dean
College of Arts and Sciences
University of Memphis
Memphis, TN 38152

Dear Dr. Nenon,

I understand that the University of Memphis Department of Physics and Materials Science is in the process of proposing a PhD program in Applied Physics. I am very pleased to hear this.

Much of my career (Fermilab, Siemens, St. Jude) has been spent doing work that could best be typified as applied physics, rather than the field of my PhD (nuclear physics, Washington U in St. Louis). Thus, I have a keen appreciation for your proposed program. It would not only strengthen the academic environment at the University, but would also enhance the attractiveness of Memphis as a place for young professionals in the sciences to further their education and develop their professional skills.

St. Jude is growing rapidly. We will need more highly trained physicists. Your program could potentially help us with our recruitment efforts. My best wishes in this endeavor!

Sincerely,

Suzanne Gronemeyer

Suzanne Gronemeyer, PhD (Physics)
Director, Pediatric Oncology Education (POE) Program
Associate Director, Academic Programs
St. Jude Children's Research Hospital
262 Danny Thomas Place, Mail Stop 0304
Memphis, TN 38105-3678

suzanne.gronemeyer@stjude.org
https://www.stjude.org/poe
https://www.stjude.org/Gronemeyer
901-595-2488

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USA

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smith&nephew

November 19, 2018

Dr. Thomas J. Nenon, Dean
College of Arts and Sciences
University of Memphis
Memphis, TN 38152

Dean Nenon:

As a global medical technology business dedicated to helping healthcare professionals improve people's lives, Smith & Nephew depends on graduates from science, technology, engineering and mathematics (STEM) programs to design and develop our innovative medical devices. Based on this near-constant need for new, STEM-educated employees, a doctoral program in Applied Physics at the University of Memphis could provide an additional source for local talent at Smith & Nephew.

In addition, Smith & Nephew has a great history of collaboration with the University of Memphis that stretches back decades. The addition of this degree program will increase the research capabilities of the university and potentially enhance industry-university collaboration with Smith & Nephew and other companies in Memphis.

Sincerely,

Wallace Puckett, Ph.D.
Director
Research Technology & Innovation

MEMPHIS BIOWORKS FOUNDATION

Thomas J. Nenon, Ph.D.
Professor and Dean
College of Arts and Sciences
The University of Memphis
Memphis, TN 38152

Dear Dr. Nenon,
I am very pleased to learn that the Department of Physics and Materials Science at your institution is submitting a proposal for a Ph.D. program in Applied Physics with a proposed starting date of Fall 2019. Memphis Bioworks Foundation whole heartedly supports this proposal. The bioscience/biomaterial applied focus area of the physics program played an important role in the collaboration between the Department of Physics and Materials Science and our foundation, dating back more than 15 years. The proposed doctoral program will introduce advanced research in related fields, which in turn, is expected to promote more collaborations with the Memphis area industries, as well as research and innovation institutions such as our foundation. In our opinion, a growing city like Memphis needs quality research programs with growth potential, through initiatives such as this, in order to generate a highly qualified work force.

I not only support this proposal but also commend the Department for undertaking this challenge. If I, on behalf of Memphis Bioworks Foundation, could be of any help in this effort then please do not hesitate to ask.

Sincerely,

Steven J. Bares, Ph.D.
President and Executive Director
Memphis Bioworks Foundation

20 South Dudley, Suite 900
Memphis, TN 38103
Office 901.866.1400
Fax 901.866.1401
www.memphisbioworks.org

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November 14, 2018

Dr. Thomas J. Nenon, Dean
College of Arts and Sciences
University of Memphis
Memphis, TN 38152

Re: Letter of Support for Proposed Ph.D. program in Applied Physics

Dear Dr. Nenon:

Professor M.S. Jahan in the Department of Physics and Materials Science in your University asked me to send you a letter of support for a proposed start of a Ph.D. program in Applied Physics. It is with great enthusiasm that I write such a letter.

As background about me, I have a Master's degree from the University of Memphis and a Ph.D. in Metallurgy and Materials Science. To get my Ph.D. degree I had to go to a school outside of Memphis.

As a member of the industrial sector of this city for over 40 years it has been my experience that one of the limiting steps in growth of any company, especially a high-tech company, is the quality, type, and level of post-high school education programs in the local universities. I hope the University of Memphis decides to offer a Ph.D. program in Applied Physics and eventually someday, Materials Science. The industry in Memphis and the city of Memphis needs more highly educated people.

Please let me know if you need anything else from me to support and help recommend this proposed new degree offering. If you have any questions, please contact me at 901-252-6394 or email me at Rick.Treharne@ActiveImplants.com.

Sincerely,

Richard W. Treharne

Richard W. Treharne, Ph.D.
Vice President, Clinical & Regulatory
Active Implants LLC
6060Primacy Parkway, Suite 460
Memphis, TN 38119

cc M. S. Jahan, Ph.D.

VANDERBILT School of Engineering

Dr. Thomas Nenon, Dean
College of Arts and Sciences
University of Memphis
107 Scates Hall
Memphis, TN 38152
Re: PhD Program in Applied Physics at the University of Memphis

Dear Dr. Nenon:

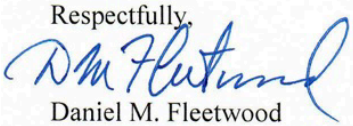
As the Chair of the Department of Electrical Engineering and Computer Science (EECS) at Vanderbilt University, I am writing in support of a Ph.D. program in Applied Physics at the University of Memphis. I am a Fellow of the Institute for Electrical and Electronics Engineers (IEEE) and The American Physical Society (APS). I am also Distinguished Lecturers Chair of the IEEE Nuclear and Plasma Sciences Society, and former Chair of the APS Forum on Industrial and Applied Physics. As an engineer and applied physicist, I can attest the value of such a program.

Applied physicists have made crucial contributions in the realization of many modern technologies that form the backbone of today's economy. Examples include semiconductors, telecommunication, laser, nuclear energy, space technology, and medical imaging. Trained within a rigorous curriculum in physics, applied physicists play unique roles in technology innovation. Applied physicists view and approach problems in ways that complement typical engineering approaches, and have always been an important component of today's interdisciplinary research teams. Within Vanderbilt EECS, collaboration with applied physicists is an integral part of our research activities. Historically, applied physicists often play major roles in the early stages of invention and development, where the major hurdles are often deep-rooted in issues having to do with fundamental physics, which must be understood to overcome or circumvent barriers to successful development of new technologies and breakthrough medicines. Today, a number of important new technologies such as next-generation electronic devices, quantum information, and neuromorphic computing are entering their early stages of development, and applied physicists are among the leaders in these research areas in industry, government, and academia. I believe UofM's Applied Physics Ph.D. program would promote the status of Tennessee in the frontier of the research in new technologies.

In addition to boosting the research capability of the University of Memphis and the state of Tennessee, the Ph.D. program in Applied Physics will help develop the science workforce for the region's growing industries and educational institutions. Given Memphis's demographics, such a program will also assist in creating a diverse workforce in these important areas, which is of great importance to the region and state. The Department of Physics and Materials Science has qualified faculty and well-equipped experimental laboratories to carry a successful and competitive Ph.D. program in Applied Physics.

I am therefore pleased to strongly support your proposed Ph.D. program in Applied Physics and wish you great success. Please let me know if I may be of further service.

Respectfully,



Daniel M. Fleetwood
Landreth Professor of Electrical Engineering and Professor of Physics
http://eecs.vanderbilt.edu/people/fleetwood/

VANDERBILT UNIVERSITY
PMB 351824
2301 Vanderbilt Place
Nashville, Tennessee 37235-1824
tel 615.322.2771
fax 615.343.6702

VUIIS Vanderbilt University Institute of Imaging Science

VANDERBILT UNIVERSITY

November 21, 2018

Jingbiao Cui
Professor and Chair
Department of Physics & Materials Science
University of Memphis, 216 Manning Hall
Memphis, TN 38152

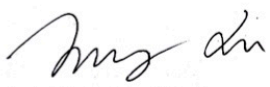
Dear Professor Cui,

I enthusiastically write this letter in support for your proposed Ph.D. program in Applied Physics in the Department of Physics and Materials Science at the University of Memphis. During my visit to your department in the fall of last year, I had an opportunity to interact with you and your faculty and was very impressed by the exciting research activities, broad expertise as well as amazing available resources and well equipped laboratories. I also had the opportunity to interact with graduate students and was very impressed by their vitality, creativity, and enthusiasm in the pursuit of applied physics research. I have visited many research universities in the country, and in comparison to them, I can state that your department has sufficient resources to run a successful Ph.D. program in Applied Physics. This program will further enhance the research and educational activities at the University of Memphis.

Over the last several decades, it has become clear that science, technology, engineering, and mathematics (STEM) play a more and more crucial role in the economic development of every part of this country, and the Memphis metropolitan area and West Tennessee are no exception. Given its special geographical location, the University of Memphis is serving as a primary source of the highly skilled workforce for Western Tennessee and several neighboring states. On the other hand, to keep up with the pace of regional economic development and for the region to attract more high-tech industries, the University must continually enhance its investment in the STEM fields. The establishment of a Ph.D. program in Applied Physics at the University of Memphis is a timely strategic move toward reaching that goal. To the best of my knowledge, there is currently no equivalent program in West Tennessee or nearby universities in neighboring states of Arkansas, Mississippi, Kentucky or Missouri. This program could serve as an educational and research center in Applied Physics and at the same time provide a catalyst to research in many other STEM-related fields at the University and surrounding regions. I believe the moment is ripe to start such a program.

I sincerely hope that your proposal is successful.

Sincerely,



Junzhong Xu, Ph.D.
Assistant Professor of Radiology and Radiological Sciences
Vanderbilt University Institute of Imaging Science
Assistant Professor of Physics and Astronomy, Biomedical Engineering
Vanderbilt University

1161 21st Ave South, AAA-3105 MCN, Nashville, TN 37232-2310 Tel: (615) 322 8359 Fax: (615) 322 0734

Dr. Thomas Nenon
Dean
College of Arts and Sciences
University of Memphis
107 Scates Hall
Memphis, TN 38152

Re: University of Memphis PhD Program

Dear Dr. Nenon:

I am pleased to offer my support to the proposal for a PhD program in Applied Physics in the College of Arts and Sciences at the University of Memphis. Before continuing my letter, I would like to briefly describe my credentials. I am the Orrin Henry Ingram Professor of Engineering at Vanderbilt University and the Founding Director of Vanderbilt's Institute for Space and Defense Electronics (ISDE). I am also a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and the incoming President of the IEEE Nuclear and Plasma Sciences Society. My research activities focus on microelectronics and semiconductor devices.

Applied Physics is a discipline that bridges the fundamental understandings of physics to practical applications. Researchers with doctoral training in Applied Physics have skills and approaches that are complementary to engineers. Collaborations with applied physicists have been very helpful to our research in Electrical Engineering, as well as in other branches of engineering. The regional and national communities of researchers in industry, government, and academia have needs for doctoral-trained applied physicists. A PhD program in Applied Physics at the UofM would significantly boost the competitiveness of Tennessee in cutting-edge research related to emerging technologies and industries.

Given Memphis's unique location and the University of Memphis's status as the major higher education institution in western Tennessee, an Applied Physics PhD program at the University of Memphis will attract local students and from the surrounding regions. It will not only provide these students with much-needed educational opportunities, but also train them to become part of the high-level STEM workforce that is necessary for driving economic development in west Tennessee and the state as a whole. The availability of a STEM workforce with advanced skills has increasingly become a critical factor in attracting and fostering businesses in high tech industries. Equally importantly, an Applied Physics PhD program at the University of Memphis will nurture STEM education in the local communities by providing highly trained doctoral graduates to nearby high schools and colleges. Having such doctoral graduates in Applied Physics as instructors will help solve the severe shortage of qualified physics educators, which is a nationwide problem. By providing those educators, the University of Memphis and the higher education community of the State will strengthen their ties with the local communities. In addition, I believe the establishment of the Applied Physics PhD program will enhance the

prestige of the University of Memphis, which will be beneficial to the status of Tennessee in higher education.

I enthusiastically support the proposed PhD program in Applied Physics at the University of Memphis and wish you great success in your program.

Sincerely,



Orrin Henry Ingram Professor of Engineering
Director, Institute for Space and Defense Electronics

MEMPHIS UNIVERSITY SCHOOL
6191 PARK AVENUE, MEMPHIS, TN 38119 | (901) 260-1300 | MUSOWLS.ORG

November 28, 2018

Dr. Jingbiao Cui
Department of Physics and Materials Science
The University of Memphis
Memphis, TN 38152

Dear Dr. Cui,

I am writing this letter to express my full support for the immediate implementation of a Ph.D. program in Applied Physics at The University of Memphis. This program would serve multiple, local needs in the economic and educational sectors. Recent indicators suggest that the immediate implementation of this program is ideal for the most benefit to our community.

I graduated from The University of Memphis Physics program in 1982. I completed an M.S. in Physics from The University of Alabama in 1984. I returned to The University of Memphis to complete 35 additional graduate hours from the College of Education. I began a career in a high school physics setting in 1986. It has been an honor to start numerous students on a career path in physics or engineering for over three decades. It is frustrating to see most of my students leaving Memphis to find graduate-level professional development. It is more frustrating to realize that they will probably never return.

The math and science programs at Memphis University School (MUS) have become very successful in producing sustainable engineering and physics majors for many universities. The secret to our success is rigorous development in math and the physical sciences for our students. The University of Memphis Department of Physics and Materials Science has contributed to our success in two areas. First, Dr. Robert Marchini mentored many secondary physics teachers, myself included, in professional growth and development for many decades. Second, about five years ago instructors from the Department of Physics and Materials Science met with MUS science teachers in a collaborative effort during the planning stages of our materials science program. MUS graduates are now entering college with advanced knowledge in calculus, physics, chemistry and materials science. Our sustainability rate in engineering and physics is well above the national average. An Applied Physics program at UM would create the optimal environment for additional collaboration with MUS and other local secondary school programs for the promotion of chemistry, physics, and materials science.

The cost of undergraduate physics and engineering programs has risen to well over a quarter of a million dollars at some universities. This has caused some MUS families to consider remaining in the local university market to reduce costs.

The best time to implement an Applied Physics Ph.D. program is now. There is currently no local Ph.D. program to attract students to Memphis after their undergraduate experience. The Applied Physics program would reduce the rate of emigration of our brightest students from our local economy while promoting the immigration of others to help bolster our local economy. The addition of this program would also present a means of collaboration with local high schools moving into 21st century STEM education.

Sincerely,

Robert W. Mullins

Robert W. Mullins
Advanced Placement Physics Instructor
The Sally and Wil Hergenrader Chair of Excellence in Science at MUS
ΣΠΣ 1982

APPENDIX H: Graduate Handbook

The Ph.D. Program in Physics and Materials Science (*after that, the Ph.D. Program*) offered by the University of Memphis (UofM) is a terminal research degree that prepares students to teach and conduct research in academic, industry and research labs/institutes. The Ph.D. Program is designed for those who plan to assume a role as researcher/scholar/educator in academic and related fields towards with research and theory skills to generate new knowledge.

Program Outcomes

Graduates of the Ph.D. program will be prepared to:
1) conduct rigorous Physics and interdisciplinary research,
2) independent problem solver and leader in the field,
3) generate new knowledge in the field, and
3) lead educational research in program and course design, and the evaluation of learning that prepares students of the future.

Graduates will be prepared to fill the gap of Ph.D. prepared faculty in academic, industry, and research institute to educate future scholars/researchers as well as to prepare students to help transform the field of innovation and technology for the betterment of the society.

Faculty

Faculty in Physics and Materials Science at U of M have a variety of research backgrounds and conduct research in several areas centered around Applied Sciences including Soft and Hard materials, biomaterials, and Astrophysics.

Role of Doctoral Student

Being a doctoral student differs from being an undergraduate or master's student in many important ways. The doctoral student pursues a terminal degree. The doctoral education will provide students with the ability to demonstrate analytical thinking, develop sound theoretical and experimental understanding of the subject, and importantly inculcate independent critical thinking. The skills developed during the PhD tenure will prepare students to consider stewardship in all professional actions that require a commitment to personal, institutional, and professional development.

Students are expected to actively invest their time in pursuing research and publications, and learning that academic education entails, to be an involved member of the academic community, and to make concerted efforts in pursuing opportunities consistent with their career interests. Taking the initiative is extremely important, and how much you gain from your doctoral education will depend largely on how much you invest in it. The PhD faculty will teach, guide, mentor, and coach you to support your success in the PhD Program.

ADMISSION POLICIES

Admission Requirements

Admission Requirements additional to those of the U of M Graduate School. International applicants will be expected to submit a minimum score of 550 on the paper, a 210 on the

computer-based, or 80 on the internet based Test of English as a Foreign Language (TOEFL) or 7.5 in the International English Language Testing System (IELTS).

Additionally, applicants will:
1. Earned a Bachelor's (or Master's) Degree with minimum GPA of 3.0.
2). Graduate Record Examination (GRE) is required from with scores from the last five years with a minimum of verbal score of 145, quantitative score of 150, and analytical writing score of at least 3.0.
3). Provide three letters of reference from individuals familiar with the applicant's capabilities for doctoral study and for future performance as a physics scholar and researcher.
4). Submit a personal statement of approximately 750-1000 words indicating his/her present interests and career goals, including how the PhD in Physics and Materials Science will prepare the student to achieve their future goals.
P6). provide a copy of the applicant's curriculum vitae (CV) or resume.
7). Interview via phone, face-to-face, or Skype will be required.

The Ph.D. Program Committee will review all submitted materials. Admissions decisions are made on the overall quality of the applicant's professional background in Physics, scholarship, academic ability (based on GPAs, undergraduate and graduate coursework completed, research conducted, recommendations, and interviews) as well as the applicant's "fit" for the program in terms of academic background, research interests, and career goals. The Ph.D. Program Committee will review all submitted materials. Admissions decisions are made on the overall quality of the applicant's overall merits as well as the applicant's "fit" for the program in terms of academic background, research interests, and career goals.

Transfer Credit Evaluation
Previously earned doctoral credits may be considered for transfer by the student's advisory committee in accordance with the Graduate School policy; however, residency requirements stipulate that the last thirty semester hours of credit for the doctoral degree (including 9 dissertation hours) must be earned at the U of M.

Credit towards a graduate degree does not transfer automatically. In general, however, graduate work completed at another institution in a program at the graduate level may be accepted in a graduate degree program at the University, with the following provisions. (1) They relate to the content of the graduate program and/or are comparable to those offered at the University and (2) They do not exceed the time limitations set for doctoral programs.

Credit previously earned at another institution must be presented for evaluation no later than the end of the student's second semester of enrollment. Forms are available on-line or from the Graduate School Graduation Analyst. An official transcript directly issued from the institution and course syllabus must be submitted along with the application to the committee.

Credit will be transferred to apply toward a doctoral program upon approval of the student's advisory committee. Courses proposed for transfer credit must meet the requirement of a minimum of 3 hours of class work per week for 3 hours of credit. Grades earned at another

institution will not be computed in the University cumulative grade point average, nor will they be accepted for transfer, unless they are "B" (3.0) or better. No credit will be transferred unless it meets with the approval of the major advisor or program graduate coordinator.

CURRICULUM

The proposed PhD Program requires the completion of 72 semester credit hours beyond the Bachelor's Degree or 42 semester credit hours beyond Master's Degree. The following table displays program requirements.

General overview: Post Bachelor's

Curriculum Component	Hours Required
Physics Core	18
Focus Area Elective	6
Breadth Elective	6
Individual Study	6
Dissertation	36
TOTAL	**72**

General overview: Post Master's

Curriculum Component	Hours Required
Physics Core	3
Focus Area Elective	3
Breadth Elective	3
Individual Study	3
Dissertation	30
TOTAL	**42**

Post-Bachelor's Course Requirements (72 Credits)

Course Prefix and Number	Course Title	SCH	New Course Needed (Y/N)
Core courses (24 hours)			
PHYS 8100	Classical Mechanics	3	N
PHYS 8200	Quantum Mechanics I	3	N
PHYS 8300	Electrodynamics	3	N

PHYS 8520	Statistical Mechanics	3	N
PHYS 8386	Methods of Theoretical Physics	3	N
PHYS 8090	Professional Development Workshop	3	N
Focus Area: Students are required to complete 6 hours of coursework in their Focus Area from this list of electives. 3 hours of coursework must be taken at the 8000 level.			
Focus Area 1: Solid State Materials			
PHYS 6610	Solid State Physics	3	N
PHYS 6720	Materials Physics	3	N
PHYS 8610	Advanced Device Physics	3	Y
Focus Area 2: Biophysics			
PHYS 6020	Soft Matter and Biological Physics	3	N
PHYS 8390	Polymer Physics	3	N
Focus Area 3: Computational Physics			
PHYS 6420	Introduction to Computational Physics	3	N
PHYS 8385	Methods in Computational Physics	3	N
Focus Area 4: Astrophysics			
PHYS 6050	Astrophysics I	3	N
PHYS 6051	Astrophysics II	3	N
PHYS 6300	Advanced Topics in Astronomy	3	N
PHYS 8300	Advanced Methods in Astrophysics	3	Y
Breadth course: Students are required to complete 6 hours of coursework outside their Focus Area, or in this list of additional electives, or outside the department.			
PHYS 6021	Applied Radiation Physics	3	N
PHYS 6040	Medical Physics	3	N
PHYS 6110	Nuclear and Particle Physics	3	N
PHYS 6220	Environmental Physics	3	N
PHYS 6620	Device Physics and Microfabrication	3	N
PHYS 6230	Electronics	3	N
PHYS 6720	Materials Physics Lab	3	N
PHYS 6000 to 6009	Special Topics in Physics	3	N
PHYS 8201	Quantum Mechanics II	3	N
PHYS 8050 to 8059	Special Topics in Advanced Physics	3	N

Individual Study: Students are required to complete 6 hours of individual study under the guidance of graduate faculty.			
PHYS 8060	Individual Study in Advanced Physics	3	N
Dissertation: 36 hours			
PHYS 9000	Doctoral Dissertation	1-12	N

Post-Master's Course Requirement (42 Credits)

Course Prefix and Number	Course Title	SCH	New Course Needed (Y/N)
Core courses (3 hours)			
PHYS 8090	Professional Development Workshop	3	N
Focus Area: Students are required to complete 3 hours of coursework in their Focus Area at the 8000 level.			
Focus Area 1: Solid State Materials			
PHYS 8610	Advanced Device Physics	3	Y
Focus Area 2: Biophysics			
PHYS 8390	Polymer Physics	3	N
Focus Area 3: Computational Physics			
PHYS 8385	Methods in Computational Physics	3	N
Focus Area 4: Astrophysics			
PHYS 8300	Advanced Methods in Astrophysics	3	Y
Breath course: Students are required to complete 3 hours of coursework outside their Focus Area or in this list of additional electives, or outside the department.			
PHYS 6021	Applied Radiation Physics	3	N
PHYS 6040	Medical Physics	3	N
PHYS 6110	Nuclear and Particle Physics	3	N
PHYS 6220	Environmental Physics	3	N
PHYS 6620	Device Physics and Microfabrication	2	N
PHYS 6230	Electronics	4	N
PHYS 6720	Materials Physics Lab	3	N
PHYS 6000 to 6009	Special Topics in Physics	3	N
PHYS 8201	Quantum Mechanics II	3	N
Individual Study: Students are required to complete 3 hours of individual study			

under the guidance of graduate faculty.			
PHYS 8060	Individual Study in Advanced Physics	3	N
Dissertation: 30 hours			
PHYS 9000	Doctoral Dissertation	1-12	N

Department of Physics and Materials Science
PhD Curriculum
Post BS Sample Plan of Study

Year 1

Fall		Spring	
PHYS 8100 Classical Mechanics	3	PHYS 8200 Quantum Mechanics	3
PHYS 8396 Methods of Theoretical Physics	3	Focus Area Elective 2	3
Focus Area Elective 1	3	Breadth Elective 1	3
Total	9	Total	9

Year 2

Fall		Spring	
PHYS 8520 Statistical Mechanics	3	PHYS 8300 Electrodynamics	3
Breadth Elective 2	3	PHYS 8090 Professional Development Workshop	3
PHYS 8060 Individual Study in Advanced Physics	3	PHYS 8060 Individual Study in Advanced Physics	3
Total	9	Total	9

Year 3

Fall		Spring	
PHYS 9000 Doctoral Dissertation	9	PHYS 9000 Doctoral Dissertation	9
Total	9	Total	9

Year 4

Fall		Spring	
PHYS 9000 Doctoral Dissertation	*6	PHYS 9000 Doctoral Dissertation	*6
Total	6	Total	6

Year 5

Fall		Spring	
PHYS 9000 Doctoral Dissertation	*3	PHYS 9000 Doctoral Dissertation	*3
Total	3	Total	3

* Student may enroll in up to 9 dissertation credits to maintain full-time status, convert to part-time status, or adjust the schedule to complete the degree program in 4 years.

Department of Physics and Materials Science
PhD Curriculum
Post MS Sample Plan of Study

Year 1

Fall		Spring	
PHYS 8090 Professional Development Workshop	3	PHYS 8060 Individual Study in Advanced Physics	3
Focus Area Elective 1	3	PHYS 9000 Doctoral Dissertation	6
Breadth Elective 1	3		
Total	9	Total	9

Year 2

Fall		Spring	
PHYS 9000 Doctoral Dissertation	*6	PHYS 9000 Doctoral Dissertation	*6
Total	6	Total	6

Year 3

Fall	Spring

PHYS 9000 Doctoral Dissertation	*6	PHYS 9000 Doctoral Dissertation	*6
Total	6	Total	6

* Student may enroll in up to 9 dissertation credits to maintain full-time status, convert to part-time status, or adjust the schedule to complete the degree program in 2 years.

RESEARCH REQUIREMENTS

All students are expected to actively participate in mentored research and publications with their faculty, faculty advisor, and/or faculty researchers while enrolled. For students on graduate assistantships, this work will be part of their contracted duties. Students will be allowed to gain course credit for these research experiences by registering for an Independent Study. Similar to other doctoral programs at the U of M, credit hours gained from an independent study will not count toward the 60 total credits required for graduation but may be used to maintain full-time academic standing.

CREDIT LOAD

Full-time doctoral students must register for a minimum of 9 credits hours per semester throughout their tenure in the program, which will also fulfill the University's residency requirement prior to graduation. Part-time students are expected to carry a minimum of 6 credits per semester unless permission is granted from the advisor for a reduced course load. Formal requests for an exception to this policy must be submitted to the Ph.D. Program coordinator and will be reviewed by the Associate Dean of Academic Programs for approval.

PROGRESSION AND RETENTION

Retention requirements are per policies stipulated by the U of M Graduate School. As a doctoral Student, grades are not the only or even primary metric for your academic success. Academic performance does matter, but research and other scholarly pursuits are important measures of success and are critical to being competitive for post-graduate training opportunities and professional positions. In terms of course performance, no more than seven (7) credit hours in which a grade of C or below was earned will be counted toward degree requirements. To remain eligible for departmental funding, you must maintain an overall grade point average (GPA) of 3.0 on a 4-point scale. A minimum of 3.0 is also required for graduation. According to the U of M Graduate School, grades of "D" and "F" will not apply toward any graduate degree but will be calculated in the GPA. Please note that grades from other institutions are not computed in calculating the GPA.

Students are expected to maintain "Good Standing" which means that progress has been judged as satisfactory by the faculty. In making this assessment, the faculty expects that student is maintaining at least a B average, do not have a grade below a B in core courses, and making satisfactory progress towards degree on all measures on which student is evaluated (i.e., coursework, research productivity including, collaborative presentations and publications, and professional behavior).

Faculty are committed to working with each student accepted into the program. We make every effort to help students who are struggling to facilitate the successful completion of the PhD Program. We might, for example, design a plan for remediation, along with re-assessment after some determined interval, to assess progress. During this time, a student would normally be placed on probation, and we would provide as much support and direction as possible to help the student to succeed. Written feedback will be given to the student at the end of a remediation program to indicate whether the problem was successfully resolved, and the student has the opportunity to discuss the matter directly with the faculty.

Under rare circumstances, a student may be asked to leave the program. Dismissal typically occurs after a period of probation in which expectations for remediation are clearly stated. Reasons for dismissal can include failure to perform adequately in courses, inadequate progress toward program milestones (such as comprehensive exam and dissertation), and unethical or unprofessional behavior. In the case of failing several courses or egregious misbehavior that cannot be safely rehabilitated, a student may be dismissed from the program without a period of probation.

Graduation Requirements: All of the University of Memphis Graduate School requirements.

TIMETABLES FOR COMPLETION OF DEGREE REQUIREMENTS

Students should negotiate their planned deadlines with their advisor as early as possible in their graduate career and re-evaluate their plan at least annually to see whether any changes should be made. Full-time students, with BS degree, are normally expected to finish the program in about 4-5 years and part-time students in 5 years. Students entering into Ph.D. program with an MS degree are expected to complete their Ph.D. in three years.

QUALIFYING (COMPREHENSIVE) EXAMINATION

Overview: Prior to enrolling for dissertation hours (PHYS 9000), a student must successfully complete both a written and/or oral qualifying examination. The examination will assess mastery of areas covered in the doctoral program. The content of the examination will be designed by the student's advisory committee. Since the examination is designed to test each student's fundamental knowledge of the field, it is not confined to material covered in classes.

Eligibility Requirements: Prior to initiating the examination process, a student must have completed at least 30 credit hours of coursework in the program. Additionally, he/she is required to be enrolled during the semester he/she proposes to take the comprehensive exam.

The composition of Committee: The committee will be composed of a minimum of 4 faculty members including the primary advisor who is from the Physics Program. The student should form the committee in consultation with his/her primary advisor.

Timeline: Preparation for the comprehensive examination should begin during the semester in which the student is enrolled in PHYS 9000 Doctoral Research Practicum. A student will complete the written portion of comprehensive examination during the designated semester and then take the oral exam within two weeks of the completion of the written exam.

Evaluation: The student's comprehensive examination will be reviewed by the committee in relation to:

- Quality of written and/or oral examination
- Ability to conceptualize and analyze the topic in depth
- Capacity for original thought and substantive knowledge in the focused area
- Integration of state of the art knowledge

University policy does not consider (qualifying) comprehensive examinations similar to a course; therefore, the results of the examination are not appealable. University policy allows you to take the comprehensive examination twice; failure to pass on the second attempt results in dismissal from the university. The dismissal may be appealed (see Retention Appeals in the Graduate Catalog).

Fall Semester Comprehensive Exam Schedule*

Mid-March Submit request for taking the comprehensive exam in Fall;
End of March: The Ph.D. Program Committee will form the Comprehensive Exam Committee in consultation with the faculty advisor and the Ph.D. Program coordinator.
Mid-April: First comprehensive exam committee meeting to discuss types of questions and nature of the exam;
End of April: Compile questions in consultation with the faculty advisor and individual committee members;
Mid-May: Final approval of questions;
June and July: Prepare for the comprehensive exam;
August: Schedule a comprehensive exam in consultation with your faculty advisor and committee over the three weeks;
Within two weeks of the written exam: Assessment by the committee.

Spring Semester Comprehensive Exam Schedule*

Mid-October: Submit a request for taking the comprehensive exam in Spring;
End of October: The Ph.D. Program Committee will form the Comprehensive Exam Committee in consultation with the faculty advisor and the Ph.D. Program coordinator;
Mid-November: First comprehensive exam committee meeting to discuss the types of questions;
End of November: Compile reading questions in consultation with the faculty advisor and individual committee members;
Mid-December: Final approval of questions and reading lists by the committee;
January and February: Prepare for the comprehensive exam;
March: Schedule a comprehensive exam in consultation with the PhD advisor and the committee over the three weeks;
Within two weeks of the written exam: Assessment by the committee.
**Exact date for each phase needs to be decided in consultation with the Advisor and the Committee*

Once the student passes both the written and/or oral parts, she/he is given the Doctoral Candidate status.

Preparation for the Comprehensive Exam: After forming the committee, the student meets with all members to plan for the exam. Expectations, format, and timing of the written and oral components of the exam and coverage will be discussed. Each of the committee members will be responsible for one of the exam questions (described below).

The comprehensive exam committee chair will coordinate receiving the questions from committee members one week in advance of the first comprehensive exam for each of the students. Questions are discussed among the committee members and modified based on the feedback from members. The chair will coordinate distributing the questions, collecting the responses, and distributing them to the committee members. Before the commencement of the exam, the chair will also set a date for the oral exam, if any, within two weeks of the last exam in consultation with the committee members. The committee members can provide oral feedback to the student at their discretion one week before the oral exam. However, they are not required to provide any feedback prior to the oral exam.

Written Component: The written portion of the examination will test the student's competency in the area of (1) theoretical and conceptual knowledge of the fundamental subjects in Physics and (2) content knowledge of the student's main research area.

Individual committee members can either give take-home exam or in-class (open book or closed book exam) or invite for the oral exam. Written take-home exam questions will be distributed to the student, and the student will be allowed two weeks to complete the written exam questions. Responses should be typed in Times New Roman, 12-point font, double-spaced, 1-inch margins, and should be approximately 15-20 pages, excluding references and graphics. In class, the exam can be time bound varying from 2 hrs to six hours. The oral exams are of free format, testing students a fundamental understanding of the subject matter. The oral exam can be conducted by the student advisory committee. Alternatively, the committee will ask questions related to the written portion of the exam and general knowledge in the field of Physics

Evaluation: Committee members will independently evaluate the student's written answers as well as his/her performance on the oral exam. If a student does not perform at a satisfactory level on a particular question, the committee may allow the student to retake the exam at the discretion of the committee. A student will be allowed to retake the comprehensive exam a maximum of one time. The committee decides whether the second oral exam necessary.

All sections of the written and oral exam will be assessed with the committee's said guideline. All sections of the comprehensive exam must be faired. Maximum two attempts will be allowed for a student to pass the qualifying exam. Failure to pass a comprehensive exam in two attempts will call for the termination from the Ph.D. program.

Academic Integrity: Students are expected to work on the questions independently. No collaboration is allowed among students. Any questions regarding the exam should be first

raised to the primary advisor. The student may then be advised to consult with the faculty responsible for writing the question.

All written work submitted must be the student's original work. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. The student must follow University of Memphis academic policies and procedures. See "Academic Conduct" below htttp://www.memphis.edu/studentconduct/misconduct_process.htm for specific University definitions and policies.

DISSERTATION

Getting Started

The Ph.D. students are highly recommended to explore about their general research area in the first semester. Students are highly encouraged to visit individual faculty to get a better understanding of the faculty research and expectation. The student may discuss evolving ideas with his/her faculty advisor from the beginning of the semester and continue dialoguing and /or meeting with faculty. This process helps students engage with faculty and identify faculty who may serve on their dissertation committee. The student will finalize his/her dissertation committee after passing the qualifying (comprehensive) examination. Once the student has successfully passed the required qualifying (comprehensive) examination, the student is ready to begin his/her dissertation proposal.

Advisor and Dissertation Committee

Students chose a faculty advisor during their first semester of enrollment in the Ph.D. Program. The student must notify the graduate coordinator of his/her decision of pursuing research under his/her interest in the field of study. Students should consult with their advisor prior to registering for courses each term so that she or he may help the student to choose courses consistent with their educational and research goals. It is expected that students will develop a professional relationship with their assigned advisor and seek advice on a regular basis. By initiating regular advising meetings, students ensure professional success and enhance academic performance. If the student in the dissertation proposal phase, make sure to discuss with his or her dissertation chair about the following:

- Turnaround time
- Authorship on research papers related to the dissertation
- Opportunity to seek Ph.D. student related federal grants
- Summer research plan
- Expectations for proposal hearing
- Recommendations from the dissertation committee
- Frequency of meetings
- Development of a plan and tentative time frame through the defense

Since the dissertation is a major piece of scholarly work, it is inevitably time-consuming. The student needs to allow considerable time for reviewing literature, considering theoretical or conceptual framework, designing methodology, writing and rewriting, routing of paperwork submitted to the committee for their review prior to his/her proposal hearing. After the student successfully defends his/her proposal, the student needs to

dedicate time for conducting research, collecting and analyzing data, writing research results and implications and submitting to the Committee for review and decision for the dissertation defense. The student shall allow faculty at least 15 working days (three weeks) from submission to providing feedback. By the end of the first academic year, the student should begin to assemble his or her dissertation committee. The Ph.D. faculty advisor may serve as chair of the dissertation committee. The committee may be co-chaired by other UoM faculty from other relevant departments. The dissertation committee may consist of four faculty members with at least two members being from the Department of Physics and Materials Science. The committee chair must hold at graduate faculty status and with experience in the Ph.D. Program. Other committee members may be from inside or outside of the U of M. In the event of an invited committee member from outside the U of M, the Graduate School guidelines for such appointments need to be followed. (http://www.memphis.edu/gradschool/graduate_faculty/gradfacproc.php). The Dissertation
Faculty Committee Form must be completed and submitted to the graduate school as soon as the committee is formed. The Faculty Committee Form can be accessed at http://www.memphis.edu/gradschool/pdfs/td_committee_form.pdf.

Dissertation Proposal

The *pre-proposal* should be a 2-3 page document that provides the rationale, preliminary research question (s), adequate methodology, and design of the dissertation. It helps orient potential committee members with student's research and serves as a starting point for committee discussions leading to the full proposal. The pre-proposal should be approved by the major advisor and then submitted to individuals who are asked to serve on the committee.

The student must submit a written dissertation *proposal* for the dissertation committee before conducting his/her research. The proposal will constitute the first three chapters of the dissertation (introduction, literature review, methodology). The proposal should also discuss the expected result and include references.

The Introduction should be an overarching literature review and research questions/hypotheses. The literature review should be a detailed review of the literature on the topic of interest leading to the research question or hypothesis. The experimental or theoretical section should include sub-sections that are appropriate for your project, such as experimental design, measurement or modeling, data analysis. Expected Results may be a paragraph or two that describe what findings are expected based on research problem or hypotheses, as well as potential obstacles and their solutions. The References section should be formatted in AIP style and include all citations.

Each student's dissertation proposal must be reviewed and approved by the dissertation committee. For this purpose, the student will submit her/his dissertation proposal to the committee and ask for an oral defense within 4 weeks after submission of her/his dissertation proposal. After the approval of the proposal student will carry through the research project and write up the results with committee advisement.

Dissertation Guidelines

All doctoral students must complete an original investigation presented in the form of a dissertation. The dissertation must contain original research based on either primary data collection either via experimental or theoretical approach. The research work must be of publication quality, and acceptable to the committee of dissertation readers.

The traditional doctoral dissertation must follow AIP guideline which usually consists of a; a literature review; statement of the problem, specific aims, and related hypotheses, explanation of research methodology, the data collection procedure, analysis of data, presentation of results; and a discussion of findings and their implications to the field. Students also have the option of completing a manuscript-oriented dissertation as an alternative to the traditional dissertation. In the case of the second option, students should prepare three published or publishable quality manuscripts on the subthemes derived from the main dissertation topic. These three manuscripts will consist of the three chapters of the dissertation and should be accompanied by the first introductory chapter that introduces the overarching theme and one concluding chapter that synthesizes all of the findings. Students should discuss both options with their advisor before deciding on a dissertation strategy.

A satisfactory investigation and its presentation in the form of a dissertation approved by a committee complete the written portion of the dissertation requirement. The material contained in the dissertation must be of publication quality in a scientific journal(s) in the relevant field.

Pre-Proposal Submission and Approval

1) Prepare pre-proposal (2 to 3 pages)
2) Discuss and revise based on the major professor's feedback
3) Form the Dissertation Committee in consultation with the major professor
4) Distribute the approved proposal to the Dissertation Committee
5) Receive initial feedback from the committee (within 2 weeks)
6) Develop a full dissertation proposal (7-10 pages) and distribute to the committee
7) Defend the proposal, receive feedback during the defense, revise and resubmit

Dissertation Write-up and Approval

1) Continue work on the first three chapters, including introduction, literature review, & methods
2) Collect and analyze the data
3) Complete the results and discussion chapters
4) Provide major professor with various chapters (receive feedback within 3 weeks)
5) Send complete draft to the major professor (receive feedback within 2 weeks)
6) Revise accordingly and resubmit to Chair (receive feedback/approval within 2 weeks)
7) When Chair approves, send the complete and revised draft to the Committee (receive feedback within 2 weeks)
8) Incorporate others' feedback (within 2 weeks)
9) When major professor indicates that it is ready for defense, schedule a defense date.

Oral Defense of Dissertation

When the student's committee has agreed that the dissertation is ready for defense, the student should schedule the oral defense. At the defense, the student presents their dissertation work to his/her committee and all other interested persons. The dissertation defense date should be advertised in the department and the University at least two weeks prior to the defense. The dissertation defense is open to UoM faculty and students. The student and the entire dissertation committee must attend the defense. For some reason, if one of the committee members cannot attend the defense in person, she/he can attend the defense either via video, Skype, or telephone. The student presents her/his work for approximately 45 minutes followed by an open question and answer session with guests. After guests' questions are answered, they are dismissed, and the student responds to questions from their committee members. After the questioning period, the committee votes to approve or disapprove the dissertation. The total defense will last approximately 11/2 hours to two hours.

The student should bring the partially completed "Thesis/Dissertation Defense Results" form (http://memphis.edu/gradschool/form/defense.php) with her/him to their defense. Once the student has successfully defended her/his dissertation, the committee will complete the form and submit it to the graduate coordinator.

When scheduling the oral defense, the student should be mindful of the graduate school deadlines for submitting completed dissertations. The deadlines can be found at http://www.memphis.edu/gradschool/deadlines.php. The candidate's oral defense of the dissertation before a faculty committee is the final step forthe doctoral degree requirements.

GRADUATION REQUIREMENTS

Students must apply to graduate and submit the doctoral candidacy form in the semester before they plan to graduate.

Deadlines and specific instructions for filling out these forms can be found http://www.memphis.edu/gradschool/graduation.php.

Following the successful defense of the dissertation, the student should make the necessary changes/corrections suggested by his/her committee and submit one plain-paper copy of his/her dissertation to the Graduate School before the dissertation review deadline (http://www.memphis.edu/gradschool/deadlines.php.). After receiving the reviewed dissertation from the Graduate school, the student should make all the necessary changes and submit an electronic copy of his/her dissertation before the final deadline using the Electronic Thesis/Dissertation website. For detailed instructions, visit https://umwa.memphis.edu/etd/.

ASSISTANTSHIPS AND FINANCIAL SUPPORT

The Department of Physics and Materials Science is committed to seeking opportunities that provide financial support to its students. Students will also have the opportunity of being supported by individual faculty under their grants/

These graduate assistantships provide in-state tuition and a stipend in return for 20 hours of work per week with faculty in the program. A graduate assistant is a student who, under faculty supervision, performs functions related to teaching, research and/or service, and in doing so, receives valuable, practical experience. Graduate assistants (GAs) must maintain

a 3.00 GPA and be registered for at least 9 credits to retain their assistantships. Additionally, GAs must adhere to the work schedule determined jointly by the supervisor and the student at the beginning of each semester. GAs who fail to perform their duties satisfactorily may be terminated from their appointments.

ACADEMIC CONDUCT

The U of M's Code of Student Conduct defines academic misconduct as all acts of cheating, plagiarism, forgery, and falsification. The term "cheating" includes, but is not limited to: using any unauthorized assistance in taking quizzes or tests; using sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; acquiring tests or other academic material before such material is revealed or distributed by the instructor; misrepresenting papers, reports, assignments or other materials as the product of a student's sole independent effort; failing to abide by the instructions of the proctor concerning test-taking procedures; influencing, or attempting to influence, any University employee in order to affect a student's grade or evaluation; any forgery, alteration, unauthorized possession, or misuse of University documents. Academic dishonesty also includes furnishing false information to any University official, faculty member or office; and forgery, alteration, or misuse of any University document, record, or instrument of identification. See http://www.memphis.edu/studentconduct/misconduct_process.htm for specific University definitions and policies.

WITHDRAWING FROM THE PROGRAM AND LEAVE OF ABSENCE

Occasionally, students' career interests or personal circumstances change and may decide to withdraw from the program. In such circumstances, we strongly suggest that the student schedule a meeting with his or her faculty advisor and the program coordinator. In some cases, a student may benefit from a "Leave of Absence" instead of withdrawal, and student-faculty advisor can provide relevant information about this option if needed. The final decision is made by Associate Dean for Academic Programs in consultation with Ph.D. program advisor and coordinator.

ANNUAL PROGRESS REPORT FOR PH.D. STUDENTS

The student is required to complete this form each spring term. Next, the faculty advisor and student should discuss and review the information therein, and the faculty submits the form to the graduate coordinator.

Student Name: _____
Faculty Advisor: _____
Date of Review: _____
Year in the Program: _____

1. Discuss and evaluate the progress toward completion of degree requirements that has been made
in the past academic year. Please indicate if your progress is on target as specified by your program plan.

2. Discuss specific research goals for the upcoming year and how they will be accomplished. If you
will be completing your comprehensive exam or defending your dissertation, please list committee members.

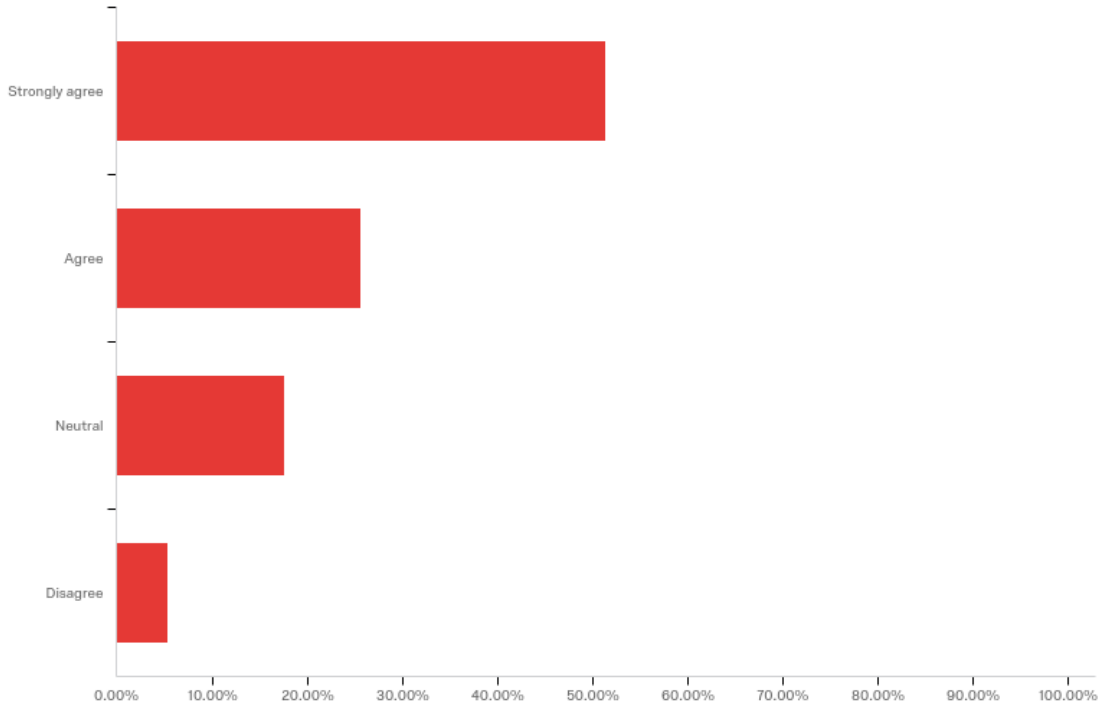
3. List any publications in the past academic year.
4. List any presentations in the past academic year.
5. List any awards or honors received in the past academic year.

Student Signature/Date_____
Faculty Advisor Signature/Date_____
PhD Program Director Signature/Date_____
Associate Dean of Academic Programs Signature/Date_____

APPENDIX I: Surveys

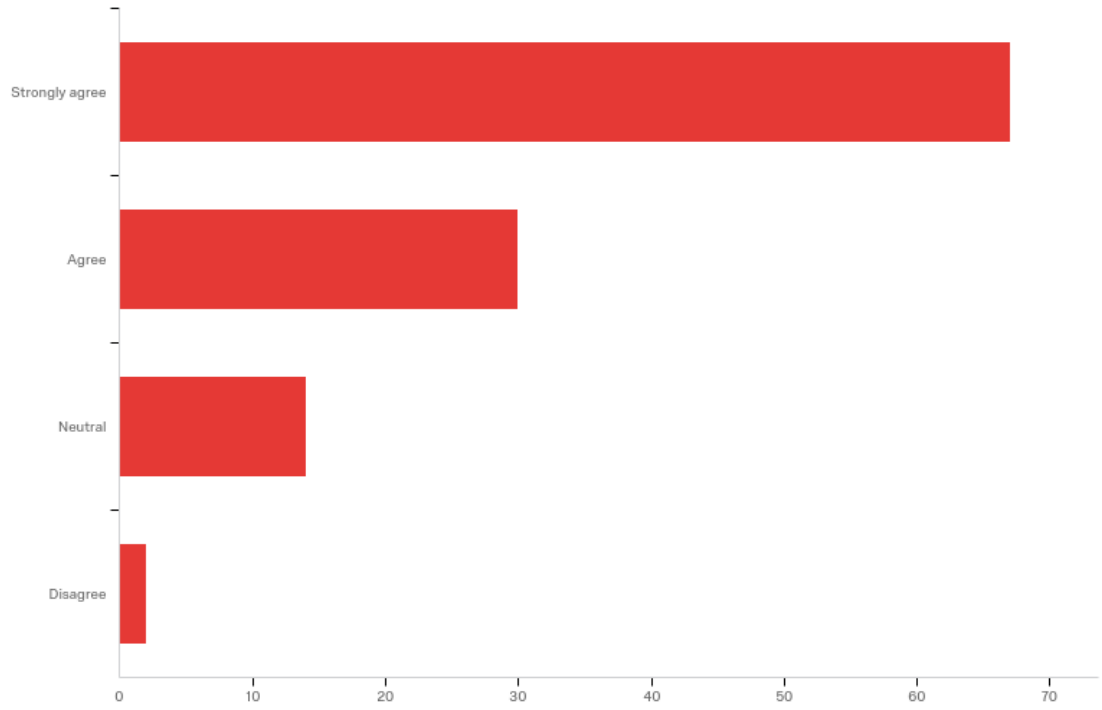
Part a. Student and alum survey

Q1- I would choose/ would have chosen to pursue a PhD degree in Applied Physics at the University of Memphis.



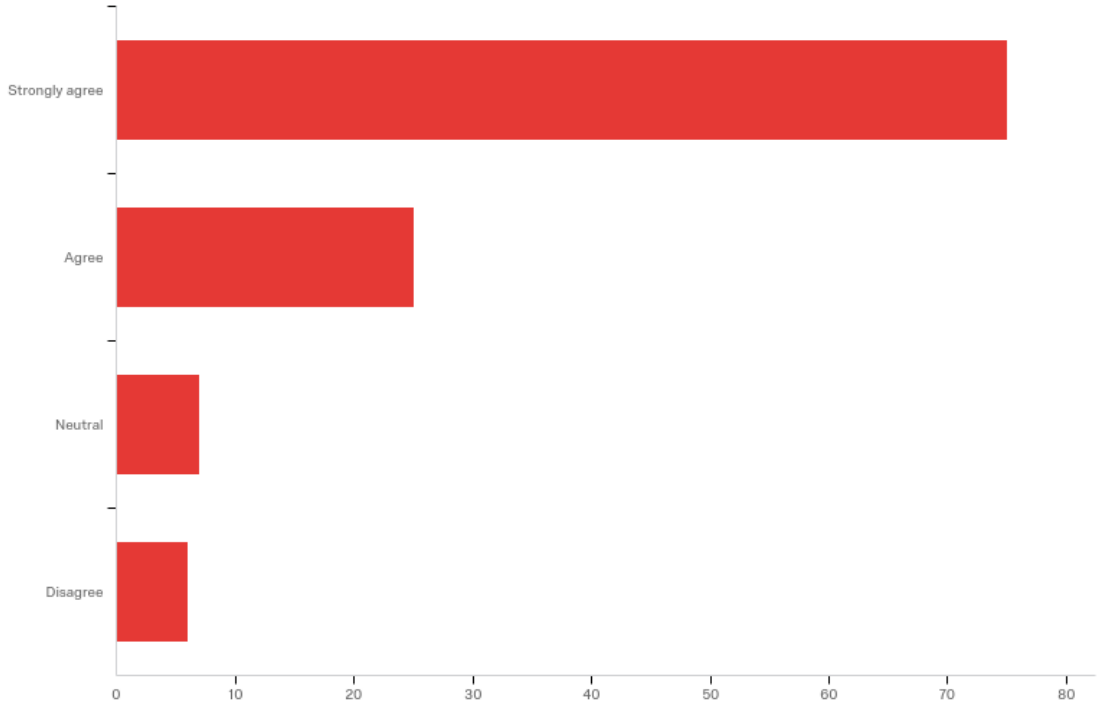
Answer	%	Count
Strongly agree	51.33%	58
Agree	25.45%	29
Neutral	17.27%	20
Disagree	5.45%	6
Total	100%	113

Q2 - A PhD degree in Applied Physics from the University of Memphis would have enhanced/ will enhance my career opportunities



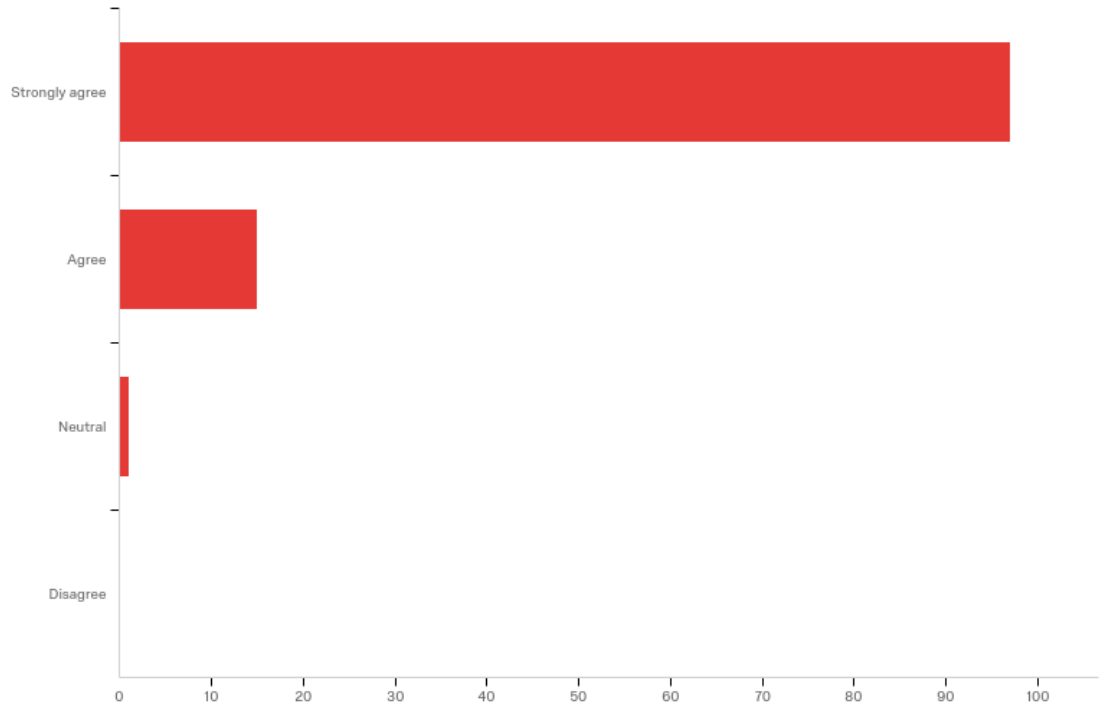
Answer	%	Count
Strongly agree	59.09%	67
Agree	27.27%	30
Neutral	11.82%	14
Disagree	1.82%	2
Total	100%	11

Q3 - The faculty of the Department of Physics and Materials Science at the University of Memphis are well qualified to run and manage a successful PhD program.



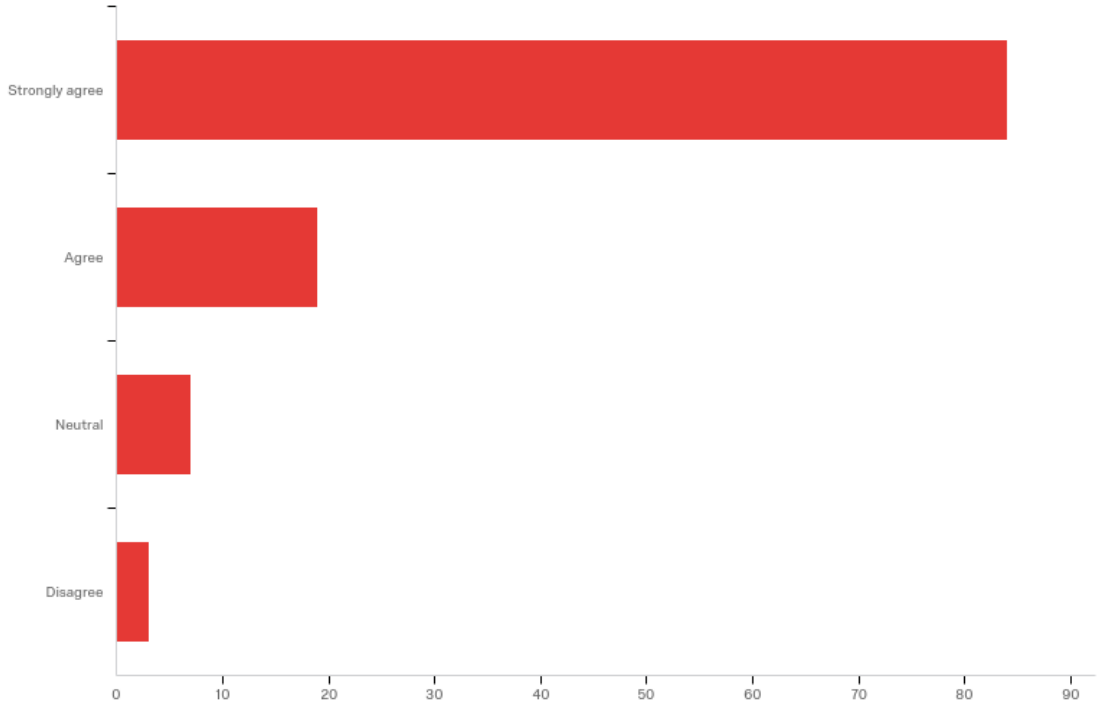
Answer	%	Count
Strongly agree	66.36%	75
Agree	21.82%	25
Neutral	6.36%	7
Disagree	5.45%	6
Total	100%	113

Q4 - A PhD program in Applied Physics at the University of Memphis would improve the university's reputation and research productivity.



Answer	%	Count
Strongly agree	85.45%	97
Agree	13.64%	15
Neutral	0.91%	1
Disagree	0.00%	0
Total	100%	113

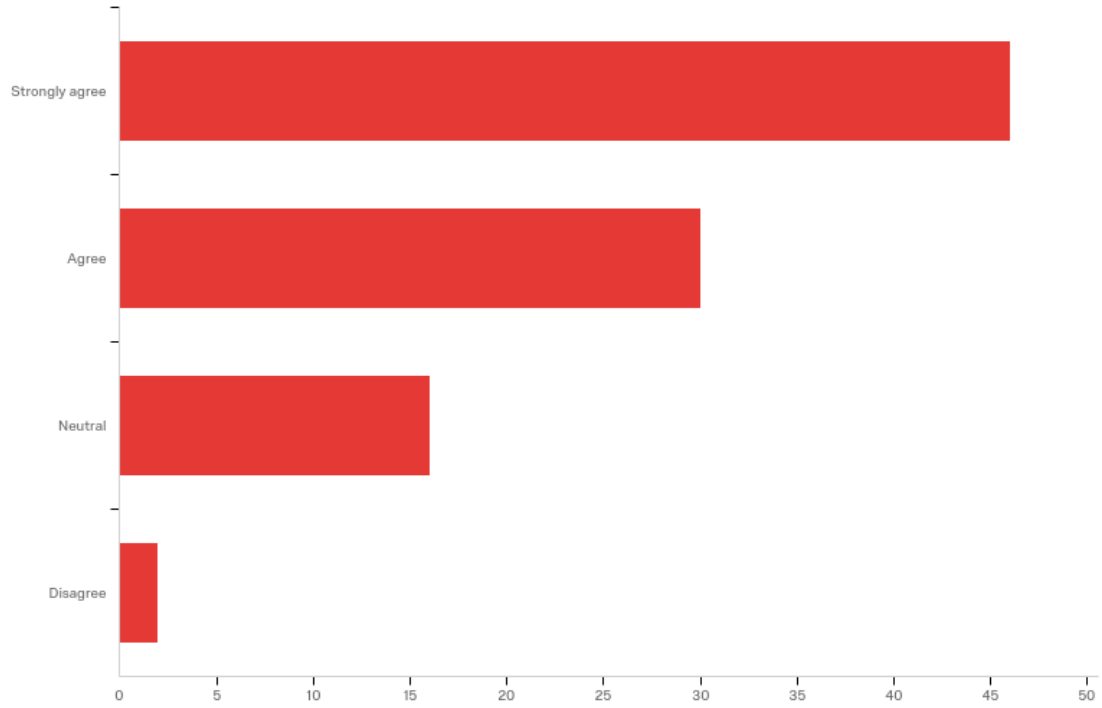
Q5 - A PhD program in Applied Physics at the University of Memphis will be beneficial for local employers (industry and education) because it will provide them with needed skilled work force, locally.



Answer	%	Count
Strongly agree	75.45%	84
Agree	16.36%	19
Neutral	5.45%	7
Disagree	2.73%	3
Total	100%	113

Part b. Employer survey

Q1 - Students graduating with a PhD in Applied Physics from the University of Memphis will help address the shortage of highly skilled scientists in STEM, as identified by The Bureau of Labor and Statistics.



Answer	%	Count
Strongly agree	48.94%	46
Agree	31.91%	30
Neutral	17.02%	16
Disagree	2.13%	2
Total	100%	94

7.2. PhD in Health Sciences

For Approval

Presentation to the Board of Trustees

The University of Memphis Board of Trustees
For Approval

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: Approval of New Academic Programs: PhD in Health Sciences

Presented by: Dr. Thomas Nenon, Provost and Executive Vice President for Academic Affairs

Background:
Among the powers given to the Board of Trustees by the FOCUS Act is the power "to prescribe curricula and requirements for diplomas and degrees." The University of Memphis has the authority to create new courses, terminate existing courses, determine course content or design, and carry out less extensive curriculum revisions. The Tennessee Higher Education Commission (THEC) must review and approve new academic programs, off-campus extensions of existing academic programs, new academic units (divisions, colleges, and schools), and new instructional locations as specified in THEC Policy No. A1:0: New Academic Programs - Approval Process and A1:1: New Academic Programs.

The School of Health Studies at the University of Memphis proposes to offer a Doctor of Philosophy (Ph.D.) in Health Sciences. The primary goal of the proposed degree program is to train candidates to both independently and collaboratively provide focused conceptual and scientific analyses within a myriad of sub-disciplines undergirding Health, Nutrition, Physical Performance and Rehabilitation Sciences. To that end, two concentrations are proposed: 1) Applied Physiology and Nutrition and 2) Performance Biomechanics. The mastery of disciplinary content and research tools, together with ongoing mentored immersion in the total research process, will result in the development of highly-coveted researchers/academic scholars by the end of their formal program of study.

The University of Memphis (UofM) strongly supports the creation of new knowledge through research and innovation and includes these in its core mission. A near-term goal of UofM is the attainment of Carnegie R1 (Doctoral University – Very High Research) status, a critical metric of which is the annual number of doctoral degree recipients. The proposed PhD program in the School of Health Studies (SHS) will allow us both to contribute to institutional attainment of Carnegie R1 classification and to increase research productivity within the School by enhancing our organizational structure, intensifying the focus of our academic culture to embrace these pursuits, and facilitating the acquisition of external funding to help support these activities. Additionally, we seek to support the local, regional, national and international medical/clinical research communities through our innovative research findings and by supplying highly-trained and focused graduates who can function well both independently and collaboratively in biomedical research settings.

This proposal has been considered and approved by the respective College or School faculty and Deans. Subsequently, the proposal was considered and approved by the University Council for Graduate Studies, which are the highest governing body that has representation across all colleges and schools. The proposal was also considered and approved by the Provost and President of the University.

Committee Recommendation:
The Academics, Research, & Student Success Committee recommends approval of the PhD in Health Sciences as contained in the meeting materials and delegates authority to the Provost to make any changes necessary to facilitate program approval by THEC.

THE UNIVERSITY OF MEMPHIS
School of Health Studies

Letter of Notification (LON) &

New Academic Program Proposal (NAPP)

Doctor of Philosophy (PhD)

Health Sciences

Proposed Implementation Date: August 2020

School of Health Studies
106 Roane Fieldhouse
Memphis, TN 38152

Richard J. Bloomer, PhD
Dean

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THE UNIVERSITY OF MEMPHIS

MEMORANDUM

TO: Dr. M. David Rudd
President, University of Memphis

FROM: Dr. Richard Bloomer
Dean, School of Health Studies

DATE: March 22, 2019

SUBJECT: Ph.D. in Health Sciences

President Rudd, attached is a proposal for the Doctor of Philosophy (Ph.D.) in *Health Sciences* with concentrations in 1) *Applied Physiology and Nutrition* and 2) *Performance Biomechanics*. The program was approved fall 2018 by the University Council for Graduate Studies. The proposal conforms to the THEC format for their required Letter of Notification.

With the University seeking to attain Carnegie I status in the very near future, implementing a new doctoral program in *Health Sciences* supports this effort by increasing STEM-based Ph.D. graduates. Expanding beyond the existing master's programming would also improve the existing strong research culture in the School of Health Studies by enhancing external funding efforts, scholarly productivity, and graduate student enrollment. Since doctoral students typically have comparatively more extensive training prior to entering the program and/or will be present for a substantially longer period of time than master's students, faculty will require less time to retrain new students. Therefore, considerably more scholarly productivity can emanate from each of our existing research laboratories resulting in enhanced prospects for the acquisition of external funding to support further research. Furthermore, an in-house Ph.D. program would enable us to expand our graduate enrollment partially by tapping into our own pool of aspiring students currently unable to pursue more advanced study within the School of Health Studies. The summation of these positive changes will support the University's efforts to attain Carnegie I status.

Our master's programs currently serve local, regional, national, and international clientele in STEM areas, but a Ph.D. program would enhance this level of service. For example, several local institutions need highly-trained individuals to work in various medical/clinical research settings. For those seeking to leave the

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Memphis area, numerous academic, research, and industry positions are available throughout the United States. Finally, since international opportunities for advanced training in this area are limited, the proposed Ph.D. program will address this need.

The research- and service-based rationales for the proposed Ph.D. in *Health Sciences* are substantial. Thank you for considering this proposal. We look forward to hearing from the Board of Trustees and THEC regarding its status.

Cordially,

Richard J. Bloomer, Ph.D.
Dean
School of Health Studies

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Letter of Notification (LON) and
New Academic Program Proposal (NAPP) Checklist Policy A1.0
New Academic Programs: Approval Process

Program name, degree designation and CIP codes:

Ph.D. in Health Sciences *CIP Code: 26.9999*

Concentrations:

Applied Physiology and Nutrition *CIP Code: 30.1901*

Performance Biomechanics *CIP Code: 26.0908*

Proposed implementation date:

Fall 2020

Implementation timeline:

Provide a timeline which includes the following items:

- **Accreditation considerations for professional disciplinary accreditation organizations and/or SACSCOC, if applicable**

  The School of Health Studies undergoes periodic program review as prescribed by THEC and SACSCOC. In addition, four professional organizations are associated with this program as follows:

  - *American College of Sports Medicine (http://acsm.org/)*
  - *American Physiological Society (https://www.linkedin.com/company/american-physiological-society)*
  - *American Society of Biomechanics (http://www.asbweb.org/about-asb/)*
  - *National Strength and Conditioning Association (https://www.nsca.com/)*

  None of these organizations specifically endorses or accredits doctoral programs currently.
- **Proposed dates for the external judgment site visit – September 2019**
- **Estimated date of submission of the external review report to THEC and the institution (within 30 days after the site visit) – October 2019**
- **Estimated date of institution's response to external review (within 30 days upon receipt of external reviewer report) – November 2019**
- **Proposed date of the institutional governing board meeting the new academic program would be considered for approval**

  The Health Sciences PhD program proposal was approved by the University of Memphis Board of Trustees on June 5, 2019. The Provost will submit a final letter of approval following the report and updates from the external reviewers.

- ***Proposed date of the THEC meeting for the academic program to be considered for Commission approval. –*** *May 2020*

Academic Program Liaison (APL) names and contact information – The APL will serve as the information resource on academic approval actions and notification for the institution.

Robin Poston, Ph.D.
Professor, Dean of the Graduate School
The University of Memphis
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Background concerning academic program development – *Provide a short narrative describing the circumstances that sparked the initiation and development of the proposed academic program.*

In 1993, all undergraduate and graduate programs in the Department of Human Movement Sciences and Education (now the School of Health Studies [SHS]) were replaced. At the graduate level, an emphasis in research was initiated, laboratories developed, and faculty systematically hired to support this change in the academic culture. The research program in the SHS has grown considerably over the past few years in terms of faculty and laboratory capabilities, as well as research productivity (external funding and publications). Unfortunately, a master's program, even one with a research orientation, has limited capabilities due to the short stay of graduate students and the constrained potential of faculty to obtain external support for research activities. Such limitations can negatively impact the tenure potential of newly-hired, research-focused faculty as well as the retention of highly-productive ones. Also, since the University of Memphis is striving to attain and then maintain Carnegie RI status, the addition of a new unique Doctor of Philosophy (Ph.D.) program, one with a STEM designation, will strongly support this endeavor.

Purpose and Nature of Program

The School of Health Studies at the University of Memphis proposes to offer an on-ground Ph.D. in Health Sciences. Prospective students from around the world will be attracted to the research output emanating from faculty and students in this program and will desire being mentored by one or more of its faculty members. The primary goal of the proposed degree program is to train degree candidates to both independently and collaboratively provide focused conceptual and scientific analyses within a myriad of sub-disciplines undergirding Health, Nutrition, Physical Performance, and Rehabilitation Sciences. To that end, two concentrations are proposed: 1) Applied Physiology and Nutrition and 2) Performance Biomechanics. The mastery of disciplinary content and research tools, together with ongoing mentored immersion in the total research process, will result in the development of highly-coveted researchers/academic scholars by the end of their formal program of study. For those anticipating an academic career, undergraduate teaching opportunities will be provided whenever possible.

Alignment with state master plan and institutional mission – Explain how the proposed academic program is consistent with the state's economic development, workforce development and research needs (as applicable) as well as the mission and strategic direction statement of the institution.

The University of Memphis has six published Strategic Priorities. Of those, the proposed Ph.D. in Health Sciences directly addresses the following three:

1) *Investing in people;*
2) *Enhancing image and reputation;*
3) *Developing new resources.*

Although state and local students will be recruited for the two program concentrations, a substantial proportion of the students will come from outside of the state of Tennessee and from outside of the United States. This will be the case because we expect to attract students wishing to be mentored by talented faculty pursuing unique lines of research. The net effect of this will be a diverse student population that characterizes a world-class university.

The image and reputation of the University of Memphis will be enhanced by initiating a Ph.D. program in Health Sciences. It will increase faculty research productivity based on the increased length of stay of better-trained graduate students, the infusion of post-doctoral students, the increased acquisition of external support, the increased length of stay by highly-productive faculty wishing to work with doctoral students, and the increased time devoted to research by those delivering the respective programs. Collectively, the implementation of this new program will further enhance the University of Memphis as a destination of choice for students and faculty alike.

Increased external funding potential is a logical off-shoot of this Ph.D. program based on increased research output and increased expectations of faculty to pursue such support. The enhanced exposure from increased research output will create demand for better students wishing to train under our doctoral mentors. Better students will result in even greater research output and notoriety for the program, all of which will increase the likelihood of participating faculty obtaining external support.

Once the new program comes on line, the establishment of interdisciplinary initiatives and productive partnerships (two other strategic priorities of the University) are logical components of "phase two" in the process of creating a world-class operation.

Institutional capacity to deliver the proposed academic program – Address how the proposed program will impact the overall capacity of the institution, including potential lost enrollment to other majors/programs, collaborative agreements between departments, etc.

The proposed Ph.D. in Health Sciences is a STEM program that is unique on the University of Memphis campus thereby resulting in a net increase in doctoral students and graduates. By the end of the seventh year of operation, we anticipate annually graduating no less than six students. Faculty are presently in place to deliver this new program.

Feasibility Study – Provide supporting documentation addressing:

- **Student interest for the proposed academic program.**
- **Local and regional need/demand for the proposed academic program.**
- **Employer need/demand as demonstrated in a market analysis or similar evidence of the employer need and an assessment of the employment opportunities of the program (i.e., number of anticipated job openings) in appropriate service area(s) demonstrated through an employer needs assessment, current labor market analysis, future workforce projections**

during the first 7 years (doctoral programs).

- **Future sustainable need/demand as evidenced in letters from employers of increased need, preference for proposed degree, willingness to pay increased salaries for proposed degree, and that the demand for graduates is sustainable, i.e. exceeds beyond the three years of the program, if approved.**

Institutional Need for the Program

The University of Memphis (UofM) strongly supports the creation of new knowledge through research and innovation and includes these in its core mission. A near-term goal of UofM is the attainment of Carnegie R1 (Doctoral University – Very High Research) status, a critical metric of which is the annual number of doctoral degree recipients. The proposed PhD program in the School of Health Studies (SHS) will allow us both to contribute to institutional attainment of Carnegie R1 classification and to increase research productivity within the School by enhancing our organizational structure, intensifying the focus of our academic culture to embrace these pursuits, and facilitating the acquisition of external funding to help support these activities. Additionally, we seek to support the local, regional, national and international medical/clinical research communities through our innovative research findings and by supplying highly-trained and focused graduates who can function well both independently and collaboratively in biomedical research settings.

The overarching research focus in the School of Health Studies involves the improvement of human health through understanding dietary, physical activity, and behavioral effects on the organism from the subcellular level to the population level. Scholarly output, almost exclusively collaborative, has been exceptional for a School having only two research-intensive master's programs: 1) Exercise, Sport and Movement Sciences and 2) Nutrition Science. The following established lines of research exist pertaining to Health Sciences:

- *Aging & immunity – B. Pence*
- *Aging & motor skill acquisition/retention – Y. Li*
- *Aging & Parkinson's Disease – D. Powell*
- *Skeletal muscle biology in health and disease – M. Puppa*
- *Concussion protocol evaluation and implications – D. Powell*
- *Development and evaluation of structural and functional measures/protocols related to physical performance and injury predisposition – M. Paquette, D. Powell, L. Weiss*
- *Gait disorders, obesity/osteoarthritis and musculoskeletal injuries – M. Paquette*
- *Healthy behavior assessment & intervention – B. McClanahan and M. Stockton*
- *Dietary components and immune-associated metabolic dysfunction – M. van der Merwe*
- *Nutraceutical interventions & oxidative stress – R. Bloomer, K. Martin*
- *Nutritional strategies and cardio-metabolic health – R. Bloomer*
- *Substance use prevention for vulnerable youth – J. Okwumabua*
- *Structural & functional musculoskeletal attributes contributing to physical performance – L. Weiss*

As our population ages, society will need to deal increasingly with the deleterious effects of aging on physical mobility and lifestyle independence. Data from the Shelby County Community Health Assessment (2015) indicate numerous health problems and health disparities are

disproportionately represented among vulnerable populations. Cardiovascular disease, for instance, has a host of behavioral risk factors such as sedentary lifestyles and concurrent musculoskeletal/neuromuscular disorders. In addition, physical inactivity, sleep deprivation, and the ready availability of heavily-processed foods contribute to the development of obesity, which may result in myriad further negative health-related consequences. Obesity and its devastating consequences have reached alarming levels. More than 33% of Shelby County residents are considered obese, 13% are diabetic and 6% are pre-diabetic. While the etiology of obesity is complex, physical inactivity and poor lifestyle choices (specifically, nutritional intake) play primary and fundamental roles. This is no different across the state of Tennessee, with very similar figures noted for both obesity and diabetes, and a heart disease rate projected to reach 1.9 million cases by 2030.

Due to existing laboratories and established unique lines of inquiry by current and recent faculty in the School of Health Studies, an excellent research culture and scholarly notoriety pre-exist, so most of the necessary ingredients for a successful program are pre-positioned. Unfortunately, our research efforts are currently constrained by the brief duration of the master's program of study and the paucity of prior training by many students attempting to contribute to laboratory activities. Even so, we promote the professional sharing of their mentored research endeavors through peer-reviewed publications and presentations at national conferences exceeding that of many of our peers. (Please see Appendices E and F) However, once our master's students are technically trained and have gained reasonable insight into the research process, their program of study is soon completed, and they leave the University. Therefore, we spend a great deal of time training new master's students—a process that is inefficient in terms of overall research productivity.

Further, the absence of a terminal degree program limits faculty opportunities for acquiring external research support due to a lack of student research experience and their limited ability to provide sustained support for a line of research inquiry. The increasing need for external funding is a fact of life in graduate programs and laboratory research today. Absent a research-based doctoral program, our faculty will continue to be constrained and their productivity hindered. Accordingly, research-based service to the state of Tennessee and Mid-South region will be concomitantly constrained.

We expect our Ph.D. to have a global appeal. Consequently, a major impact of this program will be a sustained influx of highly-trained individuals from around the world who will enrich the campus and local Memphis communities.

Student Interest for the Proposed Program

Numerous students in the master's programs (and undergraduate program to a lesser extent) in Exercise, Sport and Movement Sciences and in Nutrition Science were effectively mentored in scientific research processes while here. Although we support students having a variety of academic exposures during their training, there are occasions when all graduate training would be best coming from one institution. Unfortunately, master's students here have previously not had that opportunity. Several letters from previous students attest to this and support our having a doctoral opportunity for future students. (Please see Appendices A and B)

Local and Regional Demand for the Program

The closest public institution in our region with a similar degree is 70 miles away at the University of Mississippi in Oxford, Mississippi (Health and Kinesiology), whereas the closest public institution in the state of Tennessee is 250 miles away at Middle Tennessee State University in Murfreesboro, TN (Human Performance). Although these programs are focused on the same broad disciplines, the specific program emphases and research foci are far different, with our program having more relevance to the study of human disease, in particular utilizing cell culture, animal, and human models. Although the educational atmosphere associated with the U of M's Master's programs in Exercise, Sport and Movement Sciences and Nutrition Science, as well as the activities of their participating faculty members represent a scholarly culture characteristic of a very good doctoral program, the U of M currently functions as a feeder program for other institutions with doctoral training opportunities, almost all of which are outside the state of Tennessee.

The goal of the Health Sciences PhD program will be to prepare researchers who can investigate various health problems and develop evidence-based interventions and solutions that can be translated into solving real world problems. Various PhD programs exist in Tennessee that focus on health outcomes, but most either focus on the Molecular/Biochemical/Pharmaceutical programs (UTHSC), Sport Science (ETSU), Exercise Science (UTK), or Human Performance (MTSU). UTK has a Nutrition Science program as part of the Molecular and Cellular Biology program. This program had 12 applicants for the Fall of 2017, of which only four were accepted. Additionally, other PhD programs in Tennessee and University of Memphis academic peers with programs in exercise science and nutrition have an average acceptance rate ranging from 25-33%. (UTHSC PhD program in Biological Sciences had 88 applications for Fall 2017 and only accepted 28). Collectively, this demonstrates that a need for additional advanced health-related science programs exists, in the areas of Applied Physiology/Nutrition Science and Performance Biomechanics.

Employer Demand for the Program

A PhD in Health Sciences provides career opportunities in multiple sectors with different areas of specialization. The proposed doctoral program will address the increasing need for highly-skilled and trained individuals with advanced degrees in the health sciences and healthcare industries. The following are examples of employment opportunities that already exist locally, statewide, nationally, and internationally. (Please see Appendix C)

Academics

Tenure-track professors
Non-tenure-track lecturers, post-doctoral fellows, and staff research scientists
Cooperative extension
K-12 Education

Government (federal, state, county, city)

Public Health and Regulatory Agencies (NIH, USDA, FDA)
Government Research Agencies
Administration and management

Public policy and legislation associated with healthcare

Healthcare Services

Consultants

Worksite wellness

Industry

Research and Development

Clinical protocol development and supervision

Administration and Management

Trade Associations

Private practice

Consulting, counseling, grant writing

Small business development

International organizations

Consulting

Research collaborations

Media

Public relations

Scientific Writing

Publishing

Additional opportunities and typically higher salaries are available for individuals who combine a PhD degree with another specialization such as physician (MD or DO) or physician assistant (PA), nurse practitioner (DNP), veterinarian (DVM), dentist (DDS), physical therapist (DPT), occupational therapist (OTD), MBA, JD, among others. These other programs are available in Memphis or in Tennessee.

Future Sustainable Demand for the Program

The combination of age- and obesity-related infirmities and health issues threatens to overwhelm our healthcare system. The implications for and applications of research conducted in the School of Health Studies address a wide variety of global issues that are especially relevant locally, ranging from musculoskeletal/neuromuscular morphology and physiology, to the biomechanics of motor performance, to cardiorespiratory physiology, to endocrinology, to aging, to the effects of various health-related interventions, i.e., exercise and/or nutritional strategies and dietary supplements.

Corroborating this outlook, the U.S. Bureau of Labor Statistics predicts increased employment of healthcare practitioners/technicians and support occupations (16.4% and 23%, respectively) between 2014 and 2024 (Employment by Major Occupational Group, 2014 and Projected 2024. Bureau of Labor Statistics). Much of this increase will be driven by increasing diagnoses of chronic diseases associated with aging and obesity. Moreover, 2012-14 data for Memphis (Shelby County Community Health Assessment (2015)) indicate numerous health problems and health disparities are disproportionately represented among vulnerable populations. Cardiovascular disease, for instance, has a host of behavioral risk factors such as sedentary lifestyles which typically accompany musculoskeletal/neuromuscular disorders. In addition, physical inactivity and the ready availability of processed foods contribute to the development of obesity, which may result in myriad further negative health-related consequences. Memphis

has a noteworthy problem with obesity at all ages. The combination of age- and obesity-related infirmities and health issues threatens to overwhelm our healthcare system. Our research addresses global issues associated with musculoskeletal/neuromuscular morphology, physiology, and mechanics as related to motor performance, health, and fitness. The implications for and application of our work are especially relevant locally.

Program Costs/Revenues – Provide supporting documentation that program costs will be met from internal reallocation, tuition and fees or from other sources such as grants and gifts.

The University uses a Strategic Resource Initiative (SRI) model to fund each academic unit's expenses with revenue generated via tuition money from its own students as well as supportive resources (e.g., F&A research funds, incentives for student retention and degree completion). Since the School of Health Studies is "revenue positive," it is well positioned to support the tuition, fees and a competitive stipend (salary) for a minimum of five (5) doctoral research/teaching assistants each year. External funding will support additional students. A small contingent of full- and/or part-time students will pay tuition and fees. Please see attached THEC Financial Projections, Appendix I.

Existing programs offered at public and private Tennessee institutions – List all programs within the same CIP code definition at the same level (bachelor's, Master's, doctoral) currently offer in public and private higher education in Tennessee.

Doctoral programs in the state of Tennessee with this CIP code are Middle Tennessee State University (Human Performance), University of Tennessee Knoxville (Kinesiology and Sport Studies), and East Tennessee State University (Sport Physiology and Performance).

Middle Tennessee State University has a Ph.D. program in Human Performance including concentrations exercise science, health, kinesmetrics, kinesiology, leisure & sport management, and physical education. The primary foci of these areas are physical activity and metabolism, community and public health, measurement theory, and pedagogical skills related to teaching physical activity.

University of Tennessee Knoxville offers a Ph.D. in two concentrations: Kinesiology and Sport Studies with specializations in Biomechanics, Exercise Physiology, Physical Activity Epidemiology, and Sport Psychology and Motor Behavior. The Biomechanics specialization offers research foci in biomechanical mechanisms of knee osteoarthritis and anterior cruciate ligament (ACL) injuries. The Exercise Physiology specialization offers research foci on applied physiology including the influence of exercise and physical activity in pediatric populations, reliability and validity of activity trackers and, applied sports physiology in non-athletes. No basic science (e.g., cell culture—mechanistic) research is being conducted by faculty members or students in these specializations.

East Tennessee State University has two concentrations including sport physiology and sport performance. The primary goal of this program is to produce research to be applied to coaching and sport performance.

Our proposed program is unique with two major concentrations including: 1) ***Applied Physiology and Nutrition*** *and 2)* ***Performance Biomechanics****. Our* ***Applied Physiology and Nutrition*** *(APAN) concentration offers a wide array of foci from nutritional sciences to molecular physiology in healthy and diseased states. Our program is unique in Tennessee in its focus on the impact of physiological stimuli (nutrition, physical activity, etc.) on human health and disease at the subcellular, cellular, and organismal levels. We also have a strong focus on health across the lifespan, with faculty engaged in research targeting health and disease from youth to old age. Several major themes in faculty research include metabolism, immune function and inflammation, and nutritional health interventions with collaboration amongst investigators being the norm. External funding in our School over the past five years has been almost exclusively focused in these areas, while the number of peer-reviewed publications has been close to 15 each year. The* ***Performance Biomechanics*** *(BIOM) concentration is unique in Tennessee in its focus on both health and sports-related biomechanics research. Specifically, our research foci include applied biomechanics in athletes, older adults, obese populations, Parkinson's Disease patients, and young adults. Our biomechanics faculty are highly productive in publishing peer-reviewed scientific articles (e.g., 25 articles since January 2016), obtaining research funding (e.g., 5 grants in 2017), supervising undergraduate (e.g., 5 in 2017), and masters student research (e.g., 10+ since 2015), serving on dissertation committees (e.g., 5 since 2016) and, presenting research abstracts at national and international conferences (e.g., over 75 since 2012). Our program will offer students outstanding training with numerous biomechanical research techniques including motion capture, force measurements, muscle activity, individual joint strength measures, foot pressures, body accelerations, musculoskeletal imaging using diagnostic ultrasound, computer programming and advanced biomechanical data analyses. Students will also be provided with opportunities to complete research projects from private industry companies including validation of instruments, testing of sports or orthopedic equipment/footwear and training equipment. Finally, research involvement within the Human Performance Center (formerly, the Sport Performance and Health Consulting Center [SPAHCC]) will help students to bridge the gap between laboratory-based research and athlete and/or client centered research applications.*

ALL ITEMS INCLUDED IN LETTER OF NOTIFICATION

- **CURRICULUM - An adequately structured curriculum which meets the stated objectives of the academic program, and reflects breadth, depth, theory and practice appropriate to the discipline and the level of the degree.**

The proposed Ph.D. program in Health Sciences includes two potential entry points and two concentrations:

1) ***Post-Bachelors (requires a minimum of 81 semester credit hours for completion)***
2) ***Post-Masters (requires a minimum of 45 semester credit hours for completion)***

DEGREE & MAJOR:

1) ***Ph.D. in Health Sciences (HLSC)***

CONCENTRATIONS:

1) ***Applied Physiology and Nutrition (APAN)***
2) ***Performance Biomechanics (BIOM)***

Note: Please see detailed program in Appendix D.

LEARNING OUTCOMES

Depending upon the concentration-specific program of study in Health Sciences, graduates will:

- *Exhibit an integrated understanding of biological, physiological, and physical sciences in either APAN or BIOM;*
- *Demonstrate professional conduct and behaviors consistent with legal and ethical practice in teaching and/or research in APAN or BIOM;*
- *Display cultural sensitivity, compassion and respect in all interactions with fellow professionals, administrators, students, clients, and others;*
- *Promote a preventative health and wellness mindset for clients/students to reduce and prevent disease within the scope of APAN or BIOM;*
- *Effectively communicate with lay and professional audiences using electronic, written, and oral means;*
- *Use evidence together with quantitative and qualitative reasoning to systematically solve problems and develop interventions relevant to APAN or BIOM;*
- *Collect and critically evaluate data and published scientific literature to apply in instructional and research settings;*
- *Demonstrate effective leadership in supervision, delegation and mentoring within the profession of APAN or BIOM;*
- *Effectively mentor students and colleagues;*
- *Demonstrate appropriate levels of independence and judgement necessary for successful engagement in teaching and research settings;*
- *Critically evaluate a focused line of human movement research to design and implement research activities to confirm/generate disciplinary knowledge;*
- *Effectively contribute to a focused line of research inquiry both as a leader and collaborator;*
- *Incorporate meticulous and ethical practices during data-collection and analysis activities.*

CURRICULUM OVERVIEW <u>Post-Bachelor's</u> *(Pursued until master's degree awarded; after which, the post-master's program is to be completed)**:***

Major Field Core:

Research/Statistics Course Requirements:

Committee-approved 7/8000-level PUBH/EDPR/ESMS/HMSE courses or equivalents (8000-level cognate if available) *12 hours*

***Major Field Requirements**:*

Committee-approved 7/8000 graduate courses (8000-level cognate, if available) *12-18 hours*

Electives: *Relevant courses approved by the Major Professor:* *0-6 hours*

Other Courses:

HMSE 7996 (Thesis) *6 hours*

OR

**ESMS/NUTR 7950 (Applied Project)* *6 hours*

Total = 36 hours

**A first-authored (by the student) published refereed journal article, presenting "original research" in the field and not simply a review of literature, together with an oral presentation and defense of it may be used to satisfy requirements for ESMS/NUTR 7950 with approval by the Doctoral Advisory Committee. Students must also either enroll in ESMS/NUTR 7950 or complete the equivalent credit-by-exam in this scenario. This work is in addition to that required for Residency and Professional Scholarship.*

CURRICULUM OVERVIEW Post-Master's:

Major Field Core:

Research/Statistics Course Requirements:

*Committee-approved 8000-level PUBH course or equivalent** *6 hours*

**Post-Master's students who have not satisfied the Post-Bachelor's research/statistics course requirements are required to successfully complete those courses during the first year of their doctoral program. Those credit hours will not count toward the minimum credit hours specified for Post-Master's program.*

Major Field Requirements:

Committee-approved 7/8000-level courses *18 hours*

Electives: *Relevant courses approved by the Major Professor:* *6 hours*

Other Courses:

Dissertation: *15 hours*

Total = 45 hours

Note: Completion of an Applied Project or Thesis is an additional requirement for Post-Master's students who have not already done so.

- **Program Requirements – Include the minimum number of SCH overall, required curriculum (course prefix and number, title, SCH) and any special requirements including theses, internships.**

ACADEMIC STANDARDS – The admission, retention and graduation standards should be clearly stated, be compatible with institutional or governing board policy, and encourage high quality.

Admission, Retention, and Graduation Requirements:

1. *Admission: Applicants to the Ph.D. program will be evaluated twice a year. For optimal consideration, completed application packets should be received by April 1 for fall semester admission and October 1 for spring semester admission. Multiple criteria will be used when considering applicant admission, including, but not limited to, undergraduate and graduate grade point average, GRE scores, personal goals statement, relevant employment history, letters of recommendation, personal interview (for finalists), and the presence of a willing Graduate Faculty mentor. After the program admissions committee screens written application materials finalists will be interviewed by no fewer than two Graduate Faculty in the program area. The number of students admitted to the Ph.D. program will depend on the availability of appropriate faculty supervision. Admission forms will be available via the University of Memphis Graduate School web site. The completed application must include:*
    A. *Letters of recommendation from at least three people familiar with the applicant's academic background and aptitude for graduate work that specify in detail the applicant's capabilities and disposition for graduate study as well as for future performance and scholarship.*
    B. *A written statement by the prospective candidate of 500-1000 words indicating the intended concentration and area of focus in the HLSC program, the applicant's present interests and career goals, research and applied interests, and prior research and applied experience.*
2. *Retention:*
    A. *Students who have been admitted to the program on the condition that they complete prerequisite course work must make satisfactory progress toward this goal each semester of enrollment. Failure to make satisfactory progress may result in dismissal from the program.*
    B. *As per Graduate School policy, students are required to maintain an overall grade point average (GPA) of at least 3.00 for all graduate coursework. Failure to maintain the minimum GPA is considered sufficient cause for dismissal from the program. In addition, a student whose GPA falls below 3.0 is ineligible for a graduate (teaching, administrative, or research) assistantship.*
    C. *Students will be permitted two (2) grades of 2.00 (C) in courses required in the student's approved program of study. Students will be evaluated by Graduate Faculty in the student's concentration area at the end of the semester in which a third grade of 2.00 (C) or lower is earned for possible dismissal from the program.*
3. *Graduation Requirements: Credit Hours: A minimum of 81 hours of graduate credit beyond the Bachelor's degree and 45 hours beyond the Master's degree. The overall GPA required for graduation, computed on all graduate level courses completed whether they are listed on the candidacy form,*

must be no less than 3.00. Graduate courses at the 6000-level may not be applied toward the official program of study.

A. *Research Core:*

Post-Bachelor's (12 credit hours). Research core courses required prior to receiving the master's degree are listed below.

HMSE 7010 Research Methods in Health Studies (3 hrs.)
ESMS 8020 Publications/Proposals in Health & Biomedical Sciences (3 hrs.)
PUBH 8150 Biostatistical Methods I (3 hrs.)
PUBH 8152 Biostatistical Methods II (3 hrs.)

Post-Master's (6 credit hours). Research core courses will be planned with and approved by the Doctoral Advisory Committee with the courses listed below serving as suggestions. Doctoral candidates with a master's degree who have not successfully completed the Post-Bachelor's research core (or its equivalent) must complete the missing course(s) as prerequisites to enrolling in any of the Post-Master's research core courses. These prerequisite courses will not be included in the student's program of study. Those who have previously satisfied all or a portion of these requirements may substitute other research design or statistics courses to fulfill the credit-hour requirement at the discretion of the Doctoral Advisory Committee. (Prerequisites: PUBH 8152 or equivalent)

EDPR 8512 Psychometric Theory and Educational Application (3 hrs.)
EDPR 8543 Research Design and Analysis (3 hrs.)
EDPR 8544 Applications of Multiple Regression in Educational Research (3 hrs.)
EDPR 8547 Sampling Designs and Survey Research Methods (3 hrs.)
EDPR 8549 Multivariate Methods in Education (3 hrs.)
PUBH 8305 Quantitative Methods for Reviewing Research (3 hrs.)
PUBH 8308 Applied Multivariate Statistics (3 hrs.)
PUBH 8309 Applied Survey Analysis in Public Health (3 hrs.)
PUBH 8310 Mixed Model Regression Analysis (3 hrs.)
PUBH 8311 Applied Categorical Data Analysis (3 hrs.)

B. *Major Field:*

Post-Bachelor's (12 credit hours). Post-baccalaureate doctoral candidates without the master's degree must complete the following courses within the APAN or BIOM concentrations, respectively:

EITHER:
ESMS 8123 Mechanical Analysis of Motor Skills (3 hrs.)
ESMS 8163 Adv Motor Learning or ESMS 8255 Anatomy of Motor Control (3 hrs.)
ESMS 8201 Physiology of Exercise: Musculoskeletal Aspects (3 hrs.)
ESMS 8202 Physiology of Exercise: Metabolic/Cardiorespiratory Aspects (3 hrs.)
OR
NUTR 8100 Introduction to Wet Lab Methods in Health Studies (3 hrs.)
NUTR 8152 Problems in NUTR (3 hrs.)
NUTR 8412 Cellular Nutrition I (3 hrs.)
NUTR 8422 Cellular Nutrition II (3 hrs.)

Post-Master's (24 credit hours). Post-master's doctoral candidates will successfully complete a minimum of 24 hours of coursework designated by the Doctoral Advisory

Committee and may include any of the following as well as courses from different academic programs. Twelve of the 24 credit hours must be ESMS/NUTR 8081 (Supervised Research). Although additional hours of this course may be taken, a maximum of 12 will count toward the program of study. Completion of an Applied Project (6 hrs.) or Thesis (6 hrs.) is an additional requirement for Post-Master's students who have not already done so.

ESMS/NUTR 8081 Supervised Research ((1-6 hrs.) 12 credit hours must be accumulated))
ESMS 8133 Current Readings in ESMS (3 hrs.)
ESMS 8210 Analysis of Muscle Function (3 hrs.)
ESMS 8220 Adv Considerations of Skeletal Muscle Structure & Function (3 hrs.)
ESMS 8230 Exercise Endocrinology (3 hrs.)
ESMS 8240 Atherosclerosis & Cardiovascular Disease: Pathophysiology & Interventions (3 hrs.)
ESMS 8250 Motor Control: A Behavioral Emphasis (3 hrs.)
ESMS 8255 Anatomy of Motor Control (3 hrs.)
ESMS 8532 Research Methods in Sport Neuromechanics (3 hrs.)
ESMS 8542 Advanced Kinesiology (3 hrs.)
HPRO 8732 Randomized Clinical Trials in Health & Movement Sciences (3 hrs.)
PUBH 8170 Epidemiology in Public Health (3 hrs.)
NUTR 8000 Sport Nutrition (3 hrs.)
NUTR 8001 Nutraceuticals & Dietary Supplements (3 hrs.)
NUTR 8002 Exercise & Nutrition Immunology (3 hrs.)
NUTR 8100 Intro to Wet Lab Methods in Health Studies (3 hrs.)
NUTR 8412 Cellular Nutrition I (3 hrs.)
NUTR 8422 Cellular Nutrition II (3 hrs.)
NUTR 8452 Comparative Digestion/NUTR (3 hrs.)
NUTR 8454 Molecular Nutrition (3 hrs.)

C. *Residency & Professional Scholarship Requirement: The doctoral candidate must be enrolled for a minimum of 9 credit hours on The University of Memphis main campus for each of two successive semesters. Additional minimum requirements for completion of the residency include one first-author publication in a refereed journal in the discipline, one peer-reviewed first-author presentation at a national/international conference (both from research conducted while the candidate is enrolled in the doctoral program), and enrollment and successful participation in zero credit hours of Seminar (HMSE 8142) each fall and spring semester until the comprehensive exams are passed. Data collection associated with the publication requirement will be under the direction of the Major Professor. The official publisher/editor letter of acceptance is sufficient to satisfy the publication requirement. The Thesis or Applied Project does not satisfy this aspect of the Residency & Professional Scholarship Requirement.*

D. *Electives:*
<u>Post-Bachelor's (0-9 credit hours prior to the master's degree being awarded):</u>
Prescribed by the Major Professor and approved by the Doctoral Advisory Committee.

<u>Post-Master's (6 credit hours):</u> Prescribed by the Major Professor and approved by the Doctoral Advisory Committee.

E. *Comprehensive Examination:*

1. *The comprehensive exam is to be administered by the Doctoral Advisory Committee which is comprised of three (3) Graduate Faculty members including the Major Professor, another person from the concentration area, and one person from outside the concentration area.*

2. *Written and oral portions of the comprehensive exam cover three (3) distinct areas associated with the degree program, one of which is research design/statistics. The remaining test areas are dependent on the program of study and are designated by the Major Professor. Area exams address concepts and issues germane to the concentration and are not limited to content addressed during course work.*

3. *Exams are taken upon successful completion of the individually-prescribed program of study or in the last semester of same minus dissertation hours.*

    a. *The written portion of the exams is administered en masse once per semester during a two-week window at SHS-designated dates and times.*

    b. *All written exam items must be completed in the two-week window.*

4. *Once the entire written portion of the exam has been successfully completed, the oral portion should then be completed before the end of that same semester at the earliest mutual convenience of the 3-person Doctoral Advisory Committee* and the candidate. The oral exam is not the dissertation prospectus although topics associated with it may be examined by the Committee.*

5. *If a candidate fails one or more sections of the written or oral portions of the comprehensive exam, it will be formally reported to the Graduate School. Subsequently, the committee will prescribe remedial interventions which must be completed prior to the candidate retaking any portion of the exam. The earliest a candidate may retake a failed written portion of the comprehensive exam is the following semester during the SHS-designated written comprehensive exam week. A failed portion of the oral exam may be taken at the mutual convenience of the 3-person Doctoral Advisory Committee* and the candidate, although it should not be taken until the candidate and major professor agree that sufficient remediation has occurred.*

6. *If a student fails the second administration of any area of the entire comprehensive exam, it will result in the degree candidate being dismissed from the program.*

7. *The candidate must pass the written and oral portions of all 3 examination areas prior to presenting the dissertation prospectus for approval to the 4-person (minimum) Dissertation Committee*.*
   ** The Doctoral Advisory (3 person) and Dissertation (4 person) committees may have different memberships.*

F. *Dissertation and Final Defense (15 credits-HMSE 9000): A dissertation acceptable to the faculty is a requirement for all doctoral students. Subject recruitment and data collection may not commence until the dissertation prospectus has been approved and any appropriate institutional review board (IRB) or institutional animal care and use committee (IACUC) approvals have been obtained. The dissertation must embody the results of an extended research effort that is an original contribution to the existing body of research within the discipline. The dissertation should reflect the candidate's ability to conduct independent research and logically interpret the facts and phenomena revealed by the research. Upon completion of the written dissertation, each student will orally present and defend the research undertaken. NOTE: All dissertations will be written in a journal-ready format approved by the Major Professor except as noted in The University of Memphis Thesis/Dissertation Preparation Guide.*

G. *M.S. Degree Award: Students admitted into the Ph.D. program without a Master's degree are eligible for the M.S. degree in Health Studies with a concentration in Exercise, Sport and Movement Sciences (ESMS) or the M.S. degree in Nutrition with a concentration in Nutrition Science upon successful completion (minimum overall GPA of 3.00) of the first 36 credit hours of the approved program of study including designated research design and statistics courses, major field courses, elective courses, and the Thesis (HMSE 7996) or *Applied Project (ESMS/NUTR 7950).*
   **A first-authored (by the student) published refereed journal article, presenting "original research" in the field and not simply a review of literature, together with an oral presentation and defense of it may be used to satisfy requirements for ESMS/NUTR 7950 with approval by the Doctoral Advisory Committee. Students must also either enroll in ESMS/NUTR 7950 or complete the equivalent credit-by-exam in this scenario. This work is in addition to that required for Residency and Professional Scholarship.*

H. *Unique Features: Students will be immersed in the research process upon matriculation in the program under the tutelage of the Major Professor, and as such, will be increasingly involved with the inception of research questions, study design, data collection and analysis, and the presentation of same in both written and oral formats at appropriate refereed outlets, primarily at national/international levels. A small number of select applicants with a Bachelor's-degree-only will have the professional background, disposition, and maturity to enter the doctoral program. The proposed program will accommodate such applicants if a Graduate Faculty mentor agrees to take on the prospective candidate. A culture of mentored research immersion currently exists in the Exercise, Sport and Movement Sciences and Nutrition Science Master's programs as evidenced in Appendices D and E. The addition of a Ph.D. program will build on this tradition.*

Current Courses and Existing Programs- List current courses and existing institutional programs which will give strength to the proposed program.

Primary Supportive University of Memphis Academic Programs:

- ***M.S. Program in Health Studies; Concentration in Exercise, Sport & Movement Sciences***
- ***M.S. Program in Health Studies; Concentration in Health Promotion***
- ***M.S. Program in Nutrition; Concentration in Nutrition Science***
- ***Ph.D. Program in Biological Sciences***
- ***Ph.D. Program in Educational Psychology & Research; Concentration in Educational Research***
- ***Ph.D. Program in Epidemiology***

Existing Courses Supportive of the Proposed Ph.D. Program in:

- ***Health Sciences (HLSC) with Concentrations in:***
  1) Applied Physiology and Nutrition (APAN)
  2) Performance Biomechanics (BIOM):

BIOL 8018 - Topics in Physiology (1-3)
Lecture, readings, discussion, and oral presentation on physiology. May be repeated for a maximum of 9 credit hours for PhD students; 6 credit hours for MS students. PREREQUISITE(S): Permission of instructor.

BIOL 8031 - Cell Physiology (3)
(MMCS 7031-8031) (MMCS 7031-8031). Cellular thermodynamics, membrane transport systems, ion channels, oxidative phosphorylation, electron transport, cytoskeleton and mechanochemical coupling systems. Three lecture hours per week. PREREQUISITE(S): Permission of instructor.

BIOL 8131 - Cell & Molecular BIOL (3)
(MMCS 7131-8131) (MMCS 7131-8131). Introduction to principles of molecular biology as they apply to eukaryotic cells including transcription, translation, regulation of protein function, DNA replication, membrane biogenesis, secretion, hormone action, signal transduction, and ligand receptor interaction. Four lecture hours per week.

BIOL 8140 - Receptors & Signaling (3)
Develops state-of-the-art understanding of issues in cell receptors and signaling, covering receptor-ligand interactions including methods of identification and quantification; emphasizes specific characteristics of G protein-coupled receptors, receptor tyrosine kinases, and ligand-activate transcription factors including mechanisms of action and signaling pathways activated by each receptor. Three lecture hours per week.

BIOL 8335 - Hormones and Behavior (3)
Examines the relationship between endocrinology and behavior in animals and humans and how this relationship underlies survival and reproduction. Three lecture hours per week. PREREQUISITE(S): Endocrinology (BIOL 4630-BIOL 6630) or permission of instructor.

BIOL 8400 - Comparative Immunology (3)
(MMCS 7400-8400) (MMCS 7400-8400). Phylogenesis and development of the defensive immune systems of invertebrates and the vertebrate classes. Three lecture hours per week. Three lecture hours per week. PREREQUISITE(S): BIOL 4445-BIOL 6445 or permission of instructor.

BIOL 8464 - Advanced Immunology (3)
(MMCS 7464-8464) (MMCS 7464-8464). Selected topics and laboratories in molecular and cellular immunology, immunobiology, tumor immunology, and medical aspects of immunology. Three lecture, two laboratory hours per week. Three lecture, two laboratory hours per week. PREREQUISITE(S): BIOL 6445 and BIOL 6511 or their equivalent.

EDPR 8541 - Stat Meth App Ed I (3)
(EDRS 7541-8541). Utilization and interpretation of statistical methods applied to education; topics include frequency distributions, central tendency, variability correlation, linear regression, introduction to probability, normal distribution, interval estimation, hypothesis testing via t-test and chi-square and computer utilization in statistical analysis. PREREQUISITE: EDPR 7521 or permission of instructor.

EDPR 8542 - Stat Meth App Ed II (3)
(EDRS 7542-8542). Includes one-way and two-way analysis of variance, a priori and post hoc tests of significance and an introduction to multiple linear regression and analysis of covariance; emphasis on student acquisition of practical intermediate univariate analytic and interpretative skills. PREREQUISITE: EDPR 7/8541 or permission of instructor.

EDPR 8543 - Res Design Analysis (3)
(EDRS 8543). Includes validity of research designs, complex analysis of variance, and analysis of covariance; emphasis is on practical advanced univariate and analytic and interpretative skills. PREREQUISITE: EDPR 7/8542 or permission of instructor.

EDPR 8544 - SEM in EDU/Behav Research (3)
Includes path models; path analysis, confirmatory factor analysis, and latent-variable structural equation modeling (SEM); applications of path analytic and SEM techniques in educational research. PREREQUISITE: EDPR 7/8542 or permission of instructor.

EDPR 8549 - Multivariate Meth Educ (3)
(EDRS 8549). Systematic investigation of current multivariate methods in the field of educational statistics. PREREQUISITE: EDPR 7/8542 or permission of instructor.

ESMS 7950 - Applied Project in ESMS (1-6)
(EXSS 7950). Scholarly capstone experience in which students integrate and apply discipline-specific knowledge, skills, and insights in developing a product related to their professional goals as approved by a three-person project committee. PREREQUISITE: Completion of 18 credit hours in the program of study with a minimum graduate GPA of 3.00 and permission of instructor. Grades of S, U, or IP will be given.

ESMS 8007 - Nutraceuticals/Diet Supp Hlth (3)
(EXSS 8007). In depth review of several classes of nutraceuticals and dietary supplements with relevance to human health, disease prevention, and physical performance improvement. Both in vitro and in vivo animal and human models are used to provide a mechanistic basis for proposed actions of various nutritional ingredients on target physiological systems. Intended for graduate students studying Exercise Science, Physiology, Biochemistry, Nutrition, Medicine, Nursing, or related fields. PREREQUISITE: Permission of instructor.

ESMS 8020 - Pub/Prop in Health & Biomed (3)
(EXSS 8020). Steps involved in preparing external funding proposals and manuscripts for publication. Particular attention given to the following: organizing document components, effective writing techniques, documentation issues, interpretation of findings, sentence structure, and reference citing. Identification of appropriate journals for publication consideration as well as common and novel funding sources (federal, state, local, and private) for supporting research work.

ESMS 8081 - Supervised Research (1-6)
(EXSS 8081). Collaborative research with faculty within the major to include planning, design, management, analysis, and reporting of research. May be repeated as often as desired, but only 12 credit hours count toward the degree. PREREQUISITE: Permission of instructor. Grades of S, U, or IP will be given.

ESMS 8123 - Mechanical Analysis Motor Skills (3)
(EXSS 7123-8123). (PHED 7123-8123). Experiences that will enhance the understanding and practical application of the laws of mechanical physics to the fundamental techniques utilized in the performance of physical activities.

ESMS 8133 - Current Readings ESMS (3)
(EXSS 7133-8133). (PHED 7133-8133). Directed readings in area of exercise and sport science; materials selected to strengthen areas of study. May be repeated for a maximum of 9 credit hours. PREREQUISITE: Permission of instructor. Grades of A-F, or IP will be given.

ESMS 8152 - Problems in ESMS (3)
(EXSS/HPRO/NUTR/PETE 7152) Independent study and/or research project on selected problems and issues. PREREQUISITE: Permission of instructor. Grades of A-F, or IP will be given.

ESMS 8163 - Advanced Motor Learning (3)
(EXSS 7163-8163). (PHED 7163-8163). Analysis of research evidence related to motor skill learning and performance; emphasis on feedback mechanisms, practice variables, and retention and transfer of skills.

ESMS 8173 - Sport/Exercise Psych (3)
(EXSS 7173-8173). Survey of literature related to psychological aspects of participation in sport, exercise, and physical activity settings.

ESMS 8201 – Physiology of Exercise: Musculoskeletal Aspects (3)
(EXSS 7201-8201). An analysis of the physiological bases of musculoskeletal performance as well as specific adaptations that occur consequent to various regimens of exercise; discussion of selected techniques for assessing musculoskeletal function and structure.

ESMS 8202 - Physiology of Exercise: Metabolic/Cardiorespiratory Aspects (3)
(EXSS 7202-8202). An analysis of the acute and chronic metabolic/cardiorespiratory bases of human performance and fitness under various internal and external environmental conditions; discussion of selected techniques for assessing metabolic/cardiorespiratory function and structure.

ESMS 8210 - Analysis of Muscle Function (3)
(EXSS 7210-8210). Theoretical bases for and applications of isokinetic (velocity-controlled) and isoinertial (dynamic constant external resistance) testing; students are guided in developing and evaluating new specialized protocols for assessing musculoskeletal function with an emphasis on velocity-spectrum and load-spectrum testing; data interpretation will be stressed.

ESMS 8220 - Adv Skeletal Muscle Structure/Function (3)
(EXSS 7220-8220). In-depth study of the skeletal muscle system; follows ESMS 7201 and covers gross, cellular, and molecular responses and adaptations of skeletal muscle of various types of human exercise; detailed information critical to the graduate student specializing in or interested in human skeletal muscle and exercise.

ESMS 8230 - Exercise Endocrinology (3)
(EXSS 7230-8230). Introduces principles of hormonal regulation of human physiological function and methods of assessing endocrine status; examines hormonal responses and adaptations to exercise and physical activity in healthy and diseased humans, testing and analysis procedures, and human exercise responses.

ESMS 8240 - Athero/CVD Patho/Interv (3)
(EXSS 7240-8240). In-depth review of atherosclerosis and associated clinical manifestations; prevention and treatment emphasizing exercise, nutrient, and pharmacological therapy. PREREQUISITE: Permission of instructor.

ESMS 8250 - Motor Control: a Behavioral Emphasis (3)
(EXSS 7250-8250). Analysis of theoretical and empirical basis for psychological mechanisms underlying movement control and skill development. PREREQUISITE: permission of instructor.

ESMS 8255 – Anatomy of Motor Control (3)
Foundation of systems-level neuroscience focusing on normal function and pathology within the central nervous system (CNS). Functional and regional neuroanatomy will be presented. Coverage includes review of axon physiology and neurotransmission, anatomical organization of the CNS, sensory and motor functions, and description of frequently encountered neurological disorders relevant to physical therapy. PREREQUISITE: permission of instructor.

ESMS 8532 - Research/Sport Neuromechanics (3)
(EXSS 7532-8532). Hands-on research methods training, including technological training in neuromechanical data collection and analysis; tests reliability and validity of data obtained using different technologies to examine acute response and chronic adaptation to exercise. PREREQUISITES: EDPR 7123 and ESMS 7201, or permission of instructor.

ESMS 8542 - Advanced Kinesiology (3)
(EXSS 7542-8542). (PHED 7542). Analysis of mechanical factors related to body motions using experimentation and computer analysis of biophysical data; applications-intensive course involving collaboration between a faculty member and one or more students. PREREQUISITE: EDPR 7523, 7541 or permission of instructor.

HMSE 7010 - Research Methods in HS (3)
Introduction to health, nutrition, sport science, and/or exercise research/methodology. Addresses applicable research techniques and designs emphasizing planning, conducting, and reporting research, selecting appropriate statistical analyses, and interpreting findings. PREREQUISITE: Permission of Instructor

HMSE 8142 – Seminar (0-1)
(ESMS/EXSS/HLTH 7142/8142). New subject area: HMSE; NOTE: ESMS/NUTR graduate students may not use this course to fulfill degree requirements. School of Health Studies doctoral students must enroll as part of fulfilling residency requirements. PREREQUISITE: Permission of instructor. Grades of S, U, or IP will be given.

HMSE 7996 - Thesis (1-6)
(FITW/HLTH/PHED /RECR 7996). Application for writing a thesis must be filled out on an approved form after consultation with the major professor and filed with the Director of Graduate Programs. Grades of S, U, or IP will be given.

HPRO 8732 - Randomized Clinical Trials/HS (3)
(PUBH 8732) Provides thorough grounding in planning and executing randomized clinical trials pertaining to design, conducting, evaluation, and resource acquisition. PREREQUISITES: EDPR 7523, 7541, or permission of instructor.

NUTR 7950 - Applied Project in NUTR (1-6)
Scholarly capstone experience in which students integrate and apply discipline-specific knowledge, skills, and insights in developing a product related to their professional goals as approved by a three-person project committee. PREREQUISITE: Completion of 18 credit hours in the program of study with a minimum graduate GPA of 3.00 and permission of instructor. Grades of S, U, or IP will be given.

NUTR 8000 - Sport Nutrition (3)
Overview of sport nutrition for graduate students. Course content is delivered entirely online and will cover major macronutrients and micronutrients important to sports performance as well as strategies for optimal nutrition before, during, and after training and competition.

NUTR 8001 - Nutraceuticals and Dietary Sup (3)
Overview of nutritional supplementation for graduate students. Course content is delivered entirely online through eCourseware® and will cover major classes of nutritional supplements as well as nutritional supplementation strategies for sports performance and general health.

NUTR 8002 - Exercise & Nutrition Immunology (3)
Overview of the effects of exercise and nutrition on the immune system. Course content is delivered entirely online through eCourseware® and will cover basic concepts in immunology, the effects of exercise on the immune system and how nutrients alter immune responses.

NUTR 8100 – Introduction to Wet Lab Methods in Health Studies (3)
Theory and practical application of commonly-performed laboratory techniques used in health science research. Techniques consist of phlebotomy, biological sample handling and processing, solution preparation and distribution, use of animals and human subjects in research, dissections, protein analysis, nucleic acid analysis, tissue culture, and cell staining. Lecture contact hours: 2 per week; Laboratory contact hours: 2 per week

NUTR 8152 - Problems in NUTR (3)
(EXSS/HPRO/PETE/SPRT 7152). Independent study and/or research project on selected problems and issues in exercise and sport science. PREREQUISITE: Permission of instructor.

NUTR 8412 - Cellular Nutrition I (3)
(CSED 7412). Generation, storage, and use of energy; metabolism of carbohydrate, protein, fat, and other macro and micronutrients; control of metabolic processes in normal, anabolic, and catabolic conditions. PREREQUISITE: Enrollment in Clinical Nutrition program or permission of instructor.

NUTR 8422 - Cellular Nutrition II (3)
(CSED 7422). Cellular and subcellular metabolism of the micro-nutrients; digestion, absorption, transport, utilization, and excretion of vitamins and minerals; interrelationships of micro- and macronutrients; recent advances in micronutrient research. PREREQUISITE: Enrollment in Clinical Nutrition program or permission of instructor.

NUTR 8452 - Comparative Digestion/NUTR (3)
Study of the vertebrate digestive system and the relations with diet, development, and health and disease.

NUTR 8454 - Molecular Nutrition (3)
Study of the cellular and molecular responses of the body to nutrients and the relations with health.

PUBH 8150 - Biostatistical Methods I (3)
Introduces elementary methods for presenting public health data in summary form and analyzing data; not a mathematics course and will not stress derivations of formulae; instead, emphasizes the application of statistical ideas and methods to the design and interpretation of public health studies.

PUBH 8152 - Biostatistical Methods II (3)
This course is the second course in Biometric statistics for public health research. It is intended for advanced students in public health who are interested in gaining expertise in advanced Biometric data analysis. You will be introduced to Biometric statistical modeling techniques commonly used in public health as well as analysis procedures using SPSS and SAS computer software.

PUBH 8305 - Quant Meth Review Rsch (3)
(same as PSYC 7305-8305). This course focuses on quantitative strategies for reviewing research findings in the social sciences. These quantitative review techniques (often referred to as meta-analysis) can help investigators summarize and resolve conflicts in past research. The course should be particularly useful to graduate students who are planning to conduct literature review as part of a research project, master's thesis, or doctoral dissertation. PRE-REQUISITES: Students enrolled in this course are expected to have completed PSYC 7302/8302 or an equivalent graduate-level statistics course, and to have a basic understanding of the analysis of variance and multiple regression.

PUBH 8308 - Appl Multivariate Stat (3)
(PSYC 7308-8308). Covers multivariate analysis of variance (MANOVA) with independent designs and extensions to repeated measures and ANOVA. Goals include review of conceptual bases, learning SPSS and SAS procedures, learning analysis of simple and complex designs, and learning special post-hoc procedures. PRE-REQUISITES: PUBH 7152/8152 OR EQUIVALENT.

PUBH 8310 - Mixed Model Regression Analys (3)
Instruction in the use of mixed-model regression with a focus on design and analysis of group-randomized trials; attention also given to analysis of data from surveys based on cluster sampling, longitudinal studies, and studies involving matching. Same as PSYC 7310-8310.

PUBH 8311 - Appl Categorical Data Analys (3)
Instruction includes tabular, logistic, and Poisson and Cox regression, as well as interpretation of SAS output. For advanced students in psychology, education, and public health pursuing a career in research. Same as PSYC 7311-8311.

- **New Courses Needed- List any new courses which must be added to initiate the program; include a catalog description for each of these courses.**

The following are new courses:

ESMS 9000 – Dissertation (1-9)
(NUTR 9000). Directed independent research subsequent to successful completion of the comprehensive exam and doctoral-committee approval of the dissertation prospectus. Credit may be earned over a period of several semesters. Grades of S, U, or IP will be given.

NUTR 8081 – Supervised Research (1-6)
(EXSS, ESMS 8081). Collaborative research with faculty within the major to include planning, design, management, analysis, and reporting of research. May be repeated as often as desired, but only 12 credit hours count toward the degree. PREREQUISITE: Permission of instructor. Grades of S, U, or IP will be given.

NUTR 9000 – Dissertation (1-9)
(ESMS 9000). Directed independent research subsequent to successful completion of the comprehensive exam and doctoral-committee approval of the dissertation prospectus. Credit may be earned over a period of several semesters. Grades of S, U, or IP will be given.

- **Distance Learning – Indicate whether this program will be offered via distance learning and which courses are available via distance learning.**

  With few exceptions, courses supporting the Ph.D. in Health Sciences will be on ground, although a small number may be online or hybrid.

- **Course syllabi – Provide syllabi for existing and proposed courses**
  Syllabi for required courses in the two program concentrations are found in Appendix J.

EQUITY – Provide information regarding how the proposed program will recruit, retain, and graduate a diverse population of students including underserved and historically underrepresented students.

We expect highly-qualified applicants to seek out the productive and highly-focused faculty delivering the respective concentrations in the Ph.D. program. Based on the intensive mentoring relationship that will exist between individual faculty members and students, a prospective student will not be admitted unless a faculty member agrees to oversee the applicant for the duration of their program of study. Accordingly, the program is expected to have global clientele including non-traditional, underrepresented, and traditional students. However, all will have appropriate academic and/or experiential backgrounds and a keen interest in the focused line of research conducted by the prospective mentor. Since the existing general culture at The University of Memphis is quite diverse, the new students will simply enrich what is already present.

PROGRAM ENROLLMENT AND GRADUATES – Provide the projected number of declared majors and graduates expected over the first three years (associate and certificate), 5 years (baccalaureate and master's programs) or 7 years (doctoral programs).

Year (specify Term & AY start)	*Full-Time Headcount*	*Part-time Headcount*	*International Headcount Anticipated*	*Total Year Headcount*	*FTE*	*Graduates*
1	*5*	*2*	*3*	*7*	*6.0*	*0*
2	*9*	*3*	*3*	*12*	*10.5*	*0*
3	*10*	*3*	*4*	*13*	*11.5*	*2*
4	*10*	*3*	*4*	*13*	*11.5*	*3*
5	*10*	*3*	*4*	*13*	*11.5*	*4*
6	*10*	*4*	*4*	*14*	*12.0*	*5*
7	*10*	*4*	*4*	*14*	*12.0*	*6*

ADMINISTRATIVE STRUCTURE – Provide the administrative unit and program director that will be

responsible to ensure success of the proposed program. *(See Figure 1 below)*

Except for the area of statistics, the School of Health Studies will offer the primary courses required for this degree. The School of Health Studies faculty, specifically the School of Health Studies Director of Academic Programs, the Major Professors for the respective doctoral students, and the Program Coordinators for 1) Exercise, Sport and Movement Sciences and 2) Nutrition Science will ensure students are properly advised and knowledgeable about program requirements. Administrative support staff will be in place no less than 5-6 months prior to and after initiating the program to facilitate recruitment, admissions, and support activities in general for all masters and doctoral programs. Adjunct faculty will be used to deliver courses only on an emergency basis, as intensive mentoring of students is the cornerstone of this program.

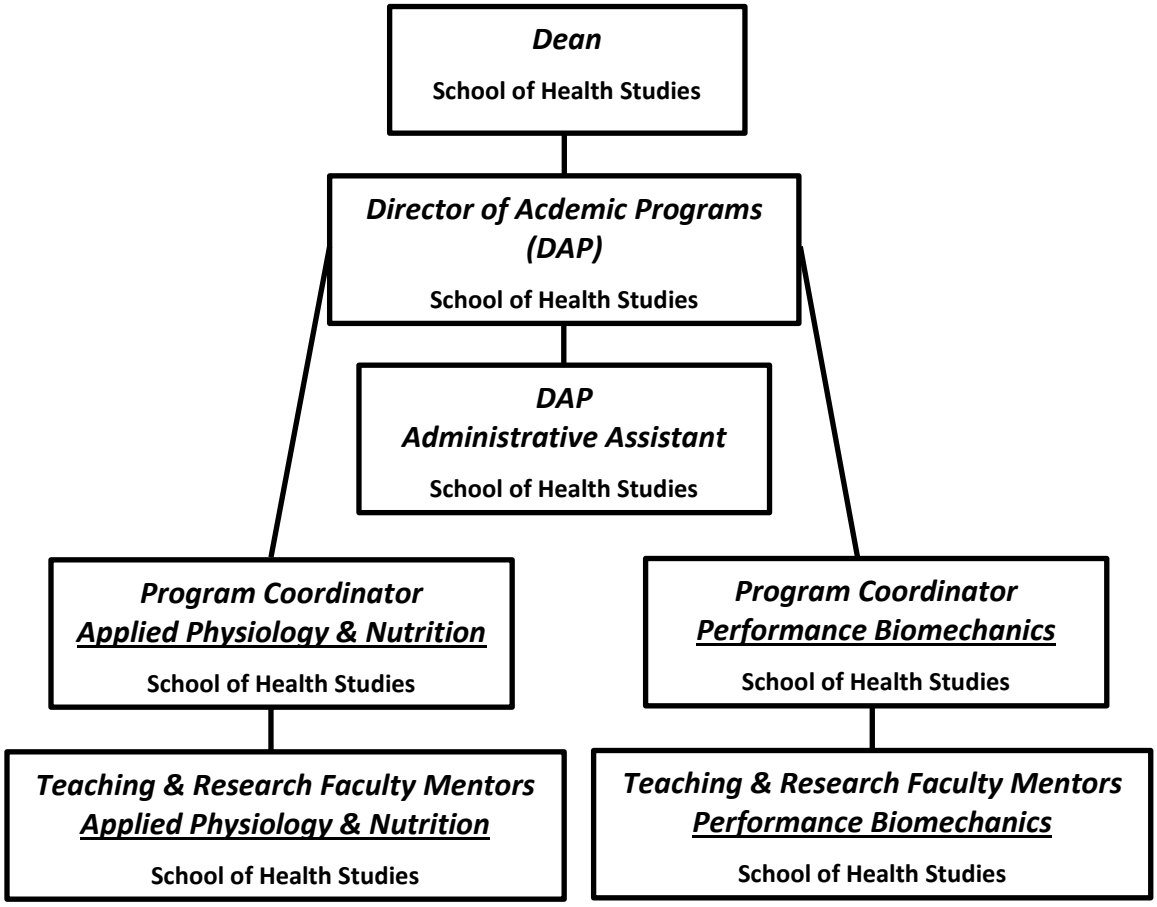


Figure 1. Administrative structure for the proposed Ph.D. program in Health Sciences including the SHS Dean, Director of Academic Programs, Program Coordinators, Teaching and Research Faculty, and administrative support.

FACULTY RESOURCES – Current and/or anticipated faculty resources should ensure a program of high quality. The number and qualification of faculty should meet existing institutional standards and should be consistent with external standards, where appropriate. The adequacy of the number of faculty should be paramount in the planning process as institutions build increasing numbers of interdisciplinary and cross-disciplinary academic programs. The student/faculty ratio for the proposed program should be included in the documentation.

- **Current Faculty – List the name, rank, highest degree, primary department and estimate of the level of involvement of all current faculty members who will participate in the program.**

If the proposed program is at the graduate level, designate current graduate faculty status in relation to eligibility to chair thesis and/or dissertation. Attach a three- page vita for each faculty member listed including relevant related activities for the past five years.

- **Anticipated Faculty - Describe the additional faculty needed during the next five years for the initiation of the program and list the anticipated schedule for addition of these faculty members.**

Table 1. Full-time Faculty Expected to Chair Dissertation Committees

Name	*Academic Rank*	*Highest Degree Earned*	*Area of Specialty*	*Graduate Faculty Status*	*% of Time Devoted to Program*
Bloomer, Richard	*Professor*	*Ph.D.*	*Exercise Physiology/ Nutrition*	*Full*	*25*
Li, Yuhua	*Professor*	*Ph.D.*	*Motor Learning*	*Full*	*25*
Paquette, Maxime	*Associate Professor*	*Ph.D.*	*Biomechanics*	*Full*	*25*
Pence, Brandt	*Assistant Professor*	*Ph.D.*	*Immunophysiology*	*Full*	*25*
Powell, Douglas	*Assistant Professor*	*Ph.D.*	*Biomechanics*	*Full*	*25*
Puppa, Melissa	*Assistant Professor*	*Ph.D.*	*Exercise Physiology*	*Full*	*25*
van der Merwe, Marie	*Assistant Professor*	*Ph.D.*	*Physiology*	*Full*	*25*
Weiss, Lawrence	*Professor*	*Ed.D.*	*Exercise Science*	*Full*	*25*
Zhang, Yufeng	*Assistant Professor*	*Ph.D.*	*Nutrition*	*new*	*25*

Table 2. Other Full-time Faculty Available to Serve on Dissertation Committees

Name	*Academic Rank*	*Highest Degree Earned*	*Area of Specialty*	*Graduate Faculty Status*	*% of Time Devoted to Program*
Irwin, Carol	*Professor*	*Ph.D.*	*Physical Education*	*Full*	*10*
Layne, Todd	*Associate Professor*	*Ph.D.*	*Physical Education*	*Full*	*10*
Martin, Keith	*Research Assist Prof*	*Ph.D.*	*Nutritional Biochemistry*	*Full*	*25*
McClanahan, Barbara	*Associate Professor*	*Ph.D.*	*Health Promotion*	*Full*	*10*
Okwumabua, Jebose	*Professor*	*Ph.D.*	*Health Promotion*	*Full*	*10*
Stockton, Michelle	*Associate Professor*	*Ph.D.*	*Health Promotion*	*Full*	*10*
Greenwood, Daniel	*Research Assist Prof*	*Ph.D.*	*Director of HPC*	*new*	*25*

Rugless, Fedoria	*Research Assist Prof*	*Ph.D.*	*Director of Research/ Church Health Center*	*new*	*10*

A need for additional faculty to directly support this program is not anticipated, although additional support for undergraduate programs may be required to "free up" the faculty listed in Table 1 to work with doctoral students. It is anticipated that an individual faculty mentor will concurrently have a maximum of three full-time doctoral students at different points in their respective programs of study.

LIBRARY AND INFORMATION TECHNOLOGY RESOURCES – Provide documentation to demonstrate adequate current and/or anticipated library and information technology resources to support a high-quality program which meets recognized standards for study at a particular level or in a particular field.

- **Library and Information Technology Acquisitions Needed – Describe additional library and information technology acquisitions needed during the first three years (associate and certificate), 5 years (undergraduate and master's programs) or 7 years (doctoral programs) for the successful initiation of the program.**

  Students will have access to all library and information technology resources available to students enrolled at the University of Memphis, both online and face to face. SPORTDiscus with full text is particularly helpful in this regard.

SUPPORT RESOURCES – Provide documentation to demonstrate adequate other existing and/or anticipated support resources including clear statements of support staff, student-advising resources, arrangement for clinical or other affiliations, and professional development for faculty necessary for a successful program.

- **Evidence of willingness to partner - Provide evidence of established partnerships with appropriate entities which can include government, education, health and business entities.**
- **Other Support Currently Available - Include support staff, university and non-university assistance.**
- **Other Support Needed -- List additional staff and other assistance needed during the first 7 years (doctoral programs).**

  The School of Health Studies currently partners with a number of internal and external entities to support student learning outcomes and research efforts. Cooperative laboratory research support on-campus is available such as the Integrated Microscopy Center and The W. Harry Feinstone Center for Genomic Research. Off-campus opportunities for collaboration are multiple, with investigators at The University of Tennessee Health Science Center, LeBonheur Children's Hospital, Memphis VA Hospital, St. Jude Children's Research Hospital, Nike Sport Research Lab, the Department of Kinesiology at Utah Valley University, the Department of Physical Therapy at East Carolina University, the Rehabilitation Science Program at George Mason University, the Department of Physical Therapy at St. Mary's University (Kansas), the Department of Kinesiology at the University of Indiana, and the Department of Life Sciences at Brunel University (Uxbridge, UK).

  The Director of Academic Programs serves as the Graduate Program Director. That individual together with the respective Major Professors will most closely advise the doctoral candidates.

The Director of Academic Programs will work closely with the School's full-time support staff to assist in overseeing all academic programs. The staff members consist of a recruiter, two academic services coordinators, assistant director for student services, manager of marketing and communications, and an administrative associate. They will work to facilitate recruitment, admissions, and support activities in general for all graduate programs.

FACILITIES AND EQUIPMENT – Provide documentation to demonstrate adequate existing and/or anticipated facilities and equipment. New/or renovated facilities required to implement the program should be clearly outlined by amount and type of space, costs identified and source of funds to cover costs.

- **Existing Facilities and Equipment - Assess the adequacy of the existing physical facilities and equipment available to the proposed program. Include special classrooms, laboratories, physical equipment, computer facilities, etc.**
- **Additional Facilities and Equipment Required or Anticipated - Describe physical facilities and equipment that will be required/anticipated during the first three years (associate or certificate programs), 5 years (undergraduate and master's programs) or 7 years (doctoral programs).**

*Although maintaining, updating, and replacing laboratory equipment is an ongoing reality, the following research laboratories are all fully operational (*http://www.memphis.edu/shs/pdfs/shs_lab_resources_8-2017.pdf*):*

- *Biochemistry and Molecular Biology Laboratory*
- *Bone Densitometry and Body Composition Laboratory*
- *Cardiorespiratory/Metabolic Laboratory*
- *Musculoskeletal Analysis Laboratory*
- *Exercise Training Intervention Laboratory*
- *Motor Behavior Laboratory*

In addition, the following two research centers and a multi-university institute are housed in the School of Health Studies and are in operation:

- *Center for Nutraceutical and Dietary Supplement Research*
- *Human Performance Center (formerly the Sport Performance and Health Consulting Center [SPAHCC])*

MARKETING AND RECRUITMENT PLAN – Provide a plan, including marketing and recruitment, to ensure all prospective students will have equitable access to the academic program so as not to

impede the state's commitment to diversity and access in higher education. Identify any budget implications in the THEC Financial Projection Form.

The Marketing department at the University of Memphis will collaborate with both the SHS Coordinator of Recruitment & Pre-Enrollment Activities and Manager of Marketing and Communications to handle marketing once this program is approved for implementation. Until then, the School of Health Studies faculty have begun informally discussing this potential program with students and professional colleagues.

ASSESSMENT/EVALUATION – Although the primary responsibility for program quality rests with the institution and its institutional governing board or its system, THEC considers pertinent information to verify that high standards have been established for the operation and evaluation of the programs. Evidence must be proposed to demonstrate that careful evaluation is undertaken periodically throughout the lifetime of the program indicating:

- **the schedule for program assessments or evaluations, (including program evaluations associated with Quality Assurance, institutional program review, student evaluations, faculty review, accreditation, and employer evaluation),**
- **those responsible for conducting program assessments or evaluations, and accreditation, and**
- **a plan for how results will inform the program post-approval.**

Student evaluations are required every semester for every course taught at the University of Memphis. Every three years, alumni and career services administer a survey. Once a year, faculty and staff are evaluated. Every seven years, the School and its programs undergo program review per THEC standard. Information from all assessments is examined by faculty and staff and changes are made in the structure, curriculum and personnel as needed.

The Dean and Director of Academic Programs are responsible for various parts of the evaluation process, its implementation, and post-assessment changes in the program. The evaluative process will be both continuous and summative in nature.

ACCREDITATION – Where appropriate, professional disciplinary accreditation organizations should be identified. The proposed accreditation timeline must be submitted. Any substantive change that may requires a SACS-COC review should be indicated.

The School of Health Studies undergoes periodic program review as prescribed by THEC. The four primary professional organizations associated with this program are as follows:

- *American College of Sports Medicine (http://acsm.org/)*
- *American Physiological Society (https://www.linkedin.com/company/american-physiological-society)*
- *American Society of Biomechanics (http://www.asbweb.org/about-asb/)*
- *National Strength and Conditioning Association (https://www.nsca.com/)*

None of these organizations specifically endorses or accredits doctoral programs currently.

FUNDING – A budget projection using the THEC Financial Projection form that documents the

institution's capacity to deliver the proposed program within existing and projected resources must be submitted including an explanation of the current departmental budget in which the proposed program will be housed and estimated additional costs for the first three years (associate degrees), 5 years (undergraduate and master's degrees) or 7 years (doctoral degrees) for the proposed program. Please note that these costs for each year are incremental costs not cumulative costs. Include all accreditation costs and proposed external consultations as related to accreditation. Identify any grants or gifts which have been awarded or anticipated.

No additional funding is being requested at this time to fund this new degree in the School of Health Studies. Please see Appendix I: THEC Financial Projection.

Appendix A

Letters from Previous Students

University of Memphis
School of Health Studies
Elma Neal Roane Fieldhouse
495 Zach H Curlin Street
Memphis, TN 38152

May 13, 2019

To whom it may concern,

The purpose of this letter is to enthusiastically provide support for the establishment of a PhD program within the School of Health Studies at the University of Memphis.

For the last 30 years, the NCAA Sport Science Institute (SSI) has committed efforts to raising standards within intercollegiate athletics related to physical and mental health among student-athletes. ISS-initiative studies span topics from catastrophic injury and concussion care to campus social environments and substance abuse patterns among student-athletes. At present, most of these studies reflect prevailing attitudes, general recommendations for best practice, and summary statistics pertinent to their respective topics. While these studies are well-intentioned, their influence is restricted by a lack of direct interface with coaches, athletic trainers, and strength and conditioning staff members on campus. More directly focused case studies and longitudinal analyses of demands associated with intercollegiate athletics participation is a scarcely explored space with boundless potential for inquiry and consequent provision of meaningful, applied outcomes to athletics departments at large.

Last year the School of Health Studies hired Dr. Daniel Greenwood for the role of Director within the Human Performance Center (HPC). Already, Daniel has built inroads with Tigers athletics and conducted pilot studies including (i) dietary and recovery interventions, (ii) goal-setting and psychological self-evaluation, (iii) player load quantification in practice vs. competitive scenarios, and (iv) load monitoring during return to play protocols for athletes recovering from reconstructive knee surgery. The HPC has already been featured in promotional material for the technology supplier in our load monitoring efforts, and the latter of these topics has been the focus of a recent article in *The Commercial Appeal*.

With increasing local interest in the HPC and growing national interest in Tigers athletics, support for the research efforts of the HPC would be timely and likely influential. Funded PhD students committed to driving the HPC research efforts would increase the likelihood that current evidence for best practice is both field-tested and supported by results obtained in context. This has the potential to (a) enhance the student-athlete experience at UofM, (b) release qualified professionals from the University of Memphis into the emergent field of American sport science, and (c) recruit individuals who are highly motivated to publish meaningful results from applied research questions. The faculty who currently contribute to the HPC specialize in areas ranging from skill acquisition and strength and conditioning to performance biomechanics and injury prevention. This comprises a wealth of knowledge in-house that would capably deliver a diverse and unique curriculum. At present there are no UofM doctoral graduates directing labs or conducting independent research in fields specific to exercise science. However, resulting from an amicable partnership between the School of Health Studies and Tigers athletics, the UofM HPC is uniquely positioned to be one of the first large-scale collegiate sport science departments in the country, and could conceivably graduate some of the earliest doctoral students with gold-standard applied research training.

Submitted Respectfully,

Alexander M. Carnall

Alexander M. Carnall

THE UNIVERSITY OF TENNESSEE KNOXVILLE
College of Education, Health & Human Services
Department of Kinesiology, Recreation & Sports Studies

1914 Andy Holt Ave.
Knoxville, TN 37996
865-974-3340
jmelaro@vols.utk.edu

May 14, 2019

To whom it may concern,

This letter is being submitted in support of the launch of a Health Sciences doctoral program by the School of Health Studies at the University of Memphis.

I am a recent graduate and recipient of a master's degree in Exercise, Sport and Movement Sciences from the School of Health Studies. I worked under the tutelage of Dr. Max Paquette, one of the leading researchers in sport and age-related locomotion, while fulfilling my research and teaching duties as a full-time graduate assistant in the Musculoskeletal Analysis Laboratory. During my tenure at the University of Memphis, I also had the pleasure of working closely with Dr. Douglas Powell, another leader in his field of neuromuscular behavior during athletic tasks and locomotion in patients with Parkinson's disease. These are just two of the incredibly knowledgeable and caring faculty employed in the School of Health Studies, and I whole-heartedly endorse their abilities not only as professors and mentors, but also as friends, to guide those entering a doctoral program under the School of Health Studies banner.

Currently, I am a 1st year Ph.D. student at the University of Tennessee, Knoxville. I was afforded this opportunity to accept the position as a graduate teaching assistant and Ph.D. student under Dr. Josh Weinhandl largely due to the education and support of Dr. Paquette, Dr. Powell, and everyone else working in the School of Health Studies at the University of Memphis. Because of them, I am now pursuing a career in a field that I love and allows me to share my passion for biomechanics and exercise science with others. Unfortunately, those graduating across the nation who wish to either stay in the historic and beautiful city of Memphis or further their education beyond a master's degree under the accomplished faculty here in the School of Health Studies are currently forced to look elsewhere. I feel strongly that the School of Health Studies would be a perfect candidate for the proposed Health Sciences doctoral program, and that those who complete it would have reached their fullest potential as academics and professionals in their field. The School of Health Studies is one of the fastest growing colleges at the University of Memphis and continuous upgrades and renovations within the department show the dedication and support from the administration and faculty to the pursuit of excellence in academia. The primary hindrance at this juncture to future growth of the School of Health Studies is a Ph.D. program, and an installation of this program would instantly allow this department to compete with other prestigious departments across the U.S. regarding higher education and student success.

Sincerely,

Jake A. Melaro, M.Sc.
Ph.D. Student/GTA
Department of Kinesiology, Recreation, & Sports Studies
The University of Tennessee, Knoxville

May 20, 2019

To Whom It May Concern:

It is my privilege to write at this time in support of the proposed Ph.D. program in Health Sciences put forth by The University of Memphis.

My name is Ramzi Majaj. I earned my bachelor's and my master's degree in Exercise and Sport Science from the School of Health Studies in 2014 and 2018, respectively. Currently, I am working as a research assistant in pediatric obesity at The University of Tennessee Health Science Center, Memphis. I had the opportunity to learn and work with Dr. Paquette since 2013, as he was my biomechanics instructor during my undergraduate study, as well as my master's thesis research advisor. As consequence, I had the opportunity the observe the growth of the School of Health Studies. Each year that I attended, the number of students interested in master's studies increased. However, if the School of Health Studies master's student wants to continue to pursue a higher degree, they are forced to apply to graduate programs outside of The University of Memphis. I was fortunate enough to be offered a Graduate Assistant Position at The University of Memphis. However, I'm currently in the process of finding a Ph.D. program within the Biomechanics Specialization to continue my studies that I started with Dr. Max Paquette.

Given the traction of The University of Memphis name in the Biomechanics community because of research done by the Musculoskeletal Analysis Laboratory, having a doctoral program with a Biomechanics concentration at the University of Memphis would be invaluable. Although, I hope to start a Ph.D. program by the end of 2020, if the Health Sciences program is approved before I accept a PhD position out of state; I have no doubt in my mind that I would attempt to continue my studies in the Musculoskeletal Analysis Laboratory at The University of Memphis under the guidance of its excellent faculty (once a tiger, always a tiger).

I would be happy to discuss this in further detail, if need be. Please see my contact information below.

Respectfully,

Ramzi M. Majaj, M.S.
Research Assistant, Healthy Lifestyles Clinic, Le Bonheur Children's Hospital
Department of Pediatrics, University of Tennessee Health Science Center
50 North Dunlap Street, Room 367R, Memphis, TN 38103
Office: 901.287.5125
Cell: 901.833.0972

Support letter for beginning a Ph.D. program in Health Sciences at the University of Memphis

May 9, 2019

To whom it may concern,

My name is Ross Smith, and I am writing this letter to support opening a Ph.D. program in Health Sciences at the University of Memphis (U of M). As an undergraduate student, I had long wanted to coach or train athletes, so the Exercise and Sport Science major at the U of M was a satisfying choice. During my last semester as an undergraduate, I completed an internship under the guidance of Dr. Max Paquette, where I aided in QuickBoard training and the collection of several balance measures for the track and field team. This exposure to biomechanics and the U of M Musculoskeletal Dynamics Laboratory lead me to pursue my M.S. in Exercise and Sport Science at the U of M.

My time as a master's student was both challenging and fulfilling, and, under the tutelage of Drs. Paquette, Doug Powell, and Lawrence Weiss, I was able to balance teaching, classwork, and research. I was tasked with redesigning and teaching our instruction to resistance and aerobic exercises, where I sought to pass on the knowledge base instilled in me from my advisors and other teachers in the program. As a student and researcher, I was inspired to be meticulous in my work and methodology. This came from time spent with my advisors, but also by the culture cultivated by them and other faculty, as well as my fellow graduate students. As a research assistant to Dr. Paquette, I was exposed to novel, helpful research designs and a care for impact in the local academic community. One example of both was a study examining the effects of cross training on performance and injury-related variables, where the subject pool was a local high school. My time as a graduate student at U of M was the most gratifying period of my life to date, and, without the guidance of my advisors, I would never have experienced it or entered into my current position as a Ph.D. student of the University of Queensland.

My current knowledge base and skill set are a result of dedication to the curriculum at the U of M, and my desire for precise methodology and impactful research are mimicked from the work of my advisors. It is my utmost desire to impact students and the community in the way that my advisors helped me and the Memphis area. If a Ph.D. program had been in place when I was searching for my terminal degree, I would have considered it a formidable option. For these reasons, I urge you to consider the U of M for a Ph.D. program for Health Sciences.

Please feel free to contact me further; I would be happy to answer any questions concerning this matter.

Thanks,

Ross Smith
ross.smith1@uq.net.au
Ph.D. Student, Human Movement Science

Human Biomechanics Laboratory

The University of Queensland

April 3, 2018

To whom it may concern,

I am currently a first-year PhD student in *Food Science and Nutrition* at Colorado State University. Prior to starting this doctoral program, I received my Master of Science in *Health and Sport Science* with a concentration in *Nutrition Science* from the School of Health Studies at the University of Memphis. During my time at UM, I did my thesis titled "Omega-3 PUFA can reduce glucocorticoid-induced stress in epididymal white adipose tissue of C57BL/6 male mice when consuming a high fat diet" under the guidance of Dr. Marie van der Merwe. This work is currently under review at the Journal of Nutrition.

During my short time at UM I learned how to work and thrive in a professional environment geared towards high quality training and conducting meaningful basic science research. The academic environment at the University of Memphis fostered not only independent work and responsibility, but also collaboration and the sharing of ideas. As such, I was encouraged to create a diverse thesis committee and engage in various activities across departments and universities. This allowed me to network with other professionals, learn and become a contributing member of the scientific community.

If the School of Health Studies at UM had offered a PhD program while I was there, I would definitely have applied as I feel the training that I got was on par with any of the graduate programs that I was interested in. For my thesis work I was awarded first place in the Life and Health Sciences category at the UM Graduate Student Showcase, and also first place in the Emerging Leaders in Nutrition Science Poster competition at the Experimental Biology conference in 2017, demonstrating that the work done at the School of Health Studies is of high standard and seen as being valuable by the scientific community.

My experiences at the University of Memphis resonated deeply within me and contributed to my desire to continue my academic journey. Even though I have had to move on to pursue my advanced training, I am excited for all of the forthcoming PhD students who will get the opportunity to experience the wonderful things I experienced at the University of Memphis.

Regards,

Jessica L. Hill

Jessica L. Hill, MS, RN

April 5, 2018

To Whom It May Concern,

I graduated from the University of Memphis M.S. program in Health and Sport Sciences with a concentration in Exercise and Sport Science in December 2016. During my time in the Master's program, I worked with Dr. Richard Bloomer and wrote my thesis titled "The Influence of Plant- and Animal-Based Diets on Circulating Testosterone and Body Composition of Young Male Rats". Results indicated neither total testosterone (1.7±0.2 vs 1.6±0.2 ng/mL^{-1}) nor lean body mass (384±6 vs 377±6 g) differed between rats fed the plant-based or animal-based diets, respectively. In fact, plant diet rats were significantly leaner that animal diet rats based on body fat (22.4±1.0% vs 32.1±0.8%; $p<0.0001$). These findings demonstrate a plant-based diet maintains circulating testosterone, supports lean body mass, and minimizes fat accumulation. After I finished my degree, I wanted to continue with a PhD, but as UM did not have a program I had to look elsewhere. I am currently employed at the University of Tennessee Health Science Center where I am a Clinical Research Coordinator in the Department of Medicine-Endocrinology and starting a Nursing degree specializing in Endocrinology.

Throughout my graduate career at the University of Memphis, I was provided a fantastic education. The skills and training acquired through this program allowed me to reach my academic goals in addition to providing me with the necessary tools to succeed as an educator and in the field of research. I had the opportunity to collaborate with multiple departments such as Dietetics, Nutrition, and Health Promotion all of which helped prepare me for future endeavors. In addition, I was privileged to work in multiple research laboratories outside of my discipline alongside of some of the most respected scientists in their fields. This allowed me to experience diverse training environments and has prepared me to face the rigors of Ph.D. studies and beyond.

Had there been a PhD program available, I definitely would have remained. Without question, much of the success I have earned as well as my potential for future success can be credited to the education acquired from the School of Health Studies and their exceptional professors.

Sincerely,

Damien Moore

Damien Moore

THE UNIVERSITY OF TENNESSEE KNOXVILLE
College of Education, Health & Human Services
Department of Kinesiology, Recreation & Sports Studies
1914 Andy Holt Ave. HPER 136
Knoxville, TN 37996
865-974-2091 *phone*
speel@vols.utk.edu

April 13, 2018

To the Doctoral Program Proposal Committee,

It is my pleasure to write a letter in support of the proposed doctoral program in Health Sciences in the School of Health Studies at the University of Memphis.

I had the privilege of earning my bachelor's and my master's degrees in Exercise and Sport Science from the Department of Health and Sport Sciences (currently now known as the School of Health Studies) in 2014 and 2016, respectively. Presently, I am a 2nd year doctoral student in the Kinesiology program with a concentration in Biomechanics at the University of Tennessee, Knoxville. I had the wonderful opportunity to work with Dr. Max Paquette since 2014, as he was my undergraduate senior internship advisor, as well as my master's thesis and research advisor. As such, I have been able to watch how the biomechanical research produced by Dr. Paquette, along with Dr. Doug Powell, has made the University of Memphis a prevalent name within the biomechanics field. Each year, the number of master's students who are conducting biomechanical research within the School of Health Studies has grown. However, if any master's student wants to continue to pursue a higher degree in biomechanics, they are forced to apply to graduate programs outside of the University of Memphis. Therefore, the University of Memphis is losing these exceptional students instead of retaining them to create successful, independent researchers that would advance the biomechanics field under the University of Memphis name.

Having a doctoral program with a Biomechanics Specialization at the University of Memphis would be invaluable. If this program were available when I was in the process of applying to doctoral programs, I would have never had left to attend another university. While I am happy my current position at the University of Tennessee, there was still much I could have learned and accomplished at the University of Memphis. With the proposed coursework, along with the newly updated Musculoskeletal Analysis Laboratory and excellent faculty support, the University of Memphis has all resources needed to create a successful doctoral program.

The years I spent at the University of Memphis are some of my most cherished years. I am a proud alumnus of the School of Health Studies department, and I would love nothing more to see it flourish and succeed. However, I do not believe it can reach its full potential without a doctoral program. Therefore, I am in full support the proposed doctoral program and hope others are as well.

Sincerely,

Shelby A. Peel, MS.
Graduate Teaching Assistant/PhD Student
Department of Kinesiology, Recreation, & Sports Studies
The University of Tennessee, Knoxville

A letter of support for establishing a Ph.D. program in Health Sciences at the University of Memphis

April 9, 2018

To whom it may concern,

My name is Daniel Kuhman and I received my B.S.Ed. in Health and Human Performance (conc. Exercise and Sport Science) from the University of Memphis (U of M) in May of 2015. During my time at the U of M, I was fortunate to have had the opportunity to serve as an undergraduate research assistant in two laboratories on campus. Throughout the summer and fall of 2014, I worked with Dr. Max Paquette in the Musculoskeletal Dynamics Laboratory, primarily exploring the biomechanics of human running and their potential to identify injury risk in competitive athletes. During the spring of 2015 (my last semester at the U of M), I worked with Dr. Richard Bloomer in the Cardiorespiratory/Metabolic Laboratory, exploring the potential cognitive benefits of a theacrine-containing dietary supplement. I graduated from the U of M with a 3.80 combined GPA and research experience that ultimately resulted in three peer- reviewed publications and multiple conference presentations. It was this initial academic and scientific success, owed completely to the curriculum, the faculty, and the other students within the department of Health and Sport Sciences that encouraged me to pursue a Master's degree in Kinesiology (conc. Biomechanics) at East Carolina University (ECU).

While at ECU, I was mentored and advised by Dr. Paul DeVita, a close colleague of Dr. Paquette, in the ECU Biomechanics Laboratory. With Dr. DeVita, I continued to explore the field of locomotion biomechanics. The knowledge and experience that I had gained during my time as an undergraduate student at the U of M provided a steady foundation upon which to build – both as a student in the classroom and as a scientist in the laboratory. At ECU, I served as a teaching assistant, instructing undergraduate students in Structural Kinesiology and aiding in laboratory demonstrations for Biomechanics classes. My instruction style for these courses was modeled primarily on styles that I had observed as undergraduate student from my professors at the U of M. Additionally, at ECU I was able to act as a mentor for undergraduate research assistants who rotated through the Biomechanics Laboratory – again, modeling my mentorship style after those professors who had mentored me at the U of M. During my second and final year at ECU, I began my search for a Ph.D. position. During my search, I had multiple conversations with Dr. Paquette regarding my options. I trusted Max's opinion and had no doubts that he would offer honest and reliable guidance – which he did. Ultimately, I accepted a Ph.D. position with Dr. Christopher Hurt in the department of Rehabilitation Sciences at the University of Alabama at Birmingham (UAB) – a position that I began in August of 2017.

The point of all of this is relatively simple – my experience in the Exercise and Sport Science (now Exercise, Sport, and Movement Sciences) program at U of M played a major role in shaping who I am today as a student, a scientist, a mentor, and as a person. My hope is that one day I will be in a position to provide other students with the educational and research experience, as well as the mentorship and guidance, similar to that which I received at the U of M. The program at the U of M is strong, and perhaps more importantly, inspiring for students. The classes that I took and the professors and students that I worked with as an undergraduate student at the U of M provided me, not only with a strong academic and scientific foundation, but the inspiration and motivation to strive for leadership in the field of biomechanics. I have no doubt that, without this experience and inspiration, I would not be where I am today. I believe fully that a Ph.D. program in Health Sciences at the University of Memphis will produce successful research scientists. In fact, had a Ph.D. program been available at the U of M when I was applying for such positions, I surely would have applied and seriously considered it as a strong option. I am happy to see that such a program is currently be developed and offer my fullest support.

I would be happy to discuss this further, if need be. Please see my contact information below.
Go Tigers!

Daniel Kuhman

dkuhman@uab.edu
Blazer Graduate Research Fellow
PhD Student in Rehabilitation Sciences
The Human Performance Laboratory
The University of Alabama at Birmingham

TEXAS TECH UNIVERSITY
Department *of* Kinesiology & Sport Management

To Whom It May Concern:

I am writing at this time in support of the proposed Ph.D. program in Health Sciences put forth by The University of Memphis.

The current trajectory of our nation's demographics coincides with a need for qualified health and exercise professionals capable of contending with the health disparities of various populations (obesity, chronic disease, etc.). Exercise prescriptions are commonly included in the recommendations of health care providers aiming to address medical conditions and health disparities, and public health policies often include exercise as a core feature of preventative plans. In addition, the demand for qualified athletic performance and physical rehabilitation professionals continues to rise alongside increases in both popularity and participation of competitive sports. To accommodate and/or change the current trajectory of our nation's demographics, Ph.D.-prepared individuals are needed to both work in the clinical environment and train students pursuing a formal education in health and performance sciences. It was these demands that first lead me to pursue a career in academia.

I was fortunate enough to be offered a Graduate Assistant position at The University of Memphis to pursue a graduate degree in Exercise and Sport Sciences. While it was not an option to pursue doctoral training at UM, I would have remained there without hesitation to pursue a Ph.D. degree, as the qualities of the university, specifically the availability of Graduate Assistantships, the collegial environment among faculty, the desire to train qualified researchers, and the continual search for additional Ph.D.-level faculty, were main attributes I looked for in a doctoral program. Having since earned a Ph.D. and obtained a tenure-track position at a R1 institution, I can say without question that the faculty, facilities, and ability to nationally recruit students (I was recruited from Southern California) at The University of Memphis are second-to-none. In addition, the presence of the Sport Performance and Health Consulting Center provides current and future student with the ability to "bridge the gap" between researchers and practitioners, a common goal of prominent organization such as the American College of Sports Medicine and the National Strength and Conditioning Association. I have no doubt that the proposed Ph.D. program will soon become a leading doctoral program, both regionally and nationally.

I hope this letter establishes that the proposed Ph.D. program in Health Sciences has outstanding potential for success through its ability to train professionals ready to address the needs of our nation's demographics. Do not hesitate to contact me (john.harry@ttu.edu) should you require any additional information.

Respectfully submitted,



John R. Harry, Ph.D.
Assistant Professor of Kinesiology
Dept. of Kinesiology & Sport Management
Texas Tech University
Box 43011 | Lubbock, Texas 79409-3011 | T 806.742.3371 | F 806.742.1688

St. Jude Children's Research Hospital
ALSAC • Danny Thomas, Founder

March 23, 2018

To the Doctoral Program Proposal Committee,

It is my pleasure to write a letter in support of the proposed doctoral program in the School of Health Studies at the University of Memphis.

I had the privilege of earning my Master's degree in Exercise and Sport Science from the Department of Health and Sports Sciences (currently known as the School of Health Studies) in 2008. Presently, I am the Human Performance Lab Director and Sr. Exercise Physiologist at St. Jude Children's Research Hospital in Memphis, TN. I had the wonderful opportunity to work with several incredible faculty members at the University of Memphis who were mentors throughout my graduate education and continue to be today. The University of Memphis has long been one of the top graduate research institutions in the Exercise Science field. This is one of the reasons I chose to complete my Master's degree at the University of Memphis. Upon graduation, I decided to begin my career while many of my classmates pursued a PhD. Each of them had to leave Memphis since there was not a strong program near the city. These exceptional students were forced to look elsewhere to continue their already successful graduate research careers. The best and brightest Exercise Science students choose to pursue higher education at the University of Memphis, but then have to complete the bulk of their graduate careers at another University.

Having a doctoral program in the school of Health Studies at the University of Memphis would be instrumental in advancing this program to the top in the nation. I chose to begin my career after earning my Master's degree, in part because I was not ready to leave Memphis. If this program were available when I was finishing my Master's degree, I believe I would have pursued my PhD immediately at the University of Memphis. I am very content in my current position, but I have greatly considered pursuing my PhD in recent years. When I learned that the University of Memphis would be applying for a doctoral program, I became very excited. I would greatly consider this program now, since it would be in my home community. The University of Memphis School of Health Studies faculty and resources have always been strong, but are now some of the best. I would be proud to have a PhD from this program.

The University of Memphis was where I fell in love with research, and learned instrumental skills from top faculty researchers that propelled me to an elite career in clinical research. I am a proud alumna of the School of Health Studies, and I believe a doctoral program would greatly increase

262 Danny Thomas Place, Memphis, TN 38105-3678 | t 901.595.3300 | www.stjude.org

the quality and quantity of research the school accomplishes. I know the time I spent at the University of Memphis helped prepare me for my current career. Therefore, I am in full support of the proposed doctoral program.

Sincerely,



Robyn E. (Karlage) Partin, MS, CCRP
Sr. Exercise Specialist
Human Performance Lab Director
Epidemiology and Cancer Control
St. Jude Children's Research Hospital
262 Danny Thomas Place, MS735
Memphis, TN 38105-3678
Phone: (901) 595-5545
Fax: (901) 595-5845

Appendix B

Letters from Current Students

May 15, 2019

To whom it may concern:

My name is Aaron Persinger. I am currently a graduate assistant and M.S. student in the School of Health Studies in the Exercise, Sport and Movement Sciences program. I also completed my undergraduate degree in the School of Health Studies with a concentration in Exercise, Sport, and Movement Sciences at the University of Memphis.

As a student who began volunteering in the lab as an undergraduate, I believe a PhD program would greatly benefit our school. Strictly from a learning perspective, the more personnel in the lab, the more students we can help get involved in research. Further, I have seen numerous talented, intelligent students come through our program who have gone on to pursue a PhD elsewhere. Unfortunately, those students were not afforded the opportunity to obtain their degree at their home lab.

As a student considering pursuing a doctoral degree, it would personally benefit me greatly to stay in the lab where I have been the last few years. In this way, I can continue to conduct and assist in research without missing months of time lost to searching for and adjusting to a new lab.

Sincerely,

Aaron Persinger

Aaron Persinger

May 21, 2019

To the Doctoral Program Proposal Committee,

It is my pleasure to write a letter in support for the proposed doctoral program in Health Sciences in the School of Health Studies at the University of Memphis.

I had the privilege of earning my bachelor's degree in Exercise, Sport and Movement Sciences from the School of Health Studies in 2019. During my time in my bachelor's degree, I was fortunate to have the opportunity to serve as an undergraduate student researcher in the Musculoskeletal Analysis Laboratory from the Fall 2016 to May 2019. During my initial projects in the laboratory, I worked under Dr. Douglas Powell examining biomechanics of human walking, jumping and landing to identify injury risk in recreational athletes. Through my initial exposure to scientific research I found that my time spent in the laboratory gave me the background to become an accelerated bachelors-to-masters (ABM) student. The ABM program gave me the ability to start graduate courses early during my third year as an undergraduate student until Spring 2020 when I am to graduate with my M.S. in Health Studies. The ABM program has increased my competitive edge as a student in academics and research. My initial scientific and academic success was owed to the curriculum, faculty, staff and peers within the School of Health Studies. As my time furthered working in the laboratory as an undergraduate, I continued my research under the direction of Dr. Powell examining how a progressive increase in load lead to biomechanical adaptations in walking during the summer of 2018. I graduated from the University of Memphis with a 3.76 GPA as an undergraduate research scholar May of 2019 that resulted from six peer reviewed publications, seven conference presentations, 14 research abstracts and 12 credit hours of graduate work completed with a 3.96 GPA.

Presently this summer, I have been awarded a *Graduate Summer Fellowship* under Dr. Powell examining Parkinson's Disease and how passive rigidity affects metabolic and kinetics during walking. During the Fall of 2019, I will continue my graduate work full time in the School of Health Studies with a graduate assistantship. However, if any master's student wants to continue to pursue a doctoral degree in biomechanics, they are forced to apply to graduate programs outside of the University of Memphis. If provided the chance, I will pursue my Ph.D. at the University of Memphis. I would also continue working with the faculty, staff and peers who helped inspire me to pursue research in the Human Performance Laboratories. The program in general and especially the laboratory experiences have given me invaluable tools that I would likely not have attained training in many other programs. Having a doctoral program with a Biomechanics Specialization at the University of Memphis would be indispensable. With the proposed coursework, along with the continuously-updated Musculoskeletal Analysis Laboratory and excellent faculty support, the University of Memphis has all resources needed to create a successful doctoral program. I am a proud alumnus of the School of Health Studies.

Unfortunately, I do not believe it can reach its full potential without a doctoral program. Therefore, I fully support the proposed doctoral program and hope others do as well.

Sincerely,

Alexis K. Nelson, B.S.
knelson6@memphis.edu
Graduate Student
School of Health Studies; Exercise, Sport and Movement Sciences
The University of Memphis, Memphis, Tennessee

April 26, 2018

Committee Members,

I am both honored and enthusiastic to offer a word of support for the proposed doctoral program in the School of Health Studies at the University of Memphis.

I am presently a first-year student in the Exercise, Sport, and Movement Sciences Master's program and anticipate completion in the spring of 2019. Unfortunately, I cannot offer any experiential opinions on the growth of the program over recent years, but I believe a professional parallel can be drawn. As a former collegiate strength and conditioning coach of six years, I am familiar with challenges associated with moving between programs at different universities. In the coaching realm, it is common practice to spend the first year of any commitment building trust and familiarity within and between colleagues, departments, and students. If successful, an employee is well positioned to perform more meaningful and diverse functions within the organization in the years that follow. Of course, the organization and the involved individual are mutual beneficiaries of a prolonged and cooperative agreement, and often an individual's impact cannot even be readily assessed until they have moved on.

Given that I have become familiar, by reputation or introduction, with a number of Master's students from years past, it is evident that there have been individuals in my current role who were exemplary in this way. By extension, it is reasonable that any individual deemed fit to pursue higher levels of education by the current faculty is surely an individual worth consideration for retention. Currently, the School of Health Studies is not modeled in a way that permits interested and impactful individuals to remain on campus and (a) advance their studies on top of an established commitment and body of work, (b) assume more meaningful and diverse roles within the college, or (c) provide supplementary mentorship to incoming or first year graduate students. This is unfortunate not only for students who are happy and productive here, but also for the current faculty members who stand to benefit from added support in the laboratories and classrooms.

I recognize that moving to another institution for PhD work represents a great opportunity for students to network, and for the University of Memphis' reputation to reach other programs, but I don't believe it is a requirement for these objectives to be met. This year we hosted the inaugural Mid-South Biomechanics Conference and will showcase the work of our master's students at the American Society of Biomechanics national conference this summer. The reputation of the school and program is increasingly far reaching both by student movement as well as the work being done right here on campus.

At the age of 29, I am presently experiencing the most enriching and accelerated learning experience of my life. My faculty advisers are knowledgeable and established members of their respective fields and make themselves available for me when I require counsel or advice on current and forthcoming projects. Two short years of exposure are quite frankly insufficient given these intellectual resources, and even the most ambitious of Master's students will be unable to maximize their potential if they must leave because we cannot offer them a continued opportunity.

Alexander M. Carnall
M.S. Candidate - Class of 2019

April 26, 2018

To the Doctoral Program Proposal Committee,

It is my pleasure to write a letter in support of the proposed doctoral program in Exercise, Sport, and Movement Sciences in the School of Health Studies at the University of Memphis.

I was fortunate enough to receive my bachelor's degree in Exercise, Sport, and Movement Sciences from the School of Health Studies in December of 2017. Currently, I am a first-year graduate student and Graduate Assistant in Exercise, Sport, and Movement Sciences at the University of Memphis. It has been a privilege to be a part of the undergraduate and now graduate programs of this department. My experience in these programs has granted me opportunities that I may not have had otherwise, such as: an undergraduate internship in the Musculoskeletal Analysis Lab, attendance at national and regional biomechanics conferences, and experience in writing and presenting scientific abstracts. I have received abundant guidance and support from Dr. Paquette, Dr. Powell, and Dr. Puppa in my time in the program, and am grateful for their roles in my academic career.

Over the past couple of years, I have been able to see the growth in the biomechanics program, not only in numbers but also in the research and work that is being done by its students and professors. I enjoy being a part of this program, but as a student who would like to pursue a PhD in biomechanics, I would have to apply elsewhere since there is not one currently offered at the University of Memphis. I think the University of Memphis's School of Health Studies would do an excellent job in housing such a program. The School of Health Studies has the extensive resources and outstanding faculty needed to deliver a doctoral program.

As an undergraduate alumna and current graduate student, I would love to see the School of Health Studies offer a doctoral program, as there is more potential for the program to reach. If this program were to exist, I would absolutely consider it after completion of my master's degree. I am in complete support of the development of the proposed doctoral program.

Rachael Arnwine, BFA, BS.

Graduate Research Assistant/MS Candidate

School of Health Studies

Memphis, TN

April 29, 2018

To the Doctoral Program Proposal Committee,

I've been at the University of Memphis for several years and completed my undergraduate degree in biology here. Currently, I'm a 2nd semester master's student in Nutrition Science and plan to pursue a PhD after graduating next year. I would very much like for the proposed doctoral program in the School of Health Studies at the University of Memphis to become a reality. I'm currently working with Dr. Pence studying the effects of aging on monocyte function and would like the option of continuing to do research with him and furthering my education at the University of Memphis. Without a PhD program, I will have no other option but to go to another school, and I will not be able to finish the research projects we are starting now. Furthermore, I've recently become fascinated with aging research and have the excellent opportunity to contribute to the field working with Dr. Pence. Finding someone else in a similar area of research will be difficult to do, and I would prefer to continue working on the projects we are starting now.

Sincerely,

John Yarbro

John Yarbro

April 16, 2018

To the Doctoral Program Proposal Committee,

It is my pleasure to write a letter in support of the proposed doctoral program in Health Sciences in the School of Health Studies at the University of Memphis.

I am currently a 2nd year master's degree student in the School of Health Studies at the University of Memphis, where I work as a Graduate Research and Teaching Assistant in the Motor Behavior Laboratory. Here, I work with Dr. Yuhua Li in the lab, and she has served as my advisor and master's project advisor. She has provided me with invaluable knowledge and support while going through this program, and I have been privileged to work with her. I have also had the opportunity to participate in the recently updated Musculoskeletal Analysis Laboratory, where I have gained experience while working with top of the line equipment and excellent faculty and staff. If granted the opportunity, I would love to pursue my doctoral degree at the University of Memphis.

The number of students entering the program is growing each year, and I feel as though having a doctoral program at the University of Memphis would be extremely beneficial. This would not only allow the current students to continue working on their research that they began as a master's student, but it would also allow students from other Universities to have the opportunity to work with the excellent faculty in this program. I truly believe the University of Memphis is equipped with all the tools it needs to successfully have a doctoral program.

The past two years I have spent at the University of Memphis are irreplaceable. No matter which lab you work in or whom you work with, each and every faculty member has fully supported me throughout all of my endeavors. I have been able to successfully complete a graduate student internship, which would not have been possible without their help and guidance. I would not have wanted to earn my master's degree anywhere else, and again, if granted the opportunity, would pursue a doctoral degree here as well. This is an amazing opportunity for the University of Memphis, and I fully support the proposed doctoral program.

Sincerely,

Emma Chase
Graduate Research Assistant/MS Candidate
Department of Health Studies
University of Memphis

Appendix C

Letters of Support Indicating External Support & Employer Demand

THE UNIVERSITY OF TENNESSEE
Health Science Center

TN Higher Education Commission and Student Assistance Corporation
404 James Robertson Parkway, Suite 1900
Nashville, TN 37243

April 10th, 2018

Dear Tennessee High Education Commission,

I am pleased to provide this letter of support for the Doctor of Philosophy in Health Sciences at the University of Memphis. I am currently an Assistant Professor in the College of Medicine at the University of Tennessee Health Science Center and a Clinical Exercise Physiologist in the Pediatric Obesity Program at LeBonheur Children's Hospital in Memphis, TN. Over the past 12 years, I have had the pleasure of working with many of the faculty, and students from Exercise Science program in the School of Health Studies and hold them in highest regard.

During this time, I have served as a clinical internship or research mentor for over 15 students (11 undergraduate; 4 graduate) from the Exercise Science programs at University of Memphis. Since becoming a Principal Investigator of a pediatric exercise physiology laboratory in 2014, I have hosted eight undergraduate students for their senior internship and served on one Master's thesis committee. The collaboration with these exceptionally trained students from University of Memphis has resulted in two student grant submissions, one publication, and three national or international research presentations. All of these students have received strong recommendations and placements in productive employment and/or academic positions. I addition to relying on the program for students, I have employed (full time) a number of the programs graduates in recent years (2015: Billy Tune; 2016 Ryan Moran), and recommend numerous other to collaborators and colleagues. Based on all of my experience this program produces some of the most capable and well trained exercise science students available. The addition of a Doctoral program would strengthen the Pediatric Obesity Program's access to well trained technicians and post-doctoral researchers. Currently as we are working to expand our program, we struggle to recruit postdoctoral students with exercise science training local to our area and are often left looking out of state for suitable candidates.

As a University of Memphis alumni (BS and MS), this program has played a key role in my personal development, training, and preparation. The knowledge gain here more than adequately prepared me for a career in clinical research, directly led to my employment at St. Jude, and laid the foundation for my research career. During my time at St. Jude, I continued to build upon the intellectual curiosity fostered at the University of Memphis and eventually led my desire to advance my own research initiatives beyond a staff level involve and pursue a faculty position. To this end, I decided to pursue a Doctoral degree in Exercise Physiology. Due to family obligations, I also needed to remain employed and decided to continue my work as a researcher at St. Jude. In order to meet my career goals and family responsibilities, I choose to look locally for Doctoral programs, which lead me to the nearest program at the University of Mississippi to complete my studies. While I received excellent training at University of Mississippi, a program at the University of Memphis would have been on the top of list of potential schools and provided me an opportunity to stay in the state of Tennessee for my training.

In summary, I would eagerly welcome a Doctoral level program in Health Sciences at the University of Memphis. As my research program expands, I would readily hire students trained in this environment and would recommend them to colleagues. I believe that the exceptionally well-trained students from the University of Memphis Health Sciences program would improve the already strong medical and scientific community in Memphis and across West Tennessee. I look forward to the increase in high-level students and collaborators the addition of this program would bring and eagerly anticipate expanding my collaborations with faculty, staff, and doctoral students at the University of Memphis.

Sincerely,



Webb A. Smith, PhD
Clinical Exercise Physiologist, Healthy Lifestyles Clinic, Le Bonheur Children's Hospital
Assistant Professor, Department of Pediatrics, University of Tennessee Health Science Center
50 North Dunlap Street, Room 453R, Memphis, TN 38103
Office: 901.287.6878 Email: wsmith74@uthsc.edu

St. Jude Children's Research Hospital

ALSAC • Danny Thomas, Founder

January 9, 2018

Marie van der Merwe, Ph.D.
Assistant Professor
School of Health Studies
The University of Memphis
310 Elma Roane Fieldhouse
Memphis, TN 38152

Dear Dr. van der Merwe:

I am the VP & Director of the Academic Programs Office in the Biomedical Sciences at St. Jude Children's Research Hospital. I am writing to you in regards to your plans for establishing a new doctoral program in Health Sciences within the School of Health Studies at the University of Memphis. I understand that your program will focus on integrative physiology and performance biomechanics, including specific areas of interest such as: 1) Cancer and muscle physiology; 2) Aging and Parkinson's Disease; and 3) Structural and functional musculoskeletal measures related to performance.

As you know, we are actively recruiting talented young scientists as postdoctoral fellows to St. Jude to study catastrophic childhood diseases. Although pediatric cancer is our primary focus, we also have world-renown investigators studying neurodegenerative diseases, premature aging in adult survivors of childhood cancer, neuromuscular impairments among children with acute lymphoblastic leukemia and dietary interventions to remediate frail health. Identifying well-trained graduate students as qualified postdoctoral fellows to carry on these studies is often challenging. We believe that your proposed doctoral program in Health Sciences will fill this need by preparing the next generation of physiologists and cancer biologists.

Please do not hesitate to contact me if you would like to explore opportunities in more detail. I wish you success in your important new endeavor.

Sincerely,

Gerard P. Zambetti, Ph.D.
VP & Director, APO

262 Danny Thomas Place, Memphis, TN 38105-3678 | t 901.595.3300 | www.stjude.org

Finding cures. Saving children.

THE UNIVERSITY of TENNESSEE HEALTH SCIENCE CENTER

COLLEGE OF NURSING

920 Madison Avenue
Memphis, TN 38163
Phone: (901) 448-6128
Fax: (901) 448-4121

2 May 2018

To: Tennessee Higher Education Commission

Re: Recommendation for Doctoral Program

This letter is to document my support for the application by the School of Health Sciences (SHS) at the University of Memphis to establish a new doctoral program. I recently transferred from SHS to the University of Tennessee Health Sciences Center and I am very well aware of the proposed program and the focus on applied physiology and nutrition, and performance biomechanics. In the following paragraphs I describe how this new doctoral program will of benefit to the University of Memphis, other Memphis institutions, and the surrounding region.

The faculty associated with the new doctoral program are already recognized for their research programs in the fields of 1) cancer and muscle physiology, 2) aging and Parkinson's Disease, 3) structural and functional musculoskeletal measures related to performance, and 4) the relations between nutrition and immunity, performance, and obesity. These address topics of concern in Memphis, as well as regional and national issues. SHS is in the process of hiring additional faculty who will contribute additional expertise. The research programs these new faculty will establish will build on these existing strengths.

The lack of a doctoral program has compromised the ability of SHS faculty to attract graduate students seeking PhD's. The current Masters programs is not enough to achieve the potential of SHS. I know this firsthand by losing several high quality students who had to leave Memphis to pursue doctorates and others who decided not to come to Memphis. With the proposed doctoral program, many of these advanced students will pursue doctoral studies in SHS Memphis. Often overlooked are the spouses of individuals who are being recruited to Memphis or already employed. Many of these spouses are highly educated, intelligent, and have the potential to be excellent doctoral students. The doctoral program will provide benefits by providing higher educational opportunities to such individuals and increasing the numbers of excellent doctoral students.

Recruiting faculty will be enhanced by the doctoral program. While on the faculty at UM I participated in several faculty searches. I learned that some outstanding individuals decided to not apply because of the lack of a PhD program. Hence, the doctoral program will also enhance faculty recruitment and retention.

An important consideration are the vital roles doctoral students play in research. The typical 2 year program of a Masters student limits their research to what can be accomplished in 6 – 9 months, much of which is dedicated to learning how to do the research. Doctoral research spans 2 - 3 years, allowing PhD students to accomplish additional research, assist in grantsmanship and publishing, and participate in the mentoring of undergraduate students. Maintaining a vigorous program is difficult with only Masters students. Just after they have been trained to do research they leave and take that knowledge and experience elsewhere—others reap the benefits of the training provided by SHS faculty. The longer tenure of doctoral students will increase the research productivity of faculty and this will greatly increase opportunities for funding and the likelihood of successes.

THE UNIVERSITY of TENNESSEE
HEALTH SCIENCE CENTER

COLLEGE OF NURSING

920 Madison Avenue
Memphis, TN 38163
Phone: (901) 448-6128
Fax: (901) 448-4121

Another consideration are the numerous employment possibilities for PhDs from the SHS program. Memphis alone provides numerous opportunities. Investigators at UM, UTHSC, and St. Jude Children's Research Hospital seek post-doctoral fellows who will contribute to their research programs while acquiring additional training and experience. Now that I am at UTHSC I would look to PhD students from SHS to join my lab as fellows. There are various employment possibilities with the local and regional universities, and with the biomedical and health industries in Memphis. Importantly, the SHS doctoral program will contribute to improving the work force of Memphis, thereby attracting additional industry to the area and Tennessee.

With a doctoral program, SHS will be able to recruit PhD students, locally, nationally, and globally, and be able to retain high quality students who currently have to leave UM to pursue a PhD degree. I strongly support this application and encourage approval because of the many benefits it will provide to students, UM, Memphis, and Tennessee.

Sincerely,

Randal K. Buddington
Professor



201 Life Sciences
Memphis, TN 38152
(901) 678-8391(T)

E-mail: tsutter@memphis.edu

May 5, 2018

Dr. Richard Bloomer
Dean, School of Health Studies
University of Memphis

RE: PhD degree in Health Studies

Dear Dr. Bloomer:

This letter is written with strong and enthusiastic support of your proposed PhD in Health Studies. As an active collaborator with members of your school, and a center director supporting research and development of several of your faculty, I have good knowledge of your program and the leading edge research progress you have made. As a NIH funded investigator I fully understand the need for a vigorous interdisciplinary graduate program in support of the biomedical research that is conducted in your School. Having worked with some of your Master students, I see your ability to attract bright, talented and engaged students. Your PhD program could only improve the overall competitiveness of the University of Memphis and provide valuable new opportunities for our students.

Sincerely,

Thomas R. Sutter, Ph.D.
Feinstone Professor of Molecular Biology
Director, W. Harry Feinstone Center for Genomic Research

Appendix D

Program of Study

Description of Program

The doctoral program in *Health Sciences* prepares students for subsequent careers in academic/medical/clinical research and/or higher education. It does so by immersing them in the entire research process through intensive mentoring by seasoned researchers. Students learn to function independently as well as collaboratively in one of two concentrations: 1) *Applied Physiology and Nutrition* or 2) *Performance Biomechanics*.

Concentrations:

Applied Physiology and Nutrition:

Post Bachelors – minimum total of 81 semester hours
(36 Post Baccalaureate plus 45 Post Master's)

Post Masters – minimum of 45 semester hours

Performance Biomechanics:

Post Bachelors – minimum total of 81 semester hours
(36 Post Baccalaureate plus 45 Post Master's)

Post Masters – minimum of 45 semester hours

Ph.D. in Health Sciences

Concentration: **Applied Physiology and Nutrition**

Post Baccalaureate – doctoral candidates successfully completing 36 hours of the following graduate coursework approved by the Doctoral Advisory Committee are eligible for the M.S. degree in Health Studies with a concentration in either Exercise, Sport and Movement Sciences (if ESMS courses taken) or the M.S. degree in Nutrition with a concentration in Nutrition Science (if NUTR courses taken) while in route to earning the Ph.D. in Health Sciences. Students enroll in the 8000-level cognate whenever available.

APAN Curriculum Components		Hours Required
Major Core Requirements: (12 hours)		
HMSE 7010		3
ESMS 8020		3
PUBH 8150		3
PUBH 8152		3
Concentration Requirements: (12 hours)		
ESMS 8123	or NUTR 8152	3
ESMS 8255 or 8163	or NUTR 8100	3
ESMS 8201	or NUTR 8412	3
ESMS 8202	or NUTR 8422	3
Guided Electives: (6 hours)		
(Designated by Major Professor)		6
Thesis or Applied Project (6 hours)		
HMSE 7996		6
OR		
*ESMS/NUTR 7950		6
Total Credit Hours for M.S. degree in ESMS:		**36**
Total Credit Hours for M.S. degree in NUTR:		**36**

*A first-authored (by the student) published refereed journal article, presenting "original research" in the field and not simply a review of literature, together with an oral presentation and defense of it may be used to satisfy requirements for ESMS/NUTR 7950 with approval by the Doctoral Advisory Committee. Students must also either enroll in ESMS/NUTR 7950 or complete the equivalent credit-by-exam in this scenario. This work is in addition to that required for Residency and Professional Scholarship.

Post-masters curriculum guidelines apply for doctoral candidates after completion of requirements for being awarded the master's degree.

Post Masters – doctoral candidates successfully completing a minimum of 45 hours beyond an appropriate Master's degree and approved by the Doctoral Advisory Committee may be eligible for the Ph.D. degree. Each program of study is individually planned and may require the candidate to successfully complete coursework in addition to that designated below, especially to address deficiencies as determined by the Doctoral Advisory Committee. Note: Completion of an Applied Project or Thesis is an additional requirement for Post-Master's students who have not already done so.

APAN Curriculum Components	Hours Required
Research/Statistics Course Requirements: (8000-level PUBH course or equivalent in addition to those required for post-bachelors candidates)	6
Major Field Requirements: Committee-approved 7/8000-level courses in addition to those required for post-baccalaureate candidates (includes 12 hours of ESMS 8081 or NUTR 8081)	18
Guided Electives: Designated by student's Major Professor	6
Dissertation:	15
Total Credit Hours (minimum) for Ph.D. degree	**45**

Ph.D. in Health Sciences

Concentration: **Performance Biomechanics**

Post Baccalaureate – doctoral candidates successfully completing 36 hours of the following graduate coursework approved by the Doctoral Advisory Committee are eligible for the M.S. degree in Health Studies with a concentration in Exercise, Sport and Movement Sciences while in route to earning the Ph.D. in Health Sciences. Students enroll in the 8000-level cognate whenever available.

BIOM Curriculum Components	Hours Required
Major Core Requirements: (12 hours)	
HMSE 7010	3
ESMS 8020	3
PUBH 8150	3
PUBH 8152	3
Concentration Requirements: (12 hours)	
ESMS 8123	3
ESMS 8255 or 8163	3
ESMS 8201	3
ESMS 8202	3
Thesis or Applied Project (6 hours)	
HMSE 7996	6
OR	
*ESMS 7950	6
Total Credit Hours for M.S. degree in ESMS:	**36**

*A first-authored (by the student) published refereed journal article, presenting "original research" in the field and not simply a review of literature, together with an oral presentation and defense of it may be used to satisfy requirements for ESMS 7950 with approval by the Doctoral Advisory Committee. Students must also either enroll in ESMS 7950 or complete the equivalent credit-by-exam in this scenario. This work is in addition to that required for Residency and Professional Scholarship.

Post-masters curriculum guidelines apply for doctoral candidates after completion of requirements for being awarded the master's degree.

Post Masters – doctoral candidates successfully completing a minimum of 45 hours beyond an appropriate Master's degree and approved by the Doctoral Advisory Committee may be eligible for the Ph.D. degree. Each program of study is individually planned and may require the candidate to successfully complete coursework in addition to that designated below, especially to address deficiencies as determined by the Doctoral Advisory Committee. Note: Completion of an Applied Project or Thesis is an additional requirement for Post-Master's students who have not already done so.

BIOM Curriculum Components	Hours Required
Research/Statistics Course Requirements: (8000-level PUBH course or equivalent in addition to those required for post-bachelors candidates)	6
Major Field Requirements: Committee-approved 7/8000-level courses in addition to those required for post-baccalaureate candidates (includes 12 hours of ESMS 8081)	18
Guided Electives: Designated by student's Major Professor	6
Dissertation:	15
Total Credit Hours (minimum) for Ph.D. degree	**45**

School of Health Studies

Ph.D. Curriculum Full-Time

Post-Baccalaureate Sample Plan of Study

Major: Health Sciences

Concentration: Applied Physiology and Nutrition

FOR THOSE STARTING WITH AN EXERCISE, SPORT & MOVEMENT SCIENCES EMPHASIS:

(Minimum 36 hours Post Baccalaureate and 45 hours Post Master's = 81 total credit hours)

Year 1

Fall		Spring		Summer	
HMSE 7010 Research Methods in Hlth Studies	3	ESMS 8020 Pubs/Proposals in Hlth & Biomed Sci	3	ESMS 8081 Supervised Research	3
PUBH 8150 Biostatistical Methods I	3	PUBH 8152 Biostatistical Methods II	3	ESMS 8152 Problems in ESMS	3
ESMS 8201 Physiology of Exer: Musculoskeletal	3	ESMS 8202 Physiology of Exer: Cardiorespiratory	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

Year 2

Fall		Spring		Summer	
ESMS 8123 Mechanical Analysis of Motor Skills	3	ESMS 8255 Anatomy of Motor Control	3	ESMS 8081 Supervised Research	3
ESMS 8220 Adv Considerations:Skeletal Muscle	3	ESMS 8230 Exercise Endocrinology	3	PUBH 8305 Quant Meth for Reviewing Res	3
ESMS 7950 Applied Project	3	ESMS 7950 Applied Project {M.S. Earned}	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

NOTES:

1) **Seminar required for *Residency & Professional Scholarship* but is not included in the minimum number of credit hours.**
2) **Following successful completion of designated coursework (including Applied Project or Thesis), the student will have earned the M.S. degree in *Health Studies* with a concentration in *Exercise, Sport and Movement Sciences* and will then continue with the Post-Master's Ph.D. program in *Applied Physiology and Nutrition*.**

School of Health Studies

Ph.D. Curriculum Full-Time

Post-Baccalaureate Sample Plan of Study

Major: Health Sciences

Concentration: Applied Physiology and Nutrition

FOR THOSE STARTING WITH A NUTRITION SCIENCE EMPHASIS:

(Minimum 36 hours Post Baccalaureate and 45 hours Post Master's = 81 total credit hours)

Year 1

Fall		Spring		Summer	
HMSE 7010 Research Methods in Hlth Studies	3	ESMS 8020 Pubs/Proposals in Hlth & Biomed Sci	3	ESMS 8081 Supervised Research	3
PUBH 8150 Biostatistical Methods I	3	PUBH 8152 Biostatistical Methods II	3	ESMS 8152 Problems in NUTR	3
NUTR 8412 Cellular Nutrition I	3	NUTR 8422 Cellular Nutrition II	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

Year 2

Fall		Spring		Summer	
BIOL 7031 Cellular Physiology	3	NUTR 8000 Sport Nutrition	3	ESMS 8081 Supervised Research	3
BIOL 8051 Vertebrate Cell Culture Techniques	3	NUTR 8001 Special Topics in Nutrition	3	PUBH 8305 Quant Meth for Reviewing Res	3
ESMS 7950 Applied Project	3	ESMS 7950 Applied Project {M.S. Earned}	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

NOTES:

1) **Seminar required for *Residency & Professional Scholarship* but is not included in the minimum number of credit hours.**
2) **Following successful completion of designated coursework (including Applied Project or Thesis), the student will have earned the M.S. degree in *Nutrition* with a concentration in *Nutrition Science* and will then continue with the Post-Master's Ph.D. program in *Applied Physiology and Nutrition*.**

School of Health Studies
Ph.D. Curriculum Full-Time

Post-Master's Sample Plan of Study

Major: Health Sciences

Concentration: Applied Physiology and Nutrition

(Minimum of 45 credit hours)

Year 1

Fall		Spring		Summer	
PUBH 8308 Applied Multivariate Statistics	3	PUBH 8310 Mixed Model Regression Analysis	3	ESMS 8081 Supervised Research	3
NUTR 8100 Into Wet Lab Methods: Hlth Studies	3	NUTR 8002 Exercise & Nutrition Immunology	3	NUTR 8001 Nutraceuticals & Dietary Suppl	3
ESMS 8081 Supervised Research	3	ESMS 8081 Supervised Research	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

Year 2

Fall		Spring		Summer	
HPRO/PUBH 8732 Randomized Clinical Trials	3	NUTR 8454 Molecular Nutrition	3	ESMS 8081 Supervised Research	6
BIOL 8140 Receptors & Signaling	3	BIOL 8335 Hormones & Behavior	3		
BIOL 8031 Cell Physiology	3	BIOL 8131 Cell & Molecular Biology	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

Year 3

Fall		Spring		Summer	
ESMS 8081 Supervised Research	3	ESMS 8081 Supervised Research	3	ESMS 9000 Dissertation	3
ESMS 9000 Dissertation	6	ESMS 9000 Dissertation	6		
Total	9	Total	9	Total	3

NOTES:

1) **Seminar required for *Residency & Professional Scholarship* but is not included in the minimum number of credit hours.**
2) **A minimum and maximum of 12 credit hours of Supervised Research is included as part of the program of study.**
3) **Note: Completion of an Applied Project or Thesis is an additional requirement for Post-Master's students who have not already done so.**

School of Health Studies

Ph.D. Curriculum Full-Time

Post-Baccalaureate Sample Plan of Study

Major: Health Sciences

Concentration: Performance Biomechanics

(Minimum 36 hours Post Baccalaureate and 45 hours Post Master's = 81 total credit hours)

Year 1

Fall		Spring		Summer	
HMSE 7010 Research Methods in Hlth Studies	3	ESMS 8020 Pubs/Proposals in Hlth & Biomed Sci	3	ESMS 8081 Supervised Research	3
PUBH 8150 Biostatistical Methods I	3	PUBH 8152 Biostatistical Methods II	3	ESMS 8152 Problems in ESMS	3
ESMS 8123 Mechanical Analysis of Motor Skills	3	ESMS 8202 Physiology of Exer: Cardiorespiratory	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

Year 2

Fall		Spring		Summer	
ESMS 8201 Physiology of Exer: Musculoskeletal	3	ESMS 8255 Anatomy of Motor Control	3	ESMS 8081 Supervised Research	3
ESMS 8532 Research Methods: Sports Neuromechanics	3	ESMS 8542 Advanced Kinesiology	3	PUBH 8305 Quantitative Meth for Reviewing Research	3
ESMS 7950 Applied Project	3	ESMS 7950 Applied Project {M.S. Earned}	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

NOTES:

1) **Seminar required for *Residency & Professional Scholarship* but is not included in the minimum number of credit hours.**
2) **Following successful completion of designated coursework (including Applied Project or Thesis), the student will have earned the M.S. degree in *Health Studies* with a concentration in *Exercise, Sport and Movement Sciences* and will then continue with the Post-Master's Ph.D. program in *Performance Biomechanics*.**

School of Health Studies
Ph.D. Curriculum Full-Time

Post-Master's Sample Plan of Study

Major: Health Sciences

Concentration: Performance Biomechanics

(Minimum of 45 credit hours)

Year 1

Fall		Spring		Summer	
PUBH 8308 Applied Multivariate Statistics	3	PUBH 8310 Mixed Model Regression Analysis	3	ESMS 8081 Supervised Research	3
ESMS 8220 Adv Cons Skeletal Muscle Structure & Function	3	ESMS 8210 Analysis of Muscle Function	3	ESMS 8152 Problems in ESMS	3
ESMS 8081 Supervised Research	3	ESMS 8081 Supervised Research	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

Year 2

Fall		Spring		Summer	
EDPR 8543 Research Design Analysis	3	HPRO/PUBH 8732 Randomized Clinical Trials	3	ESMS 8081 Supervised Research	3
ELECTIVE	3	ESMS 8133 Current Readings in ESMS	3	ELECTIVE	3
ESMS 8081 Supervised Research	3	ESMS 8081 Supervised Research	3		
HMSE 8142 Seminar	0	HMSE 8142 Seminar	0		
Total	9	Total	9	Total	6

Year 3

Fall		Spring		Summer	
ESMS 8081 Supervised Research	3	ESMS 8081 Supervised Research	3	ESMS 9000 Dissertation	3
ESMS 9000 Dissertation	6	ESMS 9000 Dissertation	6		
Total	9	Total	9		3

NOTES:

1) **Seminar required for *Residency & Professional Scholarship* but is not included in the minimum number of credit hours.**
2) **A minimum and maximum of 12 credit hours of Supervised Research is included as part of the program of study.**
3) **Note: Completion of an Applied Project or Thesis is an additional requirement for Post-Master's students who have not already done so.**

Appendix E

Student Participation in Research Mentored by School of Health Studies Faculty

(Refereed Publications Since 2012)

(Student Names in Bold)

2012

Bloomer, R.J., **R.J. Alleman Jr., G.S. Cantrell, T.M. Farney**, and B.K. Schilling. Effects of 2 nitrooxy ethyl 2 amino 3 methylbutanoate gel on resistance exercise performance and blood nitrate/nitrite in resistance-trained men. *Journal of Strength and Conditioning Research,* 26(6):1680-1687, 2012.

Bloomer, R.J.**, J.F. Trepanowski, M.M. Kabir, R.J. Alleman Jr,** and M.E. Dessoulavy. Impact of short-term dietary modification on postprandial oxidative stress. *Nutrition Journal,* 11:16, 2012.

Bloomer, R.J., **R.E. Canale, C.G. McCarthy, and T.M. Farney**. Impact of oral ubiquinol on blood oxidative stress and exercise performance. *Oxidative Medicine and Cellular Longevity,* 2012: article ID 465020.

Buddington, R.K., P.T. Sangild, B. Hance, E.Y. Huang, and **D.D. Black**. Prenatal gastrointestinal development in the pig and responses after preterm birth. *Journal of Animal Science,* 90(4):290-8, 2012.

Farney, T.M., C.G. McCarthy, R.E. Canale, and R.J. Bloomer. Hemodynamic and hematologic profile of healthy adults ingesting dietary supplements containing 1,3-dimethylamylamine and caffeine. *Nutrition and Metabolic Insights,* 5:1-12, 2012.

Farney, T.M., C.G. McCarthy, R.E. Canale, B.K. Schilling**, P.N. Whitehead,** and R.J. Bloomer**.** Absence of blood oxidative stress in trained men following strenuous exercise. *Medicine and Science in Sports and Exercise*, 44(10):1855-63, 2012.

Feldmann, C., L. Weiss, B. Schilling, and **P. Whitehead**. Association of drop vertical jump displacement with select performance variables. *Journal of Strength and Conditioning Research,* 26:1215-1225, 2012.

McAllister, M., B. Schilling, **K. Hammond**, L. Weiss, and **T. Farney**. Effect of grip width on electromyographic activity during the upright row. *Journal of Strength and Conditioning Research,* in press, 2012.

McCarthy, C.G., R.J. Alleman, Z.W. Bell, and R.J. Bloomer. A dietary supplement containing Chlorophytum borivilianum and Velvet bean improves sleep quality in men and women. *Integrative Medicine Insights*, 7:7-14, 2012.

McCarthy, C.G., R.E. Canale, R.J. Alleman Jr, and R.J. Bloomer. Biochemical and anthropometric effects of a weight loss dietary supplement in healthy men and women. *Nutrition and Metabolic Insights*, 5:13-22, 2012.

McCarthy, C.G., T.M. Farney, R.E. Canale, R.J. Alleman, and R.J. Bloomer. A finished dietary supplement stimulates lipolysis and metabolic rate in healthy men and women. *Nutrition and Metabolic Insights*, 5:23-31, 2012.

Powell, D., **N.J. Hanson, B. Long**, and D.S. Williams. Frontal plane kinematics and kinetics in high- and low-arched female athletes during a landing task. *Clinical Journal of Sport Medicine,* 22(5):430-435, 2012.

Powell, D., **B. Long**, C. Milner, and S. Zhang. Effects of vertical loading on arch kinematics in high- and low-arched females using a multi-segment foot model. *Journal of Applied Biomechanics,* 28:165-73, 2012.

Powell, D., K. Clowers, **M. Keefer,** and S. Zhang. Alterations in neuromuscular activation patterns in short-leg walking boots*. Journal of Sport and Health Science,* 1(1):43-8, 2012*.*

Trepanowski, J.F., M.M. Kabir, R.J. Alleman Jr, and R.J. Bloomer. A 21-day Daniel fast with or without krill oil supplementation improves anthropometric parameters and the cardiometabolic profile in men and women. *Nutrition and Metabolism*, 9(1):82, 2012.

Whitehead, P., B. Schilling, D. Peterson, **K. Hammond**, L. Domengeaux, and L. Weiss. Possible new modalities for the Navy Physical Readiness Test. *Military Medicine*, 177:1417-1425, 2012.

Whitehead, P.N., B.K. Schilling, **T.M. Farney**, and R.J. Bloomer. Impact of a dietary supplement containing 1,3-dimethylamylamine on blood pressure and bloodborne markers of health: a 10-week intervention study. *Nutrition and Metabolic Insights*, 5:33-39, 2012.

2013

Alleman, R.J., I.C. Harvey, T.M. Farney, and R.J. Bloomer. Both a traditional and modified Daniel Fast improve the cardio-metabolic profile in men and women. *Lipids in Health and Disease*, 12:114, 2013.

Bloomer, R.J. and **T.M. Farney**. Acute plasma volume change with high intensity sprint exercise. *Journal of Strength and Conditioning Research*, 27(10):2874-2878, 2013.

Bloomer, R.J., **T.M. Farney, I.C. Harvey, and R.J. Alleman Jr**. Safety profile of caffeine and 1,3-dimethylamylamine supplementation in healthy men. *Human and Experimental Toxicology*, 32(11):1126-1136, 2013.

Bloomer, R.J., **T.M. Farney, C.G. McCarthy, and S.R. Lee**. Cissus quadrangularis reduces joint pain in exercise trained men: A pilot study. *The Physician and Sportsmedicine*, 41(3):29-35, 2013.

Bloomer, R.J. and **T.M. Farney**. Plasma glycerol during the acute post-exercise recovery period: Influence of exercise intensity. *Comparative Exercise Physiology*, 9(2):103-108, 2013.

Bloomer, R.J., **J.F. Trepanowski, and T.M. Farney**. Influence of acute coffee consumption on postprandial oxidative stress. *Nutrition and Metabolic Insights*, 6:35-42, 2013.

Lee, S.R., **J.M. Schriefer, T.A. Gunnels, I.C. Harvey**, and R.J. Bloomer. Acute oral intake of a higenamine-based dietary supplement increases circulating free fatty acids and energy expenditure in human subjects. *Lipids in Health and Disease*, 12:148, 2013.

McCarthy, C.G., T.M. Farney, R.E. Canale, M.E. Dessoulavy, and R.J. Bloomer. High fat feeding, but not strenuous exercise, increases blood oxidative stress in trained men. *Applied Physiology, Nutrition and Metabolism,* 38(1):33-41, 2013.

Schilling, B.K., **K.G. Hammond**, R.J. Bloomer, **C.S. Presley, and C.R. Yates**. Pharmacokinetic and physiological effects of oral DMAA administration. *BMC Pharmacology and Toxicology*, 14:52, 2013.

Weiss, L., **B. DeForest, K. Hammond**, B. Schilling, and **L. Ferreira**. Reliability of goniometry-based Q-angle. *Physical Medicine and Rehabilitation*, 5:763-768, 2013.

2014

Ambati, V.N.P., **F. Saucedo**, **N.G. Murray**, D.W. Powell, and R.J. Reed-Jones. Constraining eye movement when redirecting walking trajectories alters turning control in healthy young adults*. Experimental Brain Research,* 226(4):549-556, 2014.

Andre, M.J., A.C. Fry, **E. McLellan**, L.W. Weiss, and **C.M. Moore**. Acute effects of static stretching on bench press power and velocity in adolescent male athletes. *International Journal of Sports Science and Coaching*, 9:1145-1152, 2014.

Bloomer, R.J. and **A.H. Toline.** Participant compliance to a 6-month traditional and modified Daniel Fast. *Journal of Fasting and Health,* 2(3):1-6, 2014.

Canale, R.E., T.M. Farney, C.G. McCarthy CG, and R.J. Bloomer. Influence of acute exercise of varying intensity and duration on postprandial oxidative stress. *European Journal of Applied Physiology*, 114 (9):1913-1924, 2014.

Cantrell, G., B.K. Schilling, M.R. Paquette, and Z. Murlasits. Maximal strength, power, and aerobic endurance adaptations to concurrent strength and sprint interval training. European Journal of Applied Physiology, 114(4):763-71, 2014.

Clements, W.T., S.R. Lee, and R.J. Bloomer. Nitrate ingestion: A review of the health and physical performance effects. *Nutrients,* 6(11):5224-5264, 2014.

Gunnels, T.A. and R.J. Bloomer. Increasing circulating testosterone: Impact of herbal dietary supplements. *Journal of Plant Biochemistry and Physiology*, 2:130, 2014.

Harvey, IC, S.R. Lee, **T.A. Gunnels, J.M. Schriefer**, and R.J. Bloomer. Absence of attenuation in oxidative stress response with repeated lipid-rich feedings. *Oxidants and Antioxidants in Medical Science,* 3(2):83-90, 2014.

Leckie, R.L., L.E. Oberlin, M.W. Voss, R.S. Prakash, A. Szabo-Reed, L. Chaddock-Heyman, S.M. Phillips, N. Gothe, E. Mailey, V.J. Vieria-Potter, S.A. Martin, B.D. Pence, M. Lin, R. Parasuraman, P.M. Greenwood, K.J. Fryxell, J. Woods, E. McAuley, A.F. Kramer, and K.I. Erickson. BDNF mediates improvements in executive function following a 1-year exercise intervention. *Frontiers in Human Neuroscience*, 8:985, 2014.

McAllister, M., K. Hammond, B. Schilling, **L. Ferreria, J. Reed**, and L. Weiss. Muscle activation during various hamstring exercises. *Journal of Strength and Conditioning Research,* 28:1573-1580, 2014.

Murray, N.G., A.P. Salvatore, D.W. Powell, and R.J. Reed-Jones. Reliability and validity evidence of multiple balance assessments in concussed athletes*. Journal of Athletic Training*, 49(4):540-549, 2014.

Reed-Jones, R.J., **N.G. Murray**, and D.W. Powell. Clinical Assessment of Balance in Concussed Adults*. Seminars in Speech Language Pathology,* 35(03):186-195, 2014.

2015

Bloomer, R.J., **R. Majaj, R. Moran, and J. MacDonnchadh**. Comparison of 5-Hour ENERGY and caffeine on cognitive performance in young men and women. *Journal of Caffeine Research*, 5(3):130-139, 2015.

Bloomer, R.J., **J.M. Schriefer, and T.A. Gunnels**. Clinical safety assessment of oral higenamine supplementation in healthy young men. *Human and Experimental Toxicology,* 34(10):935-945, 2015.

Bloomer, R.J., **T.A. Gunnels, and J.M. Schriefer**. Comparison of a restricted and unrestricted vegan diet plan with a restricted omnivorous diet plan on health-specific measures. *Healthcare*, 3:544-555, 2015.

Bloomer, R.J., **D.A. Melcher**, and R. Benjamin. Serum MSM concentrations following one month of MSM treatment in healthy men. *Clinical Pharmacology & Biopharmaceutics*, 4:135, 2015.

Bloomer, R.J., **T.A. Gunnels, R.G. Moran, and J.M. Schriefer**. Influence of a D-aspartic acid/sodium nitrate/ vitamin D3 dietary supplement on physiological parameters in middle-aged men: A pilot study. *The Open Nutraceuticals Journal,* 8:43-48, 2015.

Bloomer, R.J., **I.C. Harvey,** S.R. Lee, and M.L. Stockton. Predicting postprandial oxidative stress using serum triglyceride data following oral fat tolerance testing. *British Journal of Medicine and Medical Research*, 5(12):1514-1526, 2015.

Caminita, F., M. Van der Merwe, B. Hance, R. Krishnan, S. Miller, K. Buddington, and R.K. Buddington. A preterm pig model of lung immaturity and spontaneous infant respiratory distress syndrome. *American Journal of Ling Cell and Molecular Physiology*, 308(2):L118-29, 2015.

Godwin, S., R. Bloomer, M. Van der Merwe, and R. Benjamin. - MSM enhances LPS-induced inflammatory response after exercise*. Journal of International Society of Sports Nutrition*, 12(Suppl 1)P:48, 2015.

Harry, J.R., M.R. Paquette, **J. Caia**, R.J., Townsend, L.W. Weiss, and B.K. Schilling. Effects of footwear condition on maximal jumping performance. *Journal of Strength and Conditioning Research,* 29:1657–1665, 2015.

Kuhman, D.J., K.J. Joyner, and R.J. Bloomer. Cognitive performance and subjective mood following ingestion of a theacrine-containing multi-ingredient dietary supplement, caffeine, or placebo by healthy young men and women. *Nutrients,* 7:9618-9632, 2015.

Paquette, M.R., A. Zucker-Levin, P. DeVita, **J. Hoekstra**, and D. Pearsall. Lower extremity joint angular position and muscle activity during modified elliptical exercise in healthy young men. *Journal of Applied Biomechanics*, 31(1):19-27, 2015.

Paquette, M.R., Y. Li, **J. Hoekstra, and J. Bravo**. An eight-week reactive balance training program in older healthy adults: a preliminary investigation. *Journal of Sport and Health Sciences,* 4(3):263-269, 2015.

Powell, D.W., **M.M. Walker**, R.J. Reed-Jones, and J.A. Bunn. Peripheral artery disease and activity-induced shifts in quadriceps median frequency during treadmill walking: a preliminary study. *Central European Journal of Sport Science & Medicine*, 10(2):5-15, 2015.

Woods, J.A. and B.D. Pence. Physical activity, exercise, and the immune system: Three lines of research that have driven the field. *Kinesiology Review*, 4:118-125, 2015.

Wright, C.M.*, Van der Merwe, M.*, and M.A. Bjornsti. DNA Topoisomerase I domain interactions impact enzyme activity and sensitivity to Camptothecin. *Journal of Biological Chemistry*, 290(19):12068-78 *co-first authors, 2015.

2016

Ambati, V.N.P., N.G. Murray, F. Saucedo, D.W. Powell, and R.J. Reed-Jones. Constraining eye movement in individuals with Parkinson's disease during walking turns. *Experimental Brain Research*, 234(10): 2957-651. Doi: 0.1007/s00221-016-4698-1, 2016.

Bloomer, R.J., **R. Moran, J. MacDonnchadh**, S.R. Lee, and M. Farber. Impact of 2-nitrooxy-ethyl-2-amino-3-methylbutanoate on blood pressure and plasma nitrate/nitrite following acute exercise in normotensive men. *Medical Research Archives,* 3(6):1-13, 2016.

Bloomer, R.J., **J. MacDonnchadh, T.A. Gunnels, and J.M. Schriefer**. The influence of a passion flower extract on free testosterone in healthy men: a two-part investigation involving younger and older men. *Integrative Molecular Medicine,* 3(2):542-546, 2016.

Bloomer, R.J., **S.A. Peel, R.G. Moran, and J.J. MacDonnchadh**. Blood glucose and insulin response to artificially- and sugar-sweetened sodas in healthy men. *Integrated Food, Nutrition and Metabolism,* 3(1):268-272, 2016.

Bloomer, R.J., **J.J. MacDonnchadh, R.G. Moran**, J.Q. Timmcke, and B. Qin. Impact of a dietary supplement containing Rosemary and Daylily on biochemical markers of cognitive health, sleep quality and related variables in men and women with insomnia. *Health,* 8:1307-1322, 2016.

Caia, J., L. Weiss**,** L., Chiu, B. Schilling, and M. Paquette. Consistency of lower-body dimensions using surface landmarks and simple measurement tools. *Journal of Strength and Conditioning Research,* 30:2600-2608, 2016.

Caia, J., L. Weiss**,** L., Chiu, B. Schilling, and M. Paquette. Do lower-body dimensions and body composition explain vertical jump ability? *Journal of Strength and Conditioning Research,* 30: 3073-3083, 2016.

Chester, S., A. Zucker-Levin, **D.A. Melcher, S.A. Peel**, R.J. Bloomer, and M.R. Paquette. Lower limb kinematics and metabolic cost during elliptical exercises and treadmill running. *Journal of Applied Biomechanics*, 32(2):113-119, 2016.

Chester, S., A. Zucker-Levin, **D.A. Melcher, S.A. Peel**, R.J. Bloomer, and M.R. Paquette. A comparison of lower limb kinematics and metabolic parameters during elliptical exercises and treadmill running. *Journal of Applied Biomechanics,* 32(2):113-119, 2016.

Crone, L.B., E. Beatty, R.G. Moran, M. Butawan, and R.J. Bloomer. Impact of meal ingestion rate and caffeine co-ingestion on postprandial lipemia and oxidative stress following high-fat meal consumption. *Journal of Caffeine Research,* 6(3):108-116, 2016.

Daniels, J.L., R.J. Bloomer, M. van der Merwe, S.L. Davis, K.K. Buddington, and R.K. Buddington. Intestinal adaptations to a combination of different diets with and without endurance exercise. *Journal of the International Society of Sports Nutrition,* 13:35, 2016.

Davis, M.R., R. Easter, J. Carlock, L.W. Weiss, E.A. Longo, L.M. Smith, and B.K. Schilling. Self-reported physical tasks and exercise training in special weapons and tactics (SWAT) teams. *Journal of Strength and Conditioning Research,* 30:3242-3248, 2016.

Kuhman, D.J., M.R. Paquette**, S.A. Peel, and D.A. Melcher**. Comparison of ankle kinematics and ground reaction forces between prospectively injured and uninjured collegiate cross country runners. *Human Movement Science,* 47:9-15, 2016.

Kuhman, D.J., D.A. Melcher, and M.R. Paquette. Ankle and knee kinetics between strike patterns at common training speeds in competitive male runners. *European Journal of Sport Sciences,* 16(4):433-40, 2016.

Melcher, D.A., S.R. Lee, **S.A. Peel**, M.R. Paquette, and R.J. Bloomer. Effects of methylsulfonylmethane supplementation on oxidative stress, muscle soreness, and performance variables following eccentric exercise. *Gazz Med Ital – Arch Sci Med*, 176(5):271-283, 2016.

Melcher, D., M.R. Paquette, B.K. Schilling, and R.J. Bloomer. Joint stiffness and running economy during imposed forefoot strike before and after a long run in rearfoot strike runners. *Journal of Sports Sciences,* 9:1-7, 2016.

Moran, R.G., A.T. VonSchulze, and R.J. Bloomer. Impact of an herbal dietary supplement containing Spilanthes acmella and Orchis latifolia on testosterone in young men: A pilot study. *Journal of Biology and Life Science*, 8(1):28-41, 2016.

Nicoll, J.X., A.C. Fry, **A.J. Galpin**, A.J. Sterczala, D.B. Thomason, **C.A. Moore**, L.W. Weiss, and L.Z.F. Chiu. Changes in resting mitogen-activated protein kinases following resistance exercise overreaching and overtraining. *European Journal of Applied Physiology*, 116, 2016.

Powell, D.W., **S. Andrews**, C. Stickley, and D.S. Williams. High- compared to low-arched athletes exhibit smaller knee abduction moments in walking and running. *Human Movement Science*, 50:47-53, 2016.

Rodgers, L.J., J.M. Schriefer, T.A. Gunnels, and R.J. Bloomer. Impact of a multi-component dietary supplement on blood testosterone, nitrate/nitrite and physical performance in resistance-trained men. *British Journal of Medicine and Medical Research,* 11(1):1-11, 2016.

2017

Gladish, J.R., D.W. Powell, **L. Allison**, and R.M. Queen. Center of pressure profiles in unilateral compared to bilateral end-stage ankle osteoarthritis patients. *Journal of Orthopedic Research*, 2017.

He, H., D. Ma, **L.B. Crone**, M. Butawan, B. Meibohm, R.J. Bloomer, and C.R. Yates. Assessment of the drug-drug interaction potential between theacrine and caffeine in humans. *Journal of Caffeine Research,* 7(3):95-102, 2017.

Korak, J.A., M.R. Paquette, J. **Brooks**, D.K. Fuller, and J.M. Coons. Effect of Rest-Pause VS. Traditional Bench Press Training on Muscle Strength, Electromyography, and Lifting Volume. *European Journal of Applied Physiology,* 117(9):1891-1896, 2017.

Melcher, D., **M.R. Paquette**, B.K. Schilling, and R.J. Bloomer. Joint stiffness and running economy during imposed forefoot strike before and after a long run. *Journal of Sport Sciences,* 35(23):2297-2303, 2017.

Melcher, D.A., S.R. Lee, **S.A. Peel**, M.R. Paquette, and R.J. Bloomer. Effects of MSM supplementation on oxidative stress, muscle soreness, and performance variables following eccentric exercise*. Gazzetta Medica Italiana – Archivio Per Le Scienze Mediche,* 176(5):271-283, 2017.

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Murray, N.G., **N. D'Amico**, **M. Mormile**, and D.W. Powell. Assessment of gaze stability within 24 – 48 hours post-concussion. *Clinical Biomechanics*, 44:21 – 27, 2017.

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Paquette, M.R. and **D.A. Melcher**. Impact of a long run on injury-related biomechanics with relation to mileage in trained runners. *Journal of Applied Biomechanics,* 33(3): 216-221, 2017.

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2018

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Bloomer, R.J., **J.M. Schriefer, T.A. Gunnels**, S.R. Lee, H.J. Sable, M. van der Merwe, R.K. Buddington, and K.K. Buddington. Nutrient intake and physical exercise significantly impacts physical performance, body composition, blood lipids, oxidative stress and inflammation in male rats. *Nutrients*. 10:1109, 1-11, 2018.

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Kwon, **Y., J. Morgan**, D.W. Powell, and D.S. Williams. Influence of rest interval on ankle joint coordination with chronic ankle instability. *Human Movement Science*, 2018. Accepted.

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Murray, N.G., K. **Grimes, E.D. Shiflett,** B.A. Munkasy, N.R. D'Amico, M.E. Mormile, D.W. Powell, and T.A. Buckley. Repetitive head impacts influence on the postural control system during the course of a single athletic season. *Int J Psychol*, 10.132 Pt A: 81-86, 2018.

Paquette, M.R., S.A. **Peel, R. Smith**, M. Temme, and J.N. Dwyer. The impact of different cross-training modalities on performance and injury-related variables in high school cross country runners. *Journal of Strength and Conditioning Research,* Epub Ahead of Press, 2018.

Pence, B.D. and **J.R. Yarbro**. Aging impairs mitochondrial respiratory capacity in classical monocytes. *Experimental Gerontology*, 108:112-117, 2018.

Powell, D.W., **B. Szekely, S.E. Blackmore, A.K. Nelson**, A. Schallert, D.B. Lester, N.G. Murray, and M. Puppa. Effects of sampling rate and movement frequency on entropic measures of regularity. *J Nat Sci*, 4(5):504-508, 2018.

Powell, D.W., **S.E. Blackmore**, M.A. Puppa, D.A. Lester, R.J. Reed-Jones, and R.P. Xia. Deep brain stimulation enhances movement complexity during gait in individuals with Parkinson's disease. *Neuroscience Letters*, 2018. Accepted.

Smith, R.E., M.R. Paquette, J.R. Harry, D.W. Powell, L.W. Weiss. Footwear and sex differences in performance and joint kinetics during maximal vertical jumping. *Journal of Strength and Conditioning Research*, Accepted July 2, 2018 Published Ahead of Press.

Swearingen, J., L. Weiss, W. Smith, M. Stephenson, and B. Schilling. Potential utility of a loaded treadmill protocol for tactical athletes. *Journal of Strength and Conditioning Research,* 32(3):610-616, 2018.

2019

Brown, K.M., S. Sharma, E. Baker, W. Hawkins, M. van der Merwe, and M.J. Puppa. Delta-6-desaturase (FADS2) inhibition and omega-3 fatty acids in skeletal muscle protein turnover. *Biochemistry and Biophysics Reports* 18: 2019.

Gladish, J.R., D.W. Powell, and R.M. Queen. The effects of total ankle arthroplasty on postural stability and loading symmetry in quiet stance. *Journal of Biomechanics*, 83:110-116, 2019.

Lee, H.W., Baker, E., Lee, K.M., Persinger, A.M., Hawkins, W., Puppa, M.J. Effects of low dose leucine supplementation on gastrocnemius muscle mitochondrial content and protein turnover in tumor bearing mice. *Applied Physiology, Nutrition, and Metabolism*. 2019.

Murray, N.G., **B. Szekely**, R. Moran, G. Ryan, D.W. Powell, B.A. Munkasy, T.A. Buckley, and K. Guskiewicz. Concussion history associated with increased postural control deficits after subsequent injury. *Physiological Measurement*, 2019. In Press.

Murray N.G., R.J. Reed-Jones, **B. Szekely**, and D.W Powell. Clinical assessments of balance in adults with concussion: an update. *Speech Language Pathology*, 40(1): 48-56, 2019.

Pence, B.D. and **J.R. Yarbro**. Classical monocytes maintain ex vivo glycolytic metabolism and early but not later inflammatory responses in older adults. *Immunity & Ageing*, 16: 3, 2019.

Smith, N.J.G., J.L. Caldwell, M. van der Merwe, **S. Sharma**, M. Butawan, M. Puppa, and R.J. Bloomer. A comparison of dietary and caloric restriction models on body composition, physical performance, and metabolic health in young mice: *Nutrients*, *11*(2), 350, 2019.

Appendix F

Student Participation in Research Mentored by Current School of Health Studies Faculty

(Refereed Presentations Since 2012)

(Student Names in Bold)

2012

Ambati, V.N.P., N.G. Murray, F. Saucedo, D. Powell, and R.J. Reed-Jones. Constraining eye movements when redirecting walking trajectories in healthy young adults. *17th Biannual Meeting of the Canadian Society of Biomechanics*. Vancouver, British Columbia, June 6th-9th, 2012.

Falkenklous, J., H. Fluharty, R.P. Xia, **D. Renshaw**, and D. Powell. Continuous movement enhances shortening reaction and stretch reflex in Parkinson's disease. 35th Annual Meeting of the *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*. Harrisburg, PA, November 2nd – 3rd, 2012.

Fluharty, M., J. Falkenklous, R.P. Xia, **D. Renshaw**, and D. Powell. Effects of movement history on rigidity in Parkinson's disease. 35th Annual Meeting of the *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*. Harrisburg, PA, November 2nd – 3rd, 2012.

Li, Y., **M. Hoyt,** J. Rhee, C. Jing, J. Lu, and D. Wright. Do offline performance improvements emerge in both implicit and explicit learning environments? Research presentation, *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*. Hawaii, June 2012.

Li, Y., **K. Wilson, and M. Hoyt.** Test-retest reliability of foot speed and reaction time related to concussion assessment. Poster presentation, *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*. Hawaii, June 2012.

Midkiff, M., M.J. Ryan, P.D. Reneau, R.J. Reed-Jones, and D. Powell. Peripheral artery disease is associated with greater changes in EMG median frequency than healthy aging in response to fatigue. 35th Annual Meeting of the *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*. Harrisburg, PA, November 2nd – 3rd, 2012.

Morgan, A., K.J. Radeski, D.W. Renshaw, R.J. Reed-Jones, and D. Powell. Effect of sampling rate and movement frequency on approximate entropy calculations. 35th Annual Meeting of the *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*. Harrisburg, PA, November 2nd – 3rd, 2012.

Radeski, K.J., D. Renshaw, R.J. Reed-Jones, and D. Powell. Approximate entropy measures reveal no bilateral asymmetry in the stability of motor control in Parkinson's disease. 35th Annual Meeting of the *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*. Harrisburg, PA, November 2nd – 3rd, 2012.

Renshaw, D.W., S. Zhang, J. King, M. Keefer, and D. Powell. Propulsive moments and powers of the contralateral ankle and knee are increased when walking in short-leg walking boots. 35th Annual Meeting of the *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*. Harrisburg, PA, November 2nd – 3rd, 2012.

Rossignol, D., D.S. Williams 3rd, and D. Powell. Validation of the Foot-Arch Assessment System for arch height index values. 35th Annual Meeting of the *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*. Harrisburg, PA, November 2nd – 3rd, 2012.
Weiss, L., **K. Hammond**, B. Schilling, and **L. Ferreira**. Efficacy of goniometry-based Q-angle for measuring change. *Medicine and Science in Sports and Exercise,* 44: 2012.

Weiss, L., B. Schilling, **L. Ferreira, K. Hammond, and C. Feldmann**. Association of accelerometry-derived average rate of dynamic force development with force, velocity, and power. *Journal of Strength and Conditioning Research*, 25 (on-line): 2012.

2013
Ambati, V.N., N.G. Murray, N.G., D. Powell, and R.J. Reed-Jones. Comparison of methods to determine rotation onset of upper body segments when walking and turning*. 37th Annual Meeting of the American Society of Biomechanics*, Omaha, NE, September 4-7, 2013.

Ambati, V.N.P., M. Ponce de Leon, F. Saucedo, D. Powell, and R.J. Reed-Jones. Constraining eye movements when redirecting walking trajectories in people with Parkinson's disease*. 13th Annual Meeting of the Vision Sciences Society*, Naples, FL, May 10-15, 2013.

Bene, E.R**.**, Y. Li, C.C. Irwin, B.C. Baughman, **A.M. Rach, J.D. Bravo**, B.K. Schilling, and L.W. Weiss. Pre- and post-season concussion screening of student athletes: Test-retest reliability of the updated ImPACT battery version 2.1. Poster presentation, *National Academy of Neuropsychology*. San Diego, CA, October 2013.

Hoekstra, J., M.R. Paquette, **J. Huang, J. Bravo**, and Y. Li. An eight-week balance exercise intervention program in healthy older adults. Thematic Poster Presentation. *American Society of Biomechanics*, University of Nebraska, Omaha, NE. September 2013.

Li, Y. and **J. Huang.** An investigation in motor asymmetry on foot reaction time. Poster presentation, *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*. New Orleans, June 2013.

Paquette, M.R., A. Zucker-Levin, P. DeVita, **J. Hoekstra**, D. Pearsall. Knee angular position and muscle activity during modified elliptical exercise. Poster Presentation, *American Society of Biomechanics*, University of Nebraska, Omaha, NE. September 2013.

Powell, D**., C.E. Scruggs,** and J. Willson. Increasing treadmill velocity does not evoke unique responses in ankle joint mechanics in males compared to females during level walking*.15th Annual Meeting of the Eastern Carolina Chapter of the Society for Neuroscience*, Greenville, NC, October 29, 2013.

Rach, A.M., B.C. Baughman, C. Young, E. Bene, C. Irwin, and Y. Li. Abnormal ImPACT Reliable Change Indexes in asymptomatic athletes: A common occurrence. Poster presentation, *National Academy of Neuropsychology*. San Diego, CA, October 2013.

Radeski, K.J., R.J. Reed-Jones, and D. Powell. Body weight support and anti-PD medication alter lower extremity regularity during treadmill walking*. West Virginia Council for Undergraduate Research*, Charleston, WV, April 2013.

Watts, R., P.D. Reneau, M.J. Ryan, D. Powell, and J.L. Mayhew. Effect of rest interval duration on repetition performance in successive bench press lifts*. 60th Annual Meeting of the American College of Sports Medicine*, Indianapolis, IN, May 28 – June 1, 2013.

Watts, R., P.D. Reneau, M.J. Ryan, D. Powell, and J.L. Mayhew. Accuracy of selected submaximal loads to predict 1RM bench press in young adults*. 60th Annual Meeting of the American College of Sports Medicine*, Indianapolis, IN, May 28 – June 1, 2013.

Weiss, L., B. Schilling, **L. Ferreira, C. Feldmann, and K. Hammond**. Association of jump squat rate of force development with vertical jump displacement. *Medicine and Science in Sports and Exercise,* 45: 2013.

Weiss, L**., B. DeForest, S. Nichols**, B. Schilling, and M. Paquette. Comparative goniometry-derived Q-angles for relaxed vs. contracted quadriceps femoris muscles. *Journal of Strength and Conditioning Research*, 25 (on-line): 2013.

2014

Ake, K.M., L.A. Scott, B. Catanzarito, D.S. Williams, and D.W. Powell. Training paradigm is associated with unique sway velocities during quiet stance. *16th Annual Meeting of the Eastern Carolina Chapter of the Society for Neuroscience*, October 30, 2014.

Ake, K.M., D.S. Williams, R.J. Reed-Jones, G. Dedrick, **B.A. Windsor**, S. Sawyer, and D.W. Powell. Correlation of approximate entropy values calculated from a Wii Balance Board and a mobile-device mounted accelerometer. *7th Meeting of the World Congress of Biomechanics*, Boston, Massachusetts, 2014.

Ake, K.M., D.S. Williams, R.J. Reed-Jones, and D.W. Powell. Relationship between traditional and nonlinear measures of postural stability measured using a Nintendo Wii Balance Board*. 4th Annual Wiggins Memorial Library Academic Symposium*, Campbell University, Buies Creek, NC, 2014.

Ake, K.M., D.S. Williams, R.J. Reed-Jones, and D.W. Powell. Correlation of traditional and nonlinear measures of postural stability using a Nintendo Wii Balance Board*. 11th Annual Human Movement Science Curriculum Research Symposium*, Chapel-Hill, NC, 2014.

Best, K.A., B.R. Catanzarito, K.M. Ake, L.A. Scott, J.A. Bunn, and D.W. Powell. EMG amplitude is not indicative of fatigue during submaximal steady state running. *16th Annual Meeting of the Eastern Carolina Chapter of the Society for Neuroscience*, October 30, 2014.

Bunn, J.A., **B.R. Catanzarito, K.A. Best, K.M. Ake, L.A. Scott,** and D.W. Powell, DW. Effect of compression garments on lower extremity fatigue during steady state run. *16th Annual Meeting of the Eastern Carolina Chapter of the Society for Neuroscience*, October 30, 2014.

Catanzarito, B.R., K.A. Best, K.M. Ake, L.A. Scott, J.A. Bunn, and D.W. Powell. Fatigue-related shifts in median frequency of quadriceps EMG in steady state running. *16th Annual Meeting of the Eastern Carolina Chapter of the Society for Neuroscience*, October 30, 2014.

DeForest, B.A. and M.R. Paquette. Sex differences in symmetry of landing force variables during maximal vertical jumps. *The 7th World Congress of Biomechanics*. Boston, MA, USA. July 2014.

Li, Y., C. **Collins, S. Bell**, M.R. Paquette, and S. Yli-Piipari. Effects of 4-week agility training on foot speed and sport-specific agility in female collegiate tennis players: A pilot study. Annual Meeting of the *North American Society for the Psychology of Sport and Physical Activity* (NASPSPA). Minneapolis, MN, June 2014.

Murray, N.G., **C.E. Scruggs,** J.D. Willson, D.S. Williams 3rd, and D.W. Powell. Comparison of linear and nonlinear measures of postural stability. *61st Annual Meeting of the American College of Sports Medicine*, Orlando, Florida, 2014.

Powell, D.W., **C.E. Scruggs,** B.A. Windsor, and D.S. Williams. Training paradigm is associated with unique postural responses to positive- and negative-feedback surface perturbations*. 11th Annual Human Movement Science Curriculum Research Symposium*, Chapel-Hill, NC, 2014.

Powell, D.W., **L.A. Scott, K.M. Ake,** A. Muthumani, and R.P. Xia. Continuous movement trajectory modulates stretch reflex amplitude in Parkinson's disease. *16th Annual Meeting of the Eastern Carolina Chapter of the Society for Neuroscience*, Greenville, NC, October 30, 2014.

Powell, D.W., **C.E. Scruggs,** B.A. Windsor, and D.S. Williams. Effect of training paradigm on traditional measures of postural stability in response to positive- and negative-feedback surface perturbations*. 7th Meeting of the World Congress of Biomechanics*, Boston, Massachusetts, 2014.

Powell, D.W., D.S. Williams 3rd, **C.E. Scruggs,** and J.D. Willson. Effect of gender and increasing treadmill velocity on peak ankle plantarflexor powers in females compared to males during level walking*. 61st Annual Meeting of the American College of Sports Medicine*, Orlando, Florida, 2014.

Reed-Jones, R.J., **C.E. Scruggs**, D.S. Williams 3rd, J.D. Willson, and D.W. Powell. Altered variability of joint motion with increasing gait velocity*. 61st Annual Meeting of the American College of Sports Medicine*, Orlando, Florida, 2014.

Schilling, B., **J. Harry,** M. Paquette, L. Weiss, and D. Peterson. Footwear-dependent correlations between vertical and standing long jumps. *3rd International Congress on Soldier's Physical Performance*. Boston, MA, 2014.

Schneider, C.A., D.S. Williams, 3rd, B.A. Windsor, S. Zhang, and D.W. Powell. Differences in ankle joint reaction forces in forefoot compared to rearfoot strike patterns in running*. 61st Annual Meeting of the American College of Sports Medicine*, Orlando, Florida, 2014.

Schneider, C.A., D.S. Williams, B.A. Windsor, and D.W. Powell. Effect of shoes and strike pattern on ankle and knee joint moments during running*. 4th Annual Wiggins Memorial Library Academic Symposium, Campbell University*, Buies Creek, NC, 2014.

Schneider, C.A., D.S. Williams 3rd, B.A. Windsor, and D.W. Powell. Footwear and strike pattern are associated with altered ankle shear forces during running*. 11th Annual Human Movement Science Curriculum Research Symposium*, Chapel-Hill, NC, 2014.

Schneider, C.A., D.S. Williams 3rd, and D.W. Powell. Effect of shoes and strike pattern on ankle and knee moments during running*. Annual Meeting of the Southeast Chapter of the American College of Sports Medicine*, Greenville, SC, February 2014.

Scott, L.A., K.M. Ake, B. Catanzarito, A. Muthumani, R.P. Xia, and D.W. Powell. EMG normalization masks medication-based reductions in reflex amplitude in individuals with Parkinson's disease. *16th Annual Meeting of the Eastern Carolina Chapter of the Society for Neuroscience*, October 30, 2014.

Scruggs, C.E., J.D. Willson, **K.M. Ake,** D.S. Williams, **B.A. Windsor**, and D.W. Powell. Effect of increasing treadmill velocity on vertical ground reaction force variability*. 7th Meeting of the World Congress of Biomechanics*, Boston, Massachusetts, 2014.

Scruggs, C.E., J.D. Willson, D.S. Williams 3rd, and D.W. Powell. Changes in regularity of center of mass motion with increasing mechanical demand*. 61st Annual Meeting of the American College of Sports Medicine*, Orlando, Florida, 2014.

Scruggs, C.E., J.D. Willson, D.S. Williams, and D.W. Powell. Correlation between regularity of center of mass motion and trunk motion during treadmill walking. *4th Annual Wiggins Memorial Library Academic Symposium*, Campbell University, Buies Creek, NC, 2014.

Scruggs, C.E., J. Willson, and D. Powell. Increasing mechanical demand results in unique alterations in motor strategy in males compared to females. *Annual Meeting of the Southeast Chapter of the American College of Sports Medicine*, Greenville, SC, February 2014.

Weiss, L., **J. Caia, J. Harry**, L. Chiu, B. Schilling, and M. Paquette. Reliability and precision of anthropometric measures of the feet that influence moment arm length of reaction forces. *Journal of Strength and Conditioning Research*, 27 (on-line): 2014.

Weiss, L., **J. Caia, J. Harry**, L. Chiu, B. Schilling, and M. Paquette. Preliminary investigation into the association of longitudinal foot dimensions with countermovement vertical jump displacement. *Journal of Strength and Conditioning Research*, 27 (on-line): 2014.

2015

Ake, K.M., D.S. Williams, **B.A. Windsor**, S.M. Sawyer, and D.W. Powell. Barefoot running does not change ankle and knee joint stiffness values. *12th Annual Human Movement Science Curriculum Research Symposium*, Chapel-Hill, NC, February 2015.

Ake, K.M., J.A. Bunn, and D.W. Powell. Correlation between multistage fitness test and VO2max in Division I men's soccer players. *Southeast Regional Meeting of the American College of Sports Medicine*, Jacksonville, FL. February 14 – 16, 2015.

Ake, K.M., D.W. Powell, and D.S. Williams. Aged compared to young runners exhibit unique lower extremity biomechanics. *62nd Annual Meeting of the American College of Sports Medicine*, San Diego, CA, May 2015.

Bunn, J.A., **B.A. Catanzarito, K.A. Best, K.M. Ake, L.A. Scott,** and D.W. Powell. Lower extremity compression garments do not attenuate cardiovascular drift during submaximal exercise. *62nd Annual Meeting of the American College of Sports Medicine*, San Diego, CA, May 2015.

Chester, S., M.R. Paquette, A. Zucker-Levin, R.J. Bloomer, **S. Peel, D. Melcher, and N. Johnson**. Comparison of biomechanics and metabolic cost among elliptical exercises and running in runners. Poster Presentation at the *American College of Sports Medicine* annual meeting. San Diego, California. May 27-30th, 2015.

D'Amico, N., A.P. Salvatore, D. Powell, R.J. Reed-Jones, and N.G. Murray. Static and dynamic assessments of postural control post-concussion: logistic regression models. *62nd Annual Meeting of the American College of Sports Medicine*, San Diego, CA, May 2015.

D'Amico, N, A.P. Salvatore, D.W. Powell, R.J. Reed-Jones, and N.G. Murray. Static and dynamic assessments of balance post-concussion. *Southeast Regional Meeting of the American College of Sports Medicine*, Jacksonville, FL. February 14 – 16, 2015.

Evans, K.M., L. Li, B.A. Munkasy, N.G. Murray, D. Powell, and T.A. Buckley. Linear and nonlinear measurements of postural control recovery following concussion. *62nd Annual Meeting of the American College of Sports Medicine*, San Diego, CA, May 2015.

Kuhman, D.J., D.A. Melcher, S.A. Peel, and M.R. Paquette. A prospective comparison of biomechanical variables associated with running-related injuries in collegiate cross country runners. Abstract to the Annual Meeting of the *American Society of Biomechanics*, Ohio State University, Columbus, OH. August 2015.

Lage, S., J. Fox, M. Keefer, J. King, S. Zhang, and D. Powell. Bilateral effects of ankle-foot orthoses on lower extremity joint angles. *North Carolina Physical Therapy Association*, Asheville, NC, October 8 – 10, 2015.

Melcher, D.A., M.R. Paquette, and B.K. Schilling. Effects of imposed foot strike before and after a long run on joint stiffness in rearfoot strike runners. Abstract to the Annual Meeting of the *American Society of Biomechanics*, Ohio State University, Columbus, OH. August 2015.

Mize, M.A., J.W. Erhardt, B.A. Windsor, R. Kerry, C. Hoekstra, A. Porter-Hoke, A.J. Taylor, and D.W. Powell. Immediate and five-day effect of atlanto-axial high velocity thrust manipulation of peak systolic blood flow velocity of the vertebral artery. *12th Annual Human Movement Science Curriculum Research Symposium*, Chapel-Hill, NC, February 2015.

Norris, N.J., S. Hackney, J.A. Bunn, and D.W. Powell. Efficacy of a virtual reality-based balance perturbation system. *Eastern Carolina Chapter of the Society for Neuroscience*, Greenville, NC, November 3, 2015.

Paquette, M.R. and **D.A. Melcher**. Does fatigue and imposed forefoot strike alter strike pattern variability and loading rate in rear foot strike runners? Abstract to the Annual Meeting of the *American Society of Biomechanics*, Ohio State University, Columbus, OH. August 2015.

Paquette, M.R. and **D.A. Melcher**. Are variables associated with knee injuries different before and after a 40min run? Abstract to the Annual Meeting of the *American Society of Biomechanics*, Ohio State University, Columbus, OH. August 2015.

Paquette, M.R., C.E. Milner, and **D.A. Melcher**. Foot contact angle and its variability during a prolonged run in relation to injury history. Accepted Oral Presentation for the *25th Congress of the International Society of Biomechanics*. Glasgow, Scotland. July 12-16th, 2015.

Paquette, M.R., **D.A. Melcher, D. Kuhman, and N. Johnson**. The relationship between strike pattern and injury-related biomechanical variables in male and female collegiate runners. Poster Presentation at the *American College of Sports Medicine* annual meeting. San Diego, California. May 27-30th, 2015.

Peel, S.A., D.A. Melcher, B.K. Schilling, R.J. Bloomer RJ, and M.R. Paquette. The effects of MSM supplementation on knee kinetics during running, muscle strength, and muscle soreness following eccentric exercise-induced quadriceps damage. Abstract to the Annual Meeting of the *American Society of Biomechanics*, Ohio State University, Columbus, OH. August 2015.

Plummer, R.N., D.S. Williams, **K.M. Ake, B.A Windsor**, S.W. Sawyer, and D.W. Powell. Advancing age is associated with reduced ankle and knee joint powers during level running. *12th Annual Human Movement Science Curriculum Research Symposium*, Chapel-Hill, NC, February 2015.

Plummer, R.N., S. Zhang, B. Windsor, C. Stickley, D.S. Williams, and D. Powell. High- compared to low-arched athletes exhibit unique lower extremity joint power profiles. *North Carolina Physical Therapy Association*, Asheville, NC, October 8 – 10, 2015.

Powell, D.W., **K.M. Ake,** B.A. Windsor, and D.S. Williams. Older adult runners exhibit greater vertical stiffness and smaller dynamic joint stiffness compared to young adult runners. *12th Annual Human Movement Science Curriculum Research Symposium*, Chapel-Hill, NC, February 2015.

Powell, D.W., **K.M. Ake,** and D.S. Williams. Advancing age is associated with smaller ankle and knee joint stiffness in running. *Southeast Regional Meeting of the American College of Sports Medicine*, Jacksonville, FL. February 14 – 16, 2015.

Powell, D**., S. Lage,** J. Fox, M. Keefer, J. King, and S. Zhang. Bilateral increases in lower extremity extensor moments during level walking in ankle-foot orthoses. *North Carolina Physical Therapy Association*, Asheville, NC, October 8 – 10, 2015.

Queen, R.M., **E. Merenda,** D. Powell, and D.S. Williams. Using sample entropy on continuous and discontinuous data to assess jumping and landing. *39th Annual Meeting of the American Society for Biomechanics*, Columbus, OH, August 2015.

Scott, L.A., K.M. Ake, A. Muthumani, R.P. Xia, and D.W. Powell. EMG Normalization masks changes in reflex amplitude in response to dopaminergic medication in Parkinson's disease. *62nd Annual Meeting of the American College of Sports Medicine*, San Diego, CA, May 2015.

Scott, L.A., K.M. Ake, A. Muthumani, R.P. Xia, and D.W. Powell. Effect of normalization on quantification of stretch reflex amplitude in PD. *Southeast Regional Meeting of the American College of Sports Medicine*, Jacksonville, FL. February 14 – 16, 2015.

Weiss, L., **J. Caia**, L. Chiu, B. Schilling, and M. Paquette. Normalizing foot moment arm lengths in men and women: effect on reliability and precision. *Medicine and Science in Sports and Exercise,* 47: 2015.

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Weiss, L., **J. Caia**, B. Schilling, L. Chiu, and M. Paquette. Association of vertical jump performance with foot moment arms without and with ratio normalization. *Journal of Strength and Conditioning Research*, 28 (on-line): 2015.

Williams, D.S., **K.M. Ake,** and D.W. Powell. Training paradigm effects regularity of sway in response to dynamic perturbation. *Southeast Regional Meeting of the American College of Sports Medicine*, Jacksonville, FL. February 14 – 16, 2015.

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Ake, K.M., N.R. D'Amico, K.E. Grimes, M.E. Mormile, D.W. Powell, T.A. Buckley, B.A., Munkasy, and N.G. Murray. Gait and cognitive assessments of concussed athletes during dual-task walking. *63rd Annual Meeting of the American College of Sports Medicine,* Boston, MA. May 31 – June 4, 2016.

Ake, K., N. D'Amico, K. Grimes, M. Mormile, D. Powell, T. Buckley, and N.G. Murray. Gait assessments during dual-task walking in concussed athletes. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

D'Amico, N., D.W. Powell, and N.G. Murray. Assessment of gaze stability within 24 to 48 hours post-concussion. *40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC. Aug. 2 – 5, 2016.

D'Amico, N.R., M.E. Mormile, K.M. Ake, K.E. Grimes, D.W. Powell, R.J. Reed-Jones, A.P. Salvatore, and N.G. Murray. Assessment of anti-saccades within 24- to 48-hours post-concussion. *63rd Annual Meeting of the American College of Sports Medicine*, Boston, MA. May 31 – June 4, 2016.

D'Amico, N.R., M.E. Mormile, K.M. Ake, K. Grimes, D.W. Powell, R.J. Reed-Jones, and N.G. Murray. Assessment of anti-saccades within 24 to 48 hours post-concussion. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Easley, J.L., M.A. Mize, R.N. Plummer, B.A. Windsor, Williams, D.S., Powell, D.W. High- compared to low-arched athletes exhibit unique joint work distributions during a landing task. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Godwin, S.M., **L. Beech**, R.K. Buddington, **J.M. Wyman, J.L. Hill**, and M. van der Merwe. Rescue of diet-induced obesity and estrous irregularity with Omega-3 rich fish-oil diet. Poster Presentation, *Experimental Biology*. San Diego, CA. April 2016.

Grimes, K., E.D. Shiflett, B.A. Munkasy, **K.M. Ake, N.R. D'Amico, M.E. Mormile,** D. Powell, T.A. Buckley, and N.G. Murray. Relationship between position, cumulative impacts and cumulative accelerations in NCAA Division I football players. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Grimes, K.E., E.D. Shiflett, B.A. Munkasy, **K.M. Ake, N.R. D'Amico, M.E. Mormile,** D.W. Powell, T.A. Buckley, and N.G. Murray. Relationship between position, cumulative impacts and cumulative accelerations in NCAA Division I football players. *63rd Annual Meeting of the American College of Sports Medicine*, Boston, MA. May 31 – June 4, 2016.

Hernandez, N.J., M. Sanderford, J.A. Bunn, and D.W. Powell. Comparison of muscle activation using a nitrogen piston-based resistance device with free weights. *63rd Annual Meeting of the American College of Sports Medicine*, Boston, MA. May 31 – June 4, 2016.

Hernandez, N.J., M. Sanderford, D.W. Powell, and J.A. Bunn. Muscle activation intensity during resistance training using free weights compared to a piston-driven home gym. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Lage, S., J. Fox, J. King, J., M. Keefer, S. Zhang, and D.W. Powell. Bilateral effects of short-leg walking boots on frontal plane joint angles. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Mize, M.A., J.L. Easley, R.N. Plummer, B.A. Windsor, D.S. Williams, and D.W. Powell. Differences in braking and propulsive joint work values in high- compared to low-arched runners. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Mormile, M.E., N.R. D'Amico, K.M. Ake, K.E. Grimes, D.W. Powell, and N.G. Murray. Athlete and non-athlete quiet stance postural performance. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Mormile, M.E., N.R. D'Amico, K.M. Ake, K.E. Grimes, D.W. Powell, B.A. Munkasy, and N.G. Murray. Athlete and non-athlete quiet stance postural performance. *63rd Annual Meeting of the American College of Sports Medicine,* Boston, MA. May 31 – June 4, 2016.

Murray, N.G., E.D. Shiflett, B.A. Munkasy, **K.E. Grimes, K.M. Ake, N.R. D'Amico, M.E. Mormile,** D.W. Powell, and T.A. Buckley. Repetitive head impacts influence on the postural control system during an athletic season. *63rd Annual Meeting of the American College of Sports Medicine, Boston*, MA. May 31 – June 4, 2016.

Murray, N.G., **E.D. Shiflett,** B.A. Munkasy, **K. Grimes, K.M. Ake, N.R. D'Amico, M.E. Mormile,** D. Powell, D., and T.A. Buckley. Repetitive head impacts influence on the postural control system during the course of a single athletic season. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Norris, N.J., S. Hackney, J.A. Bunn, and D.W. Powell. Effect of altered visual and auditory input on postural stability in healthy young adults. *63rd Annual Meeting of the American College of Sports Medicine*, Boston, MA. May 31 – June 4, 2016.

Norris, N.J., D.W. Powell, and J.A. Bunn. The impact of altered visual input and auditory stimulations on balance and postural stability. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Paquette, M.R., **S.A. Peel, and R. Smith**. Ground reaction forces and ankle biomechanics during walking in different "recovery" footwear. Poster presentation to the annual *American Society of Biomechanics* meeting. Raleigh, NC, August 4, 2016.

Paquette, M.R., M. Temme, **S.A. Peel, R. Smith**, and J.N. Dwyer. Impact of different cross-training modes on economy and functional movement in high school runners. Thematic Poster to the *American College of Sports Medicine* annual meeting. Boston, MA, USA. May 25-28, 2016.

Peel, S.A., M.R. Paquette, B.K. Schilling, and L.W. Weiss. Effects of pitch repetition on knee joint kinetics in collegiate baseball pitchers. Poster presentation to the annual *American Society of Biomechanics* meeting. Raleigh, NC, August 4, 2016.

Plummer, R.N., J.L. Easley, M.A. Mize, B.A. Windsor, D.S. Williams, and D.W. Powell. Aberrant foot structure is associated with unique total and joint work values during a landing task. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Powell, D.W., **J.L. Easley, M.A. Mize, R.N. Plummer,** B.A. Windsor, R.M. Queen, and D.S. Williams. Absolute and relative joint contributions to landing in high- compared to low-arched athletes. *63rd Annual Meeting of the American College of Sports Medicine,* Boston, MA. May 31 – June 4, 2016.

Powell, D.W., **E. McConnell,** and R.M. Queen. Unique joint contributions to jumping and landing in ACL reconstructed compared to healthy athletes. *40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC. Aug. 2 – 5, 2016.

Powell, D.W**., E. McConnell,** and R.M. Queen. Recovery of balance following total ankle arthroplasty. *40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC. Aug. 2 – 5, 2016.

Powell, D.W., **S. Lage,** J. Fox, J. King, M. Keefer, and S. Zhang. Bilateral frontal plane kinetics in short-leg walking boots. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Queen, R.M., **E. McConnell,** and D.W. Powell. Differences in joint work and power during jumping and landing in ACL reconstructed patients and healthy controls. *40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC. Aug. 2 – 5, 2016.

Queen, R.M., **S. Lage,** and D.W. Powell. Unique center of pressure profiles in unilateral compared to bilateral end-stage ankle arthritis patients. *63rd Annual Meeting of the American College of Sports Medicine,* Boston, MA. May 31 – June 4, 2016.

Weiss, L., **J. Caia**, B. Schilling, L. Chiu, and M. Paquette. Stability reliability and precision of laterality-based foot moment arms under three different loading conditions. *Journal of Strength and Conditioning Research*, 29 (on-line): 2016.

Weiss, L., **J. Caia**, B. Schilling, L. Chiu, and M. Paquette. Association of vertical jump displacement with laterality-based foot moment arms. *Journal of Strength and Conditioning Research*, 29 (on-line): 2016.

Windsor, B.A., D.S. Williams, C. Stickley, and D.W. Powell. High- compared to low-arched athletes exhibit lower frontal plane stiffness during barefoot running. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 18 - 21, 2016.

Windsor, B.A., J.L. Easley, M.A. Mize, R.N. Plummer, R.M. Queen, D.S. Williams, and D.W. Powell. High-arched athletes exhibit significantly greater vertical stiffness values than low-arched athletes during a landing task. *63rd Annual Meeting of the American College of Sports Medicine*, Boston, MA. May 31 – June 4, 2016.

2017

Allison, L.E., E. McConnell, R.M. Queen, and D.W. Powell. Changes in center of pressure excursion velocities during recovery from total ankle arthroplasty. *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Arnwine, R.A., A.K. Nelson, and D.W. Powell. Ankle bracing alters lower extremity joint contributions to landing. *Works-in-Progress Symposium*, University of Memphis, Memphis, TN. Oct. 20, 2017.

Chysosferidis, P., B. Szekely, M.E. Mormile, K. Grimes, B.A. Munkasy, D.W. Powell, and N.G. Murray. Influences of training method on postural stability. *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Chrysosferidis, P., B. Szekely, M.E. Mormile, K. Grimes, B.A. Munkasy, D. Powell, and N.G. Murray. Influences of training method on postural stability. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 17-19, 2017.

Chung, C.L., D.J. DiAngelo, D.W. Powell, and M.R. Paquette. Comparison of a standard patellar tendon bearing brace and a novel dynamic ankle orthosis on ankle joint dynamics during walking. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Chung, C.L., D.J. Diangelo, D.W. Powell, and M.R. Paquette. Ankle kinematics and ground reaction forces during walking in a novel ankle orthosis. Annual meeting of the *American Society of Biomechanics*. Boulder, CO, August 8-11, 2017.

Crone L., R. Bloomer, M. Butawan, **J. Wyman, J. Hill**, H. Lee, A. Liu, and M. van der Merwe. Time restricted feeding of a high fat diet protect against adiposity, but not liver steatosis or increased TNF-α. Poster Presentation, *Experimental Biology*. Chicago, IL. April 2017.

Downing, K., D. Gregg, K. Wang, **C. Dowling,** S. Taylor, and Y. Li. A comparative study of gross motor development of American and Chinese Preschoolers: A pilot study. Poster presentation, *North American Society for the Psychology of Sport and Physical Activity (NASPSPA)*. San Diego, June 2017.

Freedman Silvernail, J., **K. Wiegand**, and M.R. Paquette. Lower limb segmental variability during a 40-min prolonged run. Abstract to the annual meeting of the *American Society of Biomechanics*. Boulder, CO, August 8-11, 2017.

Gladish, J.R., D.W. Powell, and R.M. Queen. Simplified center of mass tracking in ankle osteoarthritis patients. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Grimes, K., E. Lasko, M.E. Mormile, B. Szekely, B.A. Munkasy, D. Powell, and N.G. Murray. The relationship between post-concussion neurocognitive and postural control. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 17-19, 2017.

Grimes, K., E. Lasko, M.E. Mormile, B.J. Szekely, B.A. Munkasy, D.W. Powell, and N.G. Murray. The relationship between post-concussion neurocognitive performance and postural control. *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30th – June 4th, 2017.

Gruber, A.H., M.R. Paquette, **K. Camelio,** D.W. Powell, and J.E. Vollmar. Multiscale entropy of center of mass accelerations as a measure of cumulative running fatigue. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Gruber, A.H., M.R. Paquette, **K. Camelio**, J.E. Vollmar, and D.W. Powell. Multiscale entropy of center of mass acceleration as a measure for cumulative running training fatigue. Abstract to the annual meeting of the *American Society of Biomechanics*. Boulder, CO, August 8-11, 2017.

Hill, J.L., J.M. Wyman, R.K. Buddington, T. Sutter, and M. van der Merwe. Glucocorticoids in combination with an omega-6 rich high fat diet increase acute phase proteins and alters PUFA metabolism in visceral adipose tissue. Poster Presentation, Annual meeting of *Experimental Biology*. Chicago, IL. April 2017.

James, H.N., L.E. Allison, D.W. Powell, L.W. Weiss, and M.R. Paquette. Implications of added body mass on lower limb joint kinetics during vertical jumping. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Mizeski, B.J., M.E. Mormile, B. Szekely, K. Grimes, B. Munkasy, D.W. Powell, and N.G. Murray. Postural and cognitive changes observed during re-baseline assessments. *Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Mormile, M.E., B.J. Szekely, K.E. Grimes, B.J. Mizeski, B.A. Munkasy, D.W. Powell, and N.G. Murray. Test-retest reliability of multiple postural control assessment measures. *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Murray, N.G., **B. Szekely, M.E. Mormile, P. Chrysosferidis, K. Grimes,** B.A. Munkasy, and D.W. Powell. Postural and gaze deficits following concussion. *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Nelson, A.K., R.A. Arnwine, and D.W. Powell. Altered joint power profiles during landing with ankle bracing. *Works-in-Progress Symposium,* University of Memphis, Memphis, TN. Oct. 20, 2017.

Paquette, M.R., **K. Camelio,** A.H. Gruber, **R. Arnwine**, and D.W. Powell. Effects of prolonged running and training on lower extremity movement quality in novice runners. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Paquette, M.R., **K. Camelio**, D.W. Powell, and A.H. Gruber. Effects of a submaximal 30-minute run on peak tibial acceleration in novice runners. Thematic Poster at the *American College of Sports Medicine* annual meeting. Denver, CO, USA. May 30-June 4, 2017.

Powell, D.W., **L.E. Allison, E. McConnell,** and R.M. Queen. Recovery of center of pressure variability following total ankle arthroplasty. *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Singh, Kakar R., R.A. **Arnwine**, J. Tome, and M.R. Paquette. Lower limb joint kinematics in young and middle-aged runners. Abstract to the annual meeting of the *American Society of Biomechanics*. Boulder, CO, August 8-11, 2017.

Smith, N.J.G., D.W. Powell, and M.R. Paquette. Are frontal plane knee, hip and trunk kinematics associated with cycling power in trained cyclists? *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Smith, R.E., D.W. Powell, L.W. Weiss, and M.R. Paquette. Footwear differences in lower limb joint power generation during maximal vertical jumping. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Szekely, B., N.G. Murray, M.E. **Mormile, K.E. Grimes,** J.J. Yun, D.W. Powell, and B.A. Munkasy. Diagnostic validity of static and dynamic postural assessments within 24-48 hours post-concussion. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Szekely, B., N.G. Murray, **P. Chrysosferidis, M.E. Mormile, K.E. Grimes,** D.W. Powell, and B.A. Munkasy. Evaluation of static and sport-like postural tasks 24-48 hours post-concussion. *41st Annual Meeting of the American Society of Biomechanics*, Boulder, CO. August 8 – 11, 2017.

Szekely, B., M.E. Mormile, P. Chrysosferidis, K. Grimes, B. Mizeski, B.A. Munkasy, D.W. Powell, and N.G. Murray. Gaze stability of visually trained and non-visually trained athletes during a sport-like postural task. *64th Annual Meeting of the American College of Sports Medicine*, Denver, CO. May 30 – June 4, 2017.

Szekely, B., M.E. Mormile, P. Chrysosferidis, K. Grimes, B. Mizeski, B.A. Munkasy, D.W. Powell, and N.G. Murray. Gaze stability of visually trained and non-visually trained athletes during a sport-like postural task. *Southeast Regional Meeting of the American College of Sports Medicine*, Greenville, SC. February 17-19, 2017.

Weiss, L., **J. Caia**, B. Schilling, L. Chiu, and M. Paquette. Are laterality-based moment arms useful in explaining vertical jump performance? *Journal of Strength and Conditioning Research*, 30 (on-line): 2017.

Weiss, L., **J. Caia**, B. Schilling, L. Chiu, and M. Paquette. Combining men and women in prediction models of vertical jump: Is this problematic? *Journal of Strength and Conditioning Research*, 30 (on-line): 2017.

2018

Ard, R.A. and D.W. Powell. Heart rate variability as a biomarker of concussion recovery in youth athletes. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Arnwine, R.A., A.K. Nelson, B. Sherfield, R.E. Smith, R.M. Majaj, J.A. Melaro, M.R. Paquette, and D.W. Powell. Knee and hip joint torques are altered by prophylactic ankle bracing during landing. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Blackmore, S.E., R.P. Xia, and D.W. Powell. Validation of the system identification modeling approach to quantify passive tissue contributions to rigidity in Parkinson's disease. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Brown, K.M., EM. Baker, W. Hawkins, S. Sharma, M. van der Merwe, and M.J. Puppa. Effects of FADS2 inhibition in combination with increased dietary n-3 PUFAs on skeletal muscle protein turnover in mice fed a high fat diet. Annual meeting of *Experimental Biology*. San Diego, CA. April 2018.

Carnall, A.M., R.M. Majaj, M.R. Paquette, and D.W. Powell. Impact of second knee bend during clean and clean pull on biomechanical variables related to sport performance. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Christiansen, J., T. Standifird, **A. Creer**, D.W. Powell, L. Williams, M. Dial, and S. Ames. *42nd Annual Meeting of the American Society for Biomechanics*, Rochester, MN. Aug. 8 – 11, 2018.

Chung, C.L., D.J. DiAngelo, D.W. Powell, and M.R. Paquette. Comparison of a new ankle orthosis to a standard brace on ankle dynamics during walking. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Daugherty, H.J., D.W. Powell, M.R. Paquette, **L.E. Allison**, and L.W. Weiss. Sex differences in joint kinetics during a restricted vertical jump. *42nd Annual Meeting of the American Society for Biomechanics*, Rochester, MN. Aug. 8 – 11, 2018.

Koenig, A., B. Szekely, S. Wilhoite, P. Chrysosferidis, K. Neitz, D. Powell, B. Munkasy, and N.G. Murray. Comparisons of postural changes between trials of play of a sport-like dual task. *Southeast Regional Meeting of the American College of Sports Medicine*, Chattanooga, TN. Feb. 15 – 17, 2018.

Lee, H.W., A.M. Persinger, K. Lee, M. Jones, and M.J. Puppa. Effects of leucine supplementation of skeletal muscle mitochondrial content and protein turnover in tumor bearing mice. Annual meeting of *Experimental Biology*. San Diego, CA. April 2018.

Majaj, R.M., D.W. Powell, L.W. Weiss, and M.R. Paquette. Ankle kinetics and plantarflexor morphology in older runners with different lifetime running exposures. *42nd Annual Meeting of the American Society for Biomechanics*, Rochester, MN. Aug. 8 – 11, 2018.

Majaj, R.M., J.A. Melaro, D.W. Powell, and M.R. Paquette. Ankle kinetics during running between older runners with low and high lifetime running exposure. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Melaro, J.A., D.W. Powell, and M.R. Paquette. The effects of calf power training and foot strike transition on plantarflexor function in middle-aged runners: a proposal. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Melaro, J.A., D.W. Powell, and M.R. Paquette. Influence of running experience on running biomechanics in different footwear. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Millet, A., G. Ryan, S. Wilhoite, P. Chrsosferidis, B. Szekely, D. Powell, B. Munkasy, and N.G. Murray. Relationship between body composition and postural measures of collegiate athletes. *Southeast Regional Meeting of the American College of Sports Medicine*, Chattanooga, TN. Feb. 15 – 17, 2018.

Neitz, K., B. Szekely, S. Wilhoite, P. Chrysosferidis, B. Munkasy, D. Powell, and N.G. Murray. History of concussion and its effect on oculomotor control. *Southeast Regional Meeting of the American College of Sports Medicine*, Chattanooga, TN. Feb. 15 – 17, 2018.

Nelson, A.K., R.A. Arnwine, B. Sherfield, J.A. Malero, R.M. Majaj, M.R. Paquette, and D.W. Powell. Ankle bracing is associated with increased ankle and hip joint torques during a landing task. *Posters at the Capital*, Nashville, TN. Feb 28, 2018.

Nelson, A.K., R.A. Arnwine, B. Sherfield, R.E. Smith, R.M. Majaj, J.A. Melaro, M.R. Paquette, and D.W. Powell. Ankle bracing alters multi-planar ankle and knee joint kinematics during a step off landing task. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Nelson, A.K., R.A. Arnwine, B. Sherfield, J.A. Malero, R.M. Majaj, M.R. Paquette, and D.W. Powell. Ankle bracing evokes mechanical plasticity in the lower extremity during a landing task. *National Conference for Undergraduate Research*, University of Central Oklahoma, Edmond, OK. April 4-7, 2018.

Paquette, M.R., R.E. **Smith**, J.A. **Melaro**, and D.W. Powell. The influence of arch type and walking speed on peak plantar pressures. *42nd Annual Meeting of the American Society for Biomechanics*, Rochester, MN. Aug. 8 – 11, 2018.

Pence, B.D. and **J.R. Yarbro**. Aging impairs monocyte mitochondrial respiration and increases proportion of non-classical phenotype. Poster Presentation, *Keystone Symposium on Aging, Inflammation and Immunity*. Austin, TX. February 2018.

Powell, D.W., **J. Morgan**, and M.R. Paquette. Effects of age on skeletal and muscular contributions to leg stiffness. *42nd Annual Meeting of the American Society for Biomechanics*, Rochester, MN. Aug. 8 – 11, 2018.

Penninger, S.M. and M. van der Merwe. The influence of methylsulfonylmethane on inflammation-associated cytokine release before and following strenuous exercise. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Powell, D.W., **J. Morgan, R.A. Arnwine, A.K. Nelson**, M.R. Paquette, and D.S.B. Williams. Age-related differences in skeletal and muscular contributions to stiffness. *MidSouth Biomechanics Conference*, Memphis, TN. Feb 22-23, 2018.

Szekely, B., S. Wilhoite, P. Chrsosferidis, K. Neitz, D. Powell, B. Munkasy, and N.G. Murray. The effect of concussion history on postural control. *Southeast Regional Meeting of the American College of Sports Medicine*, Chattanooga, TN. Feb. 15 – 17, 2018.

Weiss, L.W., **L.A. Allison**, **H. Daugherty**, M.R. Paquette, and D.W. Powell. Are foot longitudinal dimensions related to jump ability in men and women? *Annual Meeting of the National Strength and Conditioning Association*, Indianapolis, IN. July 4-8, 2018.

Weiss, L.W., **H. Daugherty**, D.W. Powell, L.A. Allison, and M.R. Paquette. Are easily-measured longitudinal arch characteristics related to vertical jump performance. *Annual Meeting of the National Strength and Conditioning Association*, Indianapolis, IN. July 4-8, 2018.

Wilhoite, S., B. Szekely, P. Chrysosferidis, K. Neitz, K., D. Powell, B. Munkasy, and N.G. Murray. Relationship between neurocognitive testing and saccadic eye movements in symptom-free Division I athletes. *Southeast Regional Meeting of the American College of Sports Medicine*, Chattanooga, TN. Feb. 15 – 17, 2018.

Williams, L., T. Standifird, **A. Creer**, D.W. Powell, **J. Christensen**, M. Dial, and B. Carrier. Impact of peak and loading rate during incline running at iso-efficiency speed. *42nd Annual Meeting of the American Society for Biomechanics*, Rochester, MN. Aug. 8 – 11, 2018.

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Ard, RA, JA Melaro, AM Carnall, AK Nelson, SE Blackmore, VA White, MR Paquette, and DW Powell. Validation of the Tekscan Strideway plantar pressure mat compared to a force platform. *Annual Meeting of the American College of Sports Medicine*. Orlando, FL, USA. May 28-June 1.

Carnall, AM, MR Paquette, and DW Powell. Technique Influences Rate of Force Development in the clean exercise. Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Carnall, AM, QV Sherrod, DW Powell, and MR Paquette. Kinematic methods to detect gait events during a lateral shuffling task. *Mid-South Biomechanics Conference*. Memphis, TN, Feb 21-22, 2019.

Chung, C, D DiAngelo, and MR Paquette. The effect of typical footwear on in-shoe force measurements. *Mid-South Biomechanics Conference*. Memphis, TN, Feb 21-22, 2019.

Fong H, T Standifird, MR Paquette, and DW Powell. Inclined running results in a redistribution of lower extremity joint contributions. *Mid-South Biomechanics Conference*. Memphis, TN, Feb 21-22, 2019.

Melaro, JA, R Majaj, and MR Paquette. Joint kinetics during walking are not influenced by lifetime running exposure in older runners. *Mid-South Biomechanics Conference*. Memphis, TN, Feb 21-22, 2019.

Morgan, J, **AK Nelson, M Ryan,** MR Paquette, and DW Powell. Changes in complexity at maximal speeds may not influence functional performance immediately after: Pilot study. Annual Meeting of the American College of Sports Medicine. Orlando, FL, USA. May 28-June 1, 2019.

Paquette, MR, **VA White, JA Melaro**, and DW Powell. Are joint kinetics proximally redistributed following a long run in well-trained runners? *Annual Meeting of the American College of Sports Medicine*. Orlando, FL, USA. May 28-June 1, 2019.

Powell, DW, **HJ Daugherty, AM Carnall,** MR Paquette, and LW Weiss. Gender differences in joint contributions to maximal vertical jumping. *Mid-South Biomechanics Conference*. Memphis, TN, Feb 21-22, 2019.

Ryan, M and MR Paquette. Are all running workloads created equal? A proposal. Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Sherrod, QV, AM Carnall, DW Powell, and MR Paquette. Effects of using the iTrainFundamentals Bar on lower limb muscle activity. *Mid-South Biomechanics Conference*. Memphis, TN, Feb 21-22, 2019.

Vickery, T and MR Paquette. Influence of force insole biofeedback on plantarflexor kinetics in middle-aged healthy adults: A proposal. *Mid-South Biomechanics Conference*. Memphis, TN, Feb 21-22, 2019.

Appendix G

Faculty Vitae for Prospective Dissertation Chairs

RICHARD BLOOMER
Professor and Dean, Health Studies
Email: rbloomer@memphis.edu
Office Location: 106 Fieldhouse

Education

B.S. Health and Wellness - Buffalo State College - 1996
M.S. Exercise Physiology - Ithaca College - 1998
Ph.D. Exercise Physiology - University of North Carolina at Greensboro - 2003

Work Experience

Instructor, Massage Therapy - Medical Arts Massage School - 1998-2000
Exercise Physiologist, Psychiatry & Behavioral Sciences - Duke University Medical Center - 1999-2001
Adjunct Professor, Physical Therapy - Winston-Salem State University - 2004
Visiting Assistant Professor, Health and Exercise Science - Wake Forest University - 2003-2004
Assistant Professor, Health and Sport Sciences - University of Memphis - 2004-2009
Associate Professor, Health and Sport Sciences - University of Memphis - 2009-Present
Interim Department Chair, Health and Sport Sciences - University of Memphis - 2011
Department Chair, Health and Sport Sciences - University of Memphis - 2012-2015
Director, School of Health Studies - University of Memphis - 2015-2017
Dean, School of Health Studies - University of Memphis - 2017-Present

Honors/Awards

Faudree Professorship - University of Memphis - 2010-2013
Excellence in Research Award - University of Memphis, College of Education - 2009
Health Research Award; Effect of exercise on postprandial oxidative stress in pre-diabetics - University of Memphis - 2008

Teaching Experience

Exercise Programming for Special Populations (U) - University of Memphis
Physiology of Exercise: Metabolic/Cardiorespiratory Aspects (G) - University of Memphis
Exercise Physiology II (U) - University of Memphis
Nutraceuticals & Dietary Supplements for Health & Performance (G) - University of Memphis
Special Problems in Exercise and Sport Science (G) - University of Memphis

Support

Funded - Experimental and Applied Sciences, Inc. - $13,500 - 1997-1998
Funded - National Strength and Conditioning Association - $2,447 - 2003
Funded - National Safety Associates - $86,595 - 2003-2004
Funded - Jarrow Formulas - $6,650 - 2005-2006
Not funded - Southeast American Heart Association - $109,613 - 2005-2007
Funded - Sigma-tau HealthScience - $89,492 - 2005-2007
Funded - NIH (NHLBI) - $279,000 - 2005-2007
Not funded - NIH (NHLBI) - $595,000 - 2006-2009
Not Funded - NIH (NIEHS) - $67,146 - 2007-2008
Funded - Sigma-tau Health Science - $66,774 - 2007-2009
Funded - Sigma-tau HealthScience - $33,950 - 2007-2008
Funded - Minami Nutrition - $82,611 - 2007-2009
Funded - Champion Nutrition - $31,482 - (2008-2009)
Funded - Vital Pharmaceuticals, Inc. - $62,909 - (2008-2009)
Funded - Sigma-Tau HealthScience, Inc. - $66,774 - (2007-2009)
Not funded - NIH (NCI) - $1,278,799 - 2008-2011
Not funded - American Heart Association - $131,948 - 2008-2010
Funded - Mannatech, Inc. - $118,662 - 2009-2010
Funded - Sigma-tau HealthScience - $66,868 - 2009-2010
Funded - OmniActive Health Technologies - $50,827 - 2009-2010
Funded - Kaneka Nutrients, LP - $85,974 - 2010
Funded - Danisco - $16,004 - 2010
Funded - USP Labs - $132,860 - 2010-2011
Funded - Advanced Oral Technologies - $36,731 - 2011
Funded - Kaneka Nutrients, LP - $64,743 - 2011-2012

Funded - Sinatra Thoroughbred Racing and Breeding - $8,813 - 2011
Funded - Miami Research Associates - $8,800 - 2011
Funded - USP Labs - $225,600 - 2011-2012
Funded - Miami Research Associated - $23,147 - 2011-2012
Funded - Miami Research Associated - $6300 - 2011-2012
Funded - Purity Products - $49,350 - 2012
Funded - Life Extension Clinical Research - $13,536 - 2012-2013
Funded - USPlabs - $128,860 - 2012-2013
Funded - Purity Products - $34,005 - 2012
Funded - Bergstrom Nutrition - $39,531 - 2013
Funded - USPlabs - $31,036 - 2013
Funded - Formulife - $25,379 - 2013-2014
Funded - USPlabs - $92,298 - 2013-2014
Funded - SmarTek International - $70,517 - 2014
Funded - Bergstrom Nutrition - $102,164 - 2014
Funded - Research Development Innovations - $49,561 - 2014-2015
Funded - SmarTek International - $36,796 - 2015
Funded - Formulife - $10,118 - 2015
Funded - IN-Ingredients - $39,175 - 2015
Funded - IN-Ingredients - $10,147 - 2015
Funded - Compound Solutions, Inc. - $123,115 - 2016
Funded - IN-Ingredients - $56,906 - 2016
Funded - Bergstrom Nutrition - $68,208 - 2016
Funded - Compound Solutions, Inc. - $72,054 - 2016
Funded - Bergstrom Nutrition - $50,984 - 2017-2018
Funded - IN-Ingredients - $15,376 - 2018
Funded - APLU - $50,000 - 2017-2018
Funded - Mannatech, Inc. - $155,881 - 2018-2019

Books Published

Bloomer RJ. Why study exercise and sport science? In: Vaidya K (Ed). Exercise and Sports for the Curious—Why Study Exercise and Sports: The Truth About College Major, Research, Scholarships, and Jobs (How to Prepare yourself for Career Success in Exercise and Sport? [ASIN: B00U3WKETC; ISBN 978-1-925128-08-6. Success Stories Publishing, 2015.

Fisher-Wellman KH, & Bloomer RJ. Oxidative stress and exercise in cardiopulmonary and metabolic disorders. In: Laher I (Ed). Systems biology of free radicals and antioxidants. ISBN 978-3-642-30017-2. Chapter 168: 3805-3830, May 2014. Springer-Verlag. Germany.

Gregory S & Bloomer RJ. The Daniel Cure: The Daniel Fast Way to Vibrant Health. Zondervan, 2013; Grand Rapids, Michigan. ISBN-13: 978-0310335658

Bloomer RJ, Farney TM, & McAllister MJ. An overview of carnitine. In. Bagchi D, Nair S, & Sen CH (Eds). Nutrition and enhanced sports performance. ISBN: 978-0-12-396454-029. Chapter 41: 405-413, July 2013. Elsevier Science. New York, NY.

Bloomer RJ. Oxidative Stress. In: Rippe JM (Ed). Encyclopedia of Lifestyle Medicine and Health. February 14, 2012. SAGE Publications. Thousand Oaks, CA.

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Bloomer RJ, Tucker PS, & Fisher-Wellman KH. Influence of aerobic exercise training on postprandial oxidative stress. In: Handbook on oxidative stress. Chapter 16: 431-444, 2012. Nova Science Publishers. New York, NY.

Fisher-Wellman KH, & Bloomer RJ. Oxidative stress and exercise in cardiopulmonary and metabolic disorders. In: Laher I (Ed). Systems biology of free radicals and anti-oxidants. Springer-Verlag. Germany. In Press.

Bloomer RJ. Antioxidants and Exercise. In: Antonio J (Ed). Muscle, Appearance, and Performance-Enhancing Substances. In Press.

Bloomer RJ, Farney TM, & McAllister MJ. An overview of carnitine. In. Bagchi D, Nair S, & Sen CH (Eds). Nutrition and enhanced sports performance: recommendations for muscle building. Elsevier/Academic Press. In Press.

Bloomer RJ, McCarthy CG, & Farney TM. Minimizing postprandial oxidative stress in type 2 diabetes: The role of exercise and selected nutrients. In: Role of the Adipocyte in Development of Type 2 Diabetes. 321-372, 2011. InTech Publishers. Rijeka, Croatia.

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Bloomer RJ. Effect of exercise on oxidative stress biomarkers. In: Makowski GS (Ed). Advances in Clinical Chemistry. 46: 1-50, 2008. Elsevier Science. New York, NY.

Journal Articles

Wong T, Benjamin R, Bloomer RJ, & Buddington R. Small intestinal absorption of methylsulfonylmethane (MSM) and accumulation of the sulfur moiety in selected tissues of mice. Nutrients. 10(19): 1-9, 2018.

He H, Ma D, Crone LB, Butawan M, Meibohm B, Bloomer RJ, & Yates CR. Assessment of the drug-drug interaction potential between theacrine and caffeine in humans. Journal of Caffeine Research. 7(3): 95-102, 2017.

Bloomer RJ, & Yates CR. Dietary supplement usage: Better science equals better outcomes. Jacobs Journal of Food and Nutrition. 4(1): 1-4, 2017.

Bloomer RJ, Butwawan M, Timmcke JQ, and Qin B. Impact of the dietary supplement CLOCK® on BDNF and other biochemical measures related to cognitive function and health in men and women. Journal of Alternative, Complementary & Integrative Medicine. 3(034): 1-7, 2017.

Moore DC, Buddington RK, Freeman DA, & Bloomer RJ. The influence of plant- and animal-based diets on circulating testosterone and lean body mass in male rats. Food and Nutrition Journal. 217 (7); FDNJ-135, 2017.

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Bloomer RJ, MacDonnchadh J, Gunnels TA, & Schriefer JM. The influence of a passion flower extract on free testosterone in healthy men: a two part investigation involving younger and older men. Integrative Molecular Medicine. 3(2): 542-546, 2016.

Bloomer RJ, Peel SA, Moran RG, & MacDonnchadh JJ. Blood glucose and insulin response to artificially- and sugar-sweetened sodas in healthy men. Integrated Food, Nutrition and Metabolism. 3(1): 268-272, 2016.

Rodgers LJ, Schriefer JM, Gunnels TA, & Bloomer RJ. Impact of a multi-component dietary supplement on blood testosterone, nitrate/nitrite and physical performance in resistance-trained men. British Journal of Medicine and Medical Research. 11(1): 1-11, 2016.

Leelarungrayub J, Laskin JJ, & Bloomer RJ. Consumption of Star Fruit Juice on Pro-inflammatory Markers and Walking Distance in the Community Dwelling Elderly. Archives of Gerontology and Geriatrics. 64: 6-12, 2016.

Kuhman DJ, Joyner KJ, & Bloomer RJ. Cognitive performance and subjective mood following ingestion of a theacrine-containing multi-ingredient dietary supplement, caffeine, or placebo by healthy young men and women. Nutrients. 7, 9618-9632, 2015.

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Bloomer RJ, Harvey IC, Lee SR, & Stockton ML. Predicting postprandial oxidative stress using serum triglyceride data following oral fat tolerance testing. British Journal of Medicine and Medical Research. 5(12): 1514-1526, 2015.

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Bloomer RJ, Farney TM, Harvey IC, & Alleman RJ Jr. Safety profile of caffeine and 1,3-dimethylamylamine supplementation in healthy men. Human and Experimental Toxicology. 32(11): 1126-1136, 2013.
Bloomer RJ, & Lee SR. Women experience lower postprandial oxidative stress compared to men. SpringerPlus. 2:553; October 22, 2013.
Schilling BK, Hammond KG, Bloomer RJ, Presley CS, & Yates CR. Pharmacokinetic and physiological effects of oral DMAA administration. BMC Pharmacology and Toxicology. 14:52; October 4, 2013.
Lee SR, Schriefer JM, Gunnels TA, Harvey IC, & Bloomer RJ. Acute oral intake of a higenamine-based dietary supplement increases circulating free fatty acids and energy expenditure in human subjects. Lipids in Health and Disease.12:148; October 21, 2013.
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Bloomer RJ, & Farney TM. Plasma glycerol during the acute post-exercise recovery period: Influence of exercise intensity. Comparative Exercise Physiology. 9(2): 103-108, 2013.
Bloomer RJ, Trepanowski JF, & Farney TM. Influence of acute coffee consumption on postprandial oxidative stress. Nutrition and Metabolic Insights. 6: 35-42, 2013.
Alleman RJ, Harvey IC, Farney TM, & Bloomer RJ. Both a traditional and modified Daniel Fast improve the cardio-metabolic profile in men and women. Lipids in Health and Disease. 12:114, July 27, 2013.
McCarthy CG, Farney TM, Canale RE, Dessoulavy ME, & Bloomer RJ. High fat feeding, but not strenuous exercise, increases blood oxidative stress in trained men. Applied Physiology, Nutrition and Metabolism. 38(1): 33-41, 2013
Farney TM, McCarthy CG, Canale RE, Schilling BK, Whitehead PN, & Bloomer RJ. Absence of blood oxidative stress in trained men following strenuous exercise. Medicine and Science in Sports and Exercise. 44(10):1855-63, 2012.
Kalman DS, Feldman S, Scheinberg AR, Kreiger DR, & Bloomer RJ. Influence of methylsulfonylmethane on markers of exercise recovery and performance in healthy men: a pilot study. Journal of the International Society of Sports Nutrition. 9:46, September 26, 2012.
Block-Abraham DM, Ke RW, & Bloomer RJ. Impact of serum estradiol on biomarkers of oxidative stress in polycystic ovary syndrome and ovulatory women. Clinical Medicine Insights: Women's Health. 5 45–51, 2012.
Bloomer RJ, Canale RE, McCarthy CG, & Farney TM. Impact of oral ubiquinol on blood oxidative stress and exercise performance. Oxidative Medicine and Cellular Longevity. 2012: article ID 465020.
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McCarthy CG, Alleman RJ, Bell ZW, & Bloomer RJ. A dietary supplement containing Chlorophytum borivilianum and Velvet bean improves sleep quality in men and women. Integrative Medicine Insights. 7: 7-14, 2012.
Bloomer RJ, Alleman RJ Jr., Cantrell GS, Farney TM, & Schilling BK. Effects of 2 nitrooxy ethyl 2 amino 3 methylbutanoate gel on resistance exercise performance and blood nitrate/nitrite in resistance-trained men. Journal of Strength and Conditioning Research. 26:6. 1680-1687, 2012.
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Education

B.S. Physical Education - Shanghai Institute of Physical Education, Shanghai, China - 1978
M.S. Physcial Education - Shanghai Normal University - 1981
M.S. Exercise and Sport Sciences - The Pennsylvania State University - 1990
Ph.D. Kinesiology - Texas A&M University - 1994

Work Experience

Assistant Professor, Physical Education - Shanghai Teachers University - 1981-1986
Part-time Instructor, Exercise & Sport Science - The Pennsylvania State University - 1987-1989
Research Assistant, Psychology - The Pennsylvania State University - 1988-1989
Graduate Teaching Assistant, Exercise & Sport Science - The Pennsylvania State University - 1989-1990
Graduate Research Assistant, Health & Kinesiology - Texas A&M University - 1990-1994
Assistant Professor, Human Movement Sciences & Education - The University of Memphis - 1994-2000
Associate Professor, Health & Sport Sciences - The University of Memphis - 2000-2013
Professor, School of Health Studies - The University of Memphis - 2014 - present

Honors/Awards

Outstanding Student Award - The Shanghai Institute of Physical Education, Shanghai, China - 1978
Third prize in Social and Behavioral Sciences at Fourth Annual Graduate Research Exhibition. - The Pennsylvania State University - 1989
Graduate Student Fellowship - The Pennsylvania State University - 1989
Tom and Joan Read Scholarship - Texas A&M University - 1990
HMSE Instructional Technology Curriculum Infusion Award - Department of HMSE, The University of Memphis - 2000
Excellence in Research Award - College of Education, Health and Human Sciences, the University of Memphis - 2013

Teaching Experience

Pedagogy in Physical Education - Shanghai Normal University, China
Basketball (U) - Shanghai Normal University, China
Badminton (U) - The Pennsylvania State University
Volleyball (U) - The Pennsylvania State University
EXSS 3803 - Motor Learning (U) - The University of Memphis
EXSS 3853 - Motor Development (U) - The University of Memphis
EXSS 3853 - Motor Behavior (U) - The University of Memphis
EXSS 4204 - Assessment and Evaluation in HMSE (U) - The University of Memphis
EXSS 4605 - Internship in Exercise & Sport Science (U) - The University of Memphis
EXSS 7142 - Seminar in EXSS (G) - The University of Memphis
EXSS 7907 - Applied Scientific Principles (G) (Co-teaching) - The University of Memphis
EXSS 7800 - Internship in Exercise & Sport Science (G) - The University of Memphis
HMSE 4999 - Senior Project (U) - The University of Memphis
EDPR 7523 - Applied Education Research (G) (Co-teaching) - The University of Memphis
RECR 7800 - Computer Application in Recreation (G) (Co-teaching) - The University of Memphis
EXSS 7163 - Advanced Motor Learning (G) - The University of Memphis
HMSE 4999 - Senior Project (U) (Study abroad) - The University of Memphis
EXSS 7950 - Applied Project in EXSS (G) - The University of Memphis

Support

The evaluation of effects he evaluation of effects < of Tai Chi exercise on neuromuscular functions for the elderly in improving balance. (PI) - Tipton County Commission on Aging, Covington, TN. - $800 - funded - 1997~1998

The effects of Tai Chi Exercise on neuromuscular/musculoskeletal function for the elderly: Evidence of improvement in balance, strength, and psychomotor responses in preventing falls(PI) - D.W. Durham Foundation, Memphis, TN - $44,701 - unfunded - 1996

Effects of Sport Stacking Exercise Intervention on Motor Development and Academic Performance for School Children (PI) - Speed Stack, Inc. - $6,500 - funded - Dec. 2006 ~ June, 2008

The effects of a 4-week Quick Feet training program on reaction time and agility (Co-PI). - The Quick Board, L.L.C. - $3,118 - funded - June, 2007 ~ December, 2007

Tai chi for Older Patients with Total Hip Arthroplasty (Co-PI) - NIH (R-21) - $533,073 (unfunded) - 2009

Investigation on concussion assessments on college/high-school athletes: Neurocognitive functioning and postural stability (Co-PI). - FedEx Institute of

Technology - Corporate Engagement Grant - $25,000 (funded) - 2012 ~ 2013

An eight-week balance exercise intervention program in healthy older adults (Co-PI) - The Quick Board, L.L.C. - $1,500 (funded) - 2013 ~ 2014

Reliability of a virtual reality headgear device: A new approach to identify abnormal brain function post-concussion in the acute setting (Co-I) - GE-NFL Grant: Head Health Challenge I & II - $300.000 (unfunded) - 2014 ~ 2015

Graduate Research Mini-Grant - Department of Health & Kinesiology, Texas A&M University. - $350 - funded - 1994

Faculty Research Grant - The University of Memphis - $4,000 - funded - 1996-1997

Faculty Research Grant - The University of Memphis - $4,000 - funded - 1998-1999

Faculty Research Grant: "Effects of Tai Chi Exercise on Gait and Related Functional Performances for Hip-replacement Patients. - The University of Memphis - $4,000 - funded - 1999-2,000

Faculty Development Supplementary Travel Grant - The Center for International Programs and Services, The University of Memphis - $500 - funded - 2001 - 2002

Technology Access Fee (TAF) Awards: Innovation in the Use of Instructional Technology - The University of Memphis - $8,485 - Unfunded - 2002

Faculty Development Supplementary Travel Grant - The Center for International Programs and Services, The University of Memphis - $500 - funded - 2002-2003

Technology Access Fee (TAF) Awards: Instructional Technology - The University of Memphis - $5,985 - funded - 2005

Center for Community Health Collaborative Health Research Incubator Grants - The University of Memphis - $5,000 - funded - 2006 - 2007

Research Mentoring Grant - College of Education, Health & Human Sciences - $200 (funded) - 2012

Research Mentoring Grant - College of Education, Health & Human Sciences - $250 (funded) - 2013

Faculty Research Grant - University of Memphis - $2,600 (funded) - July 2015 ~ June 2016

Journal Articles

Wright, DL, Li, Y., and Whitacre, C. (1992). The contribution of elaborative processing of the contextual interference effect. Research Quarterly for Exercise and Sport, 63, 30-37.

Wright, DL, Kemp, T.L., and Li, Y. (1992). Authors response: The dual-task methodology and assessing the attentional demands of ambulation with walking devices. Physical Therapy, 72, 74-75.

Wang, M. ,Q., Nicholson, M.E., Mahoney, B.S., Li, Y., Fitzhugh, E.C., & Shea, J. (1993). The effects of high and low BACs on the Hoffman-reflex. Journal of Neurological Sciences, 117, 107-110.

Wang, M.Q., Nicholson, M.E., Li, Y., Mahoney, B.S., & Perko, M. (1993). Proprioceptive response under the rising and falling BACs: Test of Mallanby Effect. Perceptual and Motor Skills, 77, 83-88.

Wright, DL, Shea, C.H., Li, Y., and Whitacre, C. (1996). Contextual dependencies during motor skill acquisition: Gone but not forgotten. Memory, 4(1), 91-108.

Kreider, R.B., Klesges, R., Harmon K., Grindstaff, P., Ramsey, L., Bullen, D., Wood, L., Li, Y., & Almada, A. (1996). Effects of ingesting supplements designed to promote lean tissue accretion on body composition during resistance training. International Journal of Sport Nutrition, 6(3), 234-246.

Wright, DL, Li, Y., and Cody, W. (1997). Cognitive processes related to contextual interference and observational learning: A replication of Blandian et al. Research Quarterly for Exercise and Sport, 68(1), 106-109.

Li, Y., McColgin, C., & Van Oteghen, S. (1998). Comparisons of psychomotor performance between the upper- and lower-extremities in three age groups. Perceptual and Motor Skills, 87, 947-952.

Johnson, B. A., Li., Y., & Hartman, A. G. C., (1998). A case study of upper extremity stroke rehabilitation using aquatic exercise techniques: A motor control and learning perspective. The Journal of Aquatic Physical Therapy, 6(2), 12-23.

Fry, A.C., Webber, J.M., Weiss, L.W., Fry, M.D., & Li, Y. (2000). Impaired performances with excessive high-intensive free-weight training. Journal of Strength and Conditioning Research, 14(1), 54-61.

Li, Y., & Wright, DL (2000). Assessment of the attention demands of high and low contextual interference practice conditions: Implications for the Elaboration and Forgetting-Reconstruction hypotheses. The Quarterly Journal of Experimental Psychology, 53A(2), 591-606.

Weiss, L.W., Ireland, T.R., Freidman, A.A., Fry, A.C., & Li, Y. (2000). Functional submersion technique for assessing volume. Measurement in Physical Education and Exercise Science, 4(4), 199-213.

Smith, J.C., Fry, A.C., Weiss, L.W., Li, Y., & Kinzey, S.J. (2001). The effects of high-intensity exercise on a 10-second sprint cycle test. Journal of Strength and Conditioning Research, 15(3), 344-348.

Abma, C.L., Fry, M.D., Li, Y., & Relyea, G. (2002). Differences in imagery Content and imagery aility between high and low confident track and field athletes. Journal of Applied Sport Psychology, 14(2), 67-75.

Li, Y., & Lima, R.P. (2002). Rehearsal of task variations and contextual interference effect in a field setting. Perceptual and Motor Skills, 94, 750-752.

Sun, X., Hu, Y., & Li, Y. (2004) Ranges of abduction motion of hip joint due to the simplified Taichi quan exercise. Chinese Journal of Rehabilitation Theory and Practice, 10(12), 783.

Smith, S., Fry, M., Ethington, C., & Li, Y. (2005). The effect of athletes' perceptions of their coaching behaviors on their perceptions of the motivational climate. Journal of Applied Sport Psychology, 17, 1-8.

Whitman, S.P., Li, Y., & Devault, C.N. (2000). A longitudinal study of Tai Chi exercise intervention for the elderly in improving balance. Research Quarterly for Exercise and Sport, 71(1), (supplement), A113-114.

Li, Y., Whitman, S.P., & Wright, D.L. (2000). Improvementts in Perceptual-identification and Encoding Processes Using Random Practice. Journal of Sport & Exercise Psychology, 22 (supplement), s70.

Li, Y., Whitman, S.P., Friedman, A., & Krugger, T. (2001). A case study of developmental dyspraxia in improving perceptual motor performance and handwriting through an exercise intervention. Research Quarterly for Exercise and Sport, 72(1), (supplement), A50.

Li, Y. (2001). Tai Chi for seniors. World Leisure Asia Regional Conference: Social Development, Leisure and the Older Person. April, 2001 (p. 24).

Li, Y. Martinez, S., Zucker-Levin, A., Head, P., Xiong, X., Krugger, T.,& Weiss, L.W. (2002). "A preliminary study of effects of Tai Chi on gait and functional performances for individuals who have had total hip arthroplasty." Medicine & Science in Sports & Exercise, 34(5), S122.

Li, Y., Zucker-Levin, A., Krugger, T., Xiong X. & Weiss, L.W. (2002). "Effects of Tai Chi Exercise Intervention for Patients after total hip arthroplasty: A case series." Proceedings of the First Conference of the Society of Chinese Scholars on Exercise Physiology and Fitness (December, 2002, P.21).

Keller, G.J., Li, Y., Weiss, L.W., Relyea, G.E. (2006). Contextual interference effect on acquisition and retention of pistol shooting skills. Perceptual and Motor Skills, 103, 241-252.

Li, Y., Sun, X., & Weiss, L.W. (2005). Hip Joint abduction range of motion during Tai Chi exercise. Medicine & Science in Sports & Exercise, 37(5, supplement), S104.

Li, Y., Fang, Y., Wright, D.L., & Yue, G. (2006). Greater movement-related potential is associated with higher contextual interference practice condition during motor skill acquisition. Journal of Sport & Exercise Psychology, 28(supplement), S112.

Li, Y., Devault, C. & Van Oteghen, S. (2007). Effects of extended Tai Chi intervention on balance and selected motor functions of the elderly. The American Journal of Chinese Medicine, 35(3), 383-392.

Haneishi, K., Fry, A.C., Moore, C.A., Schilling, B., Li, Y., & Fry, M (2007). Cortisol and stress responses during a game and practice in female collegiate soccer players. Journal of Strength and Conditioning Research, 21(2), 583-588.

Moore, C.A., Weiss, L.W., Schilling, B.K., Fry, A.C., & Li, Y. (2007). Acute effects of augmented eccentric loading on jump squat performance. Journal of Strength and Conditioning Research, 21(2), 372-377.

Liggins, T., Li, Y., Stephens, L., & Lai, Q. (2007). Effects of summary knowledge of results and error estimation in motor learning: An EMG study. Journal of Sport & Exercise Psychology, 29(supplement), S105.

Galpin, A., Li, Y., Lohnes, C. & Schilling, B.K. (2008). A 4-week choice foot speed and choice reaction training program improves agility in previously non-agility trained, but active men and woman. The Journal of Strength and Conditioning Research, 22(6), 1901-1907.

Li, Y., Siemionow, V., Fang, Y., & Yue G. H. (2008). Greater movement related cortical potentials in Tai Chi vs. Non-Tai Chi exercise: A case study. Proceedings of the 2008 International Convention on Science, Education and Medicine in Sport, Guangzhou, China.

Li, Y., Coleman, D., Ransdell, M., Coleman, L. & Irwin, C. (2011). Sport stacking activities in school children's motor skill development. Perceptual and Motor Skills, 113(2), 431-438.

Zhang, J., Chen, R., Wu, Y., Li, K., Wang, D., Liu, Y. & Li, Y. (2013). An EMG study on characteristics of premotor and motor components in agility reaction time test on athletes. The Journal of Sports Medicine and Physical Fitness, 53 (October), 566-572.

Li, Y., Coleman, D., Ransdell, M., Coleman, L. & Irwin (2014). A pilot study of sport stacking effect on handwriting for school children. Physical Educator, 71(1), 59-71.

Paquette, M.R., Li, Y., Hoekstra, J., Bravo, J. (2015). An 8-week reactive balance training program in older healthy adults: a preliminary investigation. Journal of Sport and Health Science, 4, 263-269.

Paquette, M., Schilling, B., Bravo, J., Peel, S., Li, Y. & Townsend (2017). Computerized agility training improves change-of-direction and balance performance independently of footwear in young adults. Research Quarterly for Exercise and Sport, 88(1), 44-51.

Irwin, C.C., Li, Y., Bene, E., Rach, A., Baughman, B., Schilling, B., & Weiss, L. (2015). Test-retest reliability of selected NeuroCom® postural stability assessments. Research Quarterly for Exercise and Sport, 86(sup 2), A15-A16.

Ullmann, G., & Li, Y. (2017). Health benefits of seated Tai Chi. World Congress Integrative Medicine & Health 2017. BMC Complementary an Alternative Medicine, 17(Suppl 1): 317. DOL 10.1186/s12906-017-1783-3.

Presentations

*Wright, DL, Li, Y., and Whitacre, C. The contribution of elaborative processing to the contextual interference effect. Paper presented to the North American Society for the Psychology of Sport and Physical Activity Annual National Conference. Asilomar, California. June 1991.

*Wang, M.Q., Nicholson, M.E., Mahoney, B.S., Li, Y., Fitzhugh, E.C., & Shea, J. Effects of alcohol on psychomotor behavior: Implications for alcohol education. Paper presented at the American Alliance for Health, Physical Education, Recreation and Dance, San Francisco, CA, April 1992

* Li, Y., and Wright, DL. Contextual interference effect in motor skill learning: Evidence from the measurement of attentional demands. Southern District Alliance for Health, Physical Education, Recreation, and Dance Annual Convention, Dallas, Texas. February 1993.

*Li, Y., Smith, M.S., & Wright, DL. Insight or incremental learning? - Cognitive processing in motor skill acquisition. Paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Clearwater, FL, June 1994.

*Li, Y., & Wright, DL. Using attention assessment to evaluate the role of reconstructive processes for the contextual interference effect. Paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Monterey, CA, June 1995.

*Li, Y., Marks, W., & Forsythe, C. A test of specification of movement trajectory and the constraints on malleability of motor processes. Paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), June 1996.

*Alexander, C., Li, Y., Wright, DL, & Raced, F. Improving the detection of response errors using a Summary-KR procedure. Paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), June 1996.

*Li, Y., Wright, D., Raced, F., & Alexander, C. An investigation of error detection and error correction mechanisms in motor skill learning: Effects of Summary-KR and variability of practice. Research paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), June, 1997.

*Johnson, V.A., & Li, Y. A case study of two aquatic exercise techniques for upper extremity rehabilitation in stroke patients: A motor control and learning perspective. Research paper submitted to be presented at the Ninth Annual Stroke Rehabilitation Conference, Cambridge, MA, October 1997.

*Li, Y., McColgin, C., & Van Oteghen, S. Comparisons of psychomotor performance between the upper- and lower-extremity in aging. Research paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), June 1998.

*Rubin, M.R., Fry, A.C., Weiss, L.W., Li, Y., Gossick, E.L., Webber, J.M., & Barrow, E.H. Effects of free weight vs. machine bench press training on strength development. Research paper presented at 1998 NSCA National Conference.

* Starks, M.A., Wilson, M.L., Fry, M.D., Li, Y., & Fry, A.C. Acute hormonal effects of simulated tennis tournament play. Abstract of research paper presented at 1998 NSCA National Conference.

* Li, Y., & Vaczi, M. The locus of contextual interference effect: Motoric or perceptual? Research paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), June 1999.

* Li, Y., Whitman, S.P., & Wright, D. (2000). Improvements in perceptual-identification and encoding processes using random practice. Research paper presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), June 2000.

* Whitman, S.P., Li, Y., & Devault, C.N. (2000). A longitudinal study of Tai Chi exercise intervention for the elderly in improving balance. Research paper presented at the national convention of American Alliance for Health Physical Education Recreation and Dance (AAHPERD), March 2000.

* Li, Y., Whitman, S.P., Friedman, A., & Krugger, T. (2001). A case study of developmental dyspraxia in improving perceptual motor performance and handwriting through an exercise intervention. Research paper will be presented at the national convention of American Alliance for Health Physical Education Recreation and Dance (AAHPERD), March 29, 2001.

* Lima, R.P. & Li. Y. (2002). The contextual interference effect in learning a soccer passing skill. Research paper will be presented at the conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), June 2002.

*Li, Y. Martinez, S., Zucker-Levin, A., Head, P., Xiong, X., Krugger, T., & Weiss, L.W. "A preliminary study of effects of Tai Chi on gait and functional performances for individuals who have had Total Hip Arthroplasty." American College of Sports Medicine (ACSM) 49th Annual Meeting, St. Louis, MO. May 2002.

* Li, Y., Zucker-Levin, A., Krugger, T., Xiong, X., & Weiss, L. Effects of Tai Chi exercise intervention for patients after total hip arthroplasty: A case series. The First International Conference of the Society of Chinese Scholars on Exercise Physiology and Fitness (SCSEPF), Hong Kong, China, 2002.

* Gracia, K., Horii, M., & Li, Y. Effects of Summary KR and Error Estimation on Force Production Learning. The conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Savannah, GA, 2003.

* Li, Y., L. Weiss, A. Fry, K. Buchanan, L. Chiu, B. Schilling, B. Magu, B. Bondurant & C. Scates. Reliability of force measures during load-spectrum knee extensions. American College of Sports Medicine 50th Annual Meeting, San Francisco, California, 2003.

* Keller, G., & Li, Y. Contextual Interference Effects on Acquisition and Retention of Pistol Shooting Skills. The conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Vancouver, Canada. June 2004.

* Li, Y., Sun, X., & Weiss, L.W. Hip joint abduction range of motion during Tai Chi exercise. American College of Sports Medicine 52nd Annual Meeting, Nashville, Tennessee. June 2005.

* Moore, C., L. Weiss, B. Schilling, A. Fry, and Li, Y. Stability reliability of jump squats performed with augmented eccentric loads. Annual Conference of the National Strength and Conditioning Association, Las Vegas, Nevada. July 2005.

Li, Y. (1996). The Psychological Perspectives in Motor Performance and Learning. Presented in HMSE Department Research Colloquium Series. (February 23, 1996).

Xu, T., & Li, Y. (1999). Tai Chi's application in therapeutic settings and aging population. Presented at Tai Chi workshop: The Biomedical Benefits of Tai Chi Exercise Intervention (April 10, 1999), the University of Memphis.

Li, Y. An assessment of the attention demands during random and blocked training schedules. Presented at the Florida State University (June 1999).

Li, Y. Behavioral and Neural Processes Underlying Motor Control and Learning. Presented at Beijing University of Physical Education, Beijing, China (July 3rd, 2000).

Li, Y. Cognitive Processes Underlying Motor Skill Acquisition, Retention and Transfer. College of Physical Education, Shanghai Normal University, Shanghai, China (May 2004).

* Li, Y., Fang, Y., Wright, D., & Yue, G. Greater movement-related cortical potential is associated with higher contextual interference practice condition during motor skill acquisition. Annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Denver, Colorado, June 2006.

*Liggins, T., Coleman, D., Solis, A., & Li, Y. Effects of a cup-stacking exercise program on motor development for school children. Research paper presented at the national convention of American Alliance for Health Physical Education Recreation and Dance (AAHPERD), March 2007.

*Liggins, T., Li, Y., Stephens, L., & Lai, Q. Effects of summary knowledge of results and error estimation in motor learning: An EMG study. Annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), San Diego, California, June 2007.

* Li, Y., Siemionow, V., Fang, Y , & Yue G. H. Greater movement related cortical potentials in Tai Chi vs. Non-Tai Chi exercise: A case study. Presented at 2008 International Convention on Science, Education and Medicine in Sport, Guangzhou, China, August 2008.

*Galpin, A., Li, Y., Lohnes, C., Schilling, B. A 4-week foot movement speed and reaction training program improves agility in previously untrained but active men and women. Presented at 2008 International Convention on Science, Education and Medicine in Sport, Guangzhou, China, August 2008.

*Stephens, L., Li, Y. Coleman, D., Ransdell, M., Irwin, C. & Grindle, V. (2009). The effects of a sport stacking intervention on hand-eye coordination, reaction time and handwriting skills of 2nd grade students. Research paper presented at the national convention of American Alliance for Health Physical Education Recreation and Dance (AAHPERD), Temper, Florida, April 2009.

*Marshall, K., Stephens, L., Grindle, V., Fry, M., & Li, Y. (2009). Mental imagery and EEG activities in elite and novice collegiate soccer players. Research presentation at annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Austin, Texas, June 2009.

INVITED PRESENTATIONS (Conference)

Li, Y. The benefits of Tai Chi exercise in cardiovascular system for women. Second Annual Women's Heart Conference (November 1999).

Li, Y. Tai Chi for seniors. Presentation at World Leisure Asia Regional Conference: Social Development, Leisure and the Older Person, Shanghai, China (April 27, 2001).

Li, Y. Tai Chi exercise intervention and improving balance. Invited speaker at 2nd National Symposium on Complementary and Alternative Geriatric Health Care and 23rd Annual Geriatric Research Education & Clinical Center Symposium, Chesterfield, Missouri (September 2008).

Li, Y. Tai Chi exercise for seniors in balance improvement and fall prevention: Research methods and applications. Invited speaker at The 3rd Shanghai International Forum on Exercise and Health. Shanghai, China (November 2009).

*Zhang, J., Li, K., Wang, D. Liu, Y., & Li, Y. (2011). An EMG study on characteristics of premotor time and motor time in a choice reaction time test on foot movement of athletes. Research presentation at annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Burlington, Vermont, June 2011.

*Shepard, C., Kabir, M., & Li, Y (2011). Kinetic effects and EMG variability in response to different schedules of Knowledge of Results. Research presentation at annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Burlington, Vermont, June 2011.

* Shepard C., & Li, Y. (2012). Visual versus kinesthetic imagery in soccer players: An EEG study. The national convention of American Alliance for Health Physical Education Recreation and Dance (AAHPERD), March 2012.

*Zhang, J., Li, K., Wang, D. Liu, Y., & Li, Y. (2012). EMG as a tool to assess foot reaction time asymmetries. Research presentation at annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Hawaii, June 2012.

*Li, Y., Hoyt, M., Rhee, J., Jing, C., Lu, J. & Wright, D. (2012). Do offline performance improvements emerge in both implicit and explicit learning environments? Research presentation at annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Hawaii, June 2012.

*Li, Y., Wilson, K., Hoyt, M. (2012). Test-retest reliability of foot speed and reaction time related to concussion assessment. Research presentation at annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Hawaii, June 2012.

*Li, Y., & Huang, J. (2013). An investigation in motor asymmetry on foot reaction time. Research presentation at the 2013 annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), New Orleans, Louisiana, June,2013.

*Paquette, M., Hoekstra J., Huang, J., Bravo, J., & Li, Y. (2013). An eight-week balance exercise intervention program in healthy older adults. Research presentation at the 2013 annual conference of American Society for Biomechanics.

*Bene, E.R., Li, Y., Irwin, C.C., Baughman, B.C., Rach, A.M., Bravo, J.D., Schilling, B.K., & Weiss, L.W. (2013). Pre- and post-season concussion screening of student athletes: Test-retest reliability of the updated ImPACT battery version 2.1. Research presentation at the 2013 annual conference of National Academy of Neuropsychology, San Diego, CA, October 2013.

*Rach, A.M., Baughman, B.C., Young, C., Bene, E., Irwin, C., & Li, Y. (2013). Abnormal ImPACT Reliable Change Indexes in asymptomatic athletes: A common occurrence. Research presentation at the 2013 annual conference of National Academy of Neuropsychology, San Diego, CA, October 2013.

*Li, Y., Collins, C., Bell, S.T., Paquette, M.R., & Yli-Piipari, S. (2014). Effects of 4-week agility training on foot speed and sport-specific agility in female collegiate tennis players: a pilot study. Research presentation at the annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Minneapolis, Minnesota, June 2014.

*Zhang, J. & Li, Y. (2014). An investigation of motor asymmetry on choice step reaction time between athletes and non-athletes. Research presentation at the 2014 annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), Minneapolis, Minnesota, June 2014.

*Baughman, C.B., Rach, A.M., Li, Y., Irwin, C., & Bene, E. (2014). Symptom report versus performance-based assessment in athletes: Are we doing what we are saying? Research presentation at the Sports Neuropsychology Society (SNS) Concussion Symposium, Dallas, TX, April 2014.

Irwin, C.C., Li, Y., Bene, E., Rach, A., Baughman, B., Schilling, B., & Weiss, L. (2015). Test-retest reliability of selected NeuroCom® postural stability assessments. Research presentation at the 2015 SHAPE America National Convention, Seattle, WA, March 2015.

Ullmann, G. & Li, Y. (2017). Health benefits of seated Tai Chi. Research presentation at World Congress Integrative Medicine & Health 2017 (10th ECIM & 12th ICCMR Congress), Berlin, Germany, May 2017.

Downing, K., Gregg, D., Wang, K., Dowling, C., Taylor, S. & Li, Y. (2017). A comparative study of gross motor development of American and Chinese Preschoolers: A pilot study. Research presentation at the 2017 annual conference of North American Society for the Psychology of Sport and Physical Activity (NASPSPA), San Diego, California, June 2017.

MAX R. PAQUETTE
Associate Professor, Health Studies
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Office Location: 313 Fieldhouse

Education

PhD Biomechanics/Sport Medicine - University of Tennessee - 2012
MSc Human Health & Nutritional Sciences (Biomechanics) - University of Guelph - 2009
BSc Human Kinetics (Honors) - University of Guelph - 2007

Work Experience

Associate Professor, School of Health Studies – University of Memphis – Fall 2018 - present
Assistant Professor, School of Health Studies - University of Memphis - Fall 2012 – Summer 2018
Adjunct Assistant Professor, Orthopaedic Surgery & Biomedical Engineering - The University of Tennessee Health Science Center - Spring 2017 - Present
Volunteer Clinical Assistant Professor, Family Medicine - University of Tennessee Health Science Center - Fall 2013 - Present
Graduate Research Assistant, Kinesiology, Recreation & Sport Studies - University of Tennessee - Fall 2009 - Spring 2012
Graduate Research Assistant, Human Health & Nutritional Sciences - University of Guelph - Fall 2007 - Summer 2009

Honors/Awards

Most Valuable Professor Award - School of Health Studies, University of Memphis - 2016
Research Travel Award - American Society of Biomechanics - 2014
Chair's Award for Outstanding Research Contribution - School of Health Studies, University of Memphis - 2014
CSB Student Travel Award - Canadian Society for Biomechanics - 2012
Andy Kozar Award (Graduate Research and Writing) - University of Tennessee - 2012
Force and Motion Travel Scholarship - AMTI, Inc. - 2012
Chancellor's Professional Promise Award - University of Tennessee - 2012
ESPN Doctoral Fellowship Recipient (Teaching and Research Excellence) - University of Tennessee - 2011
Ciefers Teaching Fellowship - University of Tennessee - 2010

Teaching Experience

Anatomic Kinesiology - EXSS3405 - University of Memphis (Fall)
Exercise and Sport Mechanics - EXSS3020 - University of Memphis (Spring & Summer)
Mechanical Analysis of Motor Skill - EXSS7123 - University of Memphis (Spring)
Introduction to Exercise Science - EXSS2004 - University of Memphis (Fall 2013, 2014)
Research Methods in Sport Mechanics - EXSS7532 - University of Memphis (Fall; Not every year)
Aerobic Training Applications - EXSS2020 - University of Memphis (Summer)
Exercise Testing Technique and Interpretation - EXSS4000 - University of Memphis (Fall 2012, 2015)
Graduate Biomechanics Laboratory, Graduate Teaching Assistant - University of Tennessee, Knoxville (Fall 2011)
Biomechanics Laboratory, Graduate Teaching Assistant - University of Tennessee, Knoxville (Fall 2009, Spring 2010, Summer 2010, Fall 2010, Spring 2012)
Applied Anatomy Laboratory, Graduate Teaching Assistant - University of Tennessee, Knoxville (Summer 2010, Spring 2011)

Student Advising/Mentoring

MSc – (Committee Chair) – Tayler Vickery – May 2020
MSc – (Committee Chair) – Megan Ryan – May 2020
MSc – (Committee Chair) – Jake Melaro – May 2019
BSc (Internship) – Quvilo Sherrod – May 2019
BSc (Internship) – Marie Levasseur – May 2019
BSc (Internship) – Victoria White – December 2018
PhD, UM/UTHSC (Committee Member) - Chloe Chung – May 2020
PhD, MTSU (Committee Member) - Adam Korak - May 2017
MSc - Impact of lifetime running experience on biomechanical and morphological properties of plantar - Ramzi Majaj - December 2017
MSc - Movement quality and tibial shock with regards to prolonged running and training. - Kris Camelio - May 2017
MSc - Footwear and Sex Differences on Jumping Biomechanics in Trained Athletes - Ross Smith - May 2017
MSc - Lower Extremity Mechanics in Baseball Pitching - Shelby Peel - May 2016
BSc (Internship) - Hailey James - May 2017
BSc (Internship) - Rachael Arnwine - December 2017
BSc (Internship) - Dallis Forsythe - May 2016
BSc (Internship) - Alicia Washington - May 2016
BSc (Internship) - Sydney Wright - May 2016

BSc (Internship) - Clara Amat Fernandez - May 2016
MSc - Joint Stiffness between Rearfoot and Forefoot Strike Runners Following a Long Run - Daniel Melcher - May 2015
MSc - Lower Extremity Kinematics and Metabolic Cost during Elliptical and Running - Stephanie Nichols Chester - December 2014
B.Sc. (Internships, Spring 2015) - Elizabeth Findley - May 2015
B.Sc. (Internships, Spring 2015) - Ross Smith - May 2015
B.Sc. (Internships, Fall 2014) - Nathaniel Johnson - December 2014
B.Sc. (Senior Project, Fall 2014) - Daniel Kuhman - May 2015
B.Sc. (Internships, Spring 2014) - Shelby Peel - May 2014
B.Sc. (Senior Project, Fall 2013) - Shelby Peel - May 2014
BSc (2014 Helen Hardin Summer Research Fellowship) - Daniel Kuhman - May 2015
BSc (2014 Helen Hardin Summer Research Fellowship) - Roger Bynum - May 2015
MSc - Courtney Collins (committee member) - May 2014
MSc - John Harry (committee member) - May 2014
MSc - Footwear Training Effects on Agility and Balance in Non-Athletes - Joshua Bravo - May 2014
MSc - Bradley DeForest (committee member) - May 2013
MSc - Greg Cantrell (committee member) - August 2013

Support

Research Funding (PI) –METTIS Trainer - $17,000.00 – May 1, 2019 to April 30, 2020
Research Funding (PI) – I Train Fundamentals - $30,000.00 – May 1, 2018 to May 30, 2019
Research Funding (Co-I) (Powell, PI) - American Athletic Conference Academic Consortium - $10,000.00 - June 2017 to May 2018
Research Funding (PI) - American Athletic Conference Academic Consortium - $8,000.00 - June 2017 to August 2018
Research Funding (PI) - Hologic, Inc - $14,500.00 (Not Awarded) - June 1, 2017 to May 30, 2018
Research Funding (IIR) - Bayer HealthCare - $25,000.00 - June 1, 2017 to May 30, 2018
Research Funding (PI) - OOFOS Footwear - $5,000.00 - August 1, 2015 - September 30 2016
Research Consultant (MTSU) - NIH R15 - $8,136.00 - July 2014 - June 2017
Research Funding (CO-PI) - Bergstrom Nutrition - $102,168.00 - January 2014 - January 2015
Research Travel Grant (PI) - American Society for Biomechanics - $1,000.00 - June 1 - June 15, 2014
Research Funding (PI) - Precis Velo, Minneapolis, MN, USA - $2,500.00 - November 2013 - May 2014
Research Funding (CO-PI) - QuickBoard, LLC, Memphis, TN, USA - $1,500.00 - October 2012 - January 2013
Discovery & Development Research Grant - University of Memphis Research Investment Fund - $20,000.00 - April 1, 2017 to September 30, 2018
Faculty Research Grant (Co-PI) - University of Memphis - $2600.00 - July 1, 2015 - June 30, 2016
Helen Harding Honors Summer Research Fellowship Advising (Justin Brooks) - University of Memphis - $1565.00 - Summer 2015
Helen Harding Honors Summer Research Fellowship Advising (Roger Bynum) - University of Memphis - $1565.00 - Summer 2014
Helen Harding Honors Summer Research Fellowship Advising (Daniel Kuhman) - University of Memphis - $1565.00 - Summer 2014
Faculty Research Grant - University of Memphis - $5000.00 - 2013
Research Mentoring Grant (Dr. Brian Schilling) - College of Education Health & Human Sciences - $250.00 - December 2012 - January 2014
Research Mentoring Grant (Dr. Yuhua Li) - College of Education Health & Human Sciences - $250.00 - December 2012 - January 2014

Journal Articles

Harry JR, Barker LA, Paquette MR (2019). Sex and acute weighted vest differences in force production and joint work during countermovement vertical jumping. Journal of Sports Sciences. Accepted, Ahead of Press.

Willy RW, Paquette MR (2019). The Physiology and Biomechanics of the Master Runner. Special Issue: The Ultra Endurance Athlete, Sports Medicine and Arthroscopy Review. Accepted, Ahead of Press

Smith RE, Paquette MR, Harry JR, Powell DW, Weiss LW (2018). Footwear and sex differences in performance and joint kinetics during maximal vertical jumping. JSCR, Accepted, Ahead of Press

Korak JA, Paquette MR, Fuller DK, Caputo JL, Coons JM (2018). Effect of a rest-pause vs traditional squat on electromyography and lifting volume in trained women. Eur J App Phys. Epub.

Paquette MR, Miller RH (2018). Reconciling new with old injury paradigms and the need to dig deeper. Commentary in Current Issues in Sport Science. Accepted, Ahead of Press

Harry JR, Paquette MR, Schilling BK, Barker LA, James CR, Dufek JS. (2018) Kinetic and Electromyographic Sub-Phase Characteristics with Relation to Countermovement Vertical Jump Performance. J App Biomech, Accepted Ahead of Press.

Korak JA, Paquette MR, Fuller DK, Caputo JL, Coons JM (2018). Muscle activation patterns of lower body musculature among three traditional lower body exercises in trained women. JSCR. Accepted Ahead of Press.

Powell DW, Paquette MR, Williams D.S.B. III (2017). Contributions to leg stiffness in high- compared to low-arched athletes. MSSE. 49(8): 1662-1667.

Paquette MR, DeVita P, Williams III DSB. (2017). Biomechanical implications of training volume and intensity in aging runners. MSSE, Accepted, Ahead of Press.

Korak JA, Paquette MR, Brooks J, Fuller DK, Coons JM (2017). Effect of Rest-Pause VS. Traditional Bench Press Training on Muscle Strength, Electromyography, and Lifting Volume. Eur J App Phys. 117(9): 1891-1896.

Paquette MR, Peel SA, Smith R, Temme M, Dwyer JN (2017). The impact of different cross-training modalities on performance and injury-related variables in high school cross country runners. JSCR, Epub Ahead of Press.

Paquette MR, Peel SA, Schilling BK, Melcher DA, Bloomer RJ. (2017). Soreness-related changes in three-dimensional running biomechanics following eccentric knee extensor damage. European Journal of Sport Science. 17(5): 546-554.

Melcher D, Paquette MR, Schilling BK, Bloomer RJ. (2017). Joint stiffness and running economy during imposed forefoot strike before and after a long run. J Sports Sciences. Epub Ahead of Press.

Paquette MR, Melcher DA. (2017). Impact of a long run on injury-related biomechanics with relation to mileage in trained runners. J Applied Biomechanics. 33(3): 216-221.

Paquette MR, Peel SA, Schilling BK, Bravo JD, Li Y, Townsend R. (2017). Computerized agility training improves change-of-direction and balance performance independent of footwear in young adults. Research Quarterly in Exercise and Sport. 88(1): 44-51.

Bennett HJ, Shen G, Weinhandl JT, Reinbolt J, Coe DP, Paquette MR, Zhang S. (2017). Two gait modifications in stair ascent knee biomechanics in people with different knee alignments. MSSE, 49(3): 563-572.

Paquette MR, Milner CE, Melcher DA. (2017). Foot contact angle variability during a prolonged run with relation to injury history and habitual foot strike pattern. Scand J Med Sci Sports. 27(2): 217-222

Klein I, Paquette MR. (2016). Cross-training for runners: How athletes can maintain performance when training off the track. USTFCCCA. Techniques Magazine. Volume 11.

Kuhman DJ, Paquette MR, Peel SA, Melcher DA. (2016). Comparison of ankle kinematics and ground reaction forces between prospectively injured and uninjured collegiate cross country runners. Human Movement Science. 47: 9-15.

Melcher DA, Lee SR, Peel SA, Paquette MR, Bloomer RJ. (2016). Effects of methylsulfonylmethane supplementation on oxidative stress, muscle soreness, and performance variables following eccentric exercise. Gazz Med Ital - Arch Sci Med. 176(5): 271-283.

Chester S, Zucker-Levin A, Melcher DA, Peel SA, Bloomer RJ, Paquette MR. (2016). A comparison of lower limb kinematics and metabolic parameters during elliptical exercises and treadmill running. J Applied Biomechanics. 32(2):113-119.

Caia J, Weiss WL, Chiu LZF, Schilling BK, Paquette MR. (2016). Consistency of lower-body dimensions using surface landmarks and simple measurement tools. J Strength Cond Res. 30(9): 2600-2608.

Caia J, Weiss WL, Chiu LZF, Schilling BK, Paquette MR. (2016). Do lower-body dimensions and body composition explain vertical jump ability? J Strength Cond Res. 30(11): 3073-3083.

Kuhman DJ, Melcher DA, Paquette MR. (2016). Ankle and knee kinetics between strike patterns at common training speeds in competitive male runners. European Journal of Sport Sciences. 16(4):433-40.

Milner CE, Paquette MR. (2015). A kinematic method to detect foot contact during running for all foot strike patterns. J Biomechanics. 48(12): 3502-5.

Paquette MR, Zucker-Levin A, DeVita P, Hoekstra J, Pearsall D. (2015) Lower extremity joint angular position and muscle activity during modified elliptical exercise in healthy young men. Journal of Applied Biomechanics. 2015, 31(1):19-27.

Harry J, Paquette MR, Townsend R, Schilling BK, Weiss LW, Caia J. (2015). The effects of footwear condition on maximal jumping performance. J. Strength Conditioning Research. 29(6):1657-65.

Paquette MR, Zhang S, Klipple G. (2015). Greater step widths reduce knee internal abduction moments in medial compartment knee osteoarthritis patients in stair ascent. J. Applied Biomechanics. 31(4):229-36.

Paquette MR, Li Y, Hoekstra J, Bravo J. (2015) An eight-week reactive balance training program in older healthy adults: a preliminary investigation. Journal of Sport and Health Sciences. 4(3): 263-269.

Paquette MR, Zhang S, Milner CE, Fairbrother JT, Reinbolt JA. (2014) Effects of increased step width on frontal plane knee biomechanics in healthy adults during stair descent. The Knee. Aug;21(4):821-6.

Paquette MR, Zhang S, Milner CE, Klipple G. (2014) Does increasing step width alter knee biomechanics in medial compartment knee osteoarthritis patients during stair descent? The Knee. Jun;21(3):676-82.

Cantrell G, Schilling BK, Paquette MR, Murlasits Z. (2014) Maximal strength, power, and aerobic endurance adaptations to concurrent strength and sprint interval training. European Journal of Applied Physiology. 114(4):763-71.

Gardner J, Paquette MR, Milner CE, Brock E, Foch E, Zhang S (2014). Gait biomechanics of a second-generation unstable shoe. Journal of Applied Biomechanics. 30(4):501-7

Paquette MR, Baumgartner L, Zhang S. (2013). Acute effects of barefoot, minimal shoes and running shoes on lower limb mechanics in rear and forefoot strike runners. Footwear Science. 5:1, 9-18.

Zhang X, Paquette MR, Zhang S (2013) A comparison of gait biomechanics of flip-flops, sandals, barefoot and shoes. Journal of Foot and Ankle Research. 6:45, 1-8.

Wortley M, Paquette MR, Byrd E, Baumgartner LD, Klipple G, Krusenkraus J, Brown L, Zhang S. (2013) Effects of resistance and Tai Ji training on mobility and symptoms in knee osteoarthritis patients. Journal of Sport & Health Sciences. 2: 209-214.

Thoms AW, Brosnan JT, Paquette MR, Zhang S, Sorochan JC. (2013) A new device for simulating athlete-to-surface interactions on natural and synthetic turf. Journal of Testing and Evaluation. 41(3): 1-7.

Zhang S, Paquette MR, Milner CE, Westlake C, Byrd E, Baumgartner L. (2012) An unstable rocker-bottom shoe alters lower extremity biomechanics during level walking. Footwear Science, 4:3, 243-253

Zhang S, Wortley M, Freedman Silvernail J, Carson D, Paquette MR. (2012) Do ankle braces provide similar effects on ankle biomechanical variables in subjects with and without chronic ankle instability during landing? Journal of Sport & Health Sciences 1: 114-120.

Paquette MR, Vallis LA. (2010) Age-related kinematic changes in late visual-cueing during obstacle circumvention. Experimental Brain Research. 203(3):563-74.

Paquette MR, Fuller JR, Adkin AL, Vallis LA. (2008). Age-related modifications in steering behaviour: effects of base-of-support constraints at the turn point. Experimental Brain Research. 190(1):1-9

Presentations

Paquette MR, White VA, Melaro JA, Powell DW. Are joint kinetics proximally redistributed following a long run in well-trained runners? Annual Meeting of the American College of Sports Medicine. Orlando, FL, USA. May 28-June 1, 2019.

Powell DW, Standifird T, Paquette MR. Altered lower extremity joint work profiles during inclined running at iso-efficiency speeds. Annual Meeting of the American College of Sports Medicine. Orlando, FL, USA. May 28-June 1, 2019.

Morgan J, Nelson AK, Ryan M, Paquette MR, Powell DW. Changes in complexity at maximal speeds may not influence functional performance immediately after: Pilot study. Annual Meeting of the American College of Sports Medicine. Orlando, FL, USA. May 28-June 1, 2019.

Ard RA, Melaro JA, Carnall AM, Nelson AK, Blackmore SE, White VA, Paquette MR, Powell DW. Validation of the Tekscan Strideway plantar pressure mat compared to a force platform. Annual Meeting of the American College of Sports Medicine. Orlando, FL, USA. May 28-June 1, 2019.

Melaro JA, Majaj R, Paquette MR. Joint kinetics during walking are not influenced by lifetime running exposure in older runners. Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Carnall AM, Paquette MR, Powell DW. Technique Influences Rate of Force Development in the Clean Exercise. Mid-South Biomechanics Conference.

Memphis, TN, Feb 21-22, 2019.

Powell DW, Daugherty HJ, Carnall AM, Paquette MR, Weiss LW. Gender differences in Joint Contributions to Maximal Vertical Jumping. Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Carnall AM, Sherrod QV, Powell DW, Paquette MR. Kinematic Methods to Detect Gait Events During a Lateral Shuffling Task. Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Chung C, DiAngelo D, Paquette MR. The Effect of Typical Footwear on In-shoe Force Measurements. Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Vickery T, Paquette MR. Influence of force insole biofeedback on plantarflexor kinetics in middle-aged healthy adults: A proposal. Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Ryan M, Paquette MR. Are all running workloads created equal? A proposal. Poster presentation at the Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Sherrod QV, Carnall AM, Powell DW, Paquette MR. Effects of Using the iTrainFundamentals Bar on Lower Limb Muscle Activity.Poster presentation at the Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Fong H, Standifird T, Paquette MR, Powell DW. Inclined running results in a redistribution of lower extremity joint contributions. Poster presentation at the Mid-South Biomechanics Conference. Memphis, TN, Feb 21-22, 2019.

Chung CL, Diangelo DJ, Powell DW, Paquette MR (2017). Ankle Kinematics and Ground Reaction Forces During Walking in a Novel Ankle Orthosis. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

James HN, Allison LE, Powell DW, Weiss LW, Paquette MR (2017). Implications of Added Body Mass on Lower Limb Joint Kinetics During Vertical Jumping. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

Smith RE, Powell DW, Harry J, Weiss LW, Paquette MR (2017). Footwear Differences in Lower Limb Joint Power Generation During Maximal Vertical Jumping. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

Paquette MR, Camelio K, Gruber AH, Arnwine RA, Powell DW, (2017). Effects of Prolonged Running and Training on Lower Extremity Movement Quality in Novice Runners. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

Gruber AH, Paquette MR, Camelio L, Vollmar JE, Powell DW (2017). Multiscale Entropy of Center of Mass Acceleration as a Measure for Cumulative Running Training Fatigue. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

Freedman Silvernail J, Wiegand K, Paquette MR (2017). Lower Limb Segmental Variability During a 40-Min Prolonged Run. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

Singh Kakar R, Arnwine RA, Tome J, Paquette MR (2017). Lower Limb Joint Kinematics In Young and Middle-Aged Runners. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

Barrow D, Mickle KJ, Paquette MR, Shultz SP (2017). The Reliability of Ultrasound Imaging to Identify Cartilage Thickness Among Clinical Populations. Abstract to the annual meeting of the American Society of Biomechanics. Boulder, CO, August 8-11th.

Paquette MR, Williams DS III, Freedman Silvernail J, Fukuchi R, DeVita P. (2017). Touch of Grey: The Aging Runner. Symposium at the annual American Society of Biomechanics meeting. Boulder, CO. August 8-11.

Paquette MR. (2017). Rest & Recovery in Student-Athletes Panel. American Athletic Conference Consortium, Philadelphia, PA, USA. March 23-24.

Paquette MR, Camelio K, Powell DW, Gruber AH. (2017). Effects of a Submaximal 30-Minute Run on Peak Tibial Acceleration in Novice Runners. Thematic Poster at the Annual Meeting of the American College of Sports Medicine. Denver, CO, USA. May 30-June 3.

Smith NJG, Powell DW, Paquette MR. (2017). Are frontal plane knee, hip and trunk kinematics associated with cycling power in trained cyclists? Poster the Annual Meeting of the American College of Sports Medicine. Denver, CO, USA. May 30-June 3.

Maartens E, Paquette MR, Buurke J, Reenalda J. (2017). Use of inertial magnetic sensors to implement kinematic methods to detect foot contact during running. Poster at the Annual Meeting of the American College of Sports Medicine. Denver, CO, USA. May 30-June 3.

Korak JA, Paquette MR, Coons JM. (2017). Peak muscle activity across four sets to volitional fatigue between rest-pause and traditional bench press. Poster at the Annual Meeting of the American College of Sports Medicine. Denver, CO, USA. May 30-June 3.

Paquette MR. (2016). The never ending quest toward understanding, assessing and preventing running-related injuries. Biomedical Engineering Seminar Series, University of Tennessee Health Science Center. Memphis, TN, Nov 4.

Paquette MR, Peel SA, Smith R. (2016). Ground reaction forces and ankle biomechanics during walking in different "recovery" footwear. Poster presentation to the annual American Society of Biomechanics meeting. Raleigh, NC, August 4th.

Paquette MR, DeVita P, Williams III DS. (2016). Effects of prolonged running in trained younger and middle-aged runners on lower limb power distribution. Poster presentation to the annual American Society of Biomechanics meeting. Raleigh, NC, August 4th.

Peel SA, Paquette MR, Schilling BK, Weiss LW. (2016). Effects of pitch repetition on knee joint kinetics in collegiate baseball pitchers. Poster presentation to the annual American Society of Biomechanics meeting. Raleigh, NC, August 4th.

Paquette MR. Training Periodization: Doing the Right Thing, At the Right Time. Breakaway Running, Memphis, TN, July 1st, 2016.

Weiss LW, Caia JP, Schilling BK, Chiu LZF, Paquette MR (2016). Association of vertical jump displacement with laterality-based foot moment arms. Poster presented at the annual National Strength and Conditioning Association national conference. New Orleans, LA. July 7.

Weiss LW, Caia JP, Schilling BK, Chiu LZF, Paquette MR (2016). Stability reliability and precision of laterality-based foot moment arms under three different loading conditions. Poster presented at the annual National Strength and Conditioning Association national conference. New Orleans, LA. July 8.

Paquette MR. (2016). Sports Science and Testing. Sports and Exercise Summit for Etteldorf Symposium. LeBonheur Children's Hospital, Memphis, TN. May 5-6.

Paquette MR, Temme M, Peel SA, Smith R, Dwyer JN. (2016). Impact of different cross-training modes on economy and functional movement in high school runners. Thematic Poster to the Annual Meeting of the American College of Sports Medicine. Boston, MA, USA. May 25-28.

Korak JA, Paquette MR, Fuller DK, Coons JM. (2016). Effect of rest-pause vs traditional bench press training on muscle strength, electromyography and lifting volume. Abstract to the Annual Meeting of the American College of Sports Medicine. Boston, MA, USA. May 25-28.

Korak JA, Fuller DK, Paquette MR, Coons JM. (2016). Effect of rest-pause vs traditional bench press training on muscle strength, electromyography and lifting volume. Abstract to the Southeast Regional American College of Sports Medicine Meeting. Greenville, NC, USA. February 18-20th.

Paquette MR (2015). Are we Forgetting About Prolonged Efforts in Running Studies?: Biomechanical and Metabolic Implications. Central States Regional American College of Sports Medicine Annual Meeting. Warrensburg, MO, USA. October 15-16th.

Paquette MR, Melcher DA. Does fatigue and imposed forefoot strike alter strike pattern variability and loading rate in rear foot strike runners? Abstract to the Annual Meeting of the American Society of Biomechanics, Ohio State University, Columbus, OH. August 2015.

Paquette MR, Melcher DA. Are variables associated with knee injuries different before and after a 40min run? Abstract to the Annual Meeting of the

American Society of Biomechanics, Ohio State University, Columbus, OH. August 2015.

Melcher DA, Paquette MR, Schilling BK. Effects of imposed foot strike before and after a long run on joint stiffness in rearfoot strike runners. Abstract to the Annual Meeting of the American Society for Biomechanics, Ohio State University, Columbus, OH. August 2015.

Kuhman DJ, Melcher DA, Peel SA, Paquette MR. A prospective comparison of biomechanical variables associated with running-related injuries in collegiate cross country runners. Abstract to the Annual Meeting of the American Society for Biomechanics, Ohio State University, Columbus, OH. August 2015.

Peel SA, Melcher DA, Schilling BK, Bloomer RJ, Paquette MR. The effects of MSM supplementation on knee kinetics during running, muscle strength, and muscle soreness following eccentric exercise-induced quadriceps damage. Abstract to the Annual Meeting of the American Society for Biomechanics, Ohio State University, Columbus, OH. August 2015.

Paquette MR, Milner CE, Melcher DA. Foot contact angle and its variability during a prolonged run in relation to injury history. Accepted Oral Presentation for the 25th Congress of the International Society of Biomechanics. Glasgow, Scotland. July 12-16th, 2015.

Paquette MR. A new kinematic method to classify all foot strike patterns during running. Accepted Poster Presentation for the 25th Congress of the International Society of Biomechanics. Glasgow, Scotland. July 12-16th, 2015.

Chester S, Paquette MR, Zucker-Levin A, Bloomer RJ, Peel S, Melcher D, Johnson N. Comparison of biomechanics and metabolic cost among elliptical exercises and running in runners. Poster Presentation at the American College of Sports Medicine Annual Meeting. San Diego, California. May 27-30th, 2015.

Paquette MR, Melcher DA, Kuhman D, Johnson N. The relationship between strike pattern and injury-related biomechanical variables in male and female collegiate runners. Poster Presentation at the American College of Sports Medicine Annual Meeting. San Diego, California. May 27-30th, 2015.

Weiss LW, Caia J, Chiu LZF, Schilling BK, Paquette MR. Foot moment-arm lengths during bilateral- and unilateral-standing in young men and women: does ration normalizing impact reliability and precision? Annual Meeting of the National Strength and Conditioning Association, Orlando, FLA, July 8th-11th, 2015.

Weiss LW, Caia J, Chiu LZF, Schilling BK, Paquette MR. Normalizing foot moment arm lengths in men and women: effect on reliability and precision. Accepted Thematic Poster Presentation at the American College of Sports Medicine Annual Meeting. San Diego, California. May 27-30th, 2015.

Weiss LW, Caia J, Schilling BK, Chiu LZF, Paquette MR. Association of vertical jump performance with foot moment arms without and with ratio normalization. Annual Meeting of the National Strength and Conditioning Association, Orlando, FLA, July 8th-11th, 2015

Schilling BK, Harry JR, Paquette MR, Weiss LW, Peterson D. Footwear-dependent correlations between vertical and standing long jumps. 3rd International Congress on Soldier's Physical Performance. Boston, MA, 2014.

Paquette MR, Zucker-Levin A, DeVita P, Mihalko WH. Effects of elliptical training on pain, motor function, muscle strength and knee joint kinetics during walking in people with knee osteoarthritis. The 7th World Congress of Biomechanics. Boston, MA, USA. July 2014.

Zucker-Levin A, Paquette MR, DeVita P. Does elliptical training affect gait symmetry in people with medial compartment knee osteoarthritis? The 7th World Congress of Biomechanics. Boston, MA, USA. July 2014

DeForest BA, Paquette MR. Sex differences in symmetry of landing force variables during maximal vertical jumps. The 7th World Congress of Biomechanics. Boston, MA, USA. July 2014

Weiss L, Caia J, Harry J, Chiu L, Schilling BK, Paquette MR. Reliability and precision of anthropometric measures of the feet that influence moment arm length of reaction forces. Podium at the Annual National Strength and Conditioning Association Conference. Las Vegas, NV, USA. July 9-12, 2014.

Li Y, Collins C, Bell S, Paquette MR, Yli-Piipari S. Effects of 4-week agility training on foot speed and sport-specific agility in female collegiate tennis players: A pilot study. Annual Meeting of the North American Society for the Psychology of Sport and Physical Activity (NASPSPA). Minneapolis, MN, June 2014

Weiss L, Caia J, Harry J, Chiu L, Schilling BK, Paquette MR. Preliminary investigation into the association of longitudinal foot dimensions with countermovement vertical jump displacement. Podium at the Annual National Strength and Conditioning Association Conference. Las Vegas, NV, USA. July 9-12, 2014.

Paquette MR. The acute and chronic effects of simple gait modifications on knee pain, function and mechanical load in knee osteoarthritis patients. Graduate Student Seminar Series, Biomedical Engineering, University of Tennessee Health Science Center, Memphis, TN. September 2013.

Paquette MR, Zucker-Levin A, DeVita P, Hoekstra J, Pearsall D. Knee angular position and muscle activity during modified elliptical exercise. Poster Presentation, American Society for Biomechanics, University of Nebraska, Omaha, NE. September 2013.

Hoekstra J, Paquette MR, Huang J, Bravo J, Li Y. An eight-week balance exercise intervention program in healthy older adults. Thematic Poster Presentation. American Society for Biomechanics, University of Nebraska, Omaha, NE. September 2013.

Weiss L, DeForest B, Nichols S, Schilling B, Paquette MR. Comparative goniometry-derived Q-Angles for relaxed vs. contracted quadriceps femoris muscle. NSCA 36th Annual National Conference, Las Vegas, July 2013.

Paquette MR, Zhang S. Greater step widths reduce knee abduction moments in knee osteoarthritis patients during stair ascent. Thematic Poster Presentation. American College of Sport Medicine, Indianapolis, IN. May 2013.

Zhang S, Paquette MR. Effects of increased step widths on frontal-plane knee biomechanics in knee osteoarthritis patients during stair descent. Poster Presentation. American College of Sport Medicine, Indianapolis, IN. May 2013.

Zhang S, Zhang X, Paquette MR. Comparisons of flip-flop, sandal, barefoot and running shoe in walking. Poster Presentation, American Society for Biomechanics, Florida State University, Talahassee, FL. August 2012.

Paquette, MR and Zhang, S. Effects of Increased Step Width on Frontal Plane Joint Mechanics in Older Adults During Stair Descent. Canadian Society for Biomechanics, Vancouver, BC, Canada. June 2012

Paquette MR, Zhang S, Milner CE, Gardner J, Foch E, Brock E. An Improved Unstable Shoe Alters Ground Reaction Forces and Ankle Biomechanics. Thematic Poster Presentation, American College of Sport Medicine, San Francisco, CA. May 2012.

Gardner J, Zhang S, Paquette MR, Milner CE, Foch E, Brock E. Plantar Pressure is Altered with the Use of Rocker Bottom Shoes. Thematic Poster Presentation, American College of Sport Medicine, San Francisco, CA. May 2012.

Paquette, MR. Does Increased Step Width Alter Knee Joint Biomechanics in Knee Osteoarthritis Patients During Stair Descent. Comparative and Experimental Medicine and Public Health Research Symposium, Knoxville, TN, USA. May 2012

Paquette MR, Zhang, S. Effects of Greater Step Width on Joint Loading in Older Adults During Stair Descent. Poster Presentation, Graduate Research Symposium, University of Tennessee, Knoxville, TN. March 2012.

Paquette, MR. Research Presentation: The Past, The Present, The Future. Biomechanics Seminar, University of Tennessee, February, 2012.

Paquette MR, Zhang S, Milner C, Westlake C, Byrd E, Baumgartner L. Are knee and hip joint motions affected by newly designed curved-bottom shoe during level-walking? Poster Presentation, American Society for Biomechanics, University of Southern California, Long Beach, CA. August 2011.

Zhang S, Paquette MR, Milner C, Westlake C, Byrd E, Baumgartner L. A curved-bottom shoe alters ground reaction forces and ankle biomechanics

during walking. Poster Presentation, American Society for Biomechanics, University of Southern California, Long Beach, CA. August 2011.

McBride J, Zhang S, Wortley M, Paquette MR, Klipple G, Byrd B, Baumgartner L, Zhao X. Neural Network Analysis of Gait Biomechanical Data for Classification of Knee Osteoarthritis, 3rd Annual ORNL Biomedical Science and Engineering Conference, Oak Ridge, TN. 2011.

Paquette MR, Baumgartner L, Zhang S. A comparative investigation of FiveFingers with barefoot and shoes in rear-foot strikers. Thematic Poster Presentation, American College of Sport Medicine, University of Colorado, Denver, CO. June 2011.

Zhang, S, Wortley, M., Paquette, M.R., Byrd, E., Baumgartner, L. Klipple, G., Brown, L., Krusenklaus, J. Comparisons of Effects of Resistance Training and TaiJi Exercise on Symptoms and Physical Functions of Elderly Knee Osteoarthritis Patients. Annual Conference of American College of Sports Medicine, Denver, CO. May 2011.

Paquette MR, Baumgartner L, Zhang S. Are the Vibram FiveFingers a functional alternative to barefoot running in inexperienced barefoot runners? Poster Presentation, American Society for Biomechanics, Brown University, Providence, RI. August 2010.

Paquette MR. Steeplechase: It's a physics thing! Steeple-Stock, University of Guelph/Speed River TFC, Guelph, ON, Canada. April 2010.

Paquette MR, Baumgartner L, Zhang S. Are the Vibram FiveFingers a functional alternative to barefoot running in inexperienced barefoot runners?: Preliminary Results. Poster Presentation, Graduate Research Symposium, University of Tennessee, Knoxville, TN. March 2010.

Paquette MR, Vallis L.A. Age-related changes in dynamic stability and avoidance strategies when stepping over an obstacle in a dual-task paradigm. Poster Presentation, American Society for Biomechanics, Penn State University, State College, PA. August 2009.

Paquette MR. How does mutli-tasking affect obstacle avoidance strategies? Departmental Seminar Series, University of Guelph, Guelph, Canada. March 2009.

Paquette MR, Vallis L.A. Changes in avoidance strategies when stepping over an obstacle in a dual-task paradigm. Podium Presentation, Ontario Biomechanics Conference, Barrie, ON, Canada. March 2009.

Paquette MR. Vallis L.A. Differences in obstacle avoidance strategies during a cognitive dual-task. Neuroscience Symposium, University of Guelph, Guelph, Canada. April 2009.

Paquette MR, Vallis L.A., Brunsting M. Age-related changes in late visual cueing during obstacle circumvention. Podium Presentation, Ontario Biomechanics Conference, Barrie, ON, Canada. March 2008.

BRANDT D. PENCE
Asst Professor, Health Studies
Email: bdpence@memphis.edu

Education

Ph.D. Exercise Physiology - University of Illinois Urbana-Champaign - 2012
B.A. Movement and Sport Science - Purdue University - 2007

Work Experience

Assistant Professor, Nutrition, School of Health Studies - University of Memphis - 2016-Present
Postdoctoral Research Associate, Department of Kinesiology and Community Health - University of Illinois Urbana-Champaign - 2012-2016
Graduate Research and Teaching Assistant, Department of Kinesiology and Community Health - University of Illinois Urbana-Champaign - 2007-2012
Undergraduate Laboratory Assistant, Department of Health and Kinesiology - Purdue University - 2006-2007

Honors/Awards

Travel Award - Agilent Technologies - 2018
Postdoctoral Research Award - American Society for Nutrition - 2015
Outstanding Graduate Student Award - Midwest Chapter, American College of Sports Medicine - 2011
Early Career Research Award - International Society for Exercise and Immunology - 2011
Trainee Scholar Award - Psychoneuroimmunology Research Society - 2011

Teaching Experience

NUTR 7000 - Sport Nutrition - University of Memphis
NUTR 7100 - Intro to Wet Lab Methods in Health Studies - University of Memphis
HMSE 7010 - Research Methods in HSS - University of Memphis
KIN 494 - Exercise and Disease - University of Illinois Urbana-Champaign
KIN 150 - Bioscience of Human Movement Laboratory - University of Illinois Urbana-Champaign
KIN 352 - Bioenergetics of Movement Laboratory - University of Illinois Urbana-Champaign

Student Advising/Mentoring

M.S. in Nutritional Science - Johnathan Yarbro - 2019
M.S. in Clinical Nutrition - Lindsey Hedrick - 2018

Support

Foundation Research Endowment - American College of Sports Medicine - $10,000 - 2018-2019
AHA Institutional Research Enhancement Award - American Heart Association - $154,000 - 2018-2020
Foundation Research Endowment - American College of Sports Medicine - $10,000 - 2014-2016
Grants-in-Aid of Research - Sigma Xi - $1,000 - 2012-2013
Student Research Project Award - American College of Sports Medicine Midwest Chapter - $500 - 2012-2013
Student Grant Program - Gatorade Sports Science Institute - $3,340 - 2009-2012
Foundation Student Grant - American College of Sports Medicine - $4,956 - 2009-2010
Faculty Research Grant - School of Health Studies - $7500 - 2017-2018

Journal Articles

Pence BD, Yarbro JR. Aging impairs mitochondrial respiratory capacity in classical monocytes. Experimental Gerontology 108:112-117, 2018.

Pence BD, Ryerson MR, Bravo-Cruz AG, Woods JA, Shisler JL. Voluntary wheel running does not alter mortality to or immunogenicity of vaccinia virus in mice: A pilot study. Frontiers in Physiology 8:1123, 2018.

Pence BD, Bhattacharya TK, Park P, Rytych JL, Allen JM, Sun Y, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. Long-term supplementation with EGCG and beta-alanine decreases mortality but does not affect cognitive or muscle function in aged mice. Experimental Gerontology 98: 22-29, 2017.

Pence BD, Bhattacharya TK, Park P, Rytych JL, Allen JM, Sun Y, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. Dose-dependent decrease in mortality with no cognitive or muscle function improvements due to dietary EGCG supplementation in aged mice. Applied Physiology, Nutrition, and Metabolism 42(5): 495-502, 2017.

Klaren RE, Stasula U, Steelman AJ, Hernandez J, Pence BD, Woods JA, Motl RW. Effects of exercise in a relapsing-remitting model of experimental autoimmune encephalomyelitis. Journal of Neuroscience Research 94(10): 907-914, 2016.

Cook MD, Allen JM, Pence BD, Wallig MA, Gaskins HR, Woods JA. Exercise and gut immune function: Evidence of alterations in colon immune homeostasis and microbiome characteristics with exercise training. Immunology and Cell Biology 94(2): 158-163, 2016.

Pence BD, Gibbons TE, Bhattacharya TK, Mach HC, Ossyra JM, Petr G, Martin SA, Wang L, Rubakhin SS, Sweedler JV, McCusker RH, Kelley KW, Rhodes JS, Johnson RW, Woods JA. Differential effects of voluntary wheel running and a diet containing EGCG and ß-alanine on physical function and gene expression in skeletal muscle of aged mice. Applied Physiology, Nutrition, and Metabolism 41(2): 181-190, 2016.

Bhattacharya TK, Pence BD, Ossyra JM, Gibbons TE, Perez S, McCusker RH, Kelley KW, Johnson RW, Woods JA, Rhodes JS. Dietary supplementation with (-)-Epigallocatechin-3-gallate and/or ß-Alanine does not enhance pro-cognitive or physical fitness effects of voluntary wheel running in young adult male BALB/cJ mice. Physiology & Behavior 145: 29-37, 2015.

Allen JM, Berg Miller ME, Pence BD, Whitlock K, Nehra V, Gaskins HR, White BA, Fryer JD, Woods JA. Voluntary and forced exercise differentially alter the gut microbiome in C57Bl/6J mice. Journal of Applied Physiology 118(8): 1059-1066, 2015.

Woods JA, Pence BD. Physical activity, exercise, and the immune system: Three lines of research that have driven the field. Kinesiology Review 4: 118-125, 2015.

Leckie RL, Oberlin LE, Voss MW, Prakash RS, Szabo-Reed A, Chaddock-Heyman L, Phillips SM, Gothe N, Mailey E, Vieria-Potter VJ, Martin SA, Pence BD, Lin M, Parasuraman R, Greenwood PM, Fryxell KJ, Woods J, McAuley E, Kramer AF, Erickson KI. BDNF mediates improvements in executive function following a 1-year exercise intervention. Frontiers in Human Neuroscience 8: 985, 2014.

Gibbons TE*, Pence BD*, Petr G, Ossyra JM, Bhattacharya TK, Perez S, Martin SA, McCusker RH, Kelley KW, Rhodes JS, Johnson RW, Woods JA. Voluntary wheel running, but not a diet containing EGCG and ß-alanine, improves learning and memory and hippocampal neurogenesis in aged mice. Behavioural Brain Research 272:131-140, 2014.

Markofski MM, Carrillo AE, Timmerman KL, Jennings K, Coen PM, Pence BD, Flynn MG. Exercise training modifies ghrelin and adiponectin concentrations and is related to inflammation in older adults. The Journals of Gerontology. Series A: Biological Sciences and Medical Sciences 69(6): 675-681, 2014.

Pence BD, Woods JA. Exercise, obesity, and cutaneous wound healing: Evidence from rodent and human studies. Advances in Wound Care 3(1): 71-79, 2014.

Cook MD, Martin SA, Williams C, Wallig MA, Pence BD, Woods JA. Forced treadmill exercise training exacerbates inflammation and causes mortality while voluntary wheel training is protective in a mouse model of colitis. Brain Behavior and Immunity 33: 46-56, 2013.

Thorum SC, Hester SN, Comstock SS, Monaco MH, Pence BD, Woods JA, Donovan SM. Dietary (1,3/1,6)-ß-D-glucan decreases transforming growth factor ß expression in the lung of the neonatal piglet. Nutrition Research 33(4): 322-331, 2013.

Martin SA, Pence BD, Greene R, Johnson S, Dantzer R, Kelley KW, Woods JA. Voluntary wheel running has no effect on LPS-induced inflammation or sickness behavior in aged mice. Brain Behavior and Immunity 29: 113-123, 2013.

Voss MW, Erickson KI, Prakash RS, Chaddock L, Kim JS, Alves H, Szabo A, White SM, Wojcicki TR, Mailey EL, Olson EA, Gothe N, Potter VV, Martin SA, Pence BD, Cook MD, Woods JA, McAuley E, Kramer AF. Neurobiological markers of exercise-related brain plasticity in older adults. Brain Behavior and Immunity 28: 90-99, 2013.

Pence BD, DiPietro LA, Woods JA. Exercise speeds cutaneous wound healing rate in high-fat diet-induced obese mice. Medicine and Science in Sports and Exercise 44(10): 1846-1854, 2012.

Hester SN, Thorum SC, Comstock SS, Monaco MH, Pence BD, Woods JA, Donovan SM. Intestinal and systemic immune development are unaffected by dietary (1,3/1,6)-ß-D-glucan supplementation of neonatal piglets. Clinical and Vaccine Immunology 19(9): 1499-1508, 2012.

Pence BD, Lowder TW, Keylock KT, Vieira Potter VJ, Cook MD, McAuley E, Woods JA. Relationship between systemic inflammation and delayed-type hypersensitivity response to candida antigen in older adults. PLoS One 7(5): e36403, 2012.

Pence BD, Hester SN, Donovan SM, Woods JA. Dietary whole glucan particles do not affect antibody or cell-mediated responses to influenza virus vaccination in mice. Immunological Investigations 41(3): 275-289, 2012.

Anderson-Hanley C, Arciero PJ, Brickman AM, Nimon JP, Okuma N, Westen SC, Merz ME, Pence BD, Woods JA, Kramer AF, Zimmerman EA. Exergaming and older adult cognition: A cluster randomized controlled trial. American Journal of Preventive Medicine 42(2): 109-119, 2012.

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Erickson KI, Voss MW, Prakash RS, Basak C, Szabo A, Chaddock L, Kim JS, Heo S, Alves H, White SM, Wojcicki TR, Mailey E, Vieira VJ, Martin SA, Pence BD, Woods JA, McAuley E, Kramer AF. Exercise training increases size of the hippocampus and improves memory. Proceedings of the National Academy of Sciences USA 108(7): 3017-3022, 2011.

Coen PM, Flynn MG, Markofski MM, Pence BD, Hannemann RE. Adding exercise to rosuvastatin treatment: influence on C-reactive protein, monocyte toll-like receptor 4 expression and inflammatory monocyte (CD14+CD16+) population. Metabolism 59: 1775-1783, 2010.

Erickson KI, Prakash RS, Voss MW, Chaddock L, Heo S, McLaren M, Pence BD, Martin SA, Vieira VJ, Woods JA, Kramer AF. BDNF is associated with age-related decline in hippocampal volume. Journal of Neuroscience 30(15): 5368-5375, 2010.

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Coen PM, Flynn MG, Markofski MM, Pence BD, Hannemann RE. Adding exercise training to rosuvastatin treatment: influence on serum lipids and biomarkers of muscle and liver damage. Metabolism 58(7): 1030-1038, 2009.

Timmerman KL, Flynn MG, Coen PM, Markofski MM, Pence BD. Exercise training-induced lowering of inflammatory (CD14+CD16+) monocytes: a role in the anti-inflammatory influence of exercise? Journal of Leukocyte Biology 84(5): 1271-1278, 2008

Presentations

Aging impairs monocyte mitochondrial respiration and increases proportion of non-classical phenotype. Keystone Symposium on Aging, Inflammation and Immunity, 2018. Austin, TX. (Poster)

Voluntary wheel running and response to vaccinia virus infection and inoculation in mice. ACSM Annual Meeting, 2017. Denver, CO. (Slide)

Voluntary wheel running in mice is safe during vaccinia virus infection and does not impair vaccine responses. Experimental Biology 2017. Chicago, IL. (Poster).

Effects of dietary fiber and exercise on cognition, muscle function, and SCFA in young mice. ACSM Annual Meeting, 2016. Boston, MA. (Poster).

EGCG decreases mortality in a dose-dependent fashion but does not improve cognition in mice. Experimental Biology 2016. Emerging Leaders in Nutrition Science Poster Competition, ASN. San Diego, CA. (Poster).

EGCG decreases mortality in a dose-dependent fashion but does not improve cognition in mice. Experimental Biology 2016. San Diego, CA. (Slide).

Dietary fiber and exercise: Effects on muscle function, cognition, and short-chain fatty acids in mice. Experimental Biology 2016. San Diego, CA.

(Poster)

EGCG decreases mortality in a dose-dependent fashion but does not improve cognition in mice. Cognition, Lifespan Engagement, Aging, and Resilience (CLEAR) Initiative, Beckman Institute, University of Illinois at Urbana-Champaign. Urbana, IL. (Poster).

Diet containing EGCG and beta-alanine decreases mortality but has no effect on cognitive function and variably affects muscle function in aged mice. ACSM Annual Meeting, 2015. San Diego, CA. (Poster).

Metabolic activation: A potential mechanism for exercise-induced phenotypic switch in macrophages. ACSM Annual Meeting, 2015. San Diego, CA. (Slide)

A diet containing EGCG and beta-alanine decreases mortality and improves balance in aged mice but does not affect cognitive function. Experimental Biology 2015. Boston, MA. (Slide)

A diet containing EGCG and beta-alanine decreases mortality and improves balance in aged mice but does not affect cognitive function. Experimental Biology 2015. Emerging Leaders in Nutrition Science Poster Competition, ASN. Boston, MA. (Poster).

A diet containing EGCG and beta-alanine decreases mortality and improves balance in aged mice but does not affect cognitive function. Experimental Biology 2015. The Postdoctoral Research Award Competition, ASN. Boston, MA. (Slide).

Voluntary wheel running and a diet containing EGCG and Beta-alanine: Effects on cognition and muscle function. Illinois Brain Behavior and Immunity Meeting, 2015. Chicago, IL. (Slide).

Impact of exercise and/or beta-alanine and EGCG on muscle function and inflammation in aged mice. ACSM Annual Meeting, 2014. Orlando, FL. (Poster).

Impact of exercise and/or beta-alanine and epigallocatechin gallate on muscle function and oxidative stress in aged mice. Experimental Biology 2014. San Diego, CA. (Poster).

Sex differences in healing rate of cutaneous wounds in mice: No impact of exercise. ACSM Annual Meeting, 2013. Indianapolis, IN. (Poster).

Treadmill exercise ameliorates delayed healing in obese versus lean mice. MWACSM Annual Meeting, 2011. Indianapolis, IN. (Slide).

Exercise influence on wound healing and tissue inflammation in obese high-fat diet-fed mice. 10th ISEI Conference, 2011. Oxford, UK. (Slide).

Effects of exercise on wound healing and wound tissue inflammation in obese mice. 18th PNIRS Conference, 2011. Chicago, IL. (Slide).

Exercise speeds wound healing rate in diet-induced obese mice. ACSM Annual Meeting, 2011. Denver, CO. (Thematic Poster).

No effect of dietary yeast beta-glucan on antibody or cell-mediated response to influenza virus vaccine. 17th PNIRS Conference, 2010. Dublin, Ireland. (Poster).

Associations between gene expression of Toll-like receptor 4 and markers of inflammation in adipose tissue: the role of exercise. 9th ISEI Conference, 2009. Tübingen, Germany. (Poster).

Aerobic exercise does not improve delayed-type hypersensitivity to tetanus or candida in older adults. ACSM Annual Meeting, 2009. Seattle, WA. (Poster).

Exercise training-induced improvements in antibody responses to influenza vaccination in older adults are related to changes in cardiovascular fitness. APS Integrative Biology of Exercise V, 2008. Hilton Head, SC. (Poster).

Effect of cardiovascular exercise on CRP levels in previously sedentary older men and women. Experimental Biology, 2008. San Diego, CA. (Poster).

DOUGLAS W. POWELL
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Education

PhD Biomechanics/Sports Medicine - University of Tennessee Knoxville -
MA Biomechanics - East Carolina University -
BS Exercise Science - East Carolina University -

Work Experience

Assistant Professor, School of Health Studies - University of Memphis - August 2016 - Present

Honors/Awards

Fellowship (FAHA) - American Heart Association - 2016
Tactical Strength & Conditioning Facilitator (TSAC-F) - National Strength & Conditioning Association - 2013
Certified Strength & Conditioning Specialist (CSCS) - National Strength & Conditioning Association - 2012
Andy Kozar Graduate Student Research Award - University of Tennessee Knoxville - 2007

Teaching Experience

EXSS 2004: Introduction to Exercise Science - University of Memphis
ESMS 3020: Exercise & Sport Mechanics - University of Memphis
ESMS 3410: Anatomic Kinesiology I - University of Memphis
ESMS 3415: Anatomic Kinesiology II - University of Memphis
EXSS 4000: Lab Techniques and Interpretation in Exercise Science - University of Memphis
ESMS 4603: Advanced Methods in Strength & Conditioning - University of Memphis
HMSE 7010: Research Methods in Movement Science - University of Memphis

Student Advising/Mentoring

DPT, PhDc - Jackie Morgan - 2020
PhDc - Chloe Chung - 2020
PhDc - Marissa Harris - 2019
PhD - George Pamboris - 2018
DSc - Emily Kosderka - 2018
PhD - Brett Windsor - 2016
PhD - V. Pradeep Ambati - 2015
PhD - Nicholas G. Murray - 2014
MS - Ramzi Majaj - 2018
MS - Rachael Arnwine - 2019
MS - Rachael Ard - 2019
MS - Emma Chase - 2018
MS - Jonathan Gladish - 2017
MS - Sarah Blackmore - 2019
MS - Alexander Carnall - 2019
MS - Hailey J. Daugherty - 2019
MS - Kris Camelio - 2017
MS - Lindsey Allison - 2017
MS - Ross Smith - 2017

Support

In Review: Oculomotor impairment as a diagnostic criterion following a sport-related concussion - National Institute of Child Health & Human Development - 228,000 - 1/2018 - 12/2020
Conference Support for the Mid-South Movement Science Conference - American Society for Biomechanics - $2000 - 2018
Efficacy of a resistance band on improving lateral shuffle performance in college-aged males. - iTrainFundamentals - $26000 - 3/2018-12/2018
Reaction training as an active rehabilitation paradigm following sport-related concussion - American Athletic Conference Research Consortium - $9000 - 7/2017 - 7/2018
Advisor: Patient-specific active rehabilitation program following sport-related concussion - Northwest Athletic Trainers Association - $1000 - 6/2017 - 5/2018
Effects of walking speed and foot type on plantar pressures - Bayer Healthcare - $25000 - 6/2017 - 3/2018

Murray N.G., Szekely B., Moran R., Ryan G., Powell D.W., Munkasy B.A., Buckley T.A., Guskiewicz, K. Concussion history associated with increased postural control deficits after subsequent injury. Physiological Measurement, 2019. In Press.

Gladish, J.R., Powell, D.W., Queen, R.M. The effects of total ankle arthroplasty on postural stability and loading symmetry in quiet stance. Journal of Biomechanics, 2019. 83:110-116.

Murray N.G., Reed-Jones R.J., Szekely B., Powell D.W. Clinical assessments of balance in adults with concussion: an update. Speech Language Pathology, 2019. 40(1): 48-56.

Murray N.G., Grotewold C., Szkeley B.J., Powell D.W., Munkasy B. Validity and reliability of the Balance Tracking System during feet-together stance. Measurement, 2018. 126: 96-101.

Powell D.W., Szekely B., Blackmore S.E., Nelson A.K., Schallert A., Lester D.B., Murray N.G., Puppa M. Effects of sampling rate and movement frequency on entropic measures of regularity. J Nat Sci, 2018. 4(5):504-508.

Murray, NG, Grimes, K, Shiflett, ED, Munkasy, BA, D'Amico, NR, Mormile, ME, Powell, DW, Buckley, TA. Repetitive head impacts influence on the postural control system during the course of a single athletic season. Int J Psychol, 2018; 10.132 Pt A: 81-86.

Smith, R.E., Paquette, M.R., Harry, J.R., Powell, D.W., Weiss, L.W. Footwear and sex differences in performance and joint kinetics during maximal vertical jumping. Journal of Strength & Conditioning Research, 2018. In Press.

Powell, D.W., Williams, D.S. Changes in vertical and joint stiffness in runners with advancing age. Journal of Strength & Conditioning Research, 2017; In Press.

Murray, NG, Grimes, K, Shiflett, ED, Munkasy, BA, D'Amico, NR, Mormile, ME, Powell, DW, Buckley, TA. Repetitive head impacts influence on the postural control system during the course of a single athletic season. Int J Psychol, 2017; 10(3).

Reed-Jones, R.J., Powell, D.W. The effects of gaze stabilization on gait parameters in individuals with Parkinson's disease. Neuroscience Letters, 2017. 655:156-159.

Powell, DW, Paquette, MR, Williams, DS. Contributions to leg stiffness in high- compared to low-arched athletes. Medicine & Science in Sport & Exercise, 2017. 49(8):1662-1667.

Gladish, J.R.*, Powell, D.W., Allison, L., Queen, R.M. Center of pressure profiles in unilateral compared to bilateral end-stage ankle osteoarthritis patients. Journal of Orthopedic Research, 2017. Apr 27.

Murray, N.G., D'Amico*, N., Mormile, M. *, Powell, D.W. Assessment of gaze stability within 24 – 48 hours post-concussion. Clinical Biomechanics, 2017. 44:21 – 27.

Powell, D.W., Muthumani, A., Xia, R.P. Normalization of electromyography signals masks reduction in reflex amplitudes in Parkinson's disease. Journal of Nature & Science, 2017. 3:e315.

Reed-Jones, R.J., Carvalho, L. *, Sanderson, C. *, Montelpare, W., Murray, N., Powell, D.W. Examining changes to center of pressure during the first trials of Wii game play. Games for Health Journal, 2017. 6 (1): 57-60.

Williams, D.S., Cole, J.H. *, Powell, D.W. Lower extremity joint work during acceleration, deceleration and steady state running. Journal of Applied Biomechanics, 2017; 33(1): 56 - 63.

Powell, D.W., Andrews, S., Windsor, B.A., Stickley, C, Williams, D.S. High- compared to low-arched athletes exhibit distinct frontal plane knee moments in walking and running. Human Movement Science, 2016; 50:47-53.

Powell, D.W, Muthumani, A., Xia, R.P. A comparison of the effects of continuous versus discontinuous movement patterns on parkinsonian rigidity and reflex responses to passive stretch and shortening. Journal of Nature & Science, 2016. 2(8): e201.

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Ambati, V.N.P., Murray, N.G., Saucedo, F., Powell, D.W., Reed-Jones, R.J. Constraining eye movement in individuals with Parkinson's disease during walking turns. Experimental Brain Research, 2016. Oct; 234(10): 2957-651.

Powell, D.W., Queen, R.M., Williams, D.S. Arch structure is associated with unique absolute and relative joint work contributions to load attenuation during landing. Human Movement Science, 2016; 141-147.

Williams, D.S., Murray, N.G., Powell, D.W. Invited Paper: Athletes that train on unstable compared to stable surfaces exhibit unique postural control strategies in response to balance perturbations. Journal of Sport and Health Sciences, 2016; 5: 70-76.

Ulm, H.M., Windsor, B., Dedrick, G., Powell, D.W. Comparison of Ankle Taping and Bracing on Ankle Biomechanics during Landing in Functional Ankle Instability. Central European Journal of Sport Science & Medicine, 2015; 11(3): 5-14.

Powell, D.W. & Williams, D.S. Effect of opposing postural feedback paradigms on traditional and nonlinear measures of postural stability. Human Movement Science, 2015; 44: 73-80.

Padulo, J., Powell, D.W., Ardigo, L.P., Viggiano, D. Modifications in activation of lower limb muscles as a function of initial foot position in cycling. Journal of Electromyography & Kinesiology, 2015; 25(4): 648-652.

Powell, DW, Walker, M.M.*, Reed-Jones, R.J., Bunn, J.A. Peripheral artery disease and activity-induced shifts in quadriceps median frequency during treadmill walking: a preliminary study. Central European Journal of Sport Science & Medicine, 2015; 10 (2): 5 - 15.

Erhardt, J., Windsor, B.A., Hoekstra, C., Rutt, R.A., Powell, D. The Immediate Effect of Atlanto-Axial High Velocity Thrust Techniques on Blood Flow in the Vertebral Artery: A randomized Controlled Trial Manual Therapy. Manual Therapy, 2015; 20 (4): 614 - 622.

Murray, N.G., Salvatore, A.P., Powell, D.W., Reed-Jones, R.J. Reliability and validity evidence of multiple balance assessments in concussed athletes. Journal of Athletic Training. 2014; 49(4): 540-549.

Reed-Jones, R.J., Murray, N.G., Powell, D.W. Clinical Assessment of Balance in Concussed Adults. Seminars in Speech Language Pathology. 2014; 35(03): 186-195.

Powell, D.W., Muthumani, A., Xia, R.P. Parkinson's disease is associated with greater regularity of repetitive voluntary movements. Motor Control. 2014; 18:263-277.

Padulo, J., Tilocca, A., Powell, D., Granatelli, G., Bianco, A., Paoli, A. EMG amplitude of the biceps femoris during jumping compared to landing movements. Springer Plus. 2014; 2:520.

Powell, D., Williams, D.S. 3rd, Windsor, B.A., Butler, R.J., Zhang, S. Dynamic stiffness of the ankle is greater in high- compared to low-arched athletes during barefoot running. Human Movement Science. 2014; 34: 147 - 156.

Ambati, V.N.P., Saucedo, F., Murray, N.G., Powell, D., Reed-Jones, R.J. Constraining eye movement when redirecting walking trajectories alters turning

control in healthy young adults. Experimental Brain Research. 2014; 226(4), 549-556.

Padulo, J., Powell, D., Milia, R., Ardigo, LP. (2013) A paradigm of uphill running. PLoS ONE, 2013; 8 (7): e69006.

Powell, D., Williams, D.S., Butler, R. A comparison of two multi-segment foot models in high- and low-arched athletes. Journal of American Podiatric Medical Association. 2013; 103(2): 99-105.

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Powell, D., Long, B., Milner, C., Zhang, S. Effects of vertical loading on arch kinematics in high- and low-arched females using a multi-segment foot model. Journal of Applied Biomechanics. 2012; 28; 165-73.

Powell, D., Clowers, K., Keefer, M., Zhang, S. Alterations in neuromuscular activation patterns in short-leg walking boots. Journal of Sport and Health Science. 2012; 1 (1); 43-8.

Powell, D., Threlkeld, A.J., Fang, X., Muthumani, A., Xia, R.P. Amplitude- and velocity-dependency of rigidity measured at the wrist Parkinson's disease. Clinical Neurophysiology. 2012; 123 (4), p. 764-773.

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Xia, R.P., Powell, D., Rymer, W.Z., Hanson, N.J., Fang, X., Threlkeld, A.J. Differentiation between the contributions of shortening reaction and stretch-induced inhibition to rigidity in Parkinson's disease. Experimental Brain Research. 2011; 209: 609-618.

Powell, D., Hanson, N.J., Fang, X., Threlkeld, A.J., Xia, R.P. Enhancement of parkinsonian rigidity with contralateral muscle contractions. Clinical Neurophysiology. 2011; 122: 1595-1601.

Powell, D., Long, B., Milner, C., Zhang, S. Frontal plane multi-segment foot kinematics in high- compared to low-arched females during dynamic loading tasks. Human Movement Science. 2011; Vol. 30, p. 105-14.

Bice, M.R., Hanson, N.J., Renshaw, D., Eldridge, J., Reneau, P., Powell, D. Neuromuscular adaptations in elderly adults are task-specific during stepping and obstacle clearance tasks. International Journal of Exercise Science. 2011; 4(1), p. 278-86.

Renshaw, D., Bice, M.R., Cassidy, C., Eldridge, J., Powell, D. A comparison of three computer-based methods of determining EMG signal amplitude. International Journal of Exercise Science. 2010; 3 (1), p. 44-8.

Ruano, C., Chalambaga, E.T., Renshaw, D., Powell, D. The effects of Tempur insoles on ground reaction forces and loading rates in running. International Journal of Exercise Science. 2009; 2 (3), p. 186-190.

Keefer, M., King, J., Powell, D., Krusenklaus, J., Zhang, S. Effects of modified short-leg walkers on ground reaction force characteristics. Clinical Biomechanics. 2008; 23 (9): p. 1172-77.

Powell, D., DeVita, P., Hortobagyi, T. Inertial loading during gait evokes unique neuromuscular adaptations in old adults. Perceptual & Motor Skills, 2008; 107: p. 881-92.

Zhang, S., Clowers, K.G., and Powell, D. Ground reaction force and 3D biomechanical characteristics of walking in short-leg walkers. Gait & Posture. 2006; 24: p.487-92.

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Education

Ph.D. Exercise Science - The University of South Carolina - 2014
BS Biology - Roanoke College - 2008

Work Experience

Postdoctoral Fellow, Developmental Neurobiology - St. Jude Children's Research Hospital - 2014-2016
Clinical Research Assistant, Organ Transplant Department - University of Maryland Medical Center - 2005-2007

Honors/Awards

Doctoral Student Achievement Award - Dept of Exercise Science, University of South Carolina - 2014
1st place Doctoral Student Research Award - SEACSM - 2013
Arnold School of Public Health Doctoral Fellowship - Arnold School of Public Health, University of South Carolina - 2010/2011

Teaching Experience

ESMS 7202 Exercise Physiology Cardiovascular and Metabolism - University of Memphis
ESMS 3603 Exercise Physiology 1 - University of Memphis
ESMS 2004 Intro to Exercise Science - University of Memphis
EXSS 3703-Exercise Physiology II - University of Memphis
EXSS 4015-Exer Prog Spec Population - University of Memphis
Anatomy and Physiology - University of South Carolina
Advanced Laboratory Methods - University of South Carolina
Exercise Science 783 (Seminar Series) - University of South Carolina

Student Advising/Mentoring

MS Nutrition Sciences - Harold Lee - 2017
MS Exercise Sport and Movement Science - Brittany Edwards - 2018
MS Exercise Sport and Movement Science - Katie Brown - 2019

Support

The Regulation of mitochondrial plasticity by gp130r in skeletal muscle after contraction - ACSM - $5,000 - 2013-2014
Using electron microscopy to determine effects of classical and trans IL-6 signaling on skeletal muscle mitochondrial distribution, content, and morphology during cancer cachexia - Center for Colon Cancer Research- University of South Carolina - $5,000 - 2011

Books Published

James A. Carson and Melissa J. Puppa. Biological Pathways Impacting Cancer Survival: Exercise as a Countermeasure for the Development and Progression of Cachexia. Exercise, Energy Balance, and Cancer Energy Balance and Cancer, 2013, Volume 6, 59-81
Melissa J. Puppa and Fabio Demontis. Drosophila models for aging-associated diseases: Skeletal muscle homeostasis and aging in Drosophila. Life Extension: Lessons from Drosophila 2015

Journal Articles

Aditi A Narsale*, Melissa J Puppa*, Justin P Hardee*, Brandon N VanderVeen, Reilly T Enos, E Angela Murphy, James A Carson. Short-term pyrrolidine dithiocarbamate administration attenuates cachexia-induced alterations to muscle and liver in ApcMin/mice. Oncotarget, July 2016
JE Mangum, JP Hardee, DK Fix, MJ Puppa, J Elkes, D Altomare, Y Bykhovskaya, DR Campagna, PJ Schmidt, AK Sendamarai, HGW Lidov, S C Barlow, N Fischel-Ghodsian, MD Fleming, JA Carson, JR Patton. Pseudouridine synthase 1 deficient mice, a model for Mitochondrial Myopathy with Sideroblastic Anemia, exhibit muscle morphology and physiology alterations. Scientific reports 2016; 6: 26202.
JP Hardee, JE Mangum, S Gao, S Sato, KL Hetzler, MJ Puppa, DK Fix, JA Carson. Eccentric contraction-induced myofiber growth in tumor-bearing mice. J Applied Physiology 120(1), 29-37. 2016 Jan 1
AA. Narsale, R Enos, JP Hardee, MJ Puppa, L. Durstine, EA Murphy, M Pena, R Fayad, JA Carson. Liver Inflammation and Metabolic Signaling in ApcMin/+ mice: The Role of Cachexia Progression. PLOS One 2015; 10(3): e0119888.

KL Hetzler, JP Hardee, MJ Puppa, AA Narsale, S Sato, JM Davis, JA Carson. Sex differences in the relationship of IL-6 signaling to cancer cachexia progression. Biochimica et Biophysica Acta (BBA) Molecular Basis of Disease 2014 Dec 30

MJ Puppa, EA Murphy, R Fayad, GA Hand, JA Carson. Cachectic skeletal muscle response to a novel bout of low-frequency stimulation. J Applied Physiology 116 (8), 1078-1087. 2014 Mar 15

KT Velázquez, RT Enos, AA Narsale, MJ Puppa, JM Davis, EA Murphy, JA Carson. Quercetin Supplementation Attenuates the Progression of Cancer Cachexia in ApcMin/+ Mice. The Journal of Nutrition 144 (6), 868-875

M.J. Puppa, S. Gao, A.A. Narsale, J.A. Carson Skeletal muscle glycoprotein 130's role in Lewis lung carcinoma-induced cachexia FASEB J., 28 (2014), pp. 998–1009

J.P. White, M.J. Puppa, A. Narsale, J.A. Carson Characterization of the male Apc min/+ mouse as a hypogonadism model related to cancer cachexia Open Biol. (2013)

J.P. Hardee, M.J. Puppa, D.K. Fix, S. Gao, K.L. Hetzler, T.A. Bateman, J.A. Carson The effect of radiation dose on mouse skeletal muscle remodeling. Radiol. Oncol, 48 (2014), pp. 247–256

White JP, Puppa MJ, Gao S, Sato S, Welle SL, Carson JA. Muscle mTORC1 suppression by IL-6 during cancer cachexia: A role for AMPK. Am J Physiol Endocrinol Metab. 2013 March

White, JP, Puppa, MJ, Gao, S, Sato, S, Welle, SL, Carson, JA. Testosterone regulation of Akt/ mTORC1/ FoxO3a Signaling in Skeletal Muscle. Molecular and Cellular Endocrinology. 2013 Jan; 365(2):174-86. Epub 2012 Oct 29

White, JP, Sato, S, Puppa MJ, Baynes, JW, Kostek, M, Matesic, L, Carson, JA. IL-6 regulation on skeletal muscle mitochondrial remodeling during cancer cachexia in the ApcMin/+ mouse. Skeletal Muscle 2012, 2:14.

Puppa, MJ, White JP, Sato S, Baltgalvis KA, Velazquez KT, Baynes JW, and Carson JA. The Effect of Exercise on IL-6-induced Cachexia in the ApcMin/+ mouse. J Cachexia, Sarcopenia, and Muscle. 2012 3(2):117-37 Epub 2011 Nov 30.

Puppa MJ, White JP, Sato S, Carins M, Baynes JW, and Carson JA. Gut Barrier Dysfunction in the ApcMin/+ Mouse Model of Colon Cancer Cachexia. Biochim Biophys Acta. 2011 Dec; 1812(12): 1601-6. Epub 2011 Sep 2.

White, JP, Baltgalvis, KA, Puppa, MJ, Sato, S, Baynes, JW and Carson JA. Muscle Oxidative Capacity during IL-6 Dependent Cancer Cachexia. Am J Physiol Regul Integr Comp Physiol. 2011 Feb; 300(2):R201-11. Epub 2010 Dec 9.

Presentations

Role of inflammation on cachectic skeletal muscle's response to a novel bout of low-frequency stimulation. ACSM May 2014 Orlando, FL.

Skeletal Muscle gp130 receptor regulation of cancer cachexia-induced muscle mass loss. St. Jude National Graduate Student Symposium. March 2013 Memphis, TN.

Cachectic skeletal muscle response to a novel bout of low frequency stimulation. SEACSM annual meeting. Feb 2013. Greenville, SC.

The effect of exercise training on anabolic responses in IL-6-induced cancer cachexia. Cancer Cachexia Conference Molecular Mechanisms and Therapeutic Approaches. September 2012 Boston, MA

The effect of exercise training on muscle energy status in IL-6 induced cachexia. ACSM annual meeting. June 2012 San Francisco, CA

The Effect of Treadmill Exercise on the Regulation of Protein Synthesis during IL-6 Induced Cancer Cachexia. Experimental Biology. April 2012 San Diego, CA

IL-6 signaling regulates muscle FIS1 expression during the progression of cachexia. Advances in Skeletal Muscle Biology in Health & Disease. Feb 2012 Gainesville, FL.

Effect of exercise training on neuromuscular performance in cachectic mice. ACSM annual meeting, June 2011. Denver, CO

IL-6 inhibition attenuates activation of ubiquitin proteasome-dependent degradation in cachectic muscle. Experimental Biology, April 2011. Washington DC

Role of gut barrier dysfunction and endotoxemia in development of colon cancer cachexia. Experimental Biology, April 2010. Anaheim, CA.

Treadmill Exercise and Glucose Clearance in ApcMin/+ Mice. ACSM Annual Meeting June 2010. Baltimore, MD.

MARIE VAN DER MERWE
Asst Professor, Health Studies
Email: mvndrmrw@memphis.edu
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Education

B.Sc.Hons Biochemistry - University of Potchefstroom, South Africa - 1998
Ph.D. Molecular Pharmacology - University of Tennessee, Memphis - 2007

Work Experience

Assistant Professor, School of Health Studies - University of Memphis - 8/20/2014 - Present
Visiting Assistant Professor, Department of Health and Sport Sciences - University of Memphis - 8/19/2013 - 5/2/2014
Postdoctoral Research Fellow, Department of Bone Marrow Transplantation and Cellular Therapy - St Jude Children's Research Hospital - 2009 - 2013
Adjunct Faculty, Biological Sciences - Southwest Tennessee Community College - 2013-2014
Postdoctoral Research Fellow, Molecular Pharmacology - St Jude Children's Research hospital - 2008 - 2009

Honors/Awards

SHS Faculty research grant - University if Memphis - School of Health Studies - 2017
Faculty Research Grant for Science, Engineering and Mathematics - University of Memphis - 2015
Sumara Endowed Fellowship in Cellular and Gene Therapy - St Jude Children's Research Hospital - 2010
Federation of Clinical Immunology Societies Travel Award - Focis - 2010
UTHSC Graduate Student Research Day - University of Tennessee - 2007
CGHS Travel Award - University of Tennessee - 2006

Teaching Experience

Exercise & Nutrition Immunology - University of Memphis
Problems in Nutrition - University of Memphis
Research Methods - University of Memphis
Cellular Nutrition II - University of Memphis
Advanced Human Metabolism II - University of Memphis
Anatomy and Physiology I - Southwest Tennessee Community college

Student Advising/Mentoring

MS - Nutrition Sciences - Sunita Sharma - 2018
MS - Nutrition Science - Taya Yakimkova - 2018
MS - Clinical Nutrition - Katherine Cook - 2018
MS - Exercise Science - Jade Caldwell - 2018
MS - Nutrition Sciences - Jacqueline Wyman - 2017
MS - Nutrition Sciences - Jessica Hill - 2017
MS - Clinical Nutrition - Brooks Crone - 2016
MS - Exercise Science - Damien Moore - 2016
MS - Clinical Nutrition - Kimberly Boone - 2016
MS - Nutrittion Sciences - Simone Godwin - 2016
MS - Clinical Nutrition - LeeAnna Beech - 2015

Support

Industry grant - Bergstrom Nutrition - 22,778.00 - Oct 2017-Dec 2018
Industry grant - Juice PLus+ - 398,720.00 - Jan 2015 - Dec 2018
UM RIF - Interdisciplinary Innovation Award (Co-I) - UM - 350,000 - June 2017- Dec 2019
UM RIF- Team Initiation award (Co-I) - UM - 50,000 - Apr 2017 - Apr 2019
SHS Research grant - University of Memphis - SHS - 5929 - Jan 2017 - Dec 2017
Faculty Research Grant in Science, Engineering and Mathematics - University of Memphis - 5800 - July2015-July2016

Journal Articles

van der Merwe M, Bloomer RJ. The influence of methylsulfonylmethane on inflammation-associated cytokine release before and following strenuous exercise – a case study. Journal of Sports Medicine 2016

Daniels JL, Bloomer RJ, van der Merwe M, Davis SL, Buddington KK, Buddington RK Intestinal adaptations to a combination of different diets with and without endurance exercise. Journal of the International Society of Sports Nutrition 2016 Sep 14; 13:35

Esmond Arrindell, Ramesh Krishnan, Marie van der Merwe, Frank Caminita, Scott Howard, Jie Zhang, and Randal Buddington - Lung volume recruitment in a preterm pig model of lung immaturity. Journal of Physiology. 2015 Nov 15; 309(10)

Simone Godwin, Richard Bloomer, Van der Merwe M*, Rod Benjamin - MSM enhances LPS-induced inflammatory response after exercise. Journal of International Society of Sports Nutrition 2015, 12(Suppl 1) P: 48

Wright CM*, Van der Merwe M*, Bjornsti MA - DNA Topoisomerase I domain interactions impact enzyme activity and sensitivity to Camptothecin. J Biol Chem. 2015 May 8; 290(19):12068-78 *co-first authors

Caminita F, Van der Merwe M, Hance B, Krishnan R, Miller S, Buddington K, Buddington RK - A preterm pig model of lung immaturity and spontaneous infant respiratory distress syndrome. Am J Physiol Ling Cell Mol Physiol. 2015 Jan 15; 308 (2): L118-29

Van der Merwe M, Abdelsamed HA, Seth A, Ong T, Vogel P, Pillai AB - Recipient Myeloid-derived Immunomodulary Cells induce PD-1 Ligand-dependent Donor CD4+Foxp3+ Regulatory T Cell Proliferation and Donor-Recipient Immune Tolerance after Murine Non-myeloablative Bone Marrow Transplantation. J Immunology. 2013 Dec1; 191 (11): 5764-76

Kimura Y, van der Merwe M, Bering SB, PenmatsaH, Conoley VG, Sangild PT, Naren AP, Buddington RK - Glucose transport by epithelia prepared from harvested enterocytes. Cytotechnology, 2013 Oct 29.

Morales-Tirado V, Luszczek W, van der Merwe M, Pillai A - Regulatory immunotherapy in bone marrow transplantation. Scientific World Journal. 2011; 27767-75.

Palle K, Pattarello L, Van der Merwe M, Losasso C, Benedetti P, Bjornsti MA - Disulfide cross-links reveal conserved features of DNA Topoisomerase I architecture and a role for the N-terminus in clamp closure. J Biol Chem. 2008 Oct 10; 283(41):27767-75.

Van der Merwe M, Bjornsti MA - Mutation of Gly721 alters DNA Topoisomerase I active site architecture and sensitivity to camptothecin. J Biol Chem. 2008 Feb 8; 283(6):3305-15.

Colley WC*, van der Merwe M*, Vance JR, Burgin AB Jr, Bjornsti MA - Substitution of conserved residues within the active site alters the cleavage relegation equilibrium of DNA Topoisomerase I. J Biol Chem. 2004 Dec 24;279(52):54069-78. *co-first authors

Presentations

Poster Presentation - Experimental Biology 2017 Time restricted feeding of a high protects against adiposity, but not liver steatosis or increased TNF-a

Poster Presentation - Experimental Biology 2017 Glucocorticoids in combination with a omega-6 rich high fat diet increase acute phase proteins and alters PUFA metabolism in visceral adipose tissue.

Poster Presentation: Experimental Biology • 2016. Rescue of diet-induced obesity and estrous cycle irregularity with omega-3 rich fish oil diet.

Oral Presentation: Experimental Biology • 2016. A High fat diet containing fish oil reduces weight gain and metabolic syndrome associated with glucocorticoid therapy

Poster presentation - American Society for Animal Science 2016 Effect of topsoil exposure during lactation on subsequent performance and abundance of Innate and Adaptive Immune cells in pigs.

Oral Presentation: St Jude Evidence Based Research Council Symposium 2015 - Nutritional Intervention for the Reduction of Metabolic Syndrome associated with high dose glucocorticoid therapy.

Poster Presentation: European Academy of Pediatrics • 2014 - The preterm pig as a model for acute lung disease.

Poster presentation: Experimental Biology • 2014 -The preterm pig as a model for acute lung disease after preterm birth.

Poster presentation: Myeloid cells – Regulation and Inflammation (Keystone) • 2013 - CD11b+Gr-1lowCD11c+ cells induce PD-L1/2 dependent Foxp3 Donor nTreg proliferation and Allotransplantation tolerance after non-myeloablative BMT.

Poster presentation: Federation of Clinical Immunology Societies (FOCIS) • 2012 - Host Regulatory Myeloid Dendritic Cells Induce Donor Treg Proliferation and Transplantation Tolerance Via IL-4Rá /STAT-6 after TLI/ATS Non- Myeloablative BMT

Poster presentation: American Society for Bone Marrow Transplantation (ASBMT) • 2011 - Host Myeloid Derived Suppressor Cells Induce Donor Treg Proliferation and Transplantation Tolerance Via IL-4Rá /STAT-6 after TLI/ATS Non- Myeloablative BMT

Oral presentation: Federation of Clinical Immunology Societies (FOCIS) • 2010 - Donor Tr1 cells potently expand and maintain immune tolerance after non- myeloablative BMT.

Poster presentation: American Association of Immunologists • 2010 - Donor Tr1 cells are potently expanded and prevent acute GVHD after non-myeloablative BMT.

Poster presentation: American Association for Cancer Research • 2008 - DNA Topoisomerase I architecture regulates cell sensitivity to Camptothecins

Poster presentation: American Association for Cancer Research • 2007 - Topoisomerase I architecture is a determinant of Camptothecin sensitivity

Poster presentation: American Association for Cancer Research • 2006 - Enzyme architecture affects DNA topoisomerase I activity and sensitivity to Camptothecin.

Poster presentation: Keystone Symposia • 2005 - Enzyme architecture affects DNA topoisomerase I function.

Poster presentation: Yeast Genetics and Molecular Biology meeting • 2004 - The role of the linker domain structure in DNA topoisomerase I function.

Poster presentation: American Association for Cancer Research • 2004 - DNA topoisomerase I mutants with enhanced sensitivity to Camptothecin.

LAWRENCE W. WEISS
Professor, Health Studies
Email: lweiss@memphis.edu
Office Location: 314 Field House

Education

B.S., cum laude Health and Physical Education - Old Dominion University - 1974
M.Ed. Physical Education, Concentration in Exercise Science - The University of Georgia - 1975
Ed.D. Physical Education, Concentration in Exercise Science - The University of Georgia - 1979

Work Experience

Professor, Health Studies - The University of Memphis - 1992-present
Director of Academic Programs, School of Health Studies - The University of Memphis - 2017-present
Director of Graduate Programs, Health Studies - The University of Memphis - 2009-present
Director of Undergraduate Programs, School of Health Studies - The University of Memphis - 2017-present
Coordinator, Exercise, Sport & Movement Sciences - The University of Memphis - 2015-present
Director, Human Performance Laboratories - The University of Memphis - 1993-present
Director, Musculoskeletal Analysis Laboratory - The University of Memphis - 2014-present
Director, Musculoskeletal Dynamics Laboratory - The University of Memphis - 1986-2014
Director, Body Composition Research Laboratory - The University of Memphis - 1993-2008
Coordinator, Exercise & Sport Science Unit - The University of Memphis - 2004-2008
Coordinator, Exercise Science & Health Promotion Unit - The University of Memphis - 1994-2004
Clinical Associate Professor, Physical Therapy - The University of Tennessee, Center for Health Sciences - 1994-2014
Department Chair (Interim), Health, Physical Education & Recreation - The University of Memphis - 1992-93
Chair, HPER Graduate Studies & Research Council - The University of Memphis - 1988-91
Associate Professor, Health, Physical Education & Recreation - The University of Memphis - 1986-92
Associate Professor, Department of Physical Education - Georgia Southern (College) University - 1986
Director, Exercise Science Laboratory - Georgia Southern (College) University - 1979-86
Assistant Professor, Department of Physical Education - Georgia Southern (College) University - 1979-85
Instructor, Continuing Education (Fitness Courses) - Georgia Southern (College) University - 1981-86
Graduate Assistant, Physical Education Activity Program - The University of Georgia - 1977-79
Graduate Assistant, Continuing Education (Fitness Courses) - The University of Georgia - 1976-78
Instructor, Georgia Retardation Center - The University of Georgia - 1976-77
Instructor, Alternative Opportunity Program - Warwick High School - 1975-76
Graduate Assistant, Physical Education Activity Program - The University of Georgia - 1974-75
Instructor, NCAA National Youth Sports Program - Old Dominion University - 1973, 75, 76

Honors/Awards

Excellence in Service Award - College of Education, Health & Human Sciences, The University of Memphis - 2014
Excellence in Research Award - College of Education, The University of Memphis - 2011
Charter Fellow (FNSCA) - National Strength and Conditioning Association - 2007
Outstanding Sport Scientist Award - National Strength & Conditioning Association - 2003
Certified Strength & Conditioning Specialist, Recertified with Distinction - National Strength & Conditioning Association – 2000 - present
Editorial Excellence Award - Journal of Strength and Conditioning Research - 1998
Certified Strength & Conditioning Specialist - National Strength & Conditioning Association - 1994, 1997
Fellow (RFSA) - Research Consortium, Society of Health & Physical Educators - 1991
Fellow (FACSM) - American College of Sports Medicine - 1986
Sigma Beta Tau Academic Honor Society - Old Dominion University - 1973
Who's Who in American Colleges and Universities - Old Dominion University - 1973

Teaching Experience

(G) Physiology of Exercise: Musculoskeletal Aspects - The University of Memphis
(G) Analysis of Muscle Function - The University of Memphis
(G) Advanced Kinesiology - The University of Memphis
(G) Applied Educational Research - The University of Memphis
(G) Problem Identification & Research Planning Seminar - The University of Memphis
(G) Research Seminar in Exercise & Sport Science - The University of Memphis
(U) Exercise Physiology Introduction - The University of Memphis
(U) Physiological Bases of Strength Conditioning - The University of Memphis
(U) Exercise Physiology I - The University of Memphis
(U) Anatomic Kinesiology - The University of Memphis
(G) Research Seminar in Health Promotion - The University of Memphis

(G) Measurement & Evaluation - The University of Memphis
(U) Weight Training - The University of Memphis
(G) Applied Musculoskeletal Physiology - The University of Tennessee Center for Health Sciences
(G) Wellness & Exercise - The University of Tennessee Center for Health Sciences
(U) Freshman Seminar - The University of Memphis
(U) Resistance Training Applications - The University of Memphis

Student Advising/Mentoring

MS - Hailey Daugherty - 2019
MS - Lindsey Allison - 2017
MS - Johnpaul Caia - 2015
MS - Bradley A. DeForest - 2013
MS - Christina Feldmann - 2011
MS - Lucas C. Ferreira - 2009
MS - Andrea Creasy - 2007
MS - Lesley Tschume - 2007
MS - David Ferebee - 2007
MD - Saurabh Kumar - 2006
MD - Hayden Smith - 2005
MS - Christopher Moore - 2005
MS - Michael Criqui - 2004
MD - Bharat Magu - 2004
MS - Keegan Buchannan - 2002
MS - Barry Bondurant - 2002
MS - Amy Friedman - 1999
MS - Travis Ireland - 1998
MS - Larry Wood - 1997
MS - Lisa Liebschwager - 1994
PhD - Susan Appling - 1992
PhD - Candi Ashley - 1991

Support

Weiss, L. (PI) and C. Moore. Acute effects of augmented eccentric loading on jump squat performance. - National. Strength & Conditioning Assoc - $2,500 - FY04
Li, Y. (PI), L. Weiss, M. Fry. Using technology to teach critical thinking through a multilevel approach in the exercise sciences. - Information Technology Grant - $5,985 - FY05

Journal Articles

Refereed Papers

Smith, R.E., M.R. Paquette, J.R. Harry, D.W. Powell, and L.W. Weiss. Footwear and sex differences in performance and joint kinetics during maximal vertical jumping. JSCR, Accepted, Ahead of Press, 2018.
Swearingen, J., L. Weiss, W. Smith, M. Stephenson, and B. Schilling. Potential utility of a loaded treadmill protocol for tactical athletes. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 32(3):610-616, 2018.
Sterczala, A., A. Fry, L. Chiu, B. Schilling, L. Weiss, and J. Nicoll. Beta2-adrenergic receptor maladaptations to high power resistance exercise overreaching. HUMAN PHYSIOLOGY, 43:446-454, 2017.
Caia, J., L. Weiss, L. Chiu, B. Schilling, and M. Paquette. Consistency of lower-body dimensions using surface landmarks and simple measurement tools. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 30:2600-2608, 2016.
Caia, J., L. Weiss, L., Chiu, B. Schilling, and M. Paquette. Do lower-body dimensions and body composition explain vertical jump ability? JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 30:3073-3083, 2016.
Davis, M.R., R. Easter, J. Carlock, L.W. Weiss, E.A. Longo, L.M. Smith, and B.K. Schilling. Self-reported physical tasks and exercise training in special weapons and tactics (SWAT) teams. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 30:3242-3248, 2016.
Irwin, C.C., Y. Li, E. Bene, A. Rach, B. Baughman, B., and L. Weiss. Test-retest reliability of selected NeuroCom(R) postural stability assessments. RESEARCH QUARTERLY FOR EXERCISE AND SPORT, 86(S-2), A15-A16, 2015.
Harry, J.R., M.R. Paquette, J. Caia, R.J. Townsend, R.J., L.W. Weiss, and B.K. Schilling. Effects of footwear condition on maximal jumping performance. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 29:1657–1665, 2015.
Andre, M.J., A.C. Fry, E. McLellan, L.W. Weiss, and C.M. Moore. Acute effects of static stretching on bench press power and velocity in adolescent male athletes. INTERNATIONAL JOURNAL OF SPORTS SCIENCE & COACHING.9:1145-1152, 2014.
McAllister, M., K. Hammond, B. Schilling, L. Ferreria, J. Reed, and L. Weiss. Muscle activation during various hamstring exercises. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 28:1573-1580, 2014.
Weiss, L., B. DeForest, K. Hammond, B. Schilling, and L. Ferreira. Reliability of goniometry-based Q-angle. PHYSICAL MEDICINE AND REHABILITATION, 5:763-768, 2013.
McAllister M., B. Schilling, K. Hamond, L. Weiss, and T. Farney. Effect of grip width on electromyographic activity during the upright row. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 27:181-187, 2013.

Feldmann, C., L. Weiss, B. Schilling, and Z. Murlasits. Association of drop vertical jump displacement with select performance variables. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 26:1215-1225, 2012.

Ferreira, L., B. Schilling, L. Weiss, Andrew Fry, and L. Chiu. Reach height and jump displacement: implications for standardization of reach determination. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 24:1596-1601, 2010.

Ferreira, L., L. Weiss, K. Hammond, and B. Schilling. Structural and functional predictors of drop vertical jump. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 24:2456-2467, 2010.

Schilling, B., R. Karlage, M. LeDoux, R. Pfeiffer, L. Weiss, and M. Falvo. Impaired leg extensor strength in individual with Parkinson Disease and relatedness to functional mobility. PARKINSONISM AND RELATED DISORDERS, 15:776-780, 2009.

Schilling, B., M. Falvo, R. Karlage, L. Weiss, C. Lohnes, and L. Chiu. Effects of unstable surface training on measures of balance in older adults. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 23:1211-1216, 2009.

Jones R.M., A. Fry, L. Weiss, and S. Kinzey. Kinetic comparison of free weight and machine power cleans. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 22:1785-1789, 2008.

Moore, C., L. Weiss, B. Schilling, A. Fry, & Y. Li. Acute effects of augmented eccentric loading on jump squat performance. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 21(2):372-377, 2007.

Barnes, J.L., B.K. Schilling, M.J. Falvo, L.W. Weiss, A.K. Creasy, and A.C. Fry. Force-time measures during jumping and agility performance in female volleyball athletes. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 21:1192-1196, 2007.

Keller, G., Y. Li, L. Weiss, and G. Relyea. Contextual interference effect on acquisition and retention of pistol shooting skills. PERCEPTUAL AND MOTOR SKILLS, 103:241-252, 2006.

Fry, A., B. Schilling, L. Weiss, and L. Chiu. Beta2-Adrenergic receptor downregulation and performance decrements during high-intensity resistance exercise overtraining. JOURNAL OF APPLIED PHYSIOLOGY, 101:1664-1672, 2006.

Fry, A., R. Bloomer, M. Falvo, C. Moore, B. Schilling, and L. Weiss. Effect of a liquid multi-vitamin/mineral supplement on anaerobic exercise performance. RESEARCH IN SPORTS MEDICINE: AN INTERNATIONAL JOURNAL, 14(1):53-64, 2006.

Falvo, M., B. Schilling, and L. Weiss. Techniques and considerations for determining upper-body isoinertial power. SPORTS BIOMECHANICS, 5:293-311, 2006.

Schilling, B., A. Fry, L. Chiu, and L. Weiss. Myosin heavy chain isoforms expression and in-vivo isometric performance: A regression model. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 19:270-275, 2005.

Bloomer, R., A. Fry, B.K. Schilling, L.Z. Chiu, and L. Weiss. Astaxanthin supplementation does not attenuate markers of muscle injury following eccentric exercise in resistance trained men. INTERNATIONAL JOURNAL OF SPORT NUTRITION AND EXERCISE METABOLISM, 15:401-412, 2005.

Schilling, B., A. Fry, L. Weiss, and L. Chiu. Myosin heavy chain isoforms expression: Influence on isoinertial and isometric performance. RESEARCH IN SPORTS MEDICINE, 12:301-316, 2005.

Chiu, L., B. Schilling, A. Fry, and L. Weiss. Measurement of resistance exercise force expression. JOURNAL OF APPLIED BIOMECHANICS, 20:204-212, 2004.

Weiss L., L. Wood, A. Fry, R. Kreider, G. Relyea, D. Bullen, P. Grindstaff. Strength/power augmentation subsequent to short-term training abstinence. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 18:765-770, 2004.

Chiu, L., B. Schilling, A. Fry, J. Johnson, and L. Weiss. Neuromuscular fatigue and potentiation following two successive high intensity resistance exercise sessions. EUROPEAN JOURNAL OF APPLIED PHYSIOLOGY, 92:385-392, 2004.

Fry, A., B. Schilling, L. Chiu, N. Hori, and L. Weiss. Fiber type-specific responses to perceptions of delayed onset muscle soreness with astaxanthin supplementation. MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, 36:S175, 2004.

Weiss, L., A. Fry, L. Chiu, B. Schilling, K. Buchanan, B. Bondurant, B. Magu, and C. Scates. Reliability of knee extension mechanical power across a load-spectrum. MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, 36:S352, 2004.

Matuszak, M., A. Fry, L. Weiss, T. Ireland, and M. McKnight. Effect of rest interval length on repeated one repetition maximum back squats. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 17:634-637, 2003.

Chiu, L., A. Fry, L. Weiss, B. Schilling, L. Brown, and S. Smith. Postactivation potentiation response in athletic and recreationally trained individuals. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 17:671-677, 2003.

Harber M., A. Fry, M. Rubin, J. Smith, and L. Weiss. Skeletal muscle and hormonal adaptations to circuit weight training in untrained men. SCANDINAVIAN JOURNAL OF MEDICINE AND SCIENCE IN SPORTS, 13:1-10, 2003

Fry, A., J. Webber, L. Weiss, M. Harber, M. Vaczi, and N. Pattison. Muscle fiber characteristics and performance correlates of elite power lifters. JOURNAL OF STRENGTH AND CONDITIONING RESEARCH, 17:402-410, 2003.

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Fry, A., G. Calhoon, M. Stone, and L. Weiss. Injury rates and profiles of elite competitive Olympic-style weightlifters. MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, 30:S53, 1998.

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Weiss, L. Quantification of skeletal muscle and subcutaneous fat in the extremities. JOURNAL OF ULTRASOUND IN MEDICINE, 7:S123: 1988.

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Weiss, L. and F. Clark. Anthropometric and strength changes in the calf consequent to weight training by young men and women. MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, 17:187, 1985.

Weiss, L. Ultrasonic assessment of fat and muscle thickness in the triceps surae area. PHYSICAL THERAPY, 63: 1983.

Weiss, L. Two-dimensional ultrasonic view of skeletal muscle cross-sections at selected sites on the arm and leg. MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, 15:105, 1983.

Weiss, L., K. Cureton, and F. Thompson. Effects of weight lifting on serum levels of testosterone and androstenedione in adult men and women. MEDICINE AND SCIENCE IN SPORTS AND EXERCISE, 12:83, 1980.

Appendix H

Faculty Vitae for Prospective Dissertation Committee Members

DANIEL GREENWOOD
Research Assistant Professor, Health Studies (new hire)
Email: @memphis.edu
Office Location: Elma Roane Fieldhouse

Education

Ph.D. Applied Sport Science – Queensland University of Technology - 2014
First Class Honours in Human Movement Studies – 2005
B.A. Human Movement Studies – 2004
B.A. Sports & Exercise Management – 2003

Work Experience

Postgraduate Scholar, Australian Institute of Sport – 2005-2006
Sport Scientist – Singapore Sports Council - 2007-2009
Sport Scientist – Queensland Academy of Sport – 2010-2012
Senior Sport Scientist - Queensland Academy of Sport – 2012-2015
Senior Sport Scientist – Australian Institute of Sport – 2012-2015

Research Projects Completed

(2018) - Developing a triathlon transition skill program using coach and athlete knowledge
(2018) - Using scouting analysis to influence training design in Commonwealth Games boxers
(2018) - Triathlon run preparation for sprint events
(2018) - Integrating reaction time training in to traditional BMX training methods
(2017) - Refining hurdle technique based on historical athlete data
(2017) - Changing coach auditory behaviour through feedback in synchronized swimming
(2017) - Adaptable training to improve triathlon run performance
(2017) - Constraints to influence run technique in elite modern pentathlon
(2017) - Australian Netball Diamonds coaching and performance analysis peer review
(2017) - Head coach vs. assistant coach feedback in a team volleyball training session
(2017) - Coaches auditory feedback in different gymnastic sports
(2017) - Phase length in women's triple Jump
(2016) - First to the first hurdle – Sally Pearson 2011 vs 2016
(2016) - Quantification of training in the lead up to a major diving championship
(2016) - Best practice training design for competition preparation
(2016) - Changing run-up length in long jump training to improve locomotor pointing
(2016) - Improving start time in BMX
(2016) - Developing a sport specific coaching and learning resource for triathlon
(2016) - Elite diving coach's philosophy of athlete development
(2016) - Learning design for expert performance in the javelin throw
(2016) - Practice organisation and the basketball set-shot

Professional Presentations

(2017) - Designing training for performance under pressure - National Equestrian High-performance Coaching Conference
(2017) - The coaching process - NRL High Performance Coaching Course
(2017) - Handling the inner crowd - AIS Journal Club
(2017) - Facilitating coaching strategies - Triathlon Australia Performance Coach Training Program
(2017) - Training design for rowing skill development - Rowing Level 3 Coaching Course
(2017) - How coaches and athletes learn - Gymnastics Australia Team Future Coaching
(2017) - Auditory feedback measurement in coaches from multiple sports – AIS Movement Science Seminar
(2017) - Learning through a game-show approach - AIS Journal Club
(2017) - The role of location on coach feedback behaviour – Gymnastics Australia High Performance Coaching
(2017) - Pre-elite coaching and training design - NSWIS Coach Seminar Series
(2017) - Coaching - Athletics Australia Coach Development Series
(2017) - Using athlete names in feedback to improve retention - AIS Journal Club
(2017) - Effective communication between coaches and athletes – Gymnastics Australia Team Future Coaching
(2017) - Skill learning for coaches - Synchronised Swimming Australia High Performance Camp
(2016) - The role of reflection - Gymnastics Australia Team Future Camp
(2016) - Skill acquisition and coaching - Triathlon Australia Performance Coach Training Program
(2016) - Skill acquisition in gymnastics – Gymnastics Australia Team Future Camp
(2016) - What we can learn from the skateboarding culture in high performance - AIS Journal Club
(2016) - Nonlinear pedagogy in applied settings - New Zealand Athletics Javelin Throws Camp (2016)
- Coach education - Athletics Australia Under 19 Performance Camp
(2016) - Recent approaches to horizontal jumping - Athletics Australia Under 19 Performance Camp

(2016) - Coaching philosophies based on interview data – Diving Australia

REFEREED PUBLICATIONS

Roberts, A., Greenwood, D., Raynor, A., Humberstone, C., Iredale, F. (In Preparation). The role of the coach in talent identification: A review of the literature. Sports Medicine.
McCosker, C., Renshaw, I., Greenwood, D., Davids, K. and Gosden, E. (In Preparation). How performance analysis of elite long jumping can inform representative training design through identification of key constraints on behaviour. Journal of Sports Sciences.
Greenwood, D. (In Preparation). Skill Acquisition in the Preparation for Olympic Competition: A Case study of an Olympic Synchronised Swimming Team. Journal of Sports Sciences.
Askew, G., Pepping, G.J., Greenwood, D. (In Preparation). The Influence of Playing Area and Player Location on Exploratory Behaviours in Small-Sided-Games. European Journal of Sports Sciences.
Greenwood, D., Davids, K., & Renshaw, I. (Under Review). Exploring effects of task simplification methods on run-up performance in long jump training. European Journal of Sport Science.
Porter, C., Greenwood, D., Panchuk, D., Pepping, G.J. (Under Review). Practice organisation and the basketball set-shot. Journal of Sports Sciences.
Nibali, A., He, Z., Morgan, S., & Greenwood, D. (2017). Extraction and Classification of Diving Clips from Continuous Video Footage. The IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, 38-48.
Greenwood, D., Davids, K., & Renshaw, I. (2016). The role of a vertical reference point in changing gait regulation in cricket run-ups. European Journal of Sport Science, 16(7), 794-800.
Greenwood, D., Davids, K., & Renshaw, I. (2013). Experiential knowledge of expert coaches can identify informational constraints on performance of dynamic interceptive actions. Journal of Sports Sciences, 32(4), 328-335.
Greenwood, D., Davids, K., & Renshaw, I. (2012). How Elite Coaches' Experiential Knowledge Might Enhance Empirical Research on Sport Performance. International Journal of Sport Science and Coaching, 7(2), 411-422.
Greenwood, D., Davids, K., & Renshaw, I. (2012). How Elite Coaches' Experiential Knowledge Might Enhance Empirical Research on Sport Performance: A Response to Commentary. International Journal of Sport Science and Coaching, 7(2), 427-429.

BOOK CHAPTER PUBLICATIONS

McGuckian, T. B., Askew, G., Greenwood, D., Chalkley, D., Cole, M., & Pepping, G.J. (2017). The impact of constraints on visual exploratory behaviour in football. In J. A. Weast-Knapp & G.J. Pepping (Eds.), Studies in perception and action XIV. New York: Taylor & Francis
Davids, K., Renshaw, I., Pinder, R., Greenwood, D., & Barris, S. (2015). The role of psychology in enhancing skill acquisition and expertise in high performance programmes. In S. T. Cotterill, G. Breslin, & N. Weston (Eds.), Applied Sport Psychology: Practitioner case studies. London: Routledge.

CONFERENCE PRESENTATIONS

Roberts, A. H., Greenwood, D., Humberstone, C., Iredale, F., Raynor, A. (2018). A constraints based approach to talent identification of future athletes. Poster presented at Exercise and Sports Science Australia (ESSA) Conference – Research to Practice, Brisbane, Australia.
McGuckian, T. B., Askew, G., Greenwood, D., Chalkley, D., Cole, M., & Pepping, G.J. (2017). The impact of constraints on visual exploratory behavior in football. International Conference on Perception and Action, Seoul, Korea.
Greenwood, D., Maloney, M. (2017). 'Performing under pressure: The skills to pay the bills'. AIS Smart Talk Series. Canberra, Australia.
Roberts, A. H., Greenwood, D., Raynor, A., Humberstone, C., Iredale, F. (2017). 'Talent doesn't make a champion – but it helps': The coaches' eye in talent identification. Proceedings from the Australasian Skill Acquisition Network Conference, Brisbane, Australia.
Keogh, J., Haakonssen, E., Greenwood, D. (2017). Reaction (response) time in sport: assessment and training challenges. Proceedings from the Australasian Skill Acquisition Network Conference, Brisbane, Australia.
Roberts, A., Greenwood, D., Humberstone, C., Iredale, F., Raynor, A. (2017). How do coaches identify talent? An examination of international coach perspectives in combat sports. Scientific Conference on Motor Skill Acquisition. Lohja, Finland.
McCosker, C. Renshaw, I., Greenwood, D., Davids, K. & Gosden, E. (2017). Using performance analysis of elite long jumping to better inform representative training design. Proceedings from the Australasian Skill Acquisition Network Conference. Brisbane, Australia.
Askew, G., Pepping, G.J., Greenwood, D. (2016). The Influence of Non-Linear Coaching on Exploratory Behaviour. Proceedings from the Australasian Skill Acquisition Research Group. Singapore.
Greenwood, D., (2016). Skill acquisition in elite triathlon. Australian Movement Science Forum.Canberra, Australia.
Greenwood, D., Panchuk, D. (2016). Skill acquisition and the talent pathway. Australian Talent Pathways. Canberra, Australia.
Greenwood, D., Slattery, K. (2015). The role of the learner: Improving run performance in one elite male triathlete. Scientific Conference on Motor Skill Acquisition, Lohja, Finland.
Greenwood, D., Davids, K. and Renshaw, I. (2010). The relationship between experiential and empirical knowledge for understanding sport performance. 4th Australasian Skill Acquisition Research Group. Canberra, Australia
Greenwood, D., Davids, K. and Renshaw, I. (2010). Current Coaching Approaches to Run-ups in Sport. Evolution of the Athlete. Brisbane, Australia.
Greenwood, D. (2009). Run-ups in Sport. A Preliminary Examination. 3rd Australasian Skill Acquisition Research Group. Brisbane, Australia
Portus, M.R., Denver, E.R., Greenwood, D., Spratford, W.A., Dowlan S.D. (2007). Laboratory and match testing protocols: analysis of elbow angle in cricket bowling. 3rd World Congress of Science and Medicine in Cricket. Barbados, Caribbean.
Greenwood, D., Bower, R. and Salter, C. (2005). Dominant versus non-dominant arm throwing in cricket: A kinematic analysis. Overview Magazine. Issue 2, November. Published by Cricket Australia
Greenwood, D., Bower, R. and Salter, C. (2005). Dominant versus non-dominant arm throwing in academy level cricketers. Cricket Australia

Sports Science Medicine Forum. Queensland, Australia.
Greenwood, D., Bower, R. and Salter, C. (2005). Dominant versus non-dominant arm throwing in cricket: A kinematic analysis. National Elite Sports Council – Athlete Services Forum. Australian Institute of Sport. Canberra, Australia.

HONOURS PROJECTS CO-SUPERVISED TO COMPLETION

Askew, G., Pepping, G.J., Greenwood, D. (2017). The Influence of Playing Area and Athlete Freedom on Exploratory Behaviours in Small-Sided-Games. (Hons), Australian Catholic University, Brisbane, Australia.
Porter, C., Pepping, G.J., Greenwood, D. (2016). Exploring the effect of a learner-adapted practice schedule on performance and learning of the basketball set shot. (Hons), Australian Catholic University, Brisbane, Australia.
Maloney, M., Renshaw, I., Greenwood, D. (2012). Vertical references as constraints on the long jump run up: A case study of two Olympic long jump finalists. (Hons), Queensland University of Technology, Brisbane, Australia.
Smith, N., Renshaw, I., Greenwood, D. (2011). Do freestyle swimmers visually regulate when performing a tumble turn? (Hons), Queensland University of Technology, Brisbane, Australia.

PHD PROJECTS CURRENTLY SUPERVISED

McCosker, C., Renshaw, I., Greenwood, D., Davids, K. (2015 - Current). The Influence of Interacting Constraints on Long Jumping Performance: Dynamic Interceptive Actions in Performance Environments. (PhD), Queensland University of Technology, Brisbane, Australia.
Roberts, A., Greenwood, D., Raynor, A., Humberstone, C., Iredale, F. (2016 - Current). Exploring talent identification in combat sports: Using the coaches' eye to forecast talent. (PhD), Edith Cowan University, Perth, Australia

GRANTS RECEIVED

2017 – ($7'500) Australian institute of Sport – High Performance Research Fund – "Reaction Training Time in BMX".
2015 – ($59'180) Australian institute of Sport – High Performance Research Fund – "Dive categorisation through computer based deep learning".

CAROL C. IRWIN
Assoc Professor, Health Studies
Email: cirwin@memphis.edu
Office Location: Elma Roane Fieldhouse 220

Education

Ph.D. Curriculum and Instruction/Health Education - Kent State University - 2003
M.A. Sport Pedagogy - Kent State University - 1991
B.A. Physical Education K-12 - University of Northern Colorado - 1979

Work Experience

Associate Professor, School of Health Studies - University of Memphis - 2007-2018
Coordinator, Health, Physical Education, and Lifetime Wellness, Curriculum and Professional Development/Academic Affairs - Memphis City Schools - 2004-2007
Assistant Professor/Clinical Instructor, Human Movement Sciences and Education/College of Education - University of Memphis - 2001-2004
Teacher, Physical Education/Lower School - St. Mary's Episcopal School, Memphis, TN - 1995-2000
Adjunct Faculty, Human Movement Sciences and Education/College of Education - University of Memphis - 1994-1995
Assistant Project Director, Comprehensive School Health Grant, Adult Counseling, Health and Vocational Education/College of Education - Kent State University - 1992-1994
Adjunct Faculty, Physical Education/School of Health, Physical Education, and Recreation - Kent State University - 1991-1992
Graduate Assistant, Physical Education/School of Health, Physical Education, and Recreation - Kent State University - 1990-1991
Teacher/Coach, Physical Education - Milliken MS/Weld County RE-5J, Johnstown, CO - 1989-1990
Teacher, Physical Education - Heath JHS/Weld County 6 School District/Greeley, CO - 1988-1989
Teacher/Coach, Physical Education and Health - Cass Lake Elementary and HS/Cass Lake, MN - 1986-1988
Teacher/Coach, Science, Health, and Physical Education - Milliken MS, Weld County RE-5J, Johnstown, CO - 1984-1985
Teacher/Coach, Physical Education, Science and Health, Social Studies, Language Arts - Westminster Elementary/Scott Carpenter JHS/Clear Lake JHS/Adams County #50 School District/ Westminster, CO - 1979-1984

Honors/Awards

Faculty Affiliate-Outstanding Contributions - Benjamin L. Hooks Institute for Social Justice at the U of M - 2016
Excellence in Engaged Scholarship Award- Nominated - University of Memphis - 2014
Harold Love Outstanding Community Involvement Award- Nominated - Tennessee Higher Education Commission - 2011
Effective Board Service Training - Volunteer Memphis - 2008
Model Submitted Article - AAHPERD/JOPERD - 2004
Graduate Student of the Year-Nominated - Kent State University - 1994

Teaching Experience

HMSE 7996 Thesis - University of Memphis
PETE 7950 Special/Applied Project in Physical Education Teacher Education - University of Memphis
PETE 7501 Advanced Organization and Analysis of Instruction in Physical Education - University of Memphis
PETE 7205 Issues in Urban Physical Education - University of Memphis
PETE 7204 Instructional Supervision in Physical Education - University of Memphis
PETE 7203 Learner Assessment and Program Evaluation in Physical Education - University of Memphis
PETE 7202 Advanced Analysis of Curriculum Models in Physical Education - University of Memphis
PETE 7201 Theoretical and Instructional Models in Physical Education - University of Memphis
PETE 7152 Special Problems in Physical Education - University of Memphis
PETE 7007 Advanced Clinical Practicum - University of Memphis
PETE 7006 Instruction in Physical Education - University of Memphis
PETE 7003 Principles of Teaching Individual and Team Sports - University of Memphis
PETE 7001 Applied Scientific Principles in Physical Education - University of Memphis
PETE 4909 Student Teaching Seminar in Physical Education - University of Memphis
PETE 4800 Student Teaching in Physical Education - University of Memphis
PETE 4701 Residency II Practicum in PE and Wellness - University of Memphis
PETE 4601 Residency II Seminar in PE and Wellness - University of Memphis
PETE 4501 Residency I Practicum in PE and Wellness - University of Memphis
PETE 4300/4301 Curriculum and Integrated Learning in Secondary Physical Education - University of Memphis
PETE 4200: Curriculum and Integrated Learning in Elementary Physical Education - University of Memphis
PETE 3800 Instructional Strategies in Physical Education - University of Memphis
PETE 2003: Skill Competence in Individual Sports - University of Memphis
PETE 3604: Teaching Physical Education and Health for K-MS - University of Memphis
PETE 2002: Skill Competence in Team Sports - University of Memphis
PETE 2001: Skills in Individual Fitness and Applications to Teaching - University of Memphis
PETE 2000 Introduction to Physical Education Teacher Educaiton - University of Memphis

EXSS 7905: Curriculum in Physical Education - University of Memphis
EXSS 7904: Instruction in Physical Education - University of Memphis
EXSS 3604: Teaching Exercise and Sport Science, K-Elementary - University of Memphis
EXSS 3306: School Health, Safety, and First Aid - University of Memphis
PEP 49526: Student Teaching in Physical Education - Kent State University
PEP 15015: Development and Analysis of Individual Sports Skills - Kent State University
PEP 10907: Intermediate Tennis - Kent State University
PEP 10904: Beginning Tennis - Kent State University
PEP 10204: Beginning Badminton - Kent State University

Creative Activities

Curriculum Maps for Physical Education K-12 - 2015 - Chicago, IL - United Neighborhood Organization Charter School Network
Make a Splash Mid-South/Splash Mid-South "Learn to Swim" Program - 2009-14 - City of Memphis and YMCA Pools - Splash Mid-South
Conference USA-Nike GO Mens and Womens Basketball Tournament - 2006-09 & 2012 - Memphis City Schools Elementary/Middle Schools - MCS/Conference USA/Nike
Revision of District Physical Education Curriculum - 2009-10 - Memphis City Schools - Memphis City Schools
Revision-Family Life and HIV Prevention Education Curriculum - 2007 - Memphis City Schools - Memphis City Schools
Healthy Choices Week - 2005-2009 - Memphis Area - Memphis City Schools/HMCT/Urban Child Institute
MCS Character Education Resource - 2005-2007 - Memphis City Schools, Memphis, TN - Memphis City Schools
Revision of District Physical Education Curriculum - 1994 - Bay Village, OH - Bay Village School District
Revision of District Physical Education Curriculum - 1988 - Cass Lake Elementary - Cass Lake/Bena MN School District
Human Growth and Development Curriculum - 1985 - Milliken CO Middle School - Weld County CO School District RE-5J

Support

Factors Impacting Swimming Participation and Competence - USA Swimming Foundation - $49,400.00 - 2017-18
Examination of the State of Tennessee Physical Education Student Growth Measures - Tennessee Association of Health, Physical Education, Recreation, and Dance - $500.00 - 2016-17
Neurophysiological and Psychological Correlates of mTBI in Young Athletes (Co-I) - Shainberg Foundation-Lebonheur Neuroscience & Semmes-Murphey - $20,000.00 - 2015-16
Factors Associated with Pathway from Beginning Swimming to Competitive Swimming for Minority Participants (PI) - USA Swimming - $12,000.00 - 2013-18
An Autonomy-Supportive Intervention on Physical Education Motivation and Physical Activity (Co-I) - AAHPERD Research Consortium - $5,000.00 - 2013-14
Healthy Home Court: Family Fitness Challenge (Co-I) - Memphis Grizzlies - $7,500.00 - 2012-13
Constraints Impacting Minority Participation in Swimming-Phase II (PI) - USA Swimming - $59,500.00 - 2010-12
Head Start Body Start Evaluation (Co-I) - Head Start-AAHPERD - $370,000.00 - 2009-11
Constraints Impacting Minority Participation in Swimming (Co-I) - USA Swimming - $51,463.00 - 2007-09
Coordinated School Health Program (Co-PI) - State of Tennessee - $180,000.00 - 2006-07
Healthy Choices Week (PI) - Urban Child Institute - $10,000.00 - 2006
Minnesota Artist in Residence Grant (PI) - State of Minnesota - $1,000.00 - 1987
Splash Mid-South "Learn to Swim" Program (PI) - Benjamin L. Hooks Center for Social Change - $2,000 - 2014
Technology Access Funds (TAF) Grant-Polar Cardio GX Training System - University of Memphis - $11,600.00 - 2013
FedEx Institute of Technology Corporate Engagement (Co-PI) - FedEx Institute of Technology - $25,000.00 - 2011-13
Mentor/Mentee Research Grant (Co-PI) - College of Education, Health and Human Sciences - $200.00 - 2012-13
Faculty Research Grant (PI) - University of Memphis Research Support Services - $6,500.00 - 2011-12
Make a Splash Mid-South "Learn to Swim" Program (PI) - Benjamin L. Hooks Institute for Social Change - $2,000.00 - 2011
Make a Splash Mid-South- Learn to Swim Program Phase II (PI) - Benjamin L. Hooks Institute for Social Change - $2,000.00 - 2010
Make a Splash Mid-South- Learn to Swim Program (PI) - Benjamin L. Hooks Institute for Social Change - $3,000.00 - 2009
Technology Access Funds (TAF) Grant: Fitness Testing with Palms (Co-PI) - University of Memphis College of Education - $1,500.00 - 2007-08

Journal Articles

Wright, P., & Irwin, C.C. (2018, in press). Using systematic observation to assess teacher effectiveness promoting personal and social responsible behavior in physical education. Measurement in Physical Education and Exercise Science.
Yli-Piipari, S., Layne, T., Hinson, J., & Irwin, C. (2018, in press). Motivational pathways to leisure-time physical activity in urban physical education: A cluster-randomized study. Journal of Teaching in Physical Education.
Lanter, J., Layne, T., & Irwin, C. (2018, in press). Analysis of instruction on a university strength training activity course. Physical Educator.
Pharr, J.R., Irwin, C.C., Layne, T.E., & Irwin, R.L. (2018 in press). Predictors of swimming ability among children and adolescents in the United States. Sports.
Irwin, C.C., Pharr, J.R., Layne, T.E., & Irwin, R.L. (2018 in review). An investigation of youth swimming ability and method of instruction. International Journal of Aquatic Research and Education.
Irwin, C.C., Pharr, J.R., Layne, T.E., & Irwin, R.L. (2018 in review). Youth swimming ability in the United States and associated demographic characteristics, 2010-2017. American Journal of Health Behavior.
Irwin, C.C., Doig, S.R., & Corbin, C.B. (2017). Advanced-placement physical education: An opportunity to act. Journal of Physical Education, Recreation

& Dance 88(7), 7-9.

Layne, T., Chapatte-Ramos, B., & Irwin, C. (2016). An evaluation of teachers' knowledge and use of physical education instructional models. Journal of Physical Education and Sport, 16(4), 1310-1315. DOI:10.7752/jpes.2016.04208

Berg, B. K., Irwin, C. C., Wright, P. M., Irwin, R. L., & Hutchinson, M. (2016). An unacceptable status quo: A sport development case study of swimming and drownings. Sport Management Review, 19(4), 454–465.

Berg, B. K., Hutchinson, M., & Irwin, C. C. (2016). Prioritizing local sport activities: Determining organizational commitment to an innovative swimming program. Case Studies in Sport Management, 5(1), 53-63.

Inoue, Y., Yli-Piipari, S., Layne, T., Chambliss, H.O., & Irwin, C.C. (2015). A preliminary study of a professional sport organization's family-centered health promotion initiative. International Review on Public and Nonprofit Marketing, 12(2), 189-205.

Lauderdale, M.E., Yli-Piipari, S., Irwin, C.C., & Layne, T.E. (2015). Gender differences regarding motivation for physical activity among college students: A self-determination approach. The Physical Educator, 72(5), 153-172.

Irwin, C.C., Pharr, J., & Irwin, R.L. (2015). Understanding factors that influence fear of drowning in children and adolescents. International Journal of Aquatic Research and Education, 9(2), 136-148.

Fry, A.C., Irwin, C.C., Nicoll, J.X., & Ferebee, D.E. (2015). Muscular strength and power in 3-7 year old children. Pediatric Exercise Science, 27, 345-354.

Irwin, C., Li, Y., Bene, E., Rach, A., Baughman, B., Schilling, B., & Weiss, L. (2015). Test-retest reliability of selected NeuroCom® postural stability assessments. Research Quarterly for Exercise and Sport, 86(S-2), A15-A16.

Berg, B.K., Irwin, C.C., & Irwin, R. (2014). Higher on the Policy Agenda: A Case Study of Swimming. Research Quarterly for Exercise and Sport. 85(S-1), A94-A95.

Yli-Piipari, S., Layne, T., & Irwin, C.C. (2014). An Autonomy-Supportive Intervention on Physical Education Motivation and Physical Activity. Research Quarterly for Exercise and Sport. 85(S-1), A40.

Irwin, C., Li, Y., Bene, E., Rach, A., Baughman, B., Schilling, B., & Weiss, L. (2014). Popular Concussion Assessments' Reliability Using High School and Collegiate Athletes. Research Quarterly for Exercise and Sport, 85(S-1), A19-A20.

Pharr, J., Irwin, C.C., & Irwin, R.L. (2014). Parental factors that influence swimming in children and adolescents. International Journal of Aquatic Research and Education, 8(4), 368 – 381.

Li, Y., Coleman, D., Ransdell, M., Coleman, L., & Irwin, C. (2014). The effect of a sport stacking intervention on handwriting with second grade students. The Physical Educator, 71(1), 59-71.

Ross, S.R., Irwin, C.C., Irwin, R.L., Martin, N.T., & Ryan, T.D. (2014). Preventing African American drownings: Constraints to swimming aptitude and proposed solutions. International Journal of Aquatic Research and Education, 8(3), 219-239.

Coulson, C.L., Irwin, C., & Wright, P.M. (2012). Applying Hellison's responsibility model in a residential treatment facility: A practical inquiry project. Agora for Physical Education and Sport, 14, 38-54.

Irwin, C.C., Hays, B., & Irwin, R.L. (2011). Integrative curricular program for physical education: Classroom on the Court. Strategies, 25(2), 14-17.

Li, Y., Coleman, D., Ransdell, M., Coleman, L, & Irwin, C. (2011). Sport stacking activities in school children's motor skill development. Perceptual and Motor Skills, 113, 431-438.

Irwin, C.C., Irwin, R.L., Martin, N.T., & Ross, S.R. (2011). Factors impacting minority youth swimming ability and participation. Research Quarterly for Exercise and Sport, 82(1), A-68.

Ryan, T.D., Irwin, C. C., Drayer, J., & Irwin, R.L. (2011). Parent/caregiver lack of knowledge: A barrier to perceived youth swimming ability? International Journal of Aquatic Research and Education, 5, 219-226.

Irwin, C.C., Irwin, R.L. (2011). The legacy of fear: Is fear impacting fatal and non-fatal drowning of minority children? The Journal of Black Studies, 42, 561-576.

Irwin, C.C., Irwin, R.L., Miller, M.E., Somes, G.W., & Richey, P. (2010). Get Fit with the Grizzlies: A community-school-home initiative to fight childhood obesity. Journal of School Health, 80, 333-339.

Irwin, C.C. (2010). Practice Notes: Make a Splash Mid-South Learn to Swim Program. Health Education and Behavior, 37, 5-10.

Stephens, L., Li, Y., Coleman, D., Ransdell, M., Irwin, C., & Grindle, V. (2009). Effects of a Sport Staking intervention on second-grade students. Research Quarterly for Exercise and Sport, 80(S-1), A-49-50.

Irwin, C.C., Irwin, R.L., Ryan, T.D., Drayer, J. (2009). Urban minority youth swimming (in) ability in the United States and associated demographic characteristics: Toward a drowning prevention plan. Injury Prevention, 15, 234-239.

Irwin, C.C., Symons, C.W., & Kerr, D.L. (2009). Behavioral intention and behavior toward the obese on a college campus: An exploratory analysis of discriminatory behavior. American Journal of Health Education, 40, 106-117.

Irwin, C.C., Irwin, R.L., Ryan, T.D., Drayer, J. (2009). The mythology of swimming: Are myths impacting minority youth participation? International Journal of Aquatic Research and Education, 3, 1-15.

Irwin, C.C. & Irwin, R.L. (2004). PR for PE: Public relations for physical education. Strategies, 18(2), 25-26.

Irwin, C.C., Symons, C.W., & Kerr, D.L. (2003). The dilemmas of obesity: What can physical educators do to help? Journal of Physical Education, Recreation, & Dance, 74(6), 33-39.

Irwin, C. & Pettigrew, F. (1994). A look back to the future. Physical Educator, 50, 170-176.

Presentations

2018 Irwin, C., Pharr, J., Layne, T., & Irwin, R. Factors Impacting Swimming Participation and Competence. SHAPE America National Convention. Nashville, TN.

2017 Layne, T.E., & Irwin, C.C. Student Growth Measures for Physical Education in Tennessee: Grant Presentation. Tennessee Association for Health, Physical Education, Recreation, and Dance.

2017 Lanter, J. & Layne, T., & Irwin, C. Analysis of Instruction on a University Strength Training Activity Course. SHAPE America National Convention. Boston, MA.

2017 Layne, T. & Irwin, C. Impact of Instruction and Technology on Activity and Skill Improvement. SHAPE America National Convention. Boston, MA.

2017 Layne, T. & Irwin, C. Student Growth Measures for Physical Education in Tennessee: Grant Presentation. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention. Murfreesboro, TN

2015 Irwin, C.C., Li, Y., Bene, E., Rach, A., Baughman, B., Weiss, L., and Layne, T. Test-Retest Reliability of Selected NeuroCom® Postural Stability Assessments. Society for Health and Physical Educators Annual Convention. Seattle, WA

2015 Layne, T.E., & Irwin, C.C. Perceptions of Working One-on-One With a Student with Severe Disabilities. Society for Health and Physical Educators. Seattle, WA

2014 Irwin, C., Baughman, B., Rach, A., Li, Y., Bene, E., Klimo, P, & Weiss, L. Reliability of Popular Neurocognitive Functioning and Postural Stability Assessments with Collegiate and High School Athletes. TBI Symposium, University of Tennessee Health Sciences Center, Memphis, TN

2015 Irwin, C.C., Layne, T., & Bray, N. Improve Learning in Physical Education: Instructional Models. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention. Murfreesboro, TN

2014 Pharr, J., Irwin, C., & Irwin R. Understanding Factors that Influence Fear of Drowning in Children and Adolescents. American Public Health Association Annual Meeting and Expo, New Orleans, LA

2014 Pharr, J., Irwin, C., & Irwin R. Parental Factors that Influence Swimming in Children and Adolescents. American Public Health Association Annual Meeting and Expo, New Orleans, LA (submitted)

2014 Baughman, B., Rach, A., Li, Y., Irwin, C., & Bene, E. Symptom Report Versus Performance-Based Assessment in Athletes: Are We Doing What We Are Saying? Sports Neuropsychology Society Concussion Symposium, Dallas, TX

2014 Irwin, C., Li, Y., Bene, E., Rach, A., Baughman, B., Schilling, B., & Weiss, L. Popular Concussion Assessments' Reliability Using High School and Collegiate Athletes. American Alliance for Health, Physical Education, Recreation, and Dance Annual Convention, St. Louis, MO

2013 Irwin, C., Layne, T., & Wagner, S. Common Core & Physical Education. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention, Murfreesboro, TN

2013 Irwin, C., Bray, N., & Yli-Piipari. Concussion: What Little We Know and What We Hope to Know. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention, Murfreesboro, TN

2013 Rach, A., Baughman, B., Young, C., Bene, E., Irwin, C., & Li, Y. Abnormal ImPACT Reliable Change Indices In Asymptomatic Athletes: A Common Occurrence. National Academy of Neuropsychology Annual Conference, San Diego, CA

2013 Bene, E., Li, Y., Irwin, C., Baughman, B., Rach, A., Bravo, J., Schilling, B., & Weiss, L. Pre- and Post-Season Concussion Screening of Student Athletes: Test-Retest Reliability of the Updated ImPACT Battery Version 2.1. National Academy of Neuropsychology Annual Conference, San Diego, CA

2013 Irwin, C. Swimming and Drowning Disparities: Policy Implications for Communities. Invited Lecturer, Taubman Center for Public Policy and American Institutions, Brown University, Providence, RI.

2012 Irwin, C.C. Why Should We Care about Swimming and Drowning Disparities In a Period of Austerity? Association for Public Policy Analysis and Management Fall Research Conference, Baltimore, MD

2012 Hall, T., Holt-Hale, S., Irwin, C., Johns-Wommack, R., Kerst-Davis, C., & Whitlock, C., First to the Top: Physical Education Student Growth Measures, Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention, Murfreesboro, TN

2012 Irwin, C.C., Irwin, R.L., & Wright, P.M., Developing Diversity in Swimming: Teaching Minority Youth to Swim, American Alliance for Health, Physical Education, Recreation, and Dance Annual Convention, Boston, MA

2011 Irwin, C.C., Coleman, D., Bray, N., & Wagner, S.M., Don't Pull Your Hair Out! Classroom Management Refresher, Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention, Murfreesboro, TN

2011 Wagner, S.M., Irwin, C.C., & Banning, T., Infusing Health Education Information into Physical Education Activities, Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention, Murfreesboro, TN

2011 Irwin, C.C., & Johns-Wommack, R., First to the Top: New Teacher Evaluation in Tennessee, Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Convention, Murfreesboro, TN

2011 Irwin, C.C., Irwin, R.L., Ryan, T.D., Martin, N.T., & Ross, S.R., USA Swimming Diversity Research Summary: Emerging Solutions from the Pool Deck, World Aquatic Health Conference, Seattle, WA

2011 Irwin, C.C., Irwin, R.L., Miller, M.A., Richey, P.A., Boddie, J.T., & Dickerson, T.A. Get Fit with the Grizzlies: A Community-School-Home Initiative to Fight Childhood Obesity. Cure4Kids Global Summit: Advancing Cancer Education and Healthy Living in Our Communities, St. Jude Children's Research Hospital, Memphis, TN

2011 Irwin, C.C., Irwin, R.L., Ryan, T.D., Martin, N.T., & Ross, S.R., Constraints Impacting Minority Youth Swimming Participation-Phase II, National Drowning Prevention Alliance Symposium, Colorado Springs, CO

2011 Irwin, C., Irwin, R., Martin, N., Ross, S. Factors Impacting Minority Youth Swimming Ability. American Alliance for Health, Physical Education, Recreation, and Dance Annual Convention, San Diego, CA

2010 Irwin, C.C, & Irwin R.L. Constraints Impacting Minority Swimming Ability and Participation, Phase I & II. Administrative Retreat, University of Memphis

2010 Irwin, C.C, & Irwin R.L. Constraints Impacting Minority Swimming Ability and Participation, Phase I & II. Tennessee Board of Regents and Board of Visitors Meeting, University of Memphis

2010 Irwin, C.C., Wagner, S., Ballard, C., Banning, T., Hurst, T., Manker, D., Roberts, J., & Shores, J. Assessing Fun Fitness Games and Activities. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual State Convention, Murfreesboro, TN

2010 Irwin, C.C., Ryan, T.D. Minority Swimming Ability and Participation. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual State Convention, Murfreesboro, TN

2010 Ross, S.R., Irwin, C.C., Martin, N.T., & Irwin, R.L. Preventing African American Drownings: Constraints to Swimming Aptitude and Proposed Solutions. North American Society for Sport Sociology Annual Conference, San Diego, CA

2010 Ryan, T., Irwin, C., Irwin, R., Drayer, J. Parent Knowledge as a Barrier to Youth Swimming. American Alliance for Health, Physical Education, Recreation, and Dance Annual Convention, Indianapolis, IN

2010 Irwin, C.C., Irwin, R.L., Ryan. T.D., Drayer, J. Minority Youth Swimming: Barriers Affecting Participation and Ability. American Alliance for Health, Physical Education, Recreation, and Dance Annual Convention, Indianapolis, IN

2009 Bray, N., Irwin, C.C. Creative Integrated Assessments: It's Not Top Secret! Tennessee Association for Health, Physical Education, Recreation, and Dance Annual State Convention, Murfreesboro, TN

2009 Veal, M.L., Fanning, L., Irwin, C.C., Starks, C., Colclough, S. Dive Into Student Teaching: What Physical Education Cooperating Teachers Need to Know. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual State Convention, Murfreesboro, TN

2009 Dyson, B., Coleman, D., Irwin, C., Jordan, P. Pebworth, K. PE Metrics: Assessing the National Standards, Standard 1: Connecting Assessment to your Instructional Process. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual State Convention, Murfreesboro, TN

2009 Irwin, C.C., Ryan, T.D. Enhancing Diversity in Swimming. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual State Convention, Murfreesboro, TN

2009 Irwin, C.C., Dyson, B., Ballard, C., Banning, T., Manker, D. Team Building Fun: Bring Your Best Games. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual State Convention, Murfreesboro, TN

2009 Irwin, C.C., Wright, P.M., Okunbor, E.K., & Irwin, R.L. Enhancing Swimming Competence and Swimming Participation Among Minority Youth in Memphis: An Evaluation of the Make a Splash Mid-South Learn to Swim Pilot Program. Benjamin L. Hooks Institute for Social Change Open House, University of Memphis, Memphis, TN

2009 Irwin, C.C. Curricular Models in PE. Professional Development In-Service- Physical Education Teachers, Milan School District, Milan, TN

2009 Stephens, L., Li, Y., Coleman, D., Ransdell, M, Irwin, C., Grindle, V. The Effects of a Sport Stacking Intervention on Hand-Eye Coordination, Reaction Time, and Handwriting Skills of 2nd Grade Students. American Alliance for Health, Physical Education, Recreation, and Dance National Convention, Tampa, FL

2009 Overacker, T., McClanahan, B., Stockton, M., Trammel, R., & Irwin, C. Process Evaluation of a Community-wide Interdisciplinary Program. American Academy of Health Behaviors 9th Annual Scientific Meeting, Hilton Head, SC.

2009 McClanahan, B., Overacker, T., Stockton, M., Trammel, R., & Irwin, C. Increasing Physical Activity in Children Enrolled in Afterschool Programs: Activate Memphis. American Academy of Health Behaviors 9th Annual Scientific Meeting, Hilton Head, SC.

2009 Irwin, C.C., Irwin, R.L., Ryan, T.D., Drayer, J. Constraints Impacting Minority Youth Swimming Participation. Social Justice, Action, and Policy: Breaking Down Silos and Generating Discourse- Department of Counseling, Educational Psychology and Research Poster Session, College of Education, University of Memphis, Memphis, TN

2009 Irwin, C.C. Diabetes in Tennessee: Nutritional Assistance for Home Health Workers. Home Healthcare of West TN, Memphis, TN

2008 Irwin, C.C. Diabetes in Tennessee: Jewish Orthodox Diet Suggestions. Tennessee Association for Homecare, Plough Towers, Memphis, TN

2008 Dyson, B.P., Coleman, D.K., Irwin, C.C. Cooperative Learning in Physical Education in New Zealand: Why It Works. Tennessee Association for Health, Physical Education, Recreation, and Dance Annual Conference, Franklin, TN

2008 Irwin, C.C., Drayer, J., Ryan, T.D., Irwin, R.L. The Influence of Parents on Swimming Participation in Inner-City Youth. North American Society for the Sociology of Sport Annual Conference, Denver, CO

2008 Irwin, C.C., Wright, P.W. Workshop on the Value of Extra-Curricular Activities. New Teacher Center Symposium, College of Education, University of Memphis, Memphis, TN

2008 Irwin, C.C., Irwin, R.L., Ryan, T.D., Drayer, J. Get Fit with the Grizzlies: An Assessment of a Community Outreach Initiative. Sport Marketing Association 6th Annual Conference, Gold Coast, Queensland, AUS

2008 Irwin, C.C. How Coordinated School Health Can "Activate" Your Teaching. Shelby County Schools Inservice Meeting for K-1 Classroom Teachers, Memphis, TN

2007 Irwin, C.C. Appropriate Reactions and Responses to Sexualtiy Questions. Volunteer Memphis, Mentor Training, Memphis, TN.

2005 Fry, A.C., Irwin, C.C., Saunders, J.P., & Richey, C.M. Muscular Strength and Power in Children 3 – 7 Years Old. American College of Sports Medicine National Convention, Nashville, TN

2004 Irwin, C.C., Symons, C.W., & Kerr, D.L., Obesity: College Students' Behavioral Intentions and Behaviors Toward the Obese American Alliance for Health, Physical Education, Recreation, & Dance National Convention, New Orleans, LA

2004 Irwin, R.L. & Irwin, C.C., PR for PE (Public Relations for Physical Education) American Alliance for Health, Physical Education, Recreation, & Dance National Convention, New Orleans, LA

2002 Irwin, C.C., Have You Heard the One About the Fat Person? Ways to Positively Affect Attitudes and Behaviors Toward the Obese American School Health Association National Conference, Charlotte, NC

1999 Irwin, C.C., Pitts, M., & Irwin, R.L. PR for PE (Public Relations for Physical Education) A New Approach for Field Days, Tennessee Association for Health, Physical Education, Recreation, & Dance, Cookeville, TN

1998 Pitts, M. & Irwin, C.C., How to Implement Juggling into the Curriculum, Shelby County School District Physical Education Inservice, Memphis, TN

1997 Pitts, M. & Irwin, C.C., Juggling: A Workout for Your Brain!, Tennessee Association for Health, Physical Education, Recreation, & Dance, Jackson, TN

1994 Irwin, C.C., A Comparison of Physical Fitness Assessments American School Health Association National Conference, Houston, TX

1994 Olds, R.S., Rubin, M.A., & Irwin, C.C., Comprehensive School Health Education: The Bay Village Project, Centers for Disease Control Conference on Chronic Disease Prevention & Control, Washington, D.C.

1993 Olds, R.S., Rubin, M.A., & Irwin, C.C., A Systems Approach to Comprehensive School Health, American School Health Association National Conference, Pittsburgh, PA

1993 Irwin, C.C. & Ewing, K., Title IX: A Whole New World, Ohio Association for Health, Physical Education, Recreation, & Dance, Columbus, OH

1993 Irwin, C.C., Women in Exercise and Sport, Kent State University Wellness Series, Kent OH

1993 Irwin, C.C., Quality Physical Education: The Hidden Ally for Successful Health Education, Comprehensive School Health Conference-Salt Fork II, Ohio State Health Department, Salt Fork State Park, OH

1993 Irwin, C.C., Mental and Physical Health Benefits for Women Through Exercise, Kent State University Health Promotion Conference, Kent,OH

1992 Pettigrew, F. & Irwin, C.C., Interactive Video in Physical Education, American Alliance for Health, Physical Education, Recreation, & Dance National Convention, Indianapolis, IN

1991 Pettigrew, F. & Irwin, C.C., Interactive Video for Physical Education Programs in Small Schools, Ohio Association for Health, Physical Education, Recreation, & Dance, Dayton, OH

TODD LAYNE
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Education

Ph.D. Physical Education - Auburn University - 2012
M.A. Health and Physical Education - Tennessee Technological University - 2001
B.S. Health and Physical Education - Tennessee Technological University - 1999

Work Experience

Assistant Professor, School of Health Studies - University of Memphis - 2012
Instructor, Kinesiology - Auburn University - 2007-2012
Instructor, Health and Human Performance - Oklahoma State University - 2005-2007
Physical Education Teacher, Elementary - Townville/LaFrance Elementary School - 2001-2005
Graduate Teaching Assistant, Health and Physical Education - Tennesee Technological University - 1999-2001

Honors/Awards

James E. Ward Student Honor Award - Tennessee Association for Health, Physical Education, Recreation, and Dance - 1999
Phi Kappa Phi Honor Society - Tennessee Technological University - 1999
Kappa Delta Pi Honor Society - Tennessee Technological University - 1999
Who's who in Academics - Tennessee Technological University - 1999
Raymond "Bull" Brown Scholarship - Tennessee Technological University - 1998

Teaching Experience

EXSS 3450: Psychosocial Aspects of Exercise - University of Memphis
PETE 7204: Instructional Supervision of Physical Education - University of Memphis
PETE 7201: Instructional Models for Physical Education - University of Memphis
PETE 7006: Instruction in Physical Education Teacher Education - University of Memphis
PETE 4900: Student Teaching in Physical Education - University of Memphis
PETE 4800: Professional Seminar for Physical Education - University of Memphis
PETE 4605: Intern/PETE/Community PE - University of Memphis
PETE 4200: Curriculum and Integrated Learning in Elementary Physical Education - University of Memphis
PETE 3800: Instructional Strategies In Physical Education - University of Memphis
PETE 3604: Teach Phys Ed/Health/K-Middle - University of Memphis
PETE 3308: Exceptional Learners in Physical Education - University of Memphis
PETE 2500: Methods Techniques of Coaching - University of Memphis
PETE 2000: Introduction to Physical Education - University of Memphis
PHED 1921: Team Sports-Basketball - University of Memphis
PHED 1004: Jogging - University of Memphis
KINE 4970: Special Topics: Coaching Basketball - Auburn University
KINE 4970: Special Topics: Coaching Youth Sports - Auburn University
KINE 4350: Teaching for Lifetime Physical Activity - Auburn University
KINE 3820: Principles of Sport Coaching - Auburn University
KINE 3230: Teaching Sport Skills - Auburn University
KINE 3010: Instruction and Technology in Kinesiology - Auburn University
KINE 2250: Motor Development During the School Years - Auburn University
PHED 1240: Cardio Respiratory: Swim for Fitness - Auburn University
PHED 1410: Team Sports: Basketball - Auburn University
PHED 1420: Team Sports: Flag Football - Auburn University
PHED 1450: Team Sports: Volleyball - Auburn University
PHED 1510: Individual Sports: Bowling - Auburn University
HHP 4480: Internship in Physical Education - Oklahoma State University
HHP 3753: Methods in Teaching Elementary Physical Education - Oklahoma State University
HHP 3430: Early Laboratory and Clinical Experiences in Physical Education - Oklahoma State University
HHP 1832: Pedagogy of Sport Skills - Oklahoma State University
HHP 1812: Pedagogy of Outdoor Skills - Oklahoma State University
HHP 1753: Introduction to Physical Education - Oklahoma State University
Elementary Physical Education Teacher - LaFrance Elementary, LaFrance, SC
Elementary Physical Education Teacher - Townville Elementary, Townville, SC
PHED 101: Badminton - Tennessee Technological University
PHED 101: Tennis - Tennessee Technological University
PHED 107: Volleyball - Tennessee Technological University

Student Advising/Mentoring

Master of Science - Debra Wyatt - 2012
Master of Science - Rebecca Bocz - 2013
Master of Science - Micheal Crowe - 2013
Master of Science - Craig Pluta - 2013
Master of Science - Michael Lauderdale - 2014
Master of Science - Cassandra Dowell - 2014
Master of Science - Lloyd Robertson - 2014
Master of Science - Endia Joiner - 2015
Master of Science - Stefanie Mikesz - 2015
Master of Science - Tiffany McCollins - 2015
Master of Science - Begona Chapatte Ramos - 2015
Master of Science - Jonathan Lanter - 2016
Master of Science - Michael Pascal - 2016
Master of Science - Dustin Duren - 2018

Support

Factors Impacting Swimming Participation and Competence - USA Swimming - $49,400 - 2017
Examination of the State of Tennessee Physical Education Student Growth Measures - Tennessee Association of Health, Physical Education, Recreation, and Dance - $500 - 2016-2017
Factors Associated with Pathway from Beginning Swimming to Competitive Swimming for Minority Participants/Co-Investigator - USA Swimming - $12,000 - 2013-2017
An Autonomy-Supportive Intervention on Physical Education Motivation and Physical Activity/Co-Investigator - AAHPERD - $5,000 - 2013-2014
Polar Cardio GX Training System - Technology Access Fee Fund (TAF) - University of Memphis - $11,600 - 2013
Get Fit with the Grizzlies/Co-Investigator - Memphis Grizzlies - $7,500 - 2012-2013

Books Published

Layne, T. (2012). Supplemental materials. In P.A. Hastie. Foundations of moving and learning. San Diego, CA: Bridgepoint.

Journal Articles

Layne, T. & Yli-Piipari, S. (In-Preparation). Effects of acute exercise physical activity program on school students' academic achievement. TBD.
Pascal, M. & Layne, T. (In-Preparation). Analysis of the Polar cardio GX system on student motivation and parent satisfaction. Journal of Teaching, Research, & Media.
Layne, T. (In-Preparation). Effects of instruction and technology on physical activity and skill improvement of 4th grade students. Journal of Teaching in Physical Education.
Irwin, C., Pharr, J., Layne, T., & Irwin, R. (In-Review). An investigation of youth swimming ability and method of instruction. International Journal of Aquatic Research and Education.
Irwin, C., Pharr, J., Layne, T., & Irwin, R. (In-Review). Youth swimming ability and associated factors in the United States-2010-2017. American Journal of Health Behavior.
Yli-Piipari, S., Layne, T., Hinson, J., and Irwin, C. (In-Press). Illuminating motivational pathways to leisure-time physical activity in urban physical education: A cluster-randomized trial. Journal of Teaching in Physical Education.
Layne, T. & Blassingame, J. (In-Press). Analysis of a physical education teacher education field experience working one-on-one with students with severe and profound disabilities in a self-contained environment. Physical Educator.
Pharr, J., Irwin, C., Layne, T., & Irwin, R. (2018). Predictors of Swimming Ability Among Children and Adolescents in the United States. Sports, 6(1), 17.
Lanter, J., Layne, T., & Irwin, C. (In-Press). Analysis of instruction on a university strength training activity course. Physical Educator.
Layne, T. (2017). Sport education in the primary grades. Active+Healthy, 24(2/3), 44-47.
Layne, T. (2017). Whiffle ball: Turning a backyard favorite into an appropriate physical education unit. Strategies, 30(4), 32-40.
Layne, T., Chapatte-Ramos, B., & Irwin, C. (2016). An evaluation of teachers' knowledge and use of physical education instructional models. Journal of Physical Education and Sport, 16(4), 1310-1315.
Yli-Piipari, S., Layne, T., McCollins, T., & Knox, T. (2016). The impact of classroom physical activity breaks on middle school students' health-related fitness: An Xbox one kinetic delivered 4-week intervention. Journal of Teaching, Research, & Media, 12, 1-18.
Layne, T. & Hastie, P. (2016). Analysis of teaching physical education to second grade students using sport education. Education 3-13, 44(2), 226-240.
Inoue, Y., Yli-Piipari, S., Layne, T., Chambliss, H.O., & Irwin, C.C. (2015). A preliminary study of a professional sport organization's family-centered health promotion initiative. International Review on Public and Nonprofit Marketing, 12(2), 189-205.
Layne, T. (2015). Analysis of instructional impact on the running performance of university students. Journal of Teaching, Research, & Media, 4, 1-14.
Lauderdale, M., Yli-Piipari, S., Irwin, C., & Layne, T. (2015). Gender differences regarding motivation for physical activity among college students: A self-determination approach. Physical Educator, 72(5), 153-172.
Layne, T. & Yli-Piipari, S. (2015). Effects of the sport education model on university students' game performance and content knowledge in basketball. Journal of Sport Research, 2(2), 24-36.
Layne, T. & Hastie, P. (2015). A task analysis of a sport education physical education season for fourth grade students. Physical Education and Sport Pedagogy, 20(3), 314-328.

Layne, T. & Hastie, P. (2014). Development of game performance by novice learners participating in a sport education physical education unit. Journal of Physical Education and Sport, 14(3), 317-323.

Layne, T. (2014). Competition within physical education: Using sport education and other recommendations to create a productive, competitive environment. Strategies, 27, 3-7.

Layne, T. & Hastie, P. (2014). Active involvement and accuracy of calls of novice referees during a season of sport education. Physical Educator, 71 (3), 454-467.

Hastie, P., Sinelnikov, O. A., Wallhead, T., & Layne, T. (2014). Perceived and actual motivational climate of a mastery-involving sport education season. European Physical Education Review, 20(2), 215-228.

Hastie, P., Layne, T., & Mesquita, I. (2013). Evaluating game performance from external experts in Sport Education: A case study of Handball. Revista Portuguesa de Ciências do Desporto, 13(1), 23-37.

Hastie, P., Layne, T., van der Mars, H., & Wadsworth, D. (2012). The effects of prompts and reinforcement on out-of-school physical activity of elementary school-aged students. Journal of Teaching in Physical Education, 31, 131-145.

Layne, T. & Hastie, P. (2012) Student and teacher responses to a high autonomy climate in physical education within a sport education season. PHEnex Journal, 4(1), 1-13.

Layne, T. & Irwin, C. (2017). Impact of Instruction and Technology on Activity and Skill Improvement. Research Quarterly for Exercise and Sport, 88: A136 . (Shape America Boston, MA).

Lanter, J. & Layne, T., & Irwin, C. (2017). Analysis of Instruction on a University Strength Training Activity Course. Research Quarterly for Exercise and Sport, 88: A152. (Shape America Boston, MA).

Irwin, C., Li, Y., Bene, E., Rach, A., Baughman, B., Weiss, L., and Layne, T. (2015). Test-retest reliability of selected NeuroCom® postural stability assessments. Research Quarterly for Exercise and Sport, 86: A15-A16. (Shape America Seattle, WA).

Yli-Piipari, S., Layne, T., & Irwin, C. (2015). An autonomy-supportive intervention on physical education motivation and physical activity. Research Quarterly for Exercise and Sport, 86: A166. (Shape America Seattle, WA).

Layne, T. & Irwin, C. (2015). Perceptions of working one-on-one with a student with severe disabilities. Research Quarterly for Exercise and Sport, 86: A131. (Shape America Seattle, WA).

Layne, T. & Hastie, P. (2014). Analysis of teaching second-grade students using sport education. Research Quarterly for Exercise and Sport, 85: A44. (AAHPERD St. Louis, MO)

Layne, T. & Hastie, P. (2013). Capabilities of primary students participating in a sport education unit. Research Quarterly for Exercise and Sport, 84: A47. (AAHPERD Charlotte, NC)

Layne, T. & Hastie, P. (2012). Students' responses to a high autonomy format of sport education. Research Quarterly for Exercise and Sport, 83: A51. (AAHPERD Boston, MA)

Presentations

Irwin, C., Pharr, J., Irwin, R., & Layne, T. (Proposal Submitted). Youth swimming ability in the United States and associated demographic characteristics-2010-2017. American Public Health Association Annual Meeting.

Pharr, J., Irwin, C., Layne, T., & Irwin, R. (Proposal Submitted). Predictors of Swimming Ability Among Children and Adolescents in the United States. American Public Health Association Annual Meeting.

Pascal, J., Layne, T., & Irwin, C. (In-Preparation). Analysis of Heart-Rate System on Student Motivation and Parent Satisfaction.

Irwin, C., Pharr, J., Layne, T. & Irwin, R. (March 2018). Factors Impacting Swimming Participation and Competence. SHAPE America National Convention. Nashville, TN.

Yli-Piipari, S., & Layne, T. (March 2018). Parents' Roles in Children's Beliefs and Values of Physical Activity. SHAPE America National Convention. Nashville, TN.

Yli-Piipari, S., Knox, T., Manninen, M., & Layne, T. (March 2018). Effects of Acute Exercise Physical Activity Program on Academic Achievement. SHAPE America National Convention. Nashville, TN.

Layne, T., Bateman, S., Bocz, R., Cooke, J., & Duren, D. (November 2017). Games Designed by College Students. Tennessee Association of Health, Physical Education, Recreation, and Dance. Murfreesboro, TN.

Layne, T. & Irwin, C. (November 2017). Teacher perspectives on the Tennessee Student Growth Measures in physical education. Tennessee Association of Health, Physical Education, Recreation, and Dance. Murfreesboro, TN.

Lanter, J. & Layne, T., & Irwin, C. (March 2017). Analysis of Instruction on a University Strength Training Activity Course. SHAPE America National Convention. Boston, MA.

Layne, T. & Irwin, C. (March 2017). Impact of Instruction and Technology on Activity and Skill Improvement. SHAPE America National Convention. Boston, MA.

Layne, T. (November 2016). Games Designed by College Students. Tennessee Association of Health, Physical Education, Recreation, and Dance. Murfreesboro, TN.

Layne, T. & Chapette-Ramos, B. (June 2016). An Evaluation of Teachers' Knowledge and Use of Physical Education Instructional Models. AIESEP Conference (International Association for Physical Education in Higher Education).

Layne, T., Yli-Piipari, S., & McCollins, T. (June 2016). The Impact of Classroom Physical Activity Breaks on Middle School Students' Health-Related Fitness: A 4-Week Intervention. AIESEP Conference (International Association for Physical Education in Higher Education).

Yli-Piipari, S., Irwin, C., & Layne, T. (May 2016). A Randomized Controlled Trial to Test the Feasibility of the Trans-Contextual Model in Physical Activity. American College of Sports Medicine (ACSM) National Conference.

Irwin, C., Layne, T., & Bray, N. (October 2015). Instructional Models for Physical Education. Tennessee Association of Health, Physical Education, Recreation, and Dance. Murfreesboro, TN.

Irwin, C. & Layne, T. (October 2015). Improve Learning in Physical Education: Instructional Models. Tennessee Association of Health, Physical Education, Recreation and Dance, Murfreesboro, TN.

Layne, T., Fisher, B., & Whitlock, C. (October 2015). Middle School Student Growth Measures. Tennessee Association of Health, Physical Education, Recreation and Dance, Murfreesboro, TN.

Layne, T. (October 2015). Games Designed by College Students. Tennessee Association of Health, Physical Education, Recreation, and Dance. Murfreesboro, TN.

Irwin, C., Li, Y., Bene, E., Rach, A., Baughman, B., Weiss, L., and Layne, T. (March 2015) Test-Retest Reliability of Selected NeuroCom® Postural Stability

Assessments. Society for Health and Physical Educators Annual Convention. Seattle, WA.

Layne, T. (March 2015). Perceptions of Working One-on-One with a Student with Severe Disabilities. SHAPE America National Convention. Seattle, WA.

Layne, T. (October 2014). Sport Education: An Example Lesson. Tennessee Association of Health, Physical Education, Recreation and Dance, Murfreesboro, TN.

Layne, T. (June 2014). Effects of Sport Education on the Development of Game Performance and Tactical Decision-making of a University Basketball Class. AAHPERD National Coaching Conference. Washington, D.C.

Yli-Piipari, S., Layne, T., & Irwin, C. (April 2014). An Autonomy-Supportive Intervention on Physical Education Motivation and Physical Activity. AAHPERD National Convention. St. Louis, MO.

Layne, T. & Hastie, P. (April 2014). Analysis of Teaching 2nd Grade Students Using Sport Education. AAHPERD National Convention. St. Louis, MO

Layne, T. (October 2013). Games Designed by Students. Tennessee Association of Health, Physical Education, Recreation and Dance, Murfreesboro, TN.

Irwin, C., Layne, T., & Wagner, S. (October 2013). Common Core and Physical Education. Tennessee Association of Health, Physical Education, Recreation and Dance, Murfreesboro, TN.

Layne, T. & Hastie, P. (April 2013). Capabilities of Primary Students Participating in a Sport Education Unit. AAHPERD National Convention. Charlotte, NC

Layne, T. (October 2012). Sport Education in Elementary Physical Education-Part 1. Tennessee Association of Health, Physical Education, Recreation and Dance, Murfreesboro, TN.

Layne, T. (October 2012). Sport Education in Elementary Physical Education-Part 2. Tennessee Association of Health, Physical Education, Recreation and Dance, Murfreesboro, TN.

Layne, T. & Hastie, P. (March 2012) Students' Responses to a High Autonomy Format of Sport Education. AAHPERD National Convention. Boston, MA

Layne, T. (March 2012) College/University Instructional Physical Activity Program & Wellness: Half-Day Conference (Innovative Teaching Presenter). AAHPERD National Convention. Boston, MA

Layne, T., Hicks, L., & Martinez, A. (April 2011). Best Practices for Viable Instructional Physical Activity Programs (IPAPs). AAHPERD National Convention. San Diego, CA.

Layne, T. (January 2010). Sport Education Unit: Jump Rope. Share the Wealth Conference. Jekyll Island, GA.

Sinelnikov, O. A., Hastie, P. & Layne, T. (October 2010). Objective and perceived motivational climate during a season of sport education. AIESEP World Congress. A Coruna, Spain.

Hastie, P., Layne, T. & Sinelnikov, O. A. (October 2010). The effects of prompts and reinforcement on out-of-school physical activity of elementary school-aged students. AIESEP World Congress. A Coruna, Spain.

Layne, T. and Hastie, P. (January 2009). Basketball: It's Not Just Dribbling, Passing and Shooting. Share the Wealth Conference. Jekyll Island, GA.

Hastie, P. and Layne, T. (January 2009). Teaching Team Handball: What Students Learn Just by Playing and What You Have to Specifically Teach Them. Share the Wealth Conference. Jekyll Island, GA.

Hastie, P. and Layne, T. (January 2009). Games Making: Helping Students Understand Skill and Strategy. Share the Wealth Conference. Jekyll Island, GA.

KEITH R. MARTIN
Research Asst Professor, Health Studies
Email: krmrtin4@memphis.edu

Education

PhD Nutritional Biochemistry - University of North Carolina at Greensboro - 1996
Masters Toxicology - North Carolina State University - 2001
Bachelors Chemistry and Biology - University of North Carolina at Greensboro - 1987

Honors/Awards

College Faculty Marshal (Mentee College Valedictorian) - Pennsylvania State University - 2005
Faculty Mentor, Best competitive manuscript by an undergraduate - Pennsylvania State University - 2005
Recipient Block Grant sub-award - Pennsylvania State University - 2004
Dannon Institute of Nutrition Leadership Selectee - Danone and Pennsylvania State University - 2003
Tewksbury Award for Excellence in Teaching - Tewksbury Foundation - 2002
Future Leader Award - International Life Sciences Institute - 2000

Teaching Experience

HSME 7010 Research Methods - University of Memphis
ESMS 7020 Publicatons & Proposals in Biomedicine - University of Memphis
NUTR 7001 Nutraceuticals & Dietary Supplements - University of Memphis
NTR 546 Dietary Assessment - Arizona State University
NTR 691 Doctoral Seminar - Arizona State University
NTR 535 Nutrigenomics - Arizona State University
NTR 442 Experimental Functional Foods - Arizona State University
NTR 241 Principles of Nutrition - Arizona State University
NUTR 490W Pros & Cons of Dietary Supplementation - Pennsylvania State University
IBIOS 602 Supervised Experience in Teaching - Pennsylvania State University
NUR 496 Independent Study in Nutrition - Pennsylvania State University
NUTR 452 Nutritional Aspects of Health & Disease - Pennsylvania State University
NUTR 100 Comtemporary Nutrition - Pennsylvania State University
NUTR 100H Public Issues in Nutrition - Pennsylvania State University
NUTR 497F Nutraceuticals and Functional Foods - Pennsylvania State University

Journal Articles

Martin, K.R., Failla, M.L. and Smith, J.C., Jr. Beta-Carotene and lutein protect HepG2 cells against pro-oxidant induced stress. J. Nutr. 126: 2098-2106, 1996.

Martin, K.R., Loo, G. and Failla, M.L. Human lipoproteins as a vehicle for delivery of beta-carotene and a-tocopherol to HepG2 cells. Proc. Soc. Exp. Biol. Med. 217:1-7, 1997.

Meydani, M. and Martin, K.R. Free Radicals and Aging. Free Radicals in Clinical Medicine. 12:3-8, 1997.

Meydani, M., Lipman, R.D., Han, S.N., Wu, D., Beharka, A., Martin, K.R., Bronson, R., Cao, G., Smith, D. and Meydani, S.N. The effect of long-term dietary supplementation with antioxidants. Annals of N.Y. Academy Sciences 854: 352-360, 1998.

Martin, K.R., Failla, M.L. and Smith, J.C., Jr. Differential Susceptibility of Caco-2 and HepG2 human cell lines to oxidative stress, J. Elisha Mitchell Scientific Society, 96(4): 149-162, 1998.

Lipman, R.D., Bronson, R.T., Wu, D., Smith, D.E., Prior, R., Cao, G., Han, S. Martin, K.R., Meydani, S.N. and Meydani, M. Disease incidence and longevity are unaltered by dietary supplementation initiated during middle age in C57BL/6 mice, Mech. Ageing Dev., 103: 269-284, 1998.

Meydani, M., Fielding, R.F., and Martin, K.R. Vitamin E and its Effect on Skeletal Muscle. In: Oxidative Stress in Skeletal Muscle, Series: Molecular and Cell Biology Updates, (Reznick AZ, Packer L, Sen CK, Holloszy, JO, and Jackson MJ, eds.) Birkhauser Verlag AG, Basel, Switzerland, Chapter 9, pp. 141-156, 1998.

Wu, D., Koga, T., Martin, K.R., and Meydani, M. Effect of vitamin E on human aortic endothelial cell production of chemokines and adhesion to monocytes. Atherosclerosis, 147: 297-307, 1999.

Wu, D., Meydani, M., Beharka, A.A., Serafini, M., Martin, K.R., and Meydani, S.N. In vitro supplementation with different tocopherol homologues can affect the function of immune cells in old mice. Free Rad. Biol. Med. 28: 643-651, 2000.

Martin, K.R., Wu, D., and Meydani, M. The effect of carotenoids on the expression of cell surface adhesion molecules and binding of monocytes to human aortic endothelial cells. Atherosclerosis, 150: 265-274, 2000.

Martin, K.R., Kari, F.W., Barrett, J.C., and French, J.E. N-acetyl-L-cysteine concurrently increases mitogenesis and suppresses apoptosis in mitogen-stimulated B-lymphocytes from p53 haploinsufficient Tg.AC (v-Ha-ras) mice. In Vitro & Mol. Toxicol. 13: 234-247, 2000.

Martin, K.R., Trempus, C., Saulnier, M.J., Barrett, J.C., Kari, F.W., and French, J.E. Dietary N-acetyl-L-cysteine modulates benzo(a)pyrene-induced skin tumors in cancer-prone p53 haploinsufficient Tg.AC (v-Ha-ras) mice. Carcinogenesis, 22(9); 1373-1378, 2001.

Meydani, M. and Martin, K.R. Intestinal absorption of fat-soluble vitamins. In: Intestinal Lipid Metabolism. (Mansbach C, Tso P, and Kuksis A, eds.) Plenum Publishing Corp., New York, N.Y., Chapter 20, pp. 367-382, 2001

Martin, K.R. and Barrett, J.C. Reactive oxygen species as double-edged swords in cellular processes: low-dose cell signaling versus high-dose toxicity. Human Exp. Toxicol., 21(2): 71-76, 2002.

Martin, K.R., Saulnier, M., Kari, F.W., Barrett, J.C. and French, J.E. Timing of supplementation with the antioxidant N-acetyl-L-cysteine reduces tumor multiplicity in novel, cancer-prone p53 haploinsufficient Tg.AC (v-Ha-ras) transgenic mice but has no impact on malignant progression. Nutrition & Cancer, 43(1): 59-66, 2002.

Agostinucci, K., Manfredi, T.G., Cosmas, A., Martin, K.R., Han, S.N., Wu, D., Sastre, J., Meydani, S.N. and Meydani, M. Vitamin E and age alter mouse liver mitochondrial morphometry. Journal Anti-Aging Medicine 5(2): 173-178, 2002.

Martin, K.R. and Barrett, J.C. The Role of ROS in Health and Disease, Biological Effects of Low Level Exposures (BELLE), 10(2): 10-13, 2002.

Martin, K.R., Jokinen, M.P., Honeycutt, H.P., Quinn, A., Kari, F.W., Barrett, J.C., and French, J.E. Tumor spectrum in the p53 heterozygous zeta globin-promoted Tg.AC (v-Ha-ras) bitransgenic mouse model. Toxicol. Pathol. 32(4): 418-425, 2004.

Martin, K.R., Jokinen, M.P., Honeycutt, H.P., Quinn, A., Kari, F.W., Barrett, J.C., and French, J.E. Tumor profile of novel p53 heterozygous Tg.AC (v-ha-ras) bitransgenic mice treated with benzo(a)pyrene and fed dietary N-acetyl-L-cysteine (NAC). Toxicol. Sci. 81(2): 293-301, 2004.

Zhao, G., Etherton, T.D., Martin, K.R., Gillies, P.G. and Kris-Etherton, P.M. Dietary alpha-linolenic acid reduces inflammatory and lipid cardiovascular risk factors in hypercholesterolemic men and women. J. Nutr. 134: 2991-2997, 2004.

Hantz, J.L., Young, L.F. and Martin, K.R. Physiologically attainable concentrations of lycopene do not alter cellular proliferation but induce apoptosis in LNCaP human prostate cancer cells. Exp. Biol. Med. 230(3), 171-179, 2005.

Zhao, G., Etherton, T.D., Martin, K.R., Vandel Heuvel, J.P., Gillies, P.J., West, S.G., Kris-Etherton, P.M., and Etherton, T. Anti-inflammatory effects of polyunsaturated fatty acids in THP-1 cells. Biochem. Biophys. Res. Comm. 336: 909-917, 2005.

Young, L.F., Hantz, H.L and Martin, K.R. Resveratrol modulates gene expression associated with apoptosis, proliferation and cell cycle in cells with mutated human c-Ha-ras but does not alter c-Ha-ras mRNA or protein expression. J. Nutr. Biochem. 16(11), 663-674, 2006.

Young, L.F. and Martin, K.R. Time-dependent resveratrol-mediated mRNA and protein expression associated with cell cycle in WR-21 cells containing mutated human c-Ha-ras. Mol. Nutr. Food Sci. 50(1), 70-77, 2006.

Martin, K.R. Targeting apoptosis with dietary bioactive agents. Exp. Biol. Med. 231(2), 117-129, 2006.

Martin, K.R. The chemistry of silica and potential health benefits, J. Nutr. Health Aging, 11(2), 94-98, 2007.

Martin, K.R. Using nutrigenomics to evaluate apoptosis as a preemptive target in cancer prevention. Curr. Cancer Drug Targets, 7(5), 438-446, 2007.

Zhao, G., Etherton, T.D., Martin, K.R., Gillies, P.J., West, S.G. and Kris-Etherton, P.M. Dietary alpha linoleic acid inhibits proinflammatory cytokine production by peripheral blood mononuclear cells in hypercholesterolemic subjects. Am. J. Clin. Nutr., 85(2), 385-391, 2007.

Invited book review. Pomegranates: Ancient Roots to Modern Medicine. Medicinal and Aromatic Plants-Industrial Profiles (Eds. Navindra P. Seeram, Risa N. Schulman, and David Heber; CRC, Taylor & Francis). Review appears in the J. Amer. Botanical Council, 75: 67-68, 2007.

Martin, K.R. as an invited member of the Mechanisms Working Group (MWG) organized by John Milner, Chief, Nutritional Science Research Group, Division of Cancer Prevention, National Cancer Institute (NCI) and Leader of the MWG, The cancer process. In: Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective, World Cancer Research Fund (WCRF), American Institute for Cancer Research (AICR), Chapter 2, 30-46, 2007.

Martin, K.R. as an invited member if the Systematic Literature Review Group at The Pennsylvania State University (TJ Hartman, PI), Cancers of the mouth, pharynx, and larynx. In: Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective, WCRF/AICR, Chapter 7.1, 245-249, 2007.

Martin, K.R. as an invited member of the Systematic Literature Review Group at The Pennsylvania State University (TJ Hartman, PI). Cancers of the oesophagus. In: Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective, WCRF/AICR, Chapter, 7.3, 253-258, 2007.

Martin, K.R., Rodriguez, G., Krueger, C., Dreher, M., and Reed, J. Development of a novel pomegranate standard and new method for the quantitative measurement of pomegranate polyphenols, J. Sci. Food Agric., 89:157-162, 2009.

Yu, S., Weaver, V., Martin, K.R., and Cantorna, M.T. The effects of whole mushrooms during inflammation. BMC Immunology, 10:12, 2009.

Martin, K.R. and Appel, C.L. Polyphenols as dietary supplements: A double-edged sword, Nutrition and Dietary Supplements, 1:1-12, 2009.

Martin, K.R. The bioactive agent ergothioneine, a key component of dietary mushrooms, inhibits monocyte binding to endothelial cells characteristic of early cardiovascular disease. J. Med. Food, 13(6): 1340-1346, 2010.

Martin, K.R. and Brophy, S.K. Commonly consumed and specialty dietary mushrooms reduce cellular proliferation in MCF-7 human breast cancer cells. Exp. Biol. Med., 235: 1306-1314, 2010.

Martin, K.R. Both common and specialty mushrooms inhibit adhesion molecule expression and in vitro binding of monocytes to human aortic endothelial cells in a pro-inflammatory environment, Nutr. J. 9:29, 2010.

Martin, K.R., Beneficial effects of five commonly consumed whole mushrooms and a key bioactive agent, Presented to Greg Seymour, Liaison to the Australian Mushroom Growers Association (AMGA), Ltd. and Horticulture Australia, Ltd. (HAL), Final Published Report for Project number MU07015, pp. 1-15, 2010.

Martin, K.R. and Rasmussen, K.K. Comparison of sensory qualities of geographically paired organic and conventional red wines from the Southwestern U.S. with differing total polyphenol concentrations: A randomized pilot study, Food Nutr. Sci., 2: 1150-1159, 2011.

Martin, K.R. and Wooden, A. Tart cherry juice induces differential dose-dependent effects on apoptosis, but not cellular proliferation, in MCF-7 human breast cancer cells, J. Med. Food, 15(11): 945-954, 2012.

Invited editorial. "b-Glucans: Going through GM-CSF to get to dectin," Comments on "Soluble ß-glucan from Grifola frondosa induces proliferation and dectin-1/Syk signaling in resident macrophages via the GM-CSF autocrine pathway" by Masuda et al., J. Leukocyte Biol., 91(4): 521-524, 2012.

Tucker, W., Angadi, S. and Martin, K.R. Dietary mushrooms: An excellent source for nutraceuticals capable of reducing risk factors for cardiovascular disease, In: Nutrigenomics: Its Application to the Development of Nutraceuticals (R. Subbiah, Ed.) Nova Science Publishers, New York, NY), Chapter 4, pp. 35-54, 2013.

K.R. Martin, Silicon. The health benefits of a metalloid, in "Interrelations between Essential Metal Ions and Human Diseases", Vol. 13 of 'Metal Ions in Life Sciences', A. Sigel, H. Sigel, R. K. O. Sigel, Eds.; Springer Science + Business Media B.V., Dordrecht, 2014, Vol. 13, Chapter 4, pp. 451-473, 2014.

Presentations

Building Healthy Lifestyles Conference: Nutrition for Optimal Health and Performance, "Functional Foods for Optimal Health: Bitter Mushrooms, Sour Cherries, Sweet Success," Arizona State University, Tempe, AZ, 2012.

Building Healthy Lifestyles Conference: From Research to Practice, "Functional Foods as Immune System Modulators: Dietary Mushrooms, Tart Cherries, and More," Arizona State University, Mesa, AZ, 2010.

Keynote Speaker, Healthier Wines from Organic Vines, State meeting of the Arizona Dietetics Association (AZDA), Scottsdale, AZ, 2009.

The Super Power of Polyphenol Antioxidants in Functional Foods: Chocolate, pomegranates, and more, The Hershey Company, Hershey, PA, 2008.
DSHEA and Dietetics: Reporting Adverse Effects from the Clinical Setting, North Regional Arizona Dietetics Association (AZDA), Kingman, AZ, 2008.
North Regional Arizona Dietetics Association (AZDA), Having the Right Equipment for the Game; The Importance of Phytochemicals, Prescott Valley, AZ, 2008.

BARBARA S. MCCLANAHAN
Assoc Professor, Health Studies
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Education

PhD Exercise Science and Leisure Management - University of Mississippi - 1997
EdD Higher Education (Interdisciplinary) - University of Memphis - 1990
MS Fitness Management - University of Memphis - 1983
BS Secondary Educatinon (PE) - University of Memphis - 1981

Work Experience

Associate Professor, School of Health Studies - The University of Memphis - 2007 - present
Assistant Professor, Health and Sport Sciences - The University of Memphis - 2002-2007
Director Metabolic Laboratory, Center for Community Health - The University of Memphis - 1994-2002
Assistant Professor, Health, Physical Education and Recreation - The University of Memphis - 1991 - 1993
Instructor, Health, Physical Education and Recreation - The University of Memphis - 1986 - 1991
Exercise Physiologist, Adult Wellness and Cardiac Rehabilitation - Healthplex, Baptist Memorial Hospital - 1985 - 1986
Program Director, Fitness and Wellness - YMCA Memphis, TN - 1984-1985
Faculty Affiliate, Center for Community Health - University of Memphis - 1994 -2007

Teaching Experience

Exercise Physiology Introduction -
Lifestyle Wellness and Disease Pevention (G) -
Event Planning for Health Promotion (G) -
Health Promotion (G) -
Physical Fitness and Health (G) -
Contemporary Health Issues (G) -
Principles of Health and Fitness Instuction (Lecture and Laboratory) (U) -
Marketing and Entreprenurship in Health Promotion (U) -
Leadership and Communication in Health Promotion (U) -
Health Promotion Program Development and Administration (U) -
Strategic Planning and Program Development -
Wellness Concepts and Practice (U) -
Health, Safety and First Aid (U) / Elementary School Health and Wellness (U) -
Fitness for P.E. Majors (U) -
Activity Courses: Aerobics, Weight Training, Racquetball, Swimming, Bowling (U) -
Exercise Physiology for P.E. Majors (U) -
Exercise Testing and Interpretation (U) -
Physical Education for Elementary Teachers (U) -

Books Published

McClanahan, B. S. & Stockton, M. B. (2012). Community Physical Activity Interventions. In ACSM's Resource Manual for Guidelines for Exercise Testing and Prescription, 7th Edition (chapter 47). Philadelphia, PA.: Lippincot, Williams, & Wilkins. ISBN/ISSN: 9781609139568

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Journal Articles

Vander Weg, M.W., Coday, M., Stockton, M.B., McClanahan, B., Relyea, G., Read, M.C., Wilson, N., Connelly, S., Richey, P., Johnson, K.C., & Ward, K.D. (2017). Community-based physical activity as adjunctive smoking cessation treatment: Rationale, design, and baseline data for the Lifestyle Enhancement Program (LEAP) randomized controlled trial. Contemporary Clinical Trials Communications, 9, 50-59. https://doi.org/10.1016/j.conctc.2017.11.013

Collins, A.C., Ward, K.D., McClanahan, B.S., Slawson, D.L., Vukadinovich, C., Mays, K.E., Wilson, N., & Relyea, G. (2017 Jul 11) Bone accrual in children and adolescent non-elite swimmers: A two-year longitudinal study. Clinical journal of sport medicine: official journal of the Canadian Academy of Sport Medicine. https://doi.org/10.1097/00004872-199603000-00005.

McClanahan, B.S., Stockton, M. B., Klesges, R.C., Slawson, D.L., Lanctot, J. Q., Klesges, L., & Relyea, G. (2015). Psychosocial correlates of physical activity in African American girls. Health Behavior and Policy Review. 2(2):100-109.109.

Collins, A.C., Ward, K.D., Mirza, B., Slawson, D.L., McClanahan, B.S., & C. Vukadinovich. (2012). Comparison of nutritional intake in US adolescent swimmers and non-athletes. Health. 4(10): 873-880.

Stockton, M. B., McClanahan, B. S., Lanctot, J. Q., Klesges, R. C., & Beech, B. M. (2012). Identification of facilitators and barriers to participation in weight gain prevention research by African American girls. Contemporary clinical trials, 33(1), 38-45.

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Stockton, M.B., Ullmann, G., Krull, K., Yli-Piipari, S., Martindale, T., McClanahan, B.S., & Ward, K.D. (2016). Formative Evaluation of a Web-Based Professional Development Program to Increase Physical Activity in K-12 Classrooms. American College of Sports Medicine 63rd Annual Meeting. Boston, MA. Medicine and Science in Sports and Exercise. Volume 48 (5S Suppl 1). DOI:10.1249/01.mss.0000487309.28326.00

McClanahan, B.S., Stockton, M.B., McClanahan W.R., & Chambliss H.O (2015) Building activity friendly environments: community based participatory research leads to adoption of activity friendly policy. American College of Sports Medicine 62nd Annual Meeting. San Diego, CA. Medicine and Science in Sports and Exercise Volume 47:5 S.

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Streets. Art and Science of Health Promotion 23rd Annual Conference. Hilton Head Island, SC.

Stockton, M.B., McClanahan, B. Overacker, T. (2013). The Relationship among Neighborhood Environment and Child Physical and Sedentary Activity Levels. Art and Science of Health Promotion 23rd Annual Conference. Hilton Head Island, SC.

McClanahan, B.S., Stockton, M.B., Clark, S.E., & McClanahan, W.R. (2012). Partnership for Active Community Environments: Translating Research into Action. American College of Sports Medicine 59th Annual Meeting. San Francisco, CA. Medicine and Science in Sports and Exercise.

Stockton, M.B., McClanahan, B.S., Overacker, T. (2012). Girls Learning Interrelated Techniques Targeting Environmental Risks: Feasibility of a Pilot Obesity Intervention. American College of Sports Medicine 59th Annual Meeting. San Francisco, CA. Medicine and Science in Sports and Exercise.

McClanahan, B.S., Stockton, M.B., McClanahan, W.R., Clark, S. E., (2012). Participatory Methods Promote Active Living Policy Review and Action. 22nd Annual Art and Science of Health Promotion Conference. San Diego, CA.

Stockton, M.B., McClanahan, B.S., Clark, S., & McClanahan, W.R. (2012). Active Community Environments: Translating Research into Practice. 22nd Annual Art and Science of Health Promotion Conference. San Diego, CA.

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McClanahan, B.S., Stockton, M.B., Schilling, L.P., & Beech, B.M. (2011). Influence of Self-Administered Dance Video vs Teacher Led Class on Physical Activity Participation. American College of Sports Medicine 58th Annual Meeting, Denver, CO.

Stockton, M.B., Algea, C., McClanahan, B., & Narowetz, L. (2011). Process and Outcome Evaluation of a Faith-Based Program to Increase Lifestyle Physical Activity. American College of Sports Medicine 58th Annual Meeting, Denver, CO. Medicine and Science in Sports and exercise. 43 (5), 3149.

McClanahan, B.S., & Stockton, M.B., (2011). Engaged Scholarship: Participatory Practices Enhance Outcomes. 21st Annual Art and Science of Health Promotion Conference, Colorado Springs, CO.

Stockton, M.B., McClanahan, B.S., & Clark, S. (2011). Enhancement of Health Counseling Skills through Applied Experiential Learning. 21st Annual Art and Science of Health Promotion Conference. Colorado Springs, CO.

McClanahan, B. Parks, N., Frazier, R., & Stockton, M.B., (2010). Process Evaluation of Community-Engagement: Healthy Memphis Common Table. American Academy of Health Behaviors Annual Meeting. Clearwater, FL.

Stockton, M.B., Heegel, M., & McClanahan, B. (2010). Individual, Familial and Environmental Associations of BMI in Girls. American Academy of Health Behaviors Annual Meeting. Clearwater, FL.

McClanahan, B., Stockton, M. B., Ward, K. D., Coday, M., & Read, M. (2009). Physical and Health Characteristics Related to Maximum Time on Exercise Electrocariogram for Smokers. The Obesity Society 2009 Annual Scientific Meeting, Washington D.C.

Stockton, M. B., McClanahan, B., Ward, K. D., Coday, M., & Read, M. (2009). Influence of Smoking Behaviors, Attitudes, and Beliefs on Body Mass Index. The Obesity Society 2009 Annual Scientific Meeting, Washington D.C.

McClanahan, B., Overacker, T., Stockton, M., Trammel, R., & Irwin, C. (2009). Increasing physical activity in children enrolled in afterschool programs: Activate Memphis. American Academy of Health Behaviors. 9th Annual Scientific Meeting, Hilton Head, SC.

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Klesges, L.; Lanctot, J.; Relyea, G.; Sherrill-Mittleman, D.; Stockton, M.; McClanahan, B.; Klesges, R.; Kumanyika, S. (2009). Behavioral Mediators Of A Weight Gain Prevention Intervention For African American Girls: The Memphis Girls Health Enrichment Multisite Studies (GEMS). Society of Behavioral Medicine Annual Meeting. Montreal, Quebec, Canada

McClanahan, B., Stockton, M., & Narowetz, L. (2008). Influence of Religious Practices on Body Mass Index in College Students. North American Society for the Study of Obesity 2008 Annual Scientific Meeting, Phoenix, AZ.

Stockton, M.B, McClanahan, B., & Saffer, N. (2008). Influence of Activity Preferences on Body Mass Index: A Comparison between Preadolescent and Adolescent African American Children. North American Society for the Study of Obesity 2008 Annual Scientific Meeting, Phoenix, AZ.

Klesges, L.K., Klesges, R.C., Obarzanek E., Kumanyika, S., Beech, B., McClanahan, B., Stockton, M.B., Lanctot, J.Q., Relyea, G., Murray, D., Slawson, D., Sherrill-Mittleman, D. (2008) Outcomes and Behavioral Mediators of an Obesity Prevention Intervention for African American Girls: The Memphis GEMS. 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Kumanyika, S., Beech, B.M., McClanahan, B., Stockton, M.B., Lanctot, J.Q., Slawson, D., Klesges, L.M., Klesges, R.C. Development of the Family-Based Obesity Prevention Program for Pre-Adolescent African-American Girls in the Memphis Girls Health Enrichment Multisite Studies (GEMS), (2008). 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Stockton, M.B., Klesges, R.C., Lanctot, J.Q., Beech, B.M., McClanahan, B., Klesges, L.M., Kumanyika, S., Slawson, D. Recruitment and Retention Methods for African-American Girls Participating in the Memphis Girls Health Enrichment Multisite Studies (GEMS), (2008). 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Klesges, R.C., Oberzanek, E., Klesges, L.M., Beech, B., Kumanyika, S., McClanahan, B., Stockton, M., Lanctot, J.Q., Relyea, G., Murray, D., Slawson, D., Mitleman, D. (2007). The Memphis Girls Health Enrichment Multisite Studies (GEMS): An evaluation of the long-term efficacy of a weight gain prevention intervention in African American girls. American Heart Association, 2007 Scientific Sessions, Orlando, FL.

McClanahan, B.S., Stockton, M.B., Lanctot, J.Q., Relyea, G., Klesges, R.C., Slawson, D.L., & Schilling, L.P. (2007). Relationship between foot-to-foot BIA and DEXA in African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A127.

Stockton, M.B., Klesges, L.M., McClanahan, B.S., Sherrill-Mittleman, D., Lanctot, J.Q., & Klesges, R. (2007). Validity of psychosocial activity measures with objectively measured physical activity in African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A68.

Klesges, L.M., Stockton, M.B., Lanctot, J.Q., Sherrill-Mittleman, D., McClanahan, B.M., & Klesges, R.C. (2007). Social desirability response bias in self-reported physical activity and dietary behaviors in 8- 10-year-old African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A66.

Slawson, D.L., Lanctot, J.Q., Klesges, R.C. Klesges, L.M., McClanahan, B.S., Relyea, G. (2007). Girls' Dietary Quality and the Influences of Child Eating Patterns, Attitudes, and Parent Support for Healthful Eating. Food and Nutrition Conference and Expo 2007, Philadelphia, PA. Journal of the American Dietetic Association, 107 (8), A89.

Sherrill, S.M., McClanahan, B., & Hall, S. (2007). PROJECT CONNECT: Enhancing Patient and Family Centered Communication. National Association of Children's Hospitals and Related Institutions (NCHRI) Annual Meeting: San Diego, TX.

McClanahan, B.S., Stockton, M.B., Lanctot, J.Q., Slawson, D.L., Klesges, R.C., & Relya, G. (2007). The Relationship Between Objectively Measured Physical Activity and Body Composition in African American Girls. American College of Sports Medicine 54th Annual Meeting. New Orleans, LA.

Stockton, M., McClanahan, B., Lanctot, J., Klesges, R. C., & Klesges, L. M. (2007). The predictors of body dissatisfaction in 8- to10- year old African American girls. American College of Sports Medicine 54th Annual Meeting. New Orleans, LA.

McClanahan, B.S., Lanctot, J.Q., Stockton, M.B., Klesges, R.C., Slawson, D.L., & Klesges, L. (2006). Calcium intake and body composition in African American girls. North American Association for the Study of Obesity 2006 Annual Scientific Meeting. Boston, MA.

McClanahan, B.S., Lucchesi, M.S., Henley, W., Wride, T., McDaniel, M., McClain, A., & Irwin, C. (2006). Walking in Memphis: Leveraging local initiatives to expand outreach and impact. 16th Annual Art and Science of Health Promotion Conference. Las Vegas, NV.

Klesges, L. M., Stockton, M., Lanctot, J., McClanahan, B., Slawson, D., & Klesges, R. C. (2006). Response bias in self-reported physicalactivity and dietary behaviours related to social desirability and weight status in African-American girls. 6th International Conference on Dietary Assessment Methods; Copenhagen, Denmark.

McClanahan, B., Lanctot, J., Stockton, M., Slawson, D., Klesges, R., Klesges, L. & G. Relyea. (2006) Physical activity and cardiovascular risk factors in African American girls. American College of Sports Medicine 53rd annual meeting Denver, Colorado.

Sherrill, S.S., Hall, S., & McClanahan, B. (2006). Project ADMIT: Procedures to enhance treatment and satisfaction. National Association of Children's Hospitals and Related Institutions Annual Meeting: "Revolutionize." Boston, MA.

McClanahan, B.S., Lanctot, M.S., Stockton, M., Slawson, D.L., Reylea, G., Klesges, L., & Klesges, R.C. (2005). Predictors of physical activity in African American girls. North American Association for the Study of Obesity 2005 Annual Scientific Meeting. Vancouver, British Columbia, Canada.

Lucchesi, M., McClanahan, B., Ward, K., Lanctot, J., & Clemens, L. (2005). Calcium intake and body composition in children. North American Association for the Study of Obesity 2005 Annual Scientific Meeting. Vancouver, British Columbia, Canada.

Lanctot, J., Stockton, M., McClanahan, B., Klesges, L. M., & Klesges, R. C. (2006). The Effects of Parental Encouragement on Physical Activity Levels of Preadolescent African American Females. American College of Sports Medicine 53rd Annual Meeting; Denver, Colorado.

Stockton, M., Lanctot, J., McClanahan, B., Klesges, R. C., & Klesges, L. M. (2006). Self-perception profiles among preadolescent African American girls as related to body mass index. American College of Sports Medicine 53rd Annual Meeting; Denver, Colorado

Klesges, L. M., Stockton, M., Lanctot, J., McClanahan, B., Slawson, D., & Klesges, R. C. (2006). Response bias in self-reported physical activity and dietary behaviours related to social desirability and weight status in African-American girls. 6th International Conference on Dietary Assessment Methods; Copenhagen, Denmark.

Clemens LH, Corcoran AM, Ward KD, McClanahan B. (2005) The effect of calcium and vitamin D intake on the bone mineral density of youth and adolescents. Poster submitted for presentation at the Anual Conference of the American Dietetic Association, St. Louis MO, October 2005.

Beech, B.M., Kumanyika, S.K., Klesges, R.C., McClanahan, B.S., Slawson, D. & Nunnally, C. (2002). Developing parent-focused and girl-focused obesity prevention programs for 8 to 10 year old African American girls: Formative assessment results from the University of Memphis Field Center" Paper to be presented at the 130th Annual Meeting of the American Public Health Association, Philadelphia, PA, November 2002.

Ward, K.D., Klesges, R.C., McClanahan, B., Harmon-Clayton, K., Fallone, G., Cantler, E., Palmeri, G.M. & Applegate, W.B. (1997). Are extremely active people at risk for decreases in bone mineral density?: A large-scale prospective investigation. Paper presented at the Eighteenth Annual Session of the Society of Behavioral Medicine, San Francisco, CA.

McClanahan, B.S., Harmon-Clayton, K.M., Klesges, R.C., & Relya, G. (1996). The effect of sport participation on contralateral bone mineral density. National Strength and Conditioning Association. Poster presentation.

McClanahan, B.S. (1991). Building an Effective Exercise Group. Presentation: International Convention of International Dance and Exercise Association. Nashville, TN.

McClanahan, B. (June 17, 2005). Physical Activity. Delivered at Memphis City School Youth Risk Behavior Survey (YRBS) Workshop. Board of Education Auditorium.

McClanahan, B. (August 5, 2004). Fitness Circuits. Delivered at the Memphis City School Health, Physical Education and Wellness Secondary In-Service, Craigmont High School, Memphis, TN.

McClanahan, B. (August 5, 2004). Pedometers and Student Activity Delivered at the Memphis City School Health, Physical Education and Wellness Secondary In-Service, Craigmont High School, Memphis, TN.

McClanahan, B. (April 23, 2004). Obesity Research Highlights delivered at the meeting of The University of Tennessee College of Nursing Alumni, Memphis, TN.

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Education

B.S. Microbiology - Memphis State University - 1976
M.S. Community Health - Memphis State University - 1980
Ph.D. Community Health Education - The University of New Mexico - 1985

Work Experience

Professor, Health and Sport Sciences - The University of Memphis, Memphis, Tennessee - 2003 - Present
Associate Professor, Human Movement Sciences & Education - The University of Memphis, Memphis, Tennessee - 1989 - 2002
• Director, Urban Youth Wellness Initiative, Human Movement Sciences & Education - The University of Memphis - 1996-Present
• Field Team Coordinator, Rapid Assessment, Response, and Evaluation Project (RARE). An outreach partnership (Invited). Crisis Response Initiative for HIV/AIDS prevention. - City of Memphis Government, Memphis and Shelby County Health Department, and U.S. Department of Health and Human Service Sponsor: The U.S.DHHS/OHAP, Washington, DC. - 2001-2002
Assistant Professor, Health Physical Education & Recreation - Memphis State University - 1986-1989
Assistant Professor, Area of Health Physical Education & Recreation - The University of Alabama - 1985-1986
• OSHA Program Coordinator, Industrial Safety and Health programs for reservation-based industries in the Continental United States and Alaska. - National American Indian Safety Council, Inc Albuquerque, New Mexico - 1983-1984
•Program Specialist, Industrial Safety - National American Indian Safety Council, Inc Albuquerque, New Mexico - 1982-1983

Honors/Awards

Igniting Excitement for Academic - The University of Memphis, Excellence Black Scholars Unlimited & The Black Graduate Students Association. - 2002
• Fellow, Research Consortium - American Alliance for Health, Physical Education, Recreation & Dance - 2001
• Outstanding Award for Community Service - College of Education, The University of Memphis - 2000
• Who's Who Among America's Teachers, 1998 - Who's Who Among America's Teachers - 1998
• Leadership Memphis, Class of 1995 - Leadership Memphis Institute - 1995
• Phi Kappa Phi - National Academic Honors Society - 1985
• Kappa Delta Pi Lambda Gamma - National Academic Honors Society - 1980

Teaching Experience

Principles and Application of Epidemiology (Undergraduate) - University of Memphis
Global/International Health (Undergraduate) - University of Memphis
Introduction to Public Health (Undergraduate) - University of Memphis
Epidemiology (Graduate) - The University of Memphis
Health Intervention Theories and Application (Graduate) - The University of Memphis
Occupational Health (Graduate) - The University of Memphis
Organization & Administration in Public Health (Grad/Undergrad - The University of Memphis
Drug Education (Grad/Undergrad) - The University of Memphis
Health Promotion Strategies (Undergrad) - The University of Memphis
Health Promotion Program Development & Admin. (Undergrad) - The University of Memphis
Elementary School Health and Wellness (Undergrad) - The University of Memphis
Personal Health (Undergrad) - The University of Memphis
Introduction to Community Health (Undergrad) - The University of Memphis
Chronic and Communicable Disease (Undergrad) - The University of Memphis
Evaluation in Health Education (Graduate) - The University of Alabama
Principles and Assessment of Health (Honors Program) - The University of Alabama
Drug Awareness and Education (Undergraduate) - The University of Alabama
Consumer Health (Undergraduate) - The University of New Mexico

Creative Activities

"Is It Worth It?": A Public Service Announcement (PSA) on "Stop Smoking". (30 seconds) - 1995 - The Warner Brother Production, Memphis, TN. PSA aired on ABC-TV Affiliate, Memphis and Nashville - The National Heart, Lung, and Blood Institute and Tennessee he National Heart, Lung, and Blood Institute and Tennessee < Department of Health. A campaign targeting African Americans in Tennessee. < Production included developing scripts, editing scripts, conducting auditions, and actual production.

"It's A Killer": A play focusing on the (14:56 minutes) - 1995 - The Warner Brother Production, Memphis, TN. Target audience: African American Youth. - The National Heart, Lung, and Blood Institute and Tennessee he National Heart, Lung, and Blood Institute and Tennessee < Department of Health. A campaign targeting African Americans in Tennessee. < Production included developing scripts, editing scripts, conducting auditions, and actual production.

"Health Consequences of Smoking: Youth Mentor Update '95" (10:42 minutes) - 1995 - Memphis, TN. Target audience: African American Youth. - The National Heart, Lung, and Blood Institute and Tennessee Department of Health.

Smoking the Youth Mentor Approach: The Stroke Belt Initiative. (10:52 minutes) - 1995 - Memphis, TN. Target audience: African American Youth. - The National Heart, Lung, and Blood Institute and Tennessee Department of Health.

Support

Co-Principal Investigator, Substance abuse prevention services for vulnerable youth - Tennessee Department of Health - $85,000 - 2016-2017

Principal Investigator, Feasibility of functional exercise for seniors aged 62 years and older. - Wesley Housing Corporation of Memphis, Tennessee - $7,140 - 2016

Co-PI, Expanding Assets and Steering Initiative - Youth Development - Tennessee Board of Regents (TBR) - $40,000 - 2015-2016

Co-PI, Substance abuse prevention services for vulnerable youth - TN Department of Mental Health and Substance Abuse Services - $85,000 - 2015-2016

PI, West Tennessee Legal Services - Ryan White (Part B Consortium) Needs Assessment - West Tennessee Legal Services - $25,000 - 2015

PI, Substance abues prevention services for vulnerable youth - Tennessee Department of Health - $83,995 - 2013

Co-Principal Investigator - Tennessee Department of Health - $103,000 - 2012

Principal Investigator - West Tennessee Legal Services-Ryan White (Supplement) - $9,500 - 2012

Principal Investigator, Needs Assessment for the West Tennessee Ryan White Planning Consortium - West Tennessee Legal Services - $24,500 - January-March 2012

Co-PI, Reducing health disparities among African American youth: Preparing Black Churches to do the work - TBR Office of Academic Affairs - 66,052.00 - June 2010 - June 2011

Co-Principal Investigator, "Your Health is in Your Hands: Reversing Health Disparities". In partnership with the TN Office of Minority Health (OMH). Focus: I conducted a series of focus group interviews with the faith communities in addressing the disproportionately high rate of cerebrovascular disease among African American and Hispanics in TN. - The National Institute of Health (NIH) - $50,000 - 2003-2004

Principal Investigator, "The Urban Youth Wellness". - The United States Department of Labor and City of Memphis Government - $100,000 - 2001-2002

Principal Investigator, "Health and Wellness Assessment" - David and Beverlyn Mays Foundation, Inc., Baton Rouge, Louisiana - $3,260 - 2001-2002

Principal Investigator, "The Urban Youth Wellness". - The United States Department of Labor and City of Memphis Government - $153,043 - 2000-2001

Co-Principal Investigator, "School-Based Smoking Cessation Program for Adolescents". - National Cancer Institute (NCI), National Institute of Health (NIH) - $1,875,973 - 2000-2002

Principal Investigator, "Urban Youth Wellness Initiative: Community-Based Partnership". - The United States Department of Labor and Memphis Youth Fair Chance - $70,593 - 1998-1999

Co-Principal Investigator, "Evaluating an African-Centered Adolescent Pregnancy Prevention Model". - U.S. Department of Health and Human Services (USDHHS), Office of Women's Health - $139,600 - 1996-1997

Principal Investigator, "The Stroke Belt Initiative: A Church-Based Health Promotion Project for African American Communities", Memphis and Shelby County TN - National Heart, Lung, and Blood Institute (NHLBI) and the Tennessee Department of Health - $54,064 - 1993-1997

Principal Investigator, "Health Promotion for Low Income Minority Senior Citizens: A Coalition of Senior Centers', Memphis and Shelby County TN" - Delta Commission on Aging and Delta Area Agency on Aging - $15,475 - 1995-1996

Principle Investigator, "Teen Dads' Night In: Male Responsibility" Tennessee. - United Way of Greater Memphis Special Project - $1000 - 1994-1995

Principal Investigator, "Tobacco Use: A Risk Fctor for Stroke in African American Population", Memphis and Shelby County TN - TN Department of Health and Environment - $5000 - 1992

Principal Investigator, "Adolescent Drug Prevention Project", Greene County School System, Eutau, West Alabama - Metropolitan Life Foundation - $5000 - 1986-1987

Books Published

Okwumabua, J.O., Relyea, G., & Paraham, F. (2017). Feasibility of a chair aerobics and functional exercise intervention with Wesley Housing and Home Services residents. A technical report submitted to the Wesley Housing Corporation of Memphis, Inc.

Okwumabua, J.O., Williams, C., & Crawford, G. (2013). Ryan White Part B Needs Assessment (Supplement). A technical report submitted to the West Tennessee Legal Service and Tennessee Department of Health.

Okwumabua, J.O., Williams, C., & Crawford, G. (2012). Ryan Whitte Part B Needs Assessment. A technical report submitted to the West Tennessee Legal Service and Tennessee Department of Health.

Book Chapters

Okwumabua, J.O. (1990). Child and adolescent substance abuse: Etiology and prevention. In S.B. Morgan & T.M. Okwumabua (Eds), Child and adolescent disorders: Developmental and health psychology perspectives. New Jersey: Erlbaum.

Duryea, E.J., Dempsy, T., Okwumabua, J.O., & Perry, C. (1988). The Solomon Four-Group Design: An Application for Health Education Research. In J.H. Humphrey (Ed.), Advances in Health Education Current Research, 143-151, New York: AMS Press.

Technical reports/unpublished documents

Okwumabua, J.O. (2003). Preventing HIV/AIDS incidence in Memphis/Shelby County, Tennessee: Rapid assessment, response, and evaluation project (RARE). A Technical Report submitted to the City of Memphis Government, Memphis/Shelby County Health Department, and U.S. Department of Health and Human Services, Office of HIV/AIDS Policy, Washington, DC.

Okwumabua, J.O. & Williams, C (2002). Building community coalition toward syphilis elimination: Perspectives of community residents and organizations (Syphilis Elimination Project). Via focus group interviews, identified strategies to strengthen community involvement and organizational

partnerships toward eliminating syphilis in Memphis and Shelby County. A Technical Report submitted to Memphis and Shelby County Health Department, Memphis, Tennessee and Centers for Disease Control and Prevention (CDC), Atlanta, Georgia.

Okwumabua, J.O. (2000). Determinats of HIV and syphilis incidence in Memphis and Shelby County, Tennessee: Perspectives of low-income African Americans. A Technical Report submitted to Memphis and Shelby County Health Department, Tennessee and Centers for Disease Control and Prevention, Atlanta, Georgia.

Okwumabua, J.O. & Pearson, C.M. (1997). Resources on Stroke Prevention for African American Churches and Communities. A resource document submitted to the National Heart, Lung, and Blood Institute, National Institute of Health, Bethesda, Maryland.

Okunoren, T., Speight, B., Mercier, G., Okwumabua, J., & Crowson, C. (1994). A Church-Based Nutrition Education Program Training Manual: Eating Healthy for Spiritual Well-Being. Preventing African American Strokes from Tobacco Use (PAAST).

Adams-Graves, P., Jackson, A.L., Okwumabua, J., Brooks, A., Crews, W. & Dickens, C. (1994). A Church-Based Smoking Cessation Program Training Manual: Stop Smoking with Spiritual Power. Preventing African American Strokes from Tobacco Use (PAAST).

Okwumabua, J.O. (1994). A Church-Based Health Promotion Program for African-American Churches: Stroke Belt Initiative. A Technical Report submitted to the National Heart, Lung, and Blood Institute (NHLBI) and Tennessee Department of Health.

Okwumabua, J.O., Weddle, K., Bol, L. McWillaims, A., & James, S. (1994). Adolescent Pregnancy Prevention Programs and Services in Memphis/Shelby County. A Directory prepared in response to over 400 surveys mailed to community agencies, organizations, and churches. Memphis and Shelby County Adolescent Pregnancy Prevention Council.

Okwumabua, J.O. (1988). Risk Reduction/Health Promotion Project. Technical Report submitted to the Superintendent, Greene County School System, Eutau, West Alabama.

Okwumabua, J.O. and Zotigh, R. (1984). An Assessment of Safety Needs of Santa Fe Indian School. Technical Report submitted to the Superintendent, Santa Fe Indian School, Santa Fe, New Mexico.

Okwumabua, J.O. (1984). Implementation and Training Source Document: Occupational Health and Safety. The Navajo Forest Products Industry. Document submitted to the Board of Managers, Navajo Forest Products Industry, Navajo, New Mexico.

Okwumabua, J.O. (1983). Needs Assessment: Occupational Health and Safety, Navajo Forest Products Industry. Technical Report submitted to the Board of Directors, Navajo Forest Products Industry, Navajo, New Mexico.

Okwumabua, J.O. (1983) Needs Assessment: Occupational Health and Safety, Quinault Fisheries Industry (Phase I Report). Technical Report submitted to the Board of Directors and Tribal council, Quinault Fisheries Industry, Tahola, Washington.

Okwumabua, J.O. (1982). Implementation and Training Source Document: Occupational Health and Safety. The Navajo Agricultural Products Industry: Model Demonstration Project. Document submitted to the Board of Mangers, Navajo Agricultural Products Industry, Navajo, New Mexico.

Okwumabua, J.O., Beatty, H., Brown, O., Kill, B., and Redford-Lowe, J. (1981). Needs Assessment, Occupational Health and Safety: Navajo Agricultural Products Industry. Technical Report submitted to the Board of Directors, Navajo Forest Products Industry, Navajo, New Mexico.

Journal Articles

Okwumabua, T.M., Dorn, A.M., Cogdal, P., Okwumabua, J.O., & Chen, S. (2017). Perception, knowledge, and confidence in suicide prevention on an urban university campus. Prevention and Health Promotion: Research, Social Action, Practice, and Training, 10, 14-22.

Okwumabua, J.O., Okwumabua, T.M., & Wong, S.P (2014). Anger expression mode, depressive symptoms, hopelessness, and decision coping among African American adolescents. Journal of Human Behavior in the Social Environment, 24, 666-677.

Okwumabua, T.M., Okwumabua, J.O., Peasant, C., Watson, A., & Walker, K. (2014). Promoting health and wellness in African American males through rites of passage training. Journal of Human Behavior in the Social Environment, 24, 702-712.

Okwumabua, J.O., Rosato, F., Okwumabua, T.M., Wong, S.P., & Wright, P.M. (2008). Efficacy of community-based physical exercise for mental patients: A pilot study. Journal of the National Society of Allied Health, 5, 23-37.

Okwumabua, J.O., Williams, C., & Glover, V. (2007). Building community coalition toward syphilis elimination: Perspectives of residents and organizations. Journal of the National Society of Allied Health, 4, 9-28.

Okwumabua, J.O., Wong, S.P., & Duryea, E.J. (2003). Depressive symptoms and decision making among African American youth. Journal of Adolescent Research, 18, 436-453.

Duryea, E.J. & Okwumabua, J.O. (2002). Use of cause and effect language in health behavior research literature. American Journal of Health Behavior, 26, 221-228.

Okwumabua, J.O., Duryea, E.J. & Wong, S.P. (2002). Decision making correlates of depressive symptoms among African American adolescents: Implications for prevention approaches. American Journal of Health Education, 33, 28-35.

Okwumabua, J.O., Glover, V., Bolden, D., & Edwards, S. (2001). Perspectives of low-income African Americans on syphilis and HIV: Implications for prevention approaches. Journal of Health Care for the Poor and Underserved, 12, 474-489.

Okwumabua, J.O. (1999). An investigation of the decision-making skills of at-risk African American male youth. The Journal of Negro Education, 68, 154-163.

Okwumabua, J.O., Wong, S.P., Duryea, E.J., Okwumabua, T.M., & Howell, S. (1999). Building self-esteem through social skills training and cultural awareness: A community-based approach for preventing violence among African American youth. The Journal of Primary Prevention, 20, 61-74.

Okwumabua, J.O., & Duryea, E. J. (1998). A synthesis of etiology and prevention of drug abuse in youth: Application and critique of the epidemiologic model. American Journal of Health Studies, 14, 31-41.

Okwumabua, T.M., Okwumabua, J.O., & Elliott, V. (1998). "Let the circle be unbroken" helps African Americans prevent teen pregnancy. Sexuality Information and Education Council of the United States (SIECUS) Report, 26, 12-17.

Okwumabua, J.O., Baker, F.M., Wong, S.P., & Pilgram, B. (1997). Characteristics of depressive symptoms in elderly urban and rural African American residents. Journal of Gerontology: Medical Sciences, 52A, M241-M246.

Okwumabua, J.O., Martin, B., Clayton-Davis, J., & Pearson, C.M. (1997). Stroke belt initiative: The Tennessee experience. Journal of Health Care for the Poor and Underserved, 8, 292-299.

Baker, F.M., Okwumabua, J.O., Philipose, V., & Wong, S.P. (1996). Screening African American elderly for the presence of depressive symptoms: A preliminary investigation. Journal of Geriatric Psychiatry and Neurology, 9, 127 - 132.

Okwumabua, J. O., Okwumabua, T. M., Hayes, A. & Stovall, K. (1994). Cognitive level and health decision-making in children: A preliminary study. The Journal of Primary Prevention, 14, 279 - 287. Abstract published in Prevention Abstracts, Southeastern Regional Center for Drug-Free Schools and Communities, Fall 1994.

Okwumabua, J.O., Okwumabua, T.M., Winston, B.L., & Walker, Jr. (1989). Onset of drug use among rural black youth. Journal of Adolescent

Research, 4, 238-246.

Okwumabua, J.O., Okwumabua, T.M., & Duryea, E.J. (1989). An investigation of health decision-making skills among American Indian Adolescents. The Journal of the National Center: American Indian and Alaska Native Mental Health Research, 3<

Okwumabua, J.O., & Duryea, E. J. (1998). A synthesis of etiology and prevention of drug abuse in youth: Application and critique of the epidemiologic model. American Journal of Health Studies, 14, 31-41.

Okwumabua, T.M., Okwumabua, J.O., & Elliott, V. (1998). "Let the circle be unbroken" helps African Americans prevent teen pregnancy. Sexuality Information and Education Council of the United States (SIECUS) Report, 26, 12-17.

Okwumabua, J.O., Baker, F.M., Wong, S.P., & Pilgram, B. (1997). Characteristics of depressive symptoms in elderly urban and rural African American residents. Journal of Gerontology: Medical Sciences, 52A, M241-M246.

Okwumabua, J.O., Martin, B., Clayton-Davis, J., & Pearson, C.M. (1997). Stroke belt initiative: The Tennessee experience. Journal of Health Care for the Poor and Underserved, 8, 292-299.

Baker, F.M., Okwumabua, J.O., Philipose, V., & Wong, S.P. (1996). Screening African American elderly for the presence of depressive symptoms: A preliminary investigation. Journal of Geriatric Psychiatry and Neurology, 9, 127 - 132.

Okwumabua, J. O., Okwumabua, T. M., Hayes, A. & Stovall, K. (1994). Cognitive level and health decision-making in children: A preliminary study. The Journal of Primary Prevention, 14, 279 - 287. Abstract published in Prevention Abstracts, Southeastern Regional Center for Drug-Free Schools and Communities, Fall 1994.

Okwumabua, J.O., Okwumabua, T.M., Winston, B.L., & Walker, Jr. (1989). Onset of drug use among rural black youth. Journal of Adolescent Research, 4, 238-246.

Okwumabua, J.O., Okwumabua, T.M., & Duryea, E.J. (1989). An investigation of health decision-making skills among American Indian Adolescents. The Journal of the National Center: American Indian and Alaska Native Mental Health Research, 3, 42-52.

Okwumabua, J.O., & Duryea, E.J. (1989). A test of the ability of Native American seventh-grade students to learn and apply four-step decision-making process. Journal of American Indian Education, 23, 14-23.

Duryea, E.J. & Okwumabua, J.O. (1988). Effects of a preventative alcohol education program after three years. Journal of Drug Education, 18, 23-31.

Okwumabua, J.O. & Duryea, E.J. (1987). Age of onset, periods of risk, and patterns of progression in drug use among American Indian high school students. The International Journal of the Addictions, 22, 1269-1276. Abstract published in Prevention Pipeline (#88-0094), May/June 1988. Article invited for publication in RISK ABSTRACTS: A Quarterly Journal of Abstracts, Reviews and References. (Monitors and reviews the world scientific literature on risk and related subjects).

Duryea, E.J., English, G. & Okwumabua, J.O. (1987). Health promotion efforts in an isolated
Hispanic community: The Mora substance abuse prevention project. American Journal of Health Promotion, 1, 16-23.

Duryea, E.J., & Okwumabua, J.O. (1985). An exploratory study of the health decision-making variables of New York and Montana ninth-graders. Adolescence, XX, 899-908.

Duryea, E.J. Okwumabua, J. O. & Rouse, J.W. (1984). Follow-up outcomes of a preventive alcohol education intervention. The Australian Council for Health, Physical Education and Recreation National Journal, 104, 15-18.

Okwumabua, J.O., Mahan, J.T. & Biggers, C.J. (1976). Tetrazolium oxidase polymorphism in dipodomys ordii, bufo woodhousei fowleri and bufo americanus americanus. Journal of the Tennessee Academy of Science, II, 150.

Presentations

Okwumabua, J.O. (2016). Conducted a professional development seminar at Shanghai Sanda University aimed to establish a collaborative initiative between Shanghai Sanda University School of International Medical Technology, Shanghai, China and The University of Memphis of Memphis School of Health Studies, Memphis, Tennessee, U.S.A. Focus: Programs in Health Education and Promotion; research; and exchange among faculty and students between the two institutions.

Okwumabua, J.O. (2016). Critical reflections on the influence of Western acculturation on China's obesity dilemma: Implications for health promotion. Presented at A Special Topic Forum on Health Education and Promotion, School of International Medical Technology, Sanda University, Shanghai, China.

Okwumabua, T.M. & Okwumabua, J.O. (2016). Rites of Passage: Ethnic programs benefit African American youth. A paper presented at 29th Annual National Prevention Network Conference, Buffalo, NY.

Okwumabua, J.O. (2015). Promoting physical activity in older adults through community-based partnerships. Seminar/paper presented at the Annual Conference of the Southeastern Affordable Housing Management Association (SAHMA), April 14, Murfreesboro, TN

Okwumabua, J.O., Williams, C., & Crawford G. (2014). An investigation of needs and issues among persons living with HIV/AIDS in rural counties: Implications for prevention and care. A paper presented at the 14th Annual Scientific Meeting of the American Academy of Health Behavior, Charleston, South Carolina.

Okwumabua, J.O. & Williams, C. & Xueming Mei, MS. (2012). Drug attitude, self-esteem, decision-making, conflict resolution, and family management: Predictive factors for substance use among at risk adolescents. A paper presented at 140th Annual Meeting of the American Public Health Association, Washington, DC.

Okwumabua, J.O. & Williams, C. (2011). Reducing the burden of stroke in African American communities: Perspectives of the faith leaders of color. A paper preneted at 139th Annual Meeting of the American Public Health Association, Washington, DC.

Okwumabua, J.O. & Okwumabua, T.M. (2011, March). Minority health research: Critical reflections on the role of acculturation in eliminating health disparities. A Professional Development Luncheon Seminar on "The Art and Science of Community-based Participatory Research (CBPR): Methods, Measures, and Evidence for Health Behavior Change." The American Academy of Health Behavior, 11th Annual Scientific Meeting, Hilton Head, South Carolina.

Okwumabua, J.O. (2009, October). Let the Circle Be Unbroken: Implementing a community-based prevention program for African American adolescent males. An intervention approach presented at the national conference of the Think Tank for African American Progress, Memphis, Tennessee. (Invited presentation)

Okwumabua, J.O., Edwards, S.M., & Wong, S.P. (2008). HIV knowledge, adaptive and maladaptive cognitions in relation to the threat of HIV infection among African American females of childbearing age. A paper presented at 136th Annual Meeting of the American Public Health Association, San Diego, CA.

Okwumabua, J.O. (2007). Rapid assessment, response, and evaluation (RARE) project: HIV/AIDS crisis response field study, Memphis and Shelby County, Tennessee. A report presented at the summit of the West Tennessee Health Diversity Institute and the Division of Minority Health and Health

Disparity Elimination, Tennessee Department of Health, Memphis, Tennessee.

Okwumabua, J.O., Rosato, F., Okwumabua, T.M., & Wong, S.P. (2007). Health promotion trial with mental patients: A community-based partnership. A paper presented at the annual meeting of the American Academy of Health Behavior, Savannah, Georgia.

Okwumabua, J.O., Edwards, S., & Chatman, D. (2005). Project HOPE: HIV/AIDS prevention outreach with high-risk African American females of childbearing age. A paper presented at 133nd Annual Meeting of the American Public Health Association, Philadelphia, PA.

Okwumabua, J.O., Glover, V.D., Edwards, S., & Foster, N. (2004). Preventing HIV/AIDS incidence in West Tennessee: A crisis response field study. A paper presented at 132nd Annual Meeting of the American Public Health Association, Washington, DC.

Okwumabua, J.O., Williams, C. & Glover, V. (2004). Community coalition toward syphilis elimination: Perspectives of community residents and organizations. A paper presented at the American Academy of Health Behavior Annual Scientific Conference, Sedona, Arizona.

Okwumabua, J.O., Jones, A., Neal, T., & McFarland, S. (2003). Attitudes, intentions, and self-efficacy concerning condom use among high risk African American females of childbearing age. A paper presented at the Annual Meeting of the American Public Health Association, San Francisco, CA.

Okwumabua, J.O. (2003, January). Preventing HIV/AIDS incidence in Memphis/Shelby County, Tennessee: Rapid assessment, response, and evaluation project (RARE). A Technical Report presented to the City of Memphis Government, Memphis/Shelby County Health Department, and U.S. Department of Health and Human Services, Office of HIV/AIDS Policy, and community-based organizations, Memphis, Tennessee.

Okwumabua, J.O., Wong, S.P., & Okwumabua, T.M. (2003. March). Anger expression mode, depressive symptoms, decision making, and hopelessness among African American adolescents. Paper presented at the American Academy of Health Behavior Annual Scientific Conference, St. Augustine, Florida.

Okwumabua, J.O. & Williams, C. (2003, March). Building community coalition toward syphilis elimination: Perspectives of community residents and organizations. Paper presented at the Annual Conference of the National Society of Allied Health, West Palm Beach, Florida.

Okwumabua, J.O., Wong, S.P., & Wright, T.D. (2001, October). Depressive symptoms and decision making among African American youth. A paper presented at the 129th Annual Meeting of the American Public Health Association, Atlanta, Georgia.

Okwumabua, J.O., Glover, V.C., Bolden, D.S., & Edwards, S. (2000, November). Perspectives of low-income African Americans on syphilis and HIV: Implications for prevention approaches. A paper presented at the 128th Annual Conference of the American Public Health Association, Boston, Massachusetts.

Okwumabua, J.O., Wong, S.P., & Wright, T.D. (2000, September). Depressive symptoms and decision-making patterns among low-income African American youth. A paper presented at the First Annual Conference of the American Academy of Health Behavior, Santa Fe, New Mexico. Abstract published in the American Journal of Health Behavior (2000), 25, 321-322.

Okwumabua, J.O. (1999, February). Building self-esteem through social skills training and cultural awareness: A community-based approach for preventing violence among African American youth. A paper presented at the 1999 Southern District AAHPERD convention, February 17-21, Greensboro, North Carolina.

Okwumabua, J.O. (1999, April). Health promotion trial for low-income African American senior citizens: A coalition of senior centers. A paper presented at the 1999 AAHE/AAHPERD National convention, Boston, Massachusetts.

Okwumabua, J.O., Kreider, R., & Coble, C. (1997, April). Health Promotion for African American Senior Citizen: Preliminary Findings. A paper presented at the 18th Annual Meeting of the Southern Gerontological Society, Norfolk, Virginia.

Okwumabua, J.O., Baker, F.M., & Wong, S.P., Pilgram, B.O. (1996, November). Characteristics of depressive symptoms in elderly urban and rural African American residents. A paper presented at the 124th Annual Conference of the American Public Health Association, New York, New York.

Okwumabua, J.O., Bernstein, R., Shead, G., (1996, June). Health promotion trial for senior citizens: A coalition of senior centers. A paper presented at the 23rd Annual Conference of the National Council for International Health, Crystal City, Virginia.

Okwumabua, J.O., Baker, F.M., & Wong, S.P. (1996, April). Depressive Symptoms in Africa American Elderly: A Preliminary Investigation. A paper to be presented at the 17th Annual Meeting of the Southern Gerontological Society, Little Rock, Ark.

Okwumabua, J.O. (1995, June). Partnerships to Prevent Violence among Youth. A paper presented at the 22nd Annual Conference of the National Council for International Health, Crystal City, Arlington, Virginia.

Okwumabua, J.O. (1994, November). Building Health Promotion Programs for African American Churches: Accomplishments and Challenges. A paper presented at the Second Annual Conference of the National Smoking Cessation Campaign for African American Women, Silver Spring, MD.

Okwumabua, J.O., Baker, J., & Henderson, C. (1994, April). Zoofari Walkers: An innovative approach to health promotion in the elderly. A paper resented at the 15th Annual Meeting of the Southern Gerontological Society, Charlotte, N.C.

Okwumabua, J.O., Dickens, C. & Pearson, C. (1992, November). Community Coalition for Prevention of Tobacco Use and Stroke in African Americans in Tennessee. A paper presented at the 120th Annual Conference of the American Public Health Association, Washington, D.C.

Okwumabua, J.O., Pilgram, B.O. & Walker, H. (1991, March). Depression in Elderly Black Women: A Pilot Study. A paper presented at the 13th Annual Meeting of the Southern Gerontological Society, Nashville, Tennessee.

Okwumabua, J.O., & Okwumabua, T. M. (1990, February). Implementing Afrocentric Interventions and Treatment. Problems in African-American Communities: Afrocentric Perspectives on Intervention and Treatment. A symposium at the Southern conference on African American Studies, Memphis, Tennessee.

Okwumabua, J.O. & Okwumabua, T.M. (1989, May). Children's Cognitive Level and Health Decision-Making Skills. A paper presented at the 24th Annual Conference of the Association for the Care of Children's Health, 1989, Anaheim, California.

Pieh, S.H. & Okwumabua, J.O. (1988, August). Environmental Health Education Program for a Rural Community: The Koinadugu Model Demonstration Project.A paper presentedat the XIII World Conference on Health Education, Houston, Texas, U.S.A.

Okwumabua, J.O., Okwumabua, T., Winston, B., & Walker, H. (1987, October). Patterns of Drug Use among Rural Black Youth: Implications for Drug Prevention-Education Programs. A paper presented at the 115th Annual Conference of the American Public Health Association, New Orleans, LA.

Nagy, S., Westerfield, C. & Okwumabua, J.O. (1987, October). Risk Behaviors Related to Cardiovascular Disease and Cancer in Rural Southeastern School-Age Children. A paper presented at the 115th Annual Conference of the American Public Health Association, New Orleans, LA.

Okwumabua, J.O., Duryea, E.J., & Okwumabua, T.M. (1986, October). An Investigation of Health Decision-Making Skills among American Indian Adolescents. A paper presented at the American Public Health Association 114th Annual Meeting, Las Vegas, Nevada.

Okwumabua, J.O. & Duryea, E.J. (1986, November). A Test of Education Strategies to Promote Health Decision-Making among American Indian Seventh-Grade Students. A paper presented at the Annual Meeting of the American School Health Association, Denver, Colorado.

Duryea, E.J., Okwumabua, J.O., & Romo, E.D. (1986, April). The Mora Experience: Drug and Alcohol Prevention in Rural, Hispanic Environment. A paper presented at the AAHPERD Annual Convention, Cincinnati, Ohio.

Okwumabua, J.O. (1986, February). Age of Onset, Patterns of Progression, and Periods of Risk on Drug Use among American Indian High School Students. A paper presented at the AAHPERD (Southern District) Annual Convention in Winston-Salem, North Carolina.

Duryea, E.J., Okwumabua, J.O., & Romo, E.D. (1985, August) The Use of Theory and Reality in Generating a Preventive Alcohol and Drug Program for Rural, Hispanic School System. A paper presented at the Alcohol and Drug Problems Association National Conference, Washington, D.C.

Duryea, E.J., Okwumabua, J.O. & Rouse, J. (1984, November). Three-Year Follow-Up Outcomes of a Preventive Alcohol Education Program. A paper presented at the American Public Health Association National Conference, School Health Education and Services Section, Anaheim, California.

Duryea, E.J. & Okwumabua, J.O. (1984, March). An Exploratory Study of the Health Decision-Making Variables of New York and Montana Ninth-Graders. A paper presented at the AAHPERD Convention, Anaheim, California.

Okwumabua, J.O. & Zotigh, R. (1982, November). NAISC-OSHA Industrial Safety and Health Programs for Native Americans: Two Model Demonstration Projects. A paper presented at the 110th Annual Meeting of the American Public Health Association, Montreal, Canada.

Okwumabua, J.O., Mahan, J.T., & Biggers, D.J. (1976, March). Tetrazolium Oxidase Polymorphism in Diipodomys ordii, Bufo woodhousei fowleri, and Bufo americanus americanus. A paper presented at the Annual Meeting (Western Region) of the Tennessee Academy of Science, Memphis, Tennessee.

INVITED PRESENTATIONS (Conferences)

Okwumabua, J.O. & Sutherland, M. (2002, March). Research Issues in Priority Populations. Breakfast Roundtable Presentation, Second Annual Scientific Meeting of the American Academy of Health Behavior, Napa Valley, California.

Okwumabua, J.O. (2000, April). Determinants of HIV and syphilis incidence in Memphis and Shelby County, Tennessee: Perspectives of low-income African Americans. A special forum on HIV/AIDS, Memphis and Shelby County Government, Memphis, Tennessee.

Okwumabua, J.O. & Bolden, D.S. (1998, March). Involving the African American faith community toward preventing HIV/AIDS in Memphis and Shelby County. Third Annual African American AIDS Consortium. Memphis, Tennessee.

Okwumabua, J.O. (1997, January). Evaluating an African-Centered adolescent pregnancy prevention model. The National Conference on Minority Women's Health, U.S. Public Health Service's Office of Women's Health, Department of Health and Human Services, Washington,

Okwumabua, J. O., Kreider, R., Coble, C. (1996, November). Health promotion for urban senior citizens: A demonstration project. A paper presented at the International Symposium, Sport in the City: Culture, Economic, and Political Considerations, Memphis, Tennessee.

Okwumabua, J.O. (1996, October). Stroke Belt Initiative: The Tennessee Experience. The National Conference on "Issues of the Heart: Prevention, Management, and Control of Cardiovascular Risk Factors in African Americans", Meharry Medical School, Nashville, Tennessee.

Okwumabua, J.O., Gasque, D., & Wall, D. (1995, May). Male Responsibility: Rites of Passage for Males. A paper presented at the Annual Conference of the Regional Adolescent Pregnancy Prevention Council Conference, Memphis, Tennessee.

Okwumabua, J.O. (1993, April) Community Coalition to Prevent Tobacco Use and Strokes in African-Americans in Shelby County: Strategies and Challenges. A paper presented at the 18th Southeastern Conference on High Blood Pressure, Memphis, Tennessee.

Okwumabua, J. O. (1993, November). Community coalition for the prevention of tobacco use and stroke in African Americans in Memphis/Shelby County. A paper presented at the First Annual Conference of the National Smoking Cessation Campaign for African American Women, Annapolis, MD.

Okwumabua, J.O. (1983, August). Innovative Safety Programs in Operation on Tribal Lands Today - NAPI and NFPI. A paper presented at the 12th Annual Convention of the National American Safety Council, Albuquerque, New Mexico.

Other (universities/industry/community-based organizations)

Okwumabua, J.O. (2001). Designing and Completing a Needs Assessment. Current Topics in Developmental Disabilities: Promoting Quality of Life Through Good Health, Education, and Community Participation. Interdisciplinary Leadership Training Series, The University of Tennessee Health Science Center Boling Center for Developmental Disabilities (BCDD), Memphis, Tennessee.

Okwumabua, J.O. (1995, December). Shared Rights, Shared Responsibilities". A press conference, World AIDS Day, Memphis and Shelby County Health Department, Memphis, Tennessee.

Okwumabua, J.O. (1994, August). "School Counselors: Partners in Violence Prevention". An in-service for K - 12 counselors, Memphis City Schools, Memphis, Tennessee.

Okwumabua, J.O. (1994, November). "Rites of Passage" Facilitators Training for program facilitators, Memphis City Schools, Memphis, Tennessee.

Okwumabua, J.O. (1993, November). "Rites of Passage" Facilitators Training for program facilitators, Memphis City Schools, Memphis, Tennessee.

Okwumabua, J.O. (1991, June)."Traveling Seminar: The University of Western Cape Health and Welfare Mission Project, Bellville, South Africa". An initiative sponsored by Kellogg Foundation with the University of Western Cape to develop a greater coherence among all parts of the University's Health and Welfare Education sector and establish guidelines for its future development. A team of professionals from the University visited major universities and public/community health agencies in the United States to discuss pertinent issues and guidelines.

Okwumabua, J.O. (1988, August). Resistance to Peer Pressure Training Model: Drug Education In-service for Teachers. Geeter Junior High School, Memphis City Schools, Memphis, Tennessee.

Okwumabua, J.O. (1983, April) "Health Care in Africa in the Year 2000". The Voice of America, Washington, D.C., World Health Day. (Relayed on the Voice of America worldwide).

Okwumabua, J.O. (1983, April) "Health Care and Wellness: Issues and Problems for the African Nations and a new dimension for United States". FM Radio, Critical Issues and Community Affairs, Albuquerque, New Mexico.

Okwumabua, J.O., & Winston, B. (1987, March). Social Skills Training: An Approach to Substance Abuse Prevention among Adolescents. A workshop for principals and teachers, Greene County School System, Eutau, West Alabama.

Okwumabua, J.O. & Papenfuss, D. (1983, November). The effect of cardiac rehabilitation on the health and wellness of cardiac outpatients: A retrospective study. A paper presented to the Health Education Research Symposia Series, Health Education Program, Department of Health, Physical Education, and Recreation, The University of New Mexico.

Duryea, E.J., & Okwumabua, J.O. (1983, October) An Exploratory Study of the Health Decision-Making Variable of New York and Montana Ninth-Graders. A paper presented to the Health Education Research Symposia Series, Health Education Program, Department of Health, Physical Education, and Recreation, The University of New Mexico.

DeFelice, B., & Okwumabua, J.O. (1983, February). Health and Safety Program Planning Workshops (8 hr. session). Target Population: Tribal leaders, health and safety division directors, health program directors and planners, and community health representatives. The National American Indian Safety Council, Albuquerque, New Mexico.

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Education

Ph.D. Educational Psychology and Research - University of Memphis - 2005
M.S. Clinical Psychology - Mississippi State University - 1995
B.S. Psychology - Louisiana State University - 1992

Work Experience

Associate Professor, Health and Sport Sciences - University of Memphis - 2012-present
Assistant Professor, Health and Sport Sciences - University of Memphis - 2006 - 2012
Project Director, Center for Community Health - University of Memphis - 2004 - 2009
Project Coordinator II, Center for Community Health - University of Memphis - 1999 - 2004
Community-Based Program Manager, Operations - Youth Villages - 1997 - 1999
Family Counselor Supervisor, Intercept - Youth Villages - 1996 - 1997
Family Child Counselor, Intercept - Youth Villages - 1995 - 1996
Psychology Intern, Clinical Psychology - Mississippi State University - 1995
Family Aftercare Counselor, Clinical Psychology - MS Baptist Outpatient Chemical Dependency Center - 1994 - 1995
Psychology Intern, Clinical Psychology - Mississippi State University - 1994
Research Assistant, Clinical Psychology/ Rehabilitation, Research and Training Center for the Visually Impaired - Mississippi State University - 1994 - 1995
Primary Investigator, Clinical Psychology - Mississippi State University - 1994-1995

Teaching Experience

HLSC 4400 Statistics in Health Sciences - University of Memphis
HPRO 7950 Applied Project - University of Memphis
HPRO 7122 Current Readings - University of Memphis
HMSE 7010 Research in HSS - University of Memphis
HPRO 2100 Wellness Concepts - University of Memphis
HPRO 4999 Senior Project - University of Memphis
HPRO 4605 Internship - University of Memphis
HPRO 7790 Leading and Managing Health Promotion Programs - University of Memphis
PHED 1713 Intermediate Swim - University of Memphis
HPRO 3522- Needs Assessment and Program Evaluation - University of Memphis
HPRO 4520- Health Counseling and Lifestyle Management - University of Memphis
HPRO 7780- Counseling in Health Promotion - University of Memphis
EDPR 7523- Research Methodology and Statistics for HSS Majors - University of Memphis
EXSS3306- Elementary School Health and Wellness - University of Memphis
EDPR 7521- Introduction to Research Methodology - University of Memphis
EDPR 7/8541- Statistical Methods I Applied to Educaiton - University of Memphis
EDPR 7/8542- Statistical Methods II Applied to Educaton - University of Memphis
Project Management in Randomized Clinical Trials - University of Memphis
Behavioral Health Interventions and Theory - University of Tennessee-Memphis
EDPR 2111- Human Development across the Lifespan - University of Memphis

Support

Project Diabetes: FitWizard - State of Tennessee (RFA 34351-16214) (Co-Investigator) - $407,700 - 2013-2016
FitKids: A community-clinic linked interactive tool for pediatric obesity screening and intervention - The Tennessee Foundation (Advisory Board Consultant) - $825,000 - 2013-2016
Vitamin E Status and Intake in Children with Sickle Cell Disease - Pediatric Nutrition Practice Group (Co-Investigator) - $5,000 - 2012-2013
The Use of Community Based Paticipatory Research to Promote Activity-Friendly Neighborhoods - National Institutes of Health (NIEHS) (Co-Principal Investigator) - $387,750 total costs - 2009-2012
Developing a brief smoking cessation/relapse prevention intervention for disaster survivors. - American Legacy Foundation (Co-Investigator) - $99,063 - 2009 - 2011
Population-based Assessment of Post-Katrina Smoking Relapse - National Institute on Drug Abuse (Co-Investigator) - $383,625 total costs - 2006-2009
Reducing Environmental Tobacco Exposure in the Homes of Low-Income Children - The Urban Child Institute (Principal Investigator) - $70,000 - 2005-2008
Increasing Physical Activity to Aid Smoking Cessation - NHLBI (Project Director) - $2,550,440 - 2004-2008
Girls health Enrichment Mulit-site Studies - NHLBI (Project Director) - $4,469,460 - 2002-2007

Smoking Cessation in the Elderly - NHLBI (Project Director) - $2,127,157 - 1998-2002
NRT and Behavioral Therapy in Primary Health Care Settings - NIH/NCI (Project Director) - $1,660,000 -
U Charge: Solar-Powered Charging Stations - Green Fee Proposal - $24,083 - 2015
Park Green - Green Fee Proposal - $10,000 - 2015
Influences of Obesity in College Students - COE Research Mentoring Grant - $200 - 2011
Home-Based Weight Gain Prevention Intervention for 8- to 10-Year-Old Girls - Faculty Research Grant - $6,500 - 2007-2009

Journal Articles

Original Articles

Williams-Hooker R, Smith K, Stockton MB. (In press). Children with Sickle Cell Anemia have poor vitamin E intake and status and low total body water but neither is associated with the pain medication usage. Hematology US.

Vander Weg, M.W., Coday, M., Stockton, M.B., McClanahan, B., Relyea, G., Read, M.C., Wilson, N., Connelly, S., Richey, P., Johnson, K.C., & Ward, K.D. (2017). Community-based physical activity as adjunctive smoking cessation treatment: Rationale, design, and baseline data for the Lifestyle Enhancement Program (LEAP) randomized controlled trial. Contemporary Clinical Trials Communications, 9, 50-59. https://doi.org/10.1016/j.conctc.2017.11.013

Ali J., Farrell, A.S., Alexander, A., Forde, D.R., Stockton, M., Ward, K.D. (2016). Race Differences in Depression Vulnerability Following Hurricane Katrina. Psychological Trauma: Theory, Research, Practice, and Policy. DOI: 10.1037/tra0000217.

Casey, L.B., Miller, N.D., Stockton, M.B., Justice, W.V. (2016). Assessing Writing in Elementary Schools: Moving Away from a Focus on Mechanics. Language Assessment Quarterly. 13(1): 42-45.

Alexander, A., Ali J., Bracken-Minor, K.L., McDevitt-Murphy M.E., Forde, D.R., Stockton, M., Read, M., Ward, K.D. (2016). Racial differences in Posttraumatic Stress Disorder (PTSD) Vulnerability Following Hurricane Katrina among a Sample of Adult Cigarette Smokers from New Orleans. Journal of Racial and Ethnic Disparities. 4, 94-100. DOI 10.1007/s40615-015-0206-8.

Wagoner, O., Ahmed, A., Williams-Hooker R., Polly, D., Roach, R. Stockton, M. B. (2015). The relationship between dental health and nutrition risk factors in home bound senior citizens. Letter to the Editor. Journal of the American Geriatrics Society.

Bloomer, R. J., Harvey, I. C., Lee, S. R., & Stockton, M. B. (2015). Predicting postprandial oxidative stress using serum triglycerides following oral fat tolerance testing. British Journal of Medicine and Medical Research, 5(12), 1514-1526.

McClanahan, B.S., Stockton, M. B., Klesges, R.C., Slawson, D.L., Lanctot, J. Q., Klesges, L., & Relyea, G. (2015). Psychosocial correlates of physical activity in African American girls. Health Behavior and Policy Review. 2(2): 100-109.

Williams-Hooker R, Ringwald Smith K, Hankins J, Shurley TA, Stockton MB. (2013). Evaluation of Hydration Status, Sodium and Fluid Intake in Children with Sickle Cell Anemia. Journal of Blood Disorders and Transfusion. 4(143). doi:10.4172/2155-9864.1000143.

Williams R, Stockton MB, Beck KB, Roach R, Levy M, et al. (2012). A Culturally Tailored, Faith-Based Approach to Reducing Pediatric Obesity in Minority Families: Strong Me! Journal of Obesity & Weight loss Therapy, 2:122. doi:10.4172/2165-7904.1000122

Stockton, M.B., McClanahan, B. S., Lanctot, J. Q., Klesges, R. C., & Beech, B. (2011). Application of Socio Ecologic Model to Increase Participation in Health Promotion Programs for Girls. Contemporary Clinical Trials. 33, 38-45. (IF 1.207)

Klesges, R.C., Obarzanek, E., Kumanyika, S., Murray, D., Klesges, L.M., Relyea, G., Stockton, M., Lanctot, J.Q., Beech, B, McClanahan, B., Slawson, D. (2011). The Memphis Girls Health Enrichment Multisite Studies (GEMS): An evaluation of the efficacy of a two-year obesity prevention intervention in African American girls. Arch Pediatr Adolesc Med. 164 (11): 1007-1014. (IF 4.73)

Dalton, W. T., III, Klesges, L. M., Sherrill-Mittleman, D., Stockton, M. B., Allen, S., & Klesges, R. C. (2011). Family context as it relates to weight-related behaviors in preadolescent African American girls. American Journal of Health Behavior, 35(3), 269-279. (IF 1.572)

Stockton, M. B., McClanahan, B.S., & Saffer, N. (2010). Influence of Physical and Sedentary Activity Preferences on Body Mass Index for Urban African American Youth. In J. K. Crennan (Ed.), Ethnicity, Cultural Roles, Spiritual Practices and Social Challenges (pp. 285-301). Hauppauage, NY: Nova Science Publishers, Inc.

Stockton, M.B., Lanctot, J., McClanahan, B., & Klesges, L. M., Kumanyika, S., Sherrill-Mittleman, D., & Klesges, R. C. (2009). Self-perception and body image discrepancy associations with body mass index among 8- to 10-year-old African American girls. Journal of Pediatric Psychology, 34(10), 1144-54. (IF 2.943)

McClanahan, B.S., Stockton, M.B., Lanctot, M.S., Relyea G., & Klesges, R.C. (2009). Relationship between foot-to-foot bioelectrical impedance analysis and dual-energy x-ray absorptiometry (DEXA) analysis of body composition in African American girls. International Journal of Pediatric Obesity, 26, 1-8. (IF 3.984)

Sherrill-Mittleman, D.A., Klesges, L.M., Lanctot, J.Q., Stockton, M.B., & Klesges, R.C. (2008). Measurement characteristics of dietary psychosocial scales in a weight gain prevention study with 8- to 10-year-old African-American girls. Health Education Research. (IF 1.889)

Lanctot, J.Q., Klesges, R. C., Klesges, L. M. & Stockton, M.B. (2008). Prevalence and Predictors of Dietary Underreporting in Low Income African American Girls: The Girls Health Enrichment Multisite Study (GEMs). Obesity Research, 16(6), 1407-12. (IF 4.95)

Wright, P. M., Stockton, M. B., & Hays, N. L. (2008). The personal-social responsibility model: Exploring a novel approach to promoting gender equity and increasing relevance for adolescent females in physical education. In J. Coulter (Ed.), Progress in Exercise and Women's Health Research (pp. 159-175). Hauppauage, NY: Nova Science Publishers, I

Maziak, W., Ward, K.D., & Stockton, M.B. (2008). Childhood obesity: the broad perspective. Obesity Reviews. 9(1), 35-42. (IF 5.862)

Lanctot, J.Q., Stockton, M.B., Mzayek, F., Read, M., McDevitt-Murphy, M., & Ward, K.D. (2008). Effects of hurricane Katrina on smoking and relapse. American Journal of Health Education, 39, 91-94.

Klesges, R. C., Obarzanek, E., Klesges, L. M., Stockton, M B., Beech, B.M., Murray, D., Lanctot, J.Q., Sherrill-Mittleman, D.A. (2008) Girls Health Enrichment Multi-site Studies (GEMS), Phase 2: Design and Baseline Characteristics. Contemporary Clinical Trials. 29, 42-55. (IF 1.207)

Cooper, T. V., DeBon, M. W., Stockton, M., Klesges, R. C., Steenbergh, T.A., Sherrill-Mittleman, Jennings, L., Johnson, K. C. (2004). Correlates of adherence with transdermal nicotine. Addictive Behaviors. 29(8), 1565-1578. (IF 2.133)

Berner, M. L., Fee, V. E., and Turner, A.D. (2001). A multi-component social skills training program for pre-adolescent girls with few friends. Child and Family Behavior Therapy, 23(2), 1-18. (IF .35)

Stockton, M.B., Ward, K.D., McClanahan, B.S., Vander Weg, M.W., Coday, M., Wilson, N., Relyea, G., Read, M.C., Connelly, S., & Johnson, K.C. (2017). Lifestyle Enhancement Program: Evaluation of a Community-based Physical Activity Smoking Cessation Program. American College of Sports Medicine 64th Annual Meeting. Denver, CO. Medicine and Science in Sports and Exercise. Volume 49:32-33 5 S. DOI: 10.1249/01.mss.0000516904.14611.3f

McClanahan, B. S., Vukadinovich, C., Stockton, M., Ward, K., & Slawson, D. (2017). Relationship between Training Volume and Dietary Status in Triathletes A Preliminary Study. Medicine & Science in Sports & Exercise, 49(5S), 1059.

McClanahan, B.S., Vukadinovich, C.M., Slawson, D. L., Ward, K.D., & Stockton, M.B. (2016). Dietary Status of Male and Female Triathletes during a Competitive Season. American College of Sports Medicine 63rd Annual Meeting. Boston, MA. Medicine and Science in Sports and Exercise. Volume 48:5 Suppl 1: 341. doi: 10.1249/01.mss.0000486036.99804.17

Stockton, M.B., Ullmann, G., Krull, K., Yli-Piipari, S., Martindale, T., McClanahan, B.S., & Ward, K.D. (2016). Formative Evaluation of a Web-Based Professional Development Program to Increase Physical Activity in K-12 Classrooms. American College of Sports Medicine 63rd Annual Meeting. Boston, MA. Medicine and Science in Sports and Exercise. Volume 48 (5S Suppl 1). DOI:10.1249/01.mss.0000487309.28326.00

Gonzalez, M. L., Melgar, M., Matheu, L., Ramirez, R., Garcia, J., Antillon-Klussman, F., Stockton, M., Relyea, G., Caniza, M.A. (2016). An Internet-based Learning and Stage-matched Message Intervention to Improve Hand Hygiene Adherence among Healthcare Workers in Guatemala. APIC 43rd Annual Educational Conference and International Meeting. Charlotte, NC. American Journal of Infection Control. Volume 44 (S28-S82). DOI: http://dx.doi.org/10.1016/j.ajic.2016.04.060

McClanahan, B.S., Stockton, M.B., McClanahan W.R., & Chambliss H.O (2015) Building activity friendly environments: community based participatory research leads to adoption of activity friendly policy. American College of Sports Medicine 62nd Annual Meeting. San Diego, CA. Medicine and Science in Sports and Exercise. Volume 47:5 S

Stockton, M.B., Levy, M., De Fouw, J., McClanahan, B.S. (2015). Midday Moves: Health Trend Outcomes of a Physical Activity Initiative in an Urban University. American College of Sports Medicine 62nd Annual Meeting. San Diego, CA. Medicine and Science in Sports and Exercise. Volume 47:5 S.

Stockton, M.B., Levy, M., De Fouw, J., McClanahan, B.S. (2015). Midday Moves: Health Trend Outcomes of a Physical Activity Initiative in an Urban University. American College of Sports Medicine 62nd Annual Meeting. San Diego, CA. Medicine and Science in Sports and Exercise. Volume 47:5 S.

Stockton, M.B., Levy, M., McClanahan, B.S. Hopkins, R., Vest, J., Ellis, J., Varnum, M., Bingham, R.P. (2014). Midday Moves: Initiative to Promote Activity in an Urban University. American College of Sports Medicine 61st Annual Meeting. Orlando, FL. Medicine and Science in Sports and Exercise. Volume 46:5 S.

McClanahan, B.S., Stockton, M.B., & McClanahan, R. (2014). Evaluation of Community Based Participatory Research in Building Active Community Environments. American College of Sports Medicine 61st Annual Meeting. Orlando, FL. Medicine and Science in Sports and Exercise. Volume 46:5 S.

Levy M, Royne M, Stockton M, Hopkins R, Perry M. Supporting Healthy Lifestyles at an Urban University- Memphis Healthy U. Accepted for presentation to the Academy of Nutrition and Dietetics 2014 Food & Nutrition Conference & Expo, Atlanta, GA. October 2014.

Williams-Hooker R, Stockton M.B. (2013). Predictors of Successful Passing of the Registered Dietitian Exam. Journal of the Academy of Nutrition and Dietetics. A-15. 113(3).

McClanahan, B.S., Stockton, M.B., McClanahan, W.R., Clayborn, S. (2013). Participatory Methods Facilitate Policy Reform to Support Complete Streets. 23rd Annual Art and Science of Health Promotion Conference. Hilton Head, South Carolina.

Stockton, M.B., McClanahan, Overacker, T. (2013). The Relationship among Neighborhood Environment and Child Physical and Sedentary Activity Levels. 23rd Annual Art and Science of Health Promotion Conference. Hilton Head, South Carolina.

Ringwald-Smith, K., Williams-Hooker, R., Stockton, M., Shurley, T.A. (2012). Pilot Study to Identify the Feasibility of Measuring Hydration Status Utilizing Bioelectrical Impedance Analysis in Children with Sickle Cell Anemia. Food and Nutrition Conference and Expo. Philadelphia, PA.

Stockton, M.B., McClanahan, B.S., Overacker, T. (2012). Girls Learning Interrelated Techniques Targeting Environmental Risks: Feasibility of a Pilot Obesity Intervention. American College of Sports Medicine 59th Annual Meeting. San Francisco, CA. Medicine and Science in Sports and Exercise.

McClanahan, B.S., Stockton, M.B., Clark, S.E., & McClanahan, W.R. (2012). Partnership for Active Community Environments: Translating Research into Action. American College of Sports Medicine 59th Annual Meeting. San Francisco, CA. Medicine and Science in Sports and Exercise.

McClanahan, B.S., Stockton, M.B., McClanahan, W.R., Clark, S. E., (2012). Participatory Methods Promote Active Living Policy Review and Action. 22nd Annual Art and Science of Health Promotion Conference. San Diego, CA.

Stockton, M.B., McClanahan, B.S., Clark, S., & McClanahan, W.R. (2012). Active Community Environments: Translating Research into Practice. 22nd Annual Art and Science of Health Promotion Conference. San Diego, CA.

Stockton, M. B., McClanahan, B., Clark, S., McClanahan, W.R. (2011). Activity friendly communities: participatory approach for maximizing partnerships. 29th Annual Scientific Meeting of the Obesity Society, Orlando, FL. Obesity: A Research Journal. (19 (1), S146.

McClanahan, B.S., Stockton, M.B., McClanahan, W.R., & S. Clark. (2011). Interdisciplinary stakeholders identify supports and barriers to building activity friendly environments. 29th Annual Scientific Meeting of the Obesity Society. Orlando, FL. Obesity: A Research Journal. 19(1), S125.

Stockton, M.B., McClanahan, B.S., & Clark, S. (2011). Enhancement of Health Counseling Skills through Applied Experiential Learning. 21st Annual Art and Science of Health Promotion Conference. Colorado Springs, CO.

Stockton, M.B., Algea, C., McClanahan, B., & Narowetz, L. (2011). Process and Outcome Evaluation of a Faith-Based Program to Increase Lifestyle Physical Activity. American College of Sports Medicine 58th Annual Meeting. Denver, CO. Medicine and Science in Sports and Exercise.

Ward, K.D., DeBon, M., Stockton, M.B., Maziak, W., McDevitt-Murphy, M. E., Read, M. (2011). Integrating tobacco cessation into disaster response services. World Conference on Tobacco or Health. Singapore.

McClanahan, B.S., Stockton, M.B., Schilling, L.P., & Beech, B.M. (2011). Influence of Self-Administered Dance Video vs Teacher Led Class on Physical Activity Participation. American College of Sports Medicine 58th Annual Meeting, Denver, CO.

Van Justice, W., Casey, L., Bicard, D., Bicard, S.C., Stockton, M. (2011). Words Per T-Units: A Pure Measure of Written Expression. American Educational Research Association. New Orleans, LA.

McClanahan, B.S., & Stockton, M.B., (2011). Engaged Scholarship: Participatory Practices Enhance Outcomes. 21st Annual Art and Science of Health Promotion Conference, Colorado Springs, CO.

Beck, K., Williams, R., Stockton M, Roach R., Pride-Boone J. A family-oriented culturally tailored, faith-based weigh loss intervention for overweight children. Journal of the American Dietetic Association. 110(9)S: A-101, 2010.

Rago, D; White, M; Williams, R; Stockton, M., Knight, T., Roach, R, Marciel, KK, Stokes, DC. (2010) Using a Cystic Fibrosis Knowledge of Disease Management Questionnaire in Adolescents to Improve BMI. 24th Annual North American Cystic Fibrosis Conference. Baltimore, Maryland.

Stockton, M.B., Heegel, M., & McClanahan, B. (2010). Individual, Familial and Environmental Associations of BMI in Girls. American Academy of Health Behaviors Annual Meeting. Clearwater, FL.

McClanahan, B. Parks, N., Frazier, R., & Stockton, M.B., (2010). Process Evaluation of Community-Engagement: Healthy Memphis Common Table. American Academy of Health Behaviors Annual Meeting. Clearwater, FL.

Stockton, M. B., McClanahan, B., Ward, K. D., Coday, M., & Read, M. Influence of Smoking Behaviors, Attitudes, and Beliefs on Body Mass Index. The Obesity Society 2009 Annual Scientific Meeting, Washington D.C.

McClanahan, B., Stockton, M. B., Ward, K. D., Coday, M., & Read, M. Physical and Health Characteristics Related to Maximum Time on Exercise Electrocariogram for Smokers. The Obesity Society 2009 Annual Scientific Meeting, Washington D.C.

Stockton, M., Overacker, T., & Ward, K. (2009). Reducing Environmental Tobacco Exposure in the Homes of Low-Income Children. American Academy of Health Behaviors. 9th Annual Scientific Meeting, Hilton Head, SC.

McClanahan, B., Overacker, T., Stockton, M., Trammel, R., & Irwin, C. (2009). Increasing physical activity in children enrolled in afterschool programs: Activate Memphis. American Academy of Health Behaviors. 9th Annual Scientific Meeting, Hilton Head, SC.

Overacker, T., McClanahan, B., Stockton, M., Trammel, R., & Irwin, C. (2009). Process evaluation of a community-wide interdisciplinary. American Academy of Health Behaviors. 9th Annual Scientific Meeting, Hilton Head, SC.

Bracken, K. L., McDevitt-Murphy, M. E., Ward, K., Stockton, M., Lanctot, J., Relyea, G., Mzayek, F., Forde, D., & Read, M. (2009). Ethnic differences in exposure to Hurricane Katrina and resulting PTSD symptoms. Annual meeting of the International Society of Traumatic Stress Studies, Atlanta, GA.

Forde, D.R., Ward, K.D., McDevitt-Murphy, M.E., Stockton, M.B., Lanctot, J.Q., Relyea, G., Mzayek, F., & Read, M.C. (2008, November). Construction Fraud Victimization after Hurricane Katrina. Presented at the annual meeting of the American Society of Criminology, Saint Louis, Missouri.

McClanahan, B., Stockton, M., & Narowetz, L. (2008). Influence of Religious Practices on Body Mass Index in College Students. North American Society for the Study of Obesity 2008 Annual Scientific Meeting, Phoenix, AZ.

Stockton, M.B, McClanahan, B., & Saffer, N. (2008). Influence of Activity Preferences on Body Mass Index: A Comparison between Preadolescent and Adolescent African American Children. North American Society for the Study of Obesity 2008 Annual Scientific Meeting, Phoenix, AZ.

Lanctot, J.Q., Klesges, L.M., Stockton, M.B., Deborah A. Sherrill-Mittleman, Kumanyika, S., Klesges, R.C. Dietary Composition and Quality Related to Fast Food Consumption in Preadolescent African American Girls, (2008). 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Klesges, R.C., Oberzanek, E., Klesges, L.M., Beech, B., Kumanyika, S., McClanahan, B., Stockton, M., Lanctot, J.Q., Relyea, G., Murray, D., Slawson, D., Mitleman, D. (2007). The Memphis Girls Health Enrichment Multisite Studies (GEMS): An evaluation of the long-term efficacy of a weight gain prevention intervention in African American girls. American Heart Association, 2007 Scientific Sessions, Orlando, FL.

Ward, K.D., Relyea, G., Stockton M.B., Forde D.R., Lanctot J.Q., McDevitt-Murphy, M. E., Read, M. C, Mzayek, F. (2007). Effects of Hurricane Katrina on use of tobacco, alcohol, and marijuana, American Academy of Health Behavior, 8th Annual Meeting, Oxnard, CA.

McDevitt-Murphy, M. E., Ward, K. D., Stockton, M. B., Lanctot, J.Q., Mzayek, F., Forde, D. R., Read, M. C. (2007). Symptoms of PTSD among ever-smokers surviving hurricane Katrina. Association for Behavioral and Cognitive Therapies Convention, 41st Annual Meeting, Philadelphia, PA.

Stockton, M.B., Klesges, L.M., McClanahan, B.M., Sherrill-Mittleman, D., Lanctot, J.Q., & Klesges, R. (2007). Validity of psychosocial activity measures with objectively measured physical activity in African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A68.

McClanahan, B.S., Stockton, M.B., Lanctot, J.Q., Relyea, G., Klesges, R.C., Slawson, D.L., & Schilling, L.P. (2007). Relationship between foot-to-foot BIA and DEXA in African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A127.

Lanctot, J.Q., Klesges, L.M., Stockton, M.B., Sherrill-Mittleman, D., Kumanyika, S.K., & Klesges, R.C. (2007). Relationship of fast food intake and dietary quality in pre-adolescent African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. (Oral Presentation) Obesity Research, 15 (9), A38.

Sherrill-Mittleman, D., Klesges, L.M., Lanctot, J.Q., Stockton, M.B., & Klesges, R.C. (2007). Measurement characteristics of dietary psychosocial scales in a weight gain prevention study with 8- 10-year-old African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A70.

Klesges, L.M., Stockton, M.B., Lanctot, J.Q., Sherrill-Mittleman, D., McClanahan, B.M., & Klesges, R.C. (2007). Social desirability response bias in self-reported physical activity and dietary behaviors in 8- 10-year-old African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A66.

Klesges, L.M., Lanctot, J.Q., Stockton, M., Sherrill-Mittleman, D., & Klesges, R., (2007). Validity of a population-based nutrition behaviors monitoring survey for obesity prevention. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A104.

Klesges, L., Lanctot, J.Q., Slawson, D., Beech, B., Kumanyika, S.K., Relyea, G., Sherrill-Mittleman, D., Stockton, M., & Klesges, R. (2007). Associations between family eating environment and body mass index of 8- 10-year-old African American girls. North American Society for the Study of Obesity 2007 Annual Scientific Meeting, New Orleans, LA. Obesity Research, 15 (9), A108.

Stockton, M., McClanahan, B., Lanctot, J., Klesges, R. C., & Klesges, L. M. (2007). The predictors of body dissatisfaction in 8- to10- year old African American girls. American College of Sports Medicine 54th Annual Meeting. New Orleans, LA. Medicine and Science in Sports and Exercise, 39 (5) S410.

McClanahan, B.S., Stockton, M.B., Lanctot, J.Q., Slawson, D.L., Klesges, R.C., & Relya, G. (2007). The Relationship Between Objectively Measured Physical Activity and Body Composition in African American Girls. American College of Sports Medicine 54th Annual Meeting. New Orleans, LA. Medicine and Science in Sports and Exercise, 39 (5) S410.

McClanahan, B., Lanctot, J., Stockton, M., Klesges, R., Klesges, L., & Slawson, D. (2006). Calcium intake and body composition in African American girls. North American Association for the Study of Obesity 2006 Annual Scientific Meeting. Boston, MA. Obesity Research, 14 (6), A179.

Stockton, M, Klesges, R., Lanctot, J., Beech, B. (2006). Recruitment and retention of low-income 8 to 10 year old African American girls in a two year weight gain prevention program. North American Association for the Study of Obesity 2006 Annual Scientific Meeting. Boston, MA. Obesity Research, 14 (6), A186.

Lanctot, J., Klesges, R., Klesges, L., Stockton, M. (2006). Prevalence and predictors of dietary underreporting in pre-adolescent African American girls. North American Association for the Study of Obesity 2006 Annual Scientific Meeting. Boston, MA. Obesity Research, 14 (6), A186.

Stockton, M, Ward, K. D., Mzayek, F., Rastam, S., Asfar, T., Fouad, F., Hammal, F., Maziak, W. (2006). Associations of cigarette and waterpipe smoking with body weight in the Aleppo Household Survey. 13th World Conference on Tobacco and Health, Washington, D.C.

Lanctot, J.Q., Stockton, M.B., Read, M.C., Ward, K.D. & Mzayek, F. (2006). Effects of hurricane Katrina on smoking and relapse. 13th World Conference on Tobacco and Health, Washington, D.C.

Stockton, M., Lanctot, J., McClanahan, B., Klesges, R. C., & Klesges, L. M. (2006). Self-perception profiles among preadolescent African American girls as related to body mass index. American College of Sports Medicine 53rd Annual Meeting; Denver, Colorado. Medicine and Science in Sports and

Exercise, 38 (5) S380.

Lanctot, J., Stockton, M., McClanahan, B., Klesges, L. M., & Klesges, R. C. (2006). The Effects of Parental Encouragement on Physical Activity Levels of Preadolescent African American Females. American College of Sports Medicine 53rd Annual Meeting; Denver, Colorado. Medicine and Science in Sports and Exercise, 38 (5) S380.

McClanahan, B., Lanctot, J., Stockton, M., Slawson, D., Klesges, R., Klesges, L. & Relyea, G. (2006). Physical activity and cardiovascular risk factors in African American girls. American College of Sports Medicine 53rd Annual Meeting; Denver, Colorado. Medicine and Science in Sports and Exercise, 38 (5) S380.

Klesges, L. M., Stockton, M., Lanctot, J., McClanahan, B., Slawson, D., & Klesges, R. C. (2006). Response bias in self-reported physical activity and dietary behaviours related to social desirability and weight status in African-American girls. 6th International Conference on Dietary Assessment Methods; Copenhagen, Denmark.

McClanahan, B., Lanctot, J., Stockton, M., Reylea, G., Slawson, D., Klesges, L., & Klesges, B. (2005). Predictors of physical activity in African American girls. North American Association for the Study of Obesity 2005 Annual Scientific Meeting. Vancouver, British Columbia, Canada Obesity Research, 13.

Stockton, M. (2005, April). Predictors of smoking cessation in older smokers. Presented at the 26th Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Boston, Massachusetts.

Stockton, M. (2005). An examination of Pascarella's model of student learning and cognitive development. 17th Annual Student Research Forum, University of Memphis, Memphis, TN.

Stockton, M., DeBon, M. W., Sherrill-Mittleman, D., Klesges, R. C., Steenbergh, T., Johnson, K. C. (2004, April). Physician Versus Patient Recall of Physician Delivered Smoking Cessation Advice. Presented at the 25th Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Baltimore, Maryland.

Cooper, T.V., Jennings, L., DeBon, M., Stockton, M., Steenbergh, T.A., Klesges, R.C. (2001, March). Compliance with Transdermal Nicotine based on Level of Income. Presented at the 22nd Annual Convention of the Society of Behavioral Medicine, Seattle, Washington.

Berner, M. and Gear, S. (1998, August). Multi-systemic Therapy and Re-ED: Making the Paradigm Shift. Presented at the 9th Biennial Conference of the RE-Education Association, Virginia Beach, VA.

Berner, M., Williamson, S., Thomas, A. (1996, August). Multi-systemic Therapy in Residential Treatment. Presented at the 8th Biennial Conference of the RE-Education Association, Cleveland, Ohio.

Berner, M. L. and Fee, V. E. (1995, March). A Multi-Component Social Skills Training Program for Pre-Adolescent Girls with Few Friends. Poster session presented at the Southeastern Psychological Association, New Orleans, LA.

Symposia

Levy, M., Finch, L., Stockton, M., DeFouw, J. (2012). Environmental Support for Healthy Lifestyles at an Urban University: Memphis Healthy U. American Public Health Association 140th Annual Meeting. San Francisco, CA.

Klesges, L.K., Klesges, R.C., Obarzanek E., Kumanyika, S., Beech, B., McClanahan, B., Stockton, M.B., Lanctot, J.Q., Relyea, G., Murray, D., Slawson, D., Sherrill-Mittleman, D. Outcomes and Behavioral Mediators of an Obesity Prevention Intervention for African American Girls: The Memphis GEMS, (2008). 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Kumanyika, S., Beech, B.M., McClanahan, B., Stockton, M.B., Lanctot, J.Q., Slawson, D., Klesges, L.M., Klesges, R.C. Development of the Family-Based Obesity Prevention Program for Pre-Adolescent African-American Girls in the Memphis Girls Health Enrichment Multisite Studies (GEMS), (2008). 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Stockton, M.B., Klesges, R.C., Lanctot, J.Q., Beech, B.M., McClanahan, B., Klesges, L.M., Kumanyika, S., Slawson, D. Recruitment and Retention Methods for African-American Girls Participating in The Memphis Girls Health Enrichment Multisite Studies (GEMS), (2008). 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Obarzanek, E., Klesges, R.C., Klesges, L.M., Kumanyika, S, Stockton, M.B., Beech, B.M. Lanctot, J.Q., Murray, D. Background and Design of the Girls Health Enrichment Multisite Studies (GEMS) and the Memphis GEMS Trial of Obesity Prevention in Pre-Adolescent African-American Girls (2008). 7th Annual Conference of the International Society of Behavioral Nutrition and Physical Activity. Banff, Alberta, Canada.

Presentations

McClanahan, B. S. & Stockton, M.B. (2017). Creating a Culture of Innovation. Memphis Business Group on Health. 2017 Annual Conference. Memphis, TN. August 2017.

McClanahan, B. S. & Stockton, M.B. (2016). Invited Presentation: Full Engagement: Harnessing the Power of Participation. Memphis Business Group on Health. 2016 Annual Conference. Memphis, TN. August 2016.

Stockton, M.B., Essary, A., Halford, L., and Jackson, K. (2016). FitWizard Presentation. Collierville Schools: District Learning Day. February 2016.

McClanahan, B. S. & Stockton, M.B. (2015). Invited Presentation: Wellness: Programming for a Balanced Lifestyle. Memphis Business Group on Health. 2015 Annual Conference. Memphis, TN. August 2015.

McClanahan, B. S. & Stockton, M.B. Invited Presentation: Changing the Course toward a Culture of Health. Memphis Business Group on Health. 2014 Annual Conference. Memphis, TN. August 2014.

Stockton, M.B. (2012 &2013) Join the Resolution…MHU Kickoff. Memphis Healthy U, Memphis, TN.

Stockton, M.B. (2012 & 2013). Careers and Opportunities in Health Promotion. Health Promotion Student Association, Memphis, TN.

Stockton, M.B., McClanahan, B. M., Clark, S. (2010). Great Streets…Healthy Communities. Partnership for Active Community Environments, Memphis, TN.

Stockton, M. (2009). Research Methodology and Helping Patients Quit Smoking. University of Tennessee, Family Practice Jackson, TN.

Stockton, M. (2009). Anthropometric and Physical Measurement Training: Train the Trainer. University of Tennessee, Family Practice Jackson, TN.

Stockton, M. Goetz, D., Cooper, S., Zorzoli, J., Blalack, G., Morris, R. (March 3, 2008). Public Policy Forum: The Future of Smoking: Tennessee, Taxes, and Tobacco. War Memorial Auditorium, Nashville TN.

Stockton, M. (2008). Multi-systemic family-based intervention for pediatric obesity. Center for Community Health Research Forum.

Stockton, M. & Read, M. (2007). Smoking Cessation: Prevalence, Consequences, and Intervention. Baker Donelson Law Firm.

Stockton, M. & Read, M. (2007). Community Health: Smoking Cessation and Obesity Prevention. "I" on Memphis, Karadiva Television Productions.

Stockton, M. & Read, M. (2006). Smoking Cessation Seminar. Memphis Women's Prison targeting Smoke Free Prisons.

Stockton, M. (2006). Pediatric Obesity: Prevalence, Consequences, and Prevention. Expanding Our Boundaries, Embracing Our Communities. University of Memphis, Health Promotion Colloquium.

Stockton, M. (2005). GEMS Behavioral Assessment Development. Graduate Students and Faculty in Health and Sports Science, Sponsored by

University of Mississippi, Oxford, MS.

Stockton, M. & Lanctot, J. (2004). GEMS Intervention in Action. Health Care Professionals Symposium, Sponsored by Southeast Arkansas Rural Interdisciplinary Training Grant, Pine Bluff, AR.

Stockton, M. (2004) The Girls Health Enrichment Multi-site Study (GEMS) Project: Intervention in Action. Interdisciplinary Leadership Training in Obesity Prevention and Intervention for Children with Special Health Care Needs, Memphis, TN. Sponsored by University of Tennessee, College of Medicine, Boling Center for Developmental Disabilities.

Beech, B., Stockton, M., & Lanctot, J. (2004). Pediatric obesity in minority populations. Presented at Cummings Street Church, Memphis, TN.

Stockton, M. (2003). The Girls Health Enrichment Multi-site Study (GEMS) Project: Intervention in Action. Interdisciplinary Leadership Training in Obesity Prevention and Intervention for Children with Special Health Care Needs, Memphis, TN. Sponsored by University of Tennessee, College of Medicine, Boling Center for Developmental Disabilities.

Stockton, M. (2002) Research Presentation of Multiple Clinical Trials- GEMS, SITE, NRT. Mississippi State University, Psychology Department, Starkville, MS.

Stockton, M. (2002) Guest Speaker at the Mississippi State University Psi Chi Honor Society Pledge Meeting. Mississippi State University, Psychology Department, Starkville, MS.

Stockton, M. & Jennings, L. (2000). Smoking: A Medical Problem that Requires Medical Treatment. Guest Speaker at the Veteran's Administration Hospital. Memphis, TN.

Stockton, M., DeBon, M., Ayers, M. (2001). Successful quitting from assessment to relapse prevention. Guest Speaker at the American Nephrology Nurses' Association Meeting, Memphis, TN.

Berner, M. & Holbrook, R. (1998) No Whiners Allowed: Managing Your Own Morale. Youth Villages 1998 Annual Conference, Memphis, TN

Berner, M. Multisystemic Therapy in Multiple Treatment Settings. Youth Villages 1998 Annual Conference, Memphis, TN

Appendix D - Support

SUBMITTED GRANT PROPOSALS

Process and outcome evaluation of an academic-retail initiative to promote physical activity. (2016). School of Health Studies. $7452.00 total costs. (Co-Investigator).

The effect of Vitamin E supplementation on Vitamin E status, pain crises, and quality of life in children with sickle cell anemia. (2016). School of Health Studies. $4790.00 total costs. (Co-Investigator).

Park Green. (Nov 2014). Green Fee Proposal. $13,250. (Co- Investigator).

U Charge: Solar-Powered Charging Stations. (Nov 2014). Green Fee Proposal. $8,461. (Principal Investigator).

The establishment of an academic health insurance collaborative focusing on the development and dissemination of a family-based obesity intervention. (2013). State of TN Project Diabetes. RFA 34351-16214. $316,818. (Principal Investigator).

The development and dissemination of teacher and classroom friendly physical activity DVDs for use in traditional elementary school classrooms. (2013). State of TN Project Diabetes. RFA 34351-16214. $300,931. (Co-Investigator).

FitKids: A community-clinic linked interactive tool for pediatric obesity screening andintervention. The Tennessee Foundation. 2013-2016, $825,000 total costs. (Advisory Board Consultant).

Project Diabetes: FitWizard. State of Tennessee RFA 34351-16214. Aug 2013- June 2016, $407,700. (Co-Investigator).

Activity Friendly Campus: Bike Docking Stations. (Green Fee Proposal), February 2013. ($10,000). (Principal Investigator).

Vitamin E Status and Intake in Children with Sickle Cell Disease. Pediatric Nutrition Practice Group. July 2012- June 2013, $5,000. (Co-Investigator).

School-based Childhood Obesity Prevention Program. (University Alumni Funding Sponsor), August 2011. ($25,000). (Principal Investigator).

Memphis Healthy U. (Green Fee Proposal), February 2012. ($12,800). (Co-Principal Investigator).

Memphis Beatz: Development and Distribution of Fitness DVDs for Boys and Girls. (Assisi Foundation), February 2011. ($394,031). (Co-Principal Investigator).

Play Zone: Lifestyle Intervention for Childhood Overweight and Obesity Prevention. (American Dietetic Association Foundation RFP), July 2010. ($35,000). (Co-Investigator).

Parnership for Active Community Environments II. (NIH). December 2009. $999,850. (Co-Investigator).

Reducing Childhood Environmental Tobacco Exposure. FAMRI Young Clinical Scientist Award, Feb 2009, $294,631. (Principal Investigator).

Home-Based Weight Gain Prevention Intervention for 8- to 10-Year-Old Girls. General Mills Foundation, Feb 2009, $10,000. (Principal Investigator).

Home-Based Weight Gain Prevention Intervention for 8- to 10-Year-Old Girls. Obesity Society New Investigator Grant, Jun 2008, $25,000. (Principal Investigator).

PREP Use, Oxidative Stress, and Associated Biomarkers. NIH R01 CA129314-01 February 2008. (Co-Investigator).

Smoking Rate Reduction to Promote Cessation in Childhood Cancer Survivors. NIH R01. Nov 2008, $2,436,353. (Co-Principal Investigator).

Preventing post-cessation weight gain in smokers at risk for diabetes. NIDDK R01. $2,355,439. (Co-Investigator)

Spread and Multilevel Determinants of Obesity in Memphis Middle School Students. NIH R21. Feb 2007, $381,650. (Co-Investigator).

YUFENG ZHANG
Assistant Professor, Health Studies (new hire)
Email: @memphis.edu
Office Location: Elma Roane Fieldhouse

Education

Glenn Foundation Fellow (November 2017 – Present); The Buck Institute for Research on Aging, Novato, CA 94945
Postdoctoral Fellow (August 2015 – October 2017); Auburn University, Auburn, AL 36849
PhD, Biology (September 2009 – August 2015); The University of South Dakota, Vermillion, SD 57069
BS, Biotechnology (May 2009); University of Electronic Science and Technology of China, Chengdu, China

Work Experience

- BIOL-792 Top: Exercise and Anxiety (2014), Unniversity of South Dakota, Co-teaching with Dr. Cliff Summers.
- BIOL-428 Comparative Physiology (2011), University of South Dakota, Teaching Assistant
- BIOL-151L General Biology II Lab (2011), University of South Dakota, Teaching Assistant
- BIOL-152L General Biology I Lab (2010), University of South Dakota, Teaching Assistant

PUBLICATIONS

1 **Zhang, Y**, Brasher, A*, Taylor, H*, Park, N*, Kavazis, A, and Hood, WR. High activity before breeding improves reproductive performance by enhancing mitochondrial function and biogenesis. In press in Journal of Experimental Biology
2 Hyatt, H*, **Zhang, Y**, Hood, W, and Kavazis, A. Changes in metabolism, mitochondrial function, and oxidative stress between female rats under non-reproductive and three reproductive conditions. In press in Reproductive Sciences
3 Hyatt, H*, **Zhang, Y**, Hood, W, and Kavazis, A. (2018) Physiological, mitochondrial, and oxidative stress differences in the presence or absence of lactation in rats. Reproductive Biology and Endocrinology, 16 (1), 2.
4 Koch, R, Kavazis, A, Hasselquist, D, Hood, W, **Zhang, Y**, and Hill, GE. (2018) No evidence that carotenoid pigments boost either immune or antioxidant defenses in a songbird. Nature Communication, 9(1), 491.
5 **Zhang, Y**, Yap, J, Williams, T, and Swanson DL. (2018) Experimental increases in foraging costs affect pectoralis muscle mass and myostatin expression in female, but not male, zebra finches (Taeniopygia guttata). In press in Physiological and Biochemical Zoology.
6 Hyatt, H*, **Zhang, Y**, Hood, W, and Kavazis, A. (2017) Lactation has persistent effects on a mother's metabolism and mitochondrial function. Scientific Reports, 7(1), 17118.
7 Finger, J. W., Botero, J., **Zhang, Y.**, Still, S. E., Hoffman, A. J., Kavazis, A. N., ... & Wada, H. (2017). No Effect of Lifelong Methylmercury Exposure on Oxidative Status in Zebra Finches (Taeniopygia guttata): A Demonstration of Methylmercury-Induced Selection? Bulletin of Environmental Contamination and Toxicology, 1-5.
8 Kephart, W., Mumford, P., Mao, X., Romero, M., Hyatt, H., **Zhang, Y.**, Mobley, C., Quindry, J., Young, K., Beck, D., Martin, J., McCullough, D., 'Agostino, D., Lowery, R., Wilson, J., Kavazis, A., & Roberts, M. (2017). The 1 week and 8-month effects of a ketogenic diet or ketone salt supplementation on multi-organ markers of oxidative stress and mitochondrial function in rats. Nutrients, 9(9), 1019.
9 **Zhang, Y**., Humes, F. *, Almond, G., Kavazis, A. N., & Hood, W. R. (2017). A mitohormetic response to pro-oxidant exposure in the house mouse. American Journal of Physiology-Regulatory, Integrative and Comparative Physiology, ajpregu-00176.
10 **Zhang, Y.**, Kallenberg, C*., Hyatt, H. W. *, Kavazis, A. N., & Hood, W. R. (2017). Change in the Lipid Transport Capacity of the Liver and Blood during Reproduction in Rats. Frontiers in physiology, 8, 517.
11 **Zhang, Y**., Eyster, K., & Swanson, D. L. (2017). Context-dependent regulation of pectoralis myostatin and lipid transporters by temperature and photoperiod in dark-eyed juncos. Current Zoology, zox020.
12 Swanson, D.L., King, M., Culver, W*., and **Zhang, Y.** (2016). Within-winter flexibility in muscles masses, myostatin and cellular metabolic intensity in passerine birds. Physiological and Biochemical Zoology. 90(2):3678-3685.
13 **Zhang, Y.**, and Hood, W.R. (2016). Current versus future reproduction and longevity: a re-evaluation of predictions and mechanisms. Journal of Experimental Biology. 219: 3177-3189.
14 **Zhang, Y.**, Carter, T*., Eyster, K., and Swanson, D.L. (2015). Acute cold and exercise training upregulate similar aspects of fatty acid transport and catabolism in house sparrows, Passer domesticus. Journal of Experimental Biology. 218: 3885-3893.
15 **Zhang, Y.**, Eyster, K., Liu, J-S., and Swanson, D.L. (2015). Cross-training in birds: cold and exercise training produce similar changes in maximal metabolic output, muscle masses and myostatin expression in house sparrows, Passer domesticus. Journal of Experimental Biology. 218: 2190-2200.
16 **Zhang, Y.**, King, M.O., Eyster, K. Harmon, E., and Swanson, D.L. (2015). Migrationinduced variation of fatty acid transporters and cellular metabolic intensity in passerine birds. Journal of Comparative Physiology B. 185: 797-810.
17 **Zhang, Y**., King, M.O., Harmon, E., and Swanson, D.L. (2015). Summer-to-winter phenotypic flexibility of fatty acid transport and catabolism in small birds. Physiological and Biochemical Zoology. 88: 535-549.
18 King, M. O., **Zhang, Y.**, Carter, T*., Johnson, J*., Harmon, E., Swanson, D., (2015), Phenotypic flexibility of skeletal muscle and heart masses and expression of myostatin and tolloid–like proteinases in migrating passerine birds, Journal of Comparative Physiology B, 185: 332-342
19 Swanson, D.L, **Zhang, Y.**, and King, M.O. (2014). Mechanistic drivers of flexibility in summit metabolic rates of small birds. PLoS ONE 9(7):e101577, pp. 1-9.
20 Swanson, D.L., **Zhang, Y.**, Liu, J-S., Merkord, C.L., and M.O. King. (2014). Relative roles of temperature and photoperiod as drivers of metabolic flexibility in dark-eyed juncos. The Journal of Experimental Biology 217: 866-875.
21 Swanson, D.L., **Zhang, Y.**, and M.O. King. (2013). Individual variation in thermogenic capacity is correlated with flight muscle size but not cellular metabolic capacity in American goldfinches, Spinus tristis. Physiological and Biochemical Zoology. 86: 421-431.

Swanson, DL; **Zhang, Y**; Oboikovitz, P; Agin, TJ*****. (2018 January). Seasonal flexibility of metabolism-temperature reaction norms in cold-acclimated house sparrows: A test of the climatic variability hypothesis. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Taylor, HA*****; **Zhang, Y**; Kash, M*****; Kavazis, AN; Roberts, M; Hood, WR. (2018 January). Response of Hepatocytes to ROS Exposure: Temporal Variation in Oxidative Stress Response Signaling Pathways. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Hood, WR; **Zhang, Y**; Mowry, AV; Hyatt, HW*****; Kavazis, AN. (2018 January). Re-evaluating life history trade-offs within the context of mitochondrial hormesis. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Zhang, Y; Taylor, H*****; Kash, M*****; Kavazis, AN; Roberts, MD; Hood, WR. (2018 January). Induced ROS exposure improves mitochondrial performance in hepatocytes. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Park, NP*****; **Zhang, Y**; Hood, WR; Kavazis, AN. (2018 January). Oxidative DNA Damage and Repair in response to induced ROS exposure in Mice. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Zhang, Y; Humes, F*****; Brasher, A*****; Kallenberg, C*****; Kavazis, A; Hood, W. (2017 April). The mitohormetic response and an evaluation of a method for inducing oxidative damage. Presented at the Experimental Biology Meeting.
Hyatt, HW*****; **Zhang, Y**; Hood, WR; Kavazis, AN. (2017 April). Alterations of Mitochondrial Function and Metabolism in Skeletal Muscle, Liver, and White Adipose: Early Evidence for the Lactation Reset Hypothesis. Presented at the Experimental Biology Meeting
Brasher, AL*****; **Zhang, Y**; Kavazis, AN; Hood, WR. (2017 January). Does relative activity prior to breeding improve mitochondrial function and oxidative damage following a reproductive event? Presented at the Society for Integrative and Comparative Biology Annual Meeting
Zhang, Y; Humes, F*****; Brasher, A*****; Kallenberg, C*****; Kavazis, A; Hood, W. (2017 January). The mitohormetic response and an evaluation of a method for inducing oxidative damage. Presented at the Society for Integrative and Comparative Biology Annual Meeting
Hood, WR; **Zhang, Y**. (2017 January). Understanding the bioenergetic mechanisms that underlie the interactions among life history traits. Presented at the Society for Integrative and Comparative Biology Annual Meeting
Kallenberg, MK*****; **Zhang, Y**; Hyatt, HW*****; Kavazis, AN; Hood, WR. (2017 January). Reproductive effects on lipid transport capacity in liver and blood in rats. Presented at the Society for Integrative and Comparative Biology Annual Meeting
Hood, W., **Zhang, Y**. (2016, June). A re-evaluation of the predictions and mechanisms that underlie the interactions between current reproduction, future reproduction, and survival. Presented at the Evolution meeting, Austin, TX.
Zhang, Y., Swanson, D. (2014, October). Cold and exercise training effect on maximal metabolic output and muscle growth in house sparrows. Presented at the American Physiological Society Intersociety Meeting: Comparative Approaches to Grand Challenges in Physiology.
Zhang, Y., Swanson, D. (2014, January). Cold and exercise training produce similar increases in maximal metabolic output in house sparrows. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Zhang, Y., Swanson, D. (2013, August). Effects of cold and exercise training on metabolism of birds. Presented at the American Ornithologists' Union/Cooper Ornithological Society Joint Meeting.
Swanson, D., **Zhang, Y**., King, M. (2013, August). Temperature, photoperiod and metabolic flexibility in juncos. Presented at the American Ornithologists' Union/Cooper Ornithological Society Joint Meeting.
Zhang, Y., King, M., Swanson, D. (2013, January). Thermogenic capacity is correlated with flight muscle size but not cellular aerobic capacity in American goldfinches, Spinus tristis. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Zhang, Y., Swanson, D. (2012, August). Metabolic rates in swallows: do energetically expensive lifestyles affect metabolic capacities in birds? Presented at the Fifth North American Ornithological Conference.
Zhang, Y., Swanson, D. (2012, January). Does the energetically expensive lifestyle of swallows affect thermogenic capacity? Presented at the Society for Integrative and Comparative Biology Annual Meeting.
King, M. O., **Zhang, Y**., Tordsen, T., Swanson, D. (2012, January). Seasonal phenotypic flexibility of muscle aerobic enzyme activities in small birds. Presented at the Society for Integrative and Comparative Biology Annual Meeting.
Zhang, Y., Swanson, D. (2011, March). Metabolic rates in swallows: Do energetically expensive lifestyles affect metabolic capacities in birds? Presented at the American Ornithologists' Union/Cooper Ornithological Society Joint Meeting

Appendix I

THEC Financial Projections

Appendix I

Tennessee Higher Education Commission							
Attachment A: THEC Financial Projections							
University of Memphis, University College							
School of Health Studies							
Ph.D. in Health Sciences							
Seven-year projections are required for doctoral programs.							
Projections should include cost of living increases per year.							
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**
I. Expenditures							
A. One-time Expenditures							
New/Renovated Space	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Equipment	-	-	-	-	-	-	-
Library	-		-	-	-	-	-
Consultants	-	-	-	-	-	-	-
Travel							
Other	-	-	-	-	-	-	-
Sub-Total One-time	$ -	$ -	$ -	$ -	$ -	$ -	$ -
B. Recurring Expenditures							
Personnel							
Administration							
Salary	$	$	$	$	$	$	$
Benefits							
Sub-Total Administration	$	$	$	$	$	$	$
Faculty							
Salary	$	$	$	$	$	$	$
Benefits							
Sub-Total Faculty	$	$	$	$	$	$	$
Support Staff							
Salary	$	$	$ 35,000	$ 35,825	$ 36,720	$ 37,638	$ 38,578
Benefits			13,000	13,000	13,000	13,000	13,000
Sub-Total Support Staff	**$**	**$**	**$ 48,000**	**$ 48,825**	**$ 49,720**	**$ 50,638**	**$ 51,578**
Graduate Assistants							
Salary (combined)	$ 75,000	$ 77,250	$ 79,568	$ 81,955	$ 84,414	$ 86,946	$ 89,554
Benefits	-	-	-	-	-	-	-
Tuition and Fees* (See Below)	72,840	75,025	77,276	79,594	81,982	84,441	86,974
Sub-Total Graduate Assistants	**$ 147,840**	**$ 152,275**	**$ 156,844**	**$ 161,549**	**$ 166,396**	**$ 171,387**	**$ 176,528**
Operating							
Travel	$	$	$	$	$	$	$
Printing							
Equipment	-	-		-	-	-	-
Other (Program Marketing)	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Sub-Total Operating	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Total Recurring	**$ 157,840**	**$ 162,275**	**$ 214,844**	**$ 220,374**	**$ 226,116**	**$ 232,025**	**$ 238,106**
TOTAL EXPENDITURES (A + B)	**$ 157,840**	**$ 162,275**	**$ 214,844**	**$ 220,374**	**$ 226,116**	**$ 232,025**	**$ 238,106**

Appendix I

*Additional students should be funded from external grants and contracts. The F&A should contribute to revenue.

*If tuition and fees for Graduate Assistants are included, please provide the following information.							
Individual GA Salary (12 month)	$ 15,000	$ 15,450	$ 15,914	$ 16,391	$ 16,883	$ 17,389	$ 17,911
Base Tuition and Fees Rate	$ 14,568	$ 15,005	$ 15,455	$ 15,919	$ 16,397	$ 16,889	$ 17,396
Number of Graduate Assistants	5	5	5	5	5	5	5
Fall: 9 hrs; Spr: 9 hrs; Sum: 6 hrs							
Program years 1-7	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
II. Revenue	2 Part Time	3 Part Time	3 Part Time	3 Part Time	3 Part Time	4 Part Time	4 Part Time
Tuition and Fees[1]	$ 3,642	$ 5,627	$ 5,796	$ 5,970	$ 6,149	$ 8,445	$ 8,698
Institutional Reallocations[2]	-	-	-	-	-	-	-
Federal Grants[3]	-	-	-	-	-	-	-
Private Grants or Gifts[4]	-	-	-	-	-	-	-
Other[5]	-	-	-	-	-	-	-
BALANCED BUDGET LINE	**$**	**$**	**$**	**$**	**$**	**$**	**$**
Notes:							
(1) In what year is tuition and fee revenue expected to be generated and explain any differential fees. Tuition and fees include maintenance fees, out-of-state tuition, and any applicable earmarked fees for the program.							
Assumes 3% tuition increase each year.							
(2) Please identify the source(s) of the institutional reallocations, and grant matching requirements if applicable.							
No reallocation needed.							
(3) Please provide the source(s) of the Federal Grant including the granting department and CFDA(Catalog of Federal Domestic Assistant							
Unknown at present time.							
All research faculty are grant active.							
(4) Please provide the name of the organization(s) or individual(s) providing grant(s) or gift(s).							
N/A							
(5) Please provide information regarding other sources of the funding.							
N/A							

Appendix J

Syllabi for Required Courses

School of Health Studies

ESMS 8020: Publications & Proposals in Health & Biomedicine

Instructor:	Keith R. Martin, PhD, MTox	**Location:**	302 Fieldhouse
Office:	311 Fieldhouse	**Semester:**	Spring 2019
Office Hours:	M-F: 11:00-12:00; or by appt.	**Course #:**	25877
Email:	krmartin4@memphis.edu	**Hours:**	Wed. 1:00-4:00 pm

Course Description: Steps involved in preparing funding proposals and manuscripts for publication will be discussed. Particular attention will be given to the following: organizing document components, effective writing techniques, documentation issues, interpretation of findings, sentence structure, and reference citing. Identification of appropriate journals for publication consideration as well as common and novel funding sources (federal, state, local, and private) for supporting research work.

Pre-requisites: None

Textbooks & Supplementary Materials
Texts (other readings will be online):

1. Scientific Writing and Communication, 2nd Edition Angelika H. Hofmann (also required for HMSE 7010 in Fall)- ISBN: 978-0199947560

2. **Optional**: Research Methods in Physical Activity, 7th Edition, Thomas, Nelson & Silverman- ISBN: 978-1450470445

Class notes and readings will be posted on eCourseware and/or distributed in class.

Course Objectives & Schedule

Upon completion of this course, students will be able to:

- Understand basic concepts of grammar, syntax, sentence, and paragraph structure.
- Understand the reason and use for scientific and biomedical communication.
- Learn the components of and construct abstracts, introductions, materials and methods, results, and discussion sections found in scientific manuscripts.
- Learn how to identify target journals for submission and understand instructions to authors including style guides, formatting, responding to critique, etc.
- Participate in manuscript editing and review
- Prepare a manuscript
- Participate in grant/proposal construction, editing, and review

- Prepare a proposal for grant funding

Tentative Course Schedule

Week	Date	Weekly Contact
1	1/16	Introduction to ESMS 8020 **SCIENTIFIC WRITING BASICS: Style and Composition** Chapter 1: Prelude (Who are readers and writers?) Chapter 2: Individual Words Chapter 3: Word Location
2	1/23	Chapter 4: Technical Sentences Chapter 5: Special ESL Grammar Problems Chapter 6: From Sentences to Paragraphs
3	1/30	**PLANNING AND LAYING THE FOUNDATION** Chapter 7: The First Draft Chapter 8: References and Plagiarism
4	2/6	Chapter 9: Figures and Tables
5	2/13	**MANUSCRIPTS: Research Papers** Chapter 10. The Introduction Chapter 11: Materials and Methods Section
6	2/20	Chapter 12: Results; Chapter 13: Discussion; Chapter 14: Abstract Chapter 15: Titles, Title Pages, and Key Words
7	2/27	Chapter 16: Revising and Reviewing a Manuscript Chapter 17: Final Version, Submission, and Peer Review **First manuscript draft due**
	3/6	**Spring Break: No class**
8	3/13	**GRANT PROPOSALS** Chapter 20: Proposal Writing; Student presentation Chapter 21: Letters of Inquiry and Preproposals **Redistribute manuscripts for peer review**
9	3/20	Chapter 22: Proposal Abstracts and Specific Aims Chapter 23: Background and Significance

10	3/27	Chapter 24: Innovation Chapter 25: Preliminary Results **Manuscript peer reviews due; Peer review**
11	4/3	Chapter 26: Approach/Research Design Chapter 27: Budget and Other Special Proposal Sections
12	4/10	Chapter 28: Revising and Submitting a Proposal Chapter 18: Review articles **Proposals due; Redistribute Proposals for review** **Presentation papers due (eCopies or link)**
13	4/17	Student Presentations
14	4/24	Student Presentations **Proposal reviews are due; Peer review** **FINAL MANUSCRIPT AND PROPOSALS DUE**

Attendance: Attendance is strongly encouraged and recorded for a grade since in-class discussions and participation are dependent on students being present. Class time will not be spent to catch up those who do not attend.

Deadlines: Grant submissions, e.g., to NIH, and resubmission due dates of journals for manuscripts are largely inflexible. Thus, it is critical that deadlines for assignments in ESMS 8020 are also met. As such, late submission of assignments will be penalized accordingly.

Grade Distribution

Item	Due Date	Points
In-Class Article Discussions	Weekly in class	50
Assignments		50
First Draft of Manuscript		25
Manuscript (Final)		100
Manuscript Review		25
Grant Proposal Review and Submission of Score Sheet		25
Grant Proposal (Final)		100
Student Presentation		25
TOTAL		400

Grading

A: 90-100%
B: 80.0-89.9%
C: 70-79.9%
D: 60.0-69.9%
F: < 60.0%

Assignments:
All assignments will be turned in the eCourseware Dropbox, emailed to krmrtin4@memphis.edu, or submitted at 311 Elma Roane Fieldhouse (office) before 5:00 pm on the above listed deadline

In-Class Article Discussions: Articles will be uploaded to eCourseware one week prior to presentation. Make sure to participate when you are not leading; consider it a favor to your classmates, as you want them to reciprocate when you lead.

Manuscript Paper Topics: Topics will be determined in consultation with your advisor and Dr. Martin. When possible, the research topic should be in an area that might lead to your thesis/applied project. It is appropriate to develop a background knowledge in the tentative topic area prior to deciding your project topic. Include your project advisor n communications regarding your research topic when appropriate.

Americans with Disabilities Act (ADA)
The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. Any student who anticipates physical or academic barriers based on the impact of a disability is encouraged to speak with me privately. Students with disabilities should also contact Disability Resources for Students (DRS) at 110 Wilder Tower, 901-678-2880. DRS coordinates access and accommodations for students with disabilities;

Written Assignments & Academic Misconduct
All written work submitted must be the student's original work. This means any substantive ideas, phrases, sentences, and/or published ideas must be properly referenced to avoid even the appearance of plagiarism. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions by the College of Education.

Plagiarism
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Turnitin's restricted access database solely for the purpose if detecting plagiarism in such documents. Any assignments\ not submitted according to the procedures given by the instructor may be penalized or may not be accepted. Please refer to the University's Code for Student Conduct for actions that may result from student academic misconduct.

Promoting a Positive Learning Environment

The Department of Health and Sport Sciences recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Departmental courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age. disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Incomplete Grades

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Dealing with Harassment

The Department of Health and Sport Sciences believes it is important to respond to insensitive and inappropriate behavior in the spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues:

1. The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate.

2. You may speak to the instructor, an HSS faculty member, the Department Chair (678-4165), or the University's Affirmative Action Officer (678-2713).

3. You my contact the Assistant Dean of Students (678-2298), in the office of Student Judicial Affairs. It is important that you speak immediately to someone, with whom you feel comfortable, in order that your concerns can be handled

promptly and fairly. In all complaints of discrimination including sexual harassment, the Office of Affirmative Action will be notified.

Description of graded writing assignments related to manuscript preparation

Outline	1-2-page outline of the proposed manuscript, including a list of headings or topics for materials and methods, results, and discussion sections of final manuscript.
Introduction	2-3 pages of introduction section focusing on own research project or provided or selected topic.
Materials & Methods	4-6 pages of materials and methods section focusing on your own research or provided or selected topics.
Results	4-6 pages of results section focusing on your own research or provided/selected research.
Discussion	3-5 pages of discussion section focusing on your own research or provided/selected topic.
Abstract	150 words describing the material presented in the three sections above.
Proposal outline	1-2 pages outlining

The University of Memphis
School of Health Studies
ESMS 8123
Mechanical Analysis of Motor Skills
Spring 2018
Thursday 1-4 pm, FH166

Douglas Powell, PhD
Office: 309 Roane Fieldhouse
Office hours: T, R 10:00-1:00,
W 1:30-5:30 or by appt.
dwpowell@memphis.edu
Phone 901-678-3475

ESMS 8123 Mechanical Analysis of Motor Skills

Course Description: This course will be an introduction to the mechanical analysis of human movement. It will include physics as it relates to the human body, neuromechanical considerations, and hands on experience in movement analysis. Knowledge of anatomy/kinesiology/functional anatomy will be expected, and basic trigonometry and calculus will be used. This course will have some mathematical modeling, so you will need a calculator with trig functions.

Prerequisites: None

Text(s): Griffiths, Iwan W. Principles of Biomechanics and Motion Analysis. Lippincott, Williams and Wilkins, 2015.

We will use this text primarily, but not all topics will be covered to the same degree. The book is a supplement to the class notes, but I highly recommend reading the book and the review questions that go with it. *Don't forget a calculator with trig functions*

Class notes will be posted at http://umdrive.memphis.edu/dwpowell/ESMS7123

Support of Conceptual Framework: Through the learning and application of current research and effective practice in biomechanics, students with diverse abilities and experience levels can increase their knowledge of the mechanics of human movement.

Methods of Instruction: Lecture and Laboratory

Key Assessments:
Knowledge of biomechanical aspects of exercise participation.
Knowledge of the interrelationships among center of gravity, base of support, balance, stability, and proper spinal alignment.
Knowledge of biomechanics.

Knowledge of biomechanical principles that underlie performance of the following activities: walking, jogging, running, swimming, cycling, weight lifting, and carrying or moving objects.
Skill in instructing participants in the use of equipment and test procedures.
Ability to conduct systematic literature search and written review of relevant topics

Exams and Grading Criteria:

Exam 1	25%	February 14
Presentation outline	5%	March 27
Exam 2	25%	March 27
Final Exam (cumulative)	25%	April 17
Presentations (+paper)	20%	May 1

A (90-100%) B (80-89%) C (70-79%) D (60-69%) F (<60%)

Exams will consist of short answer and essay questions, as well as calculations. The presentations will be about 30 minutes in length, explaining in detail the biomechanical foundations one of the following sport movements: Track and field sprinting, track and field throwing events (discus, shot, or hammer), volleyball (serve, set, spike), or the gymnastics vault. Other techniques may be allowed at permission of the instructor. Presentations should combine lecture (*.ppt) and one or more of the following instructional methods: demonstration, participation, video, animation, etc. Presentations should be referenced and HEAVILY reliant on *quantitative* analysis, and lead to a closing section suggesting additional methods or techniques on expanding the body of research you have examined. Injury mechanisms and prevention are also important. These presentations should be well-documented (notes, etc.) so that another individual may be able to use your presentation.

8123 students will also have to submit a paper on their presentation topic suitable for publication in Sports Biomechanics.

Attendance: Attendance is strongly encouraged, but attendance is not recorded. Much of the test material will be from lecture notes not found in the book. Class time will not be spent to catch up those who choose not to attend.

Americans with Disabilities Act: The University of Memphis does not discriminate based on disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty are required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate based on that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Written Assignments and Academic Misconduct: All written work submitted must be the student's original work and conform to the guidelines of the *American Psychological Association* (APA) available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers of other academic materials. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade and may result in other more serious sanctions by the University.

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The University of Memphis
School of Health & Studies
Fall, 2018

Course #:	***ESMS 7163/8163***
Meetings:	Thursday 1:00 ~ 4:00
Location:	302 Fieldhouse
Instructor:	Yuhua Li, Ph.D.
Office:	216 Fieldhouse, Tel: 678-2311
Lab:	110 Fieldhouse
Email:	yuhuali@memphis.edu
Office Hours:	M 1:00-3:00
	WR 9:00 ~ 11:00
	(Or by appointment)

ESMS 7163/8163: Advanced Motor Learning

COURSE DESCRIPTION: Analysis of research evidence related to motor skill learning and performance; emphasis on feedback mechanisms, practice variables, and retention and transfer of skills.

PREREQUISITES: EXSS 3803 - Motor Learning, or equivalent, or approval of instructor.

TEXT(S):
Required Text: Schmidt, R.A., & Lee, T. (2011). *Motor Control and Learning: A behavioral emphasis (5th Ed).* Champaign, IL: Human Kinetics.

Recommended Texts: Rose, D.J. & Christina (2006). *A Multilevel Approach to the Study of Motor Control and Learning*. San Francisco, CA: Pearson Education.

Ives, J. C. (2014). *Motor Behavior: Connecting mind and body for optimal performance.* Baltimore, MD: Kaufman, Wills Fusting & Company.

ADDITIONAL MATERIALS: Lecture notes will be available online - eCourseware. Research articles will be available in the library reserve room to support the textbook material.

SPORTDiscus – Electronic full-text database and index
http://www.memphis.edu/libraries

SUPPORT OF CONCEPTUAL FRAMEWORK: This course will provide students with advanced knowledge related to motor performance and learning, with a particular focus on research literature on memory, attention, and the factors which contribute to the acquisition of motor skills.

METHODS OF INSTRUCTION: The course will include lectures, class discussion, lab activities, student presentation of their research projects, and student presentation of selected research articles (i.e., students will be required to read supplemental materials, and will be assigned to lead a discussion of pertinent research articles on selected topics).

KEY ASSESSMENTS:

Two written exams – to assess the knowledge students learned from the lectures, class discussion, and literature review.

One lab report – to assess the abilities of data collection, data analysis and data interpretation in a motor learning/performance study.

Article presentation – to assess the ability for critically analyzing research literature related to a specific topic.

Research project – to assess the abilities to conduct a mini-study related to motor skill performance and learning, and write a complete report in APA format.

COURSE OBJECTIVES:

1. To develop a more in depth understanding of the structure and function of the nervous system related to motor control and learning.
2. To develop knowledge related to information processing, attention and memory pertinent to motor skill acquisition and retention.
3. To understand methods and laboratory procedures used to study motor skill learning.
4. To be able to analyze the literature related to the internal and external factors influencing the process of motor skill learning; to develop critical thinking skills.
5. To understand contemporary motor learning theories and be able to apply the knowledge and theories to various practical settings.

COURSE OUTLINE:

1. Historical perspective (Schmidt, Ch. 1).
2. Methodology for studying motor performance and learning (Schmidt, Ch. 2 & 10).
3. Biological foundations of motor control
4. Information Processing and Human Memory (Schmidt, Ch. 3)

    (Lab Activity 1- Motor Memory)
5. Sensory contributions to motor control (Schmidt, Ch. 5; Rose, Ch.3).
6. The learning process (Schmidt, Ch. 13, 14; Rose, Ch. 6).

    Theoretical Perspectives for Motor Control and Learning: Central command center or dynamic interaction?

    (Lab Activity 2 – EMG/EEG testing)

    Mid-term Exam
7. Principles of Simple Movement (Schmidt, Ch. 7)

    (Project topic due)
8. Intrinsic Factors Influencing Motor Skill Learning.

    (Article presentation starts)

(a) Stages of learning.
(b) Attention and Performance (Schmidt, Ch. 4).
(c) Transfer of learning.

9. Extrinsic Factors Influencing Motor Skill Learning.
(a) Conditions of Practice (Schmidt, Ch. 11).
(b) Augmented Feedback (Schmidt, Ch. 12; Rose, Ch.10, p.301-302 - Biofeedback).

11. Research Project (Independent work)

12. Research Presentation

(Project written report due on 11/29/2018);
Final Exam on 12/10/2018, 1:00-3:00

ASSIGNMENTS, EXAMS, AND GRADING CRITERIA:

The following criteria will be used to determine the grades:

Mid-term Examination	100 pts
Final Examination	100 pts
Lab Report	40 pts (APA style)
Research Article Presentation	40 pts (PPT presentation)
Experiment Participation	20 pts
Research Project	100 pts (Written report 85 pts & verbal presentation 15 pts)

Research Article Presentation

The oral presentation should be a review of a research topic (often a review paper). The purpose of the presentation is to LEAD the group discussion about the topic you have selected from the list prepared by the instructor (or your own choice approved by the instructor). The presentation should be approximately 15~20 minutes in length, followed by group discussion. Students can use PowerPoint, video, etc., and are required to provide scientific information in a clear and understandable manner. One-page handout should be prepared for all other students in the class.

Research Project

Students should choose one specific topic within the area of motor skill performance and learning and conduct *a mini-study*. Students should take the following steps to complete the research project:

1. ***Chose a topic*** (your topic must be approved by the instructor)
2. ***Search the related literature (5~8 pages for literature review section in the report.*** **8000 level students: 8~12 pages)**
3. ***Propose a study (get approval from the instructor)***
4. ***Collect data (pilot data is recommended;*** **8000 level students:** ***a small sample is required) and summarize the results (or predicted results if no data has been collected).***
5. ***Write up a report.***

Written Report

The written report should include: the title page, abstract, introduction, literature review, method, results and discussion. The report should be typed, double spaced, and about 10-15 pages in length (**8000 level students: 15 ~20 pages)**, not including figures, tables, or references, following APA style. A minimum of **10 references** are to be used. Copies of 3 major reference articles used should be submitted with the written report. **The final written report should be submitted in hardcopy and e-copy on or before 12/3/2018.** No late reports will be accepted.

V*erbal Presentation*

The research project presentation should be approximately 12-15 minutes in length followed by questions. Similar requirements for the paper presentation will be used.

Class Discussion and Interaction

Students will be expected to be ***attentive and prepared*** for each class. This goes *far beyond* simply "showing up", and includes, but is not limited to, asking and answering questions, participating class discussions, making interesting comments, sharing personal experiences, etc.

A +	≥ 96%	C+	= 76%	F	< 60%
A	= 93%	C	= 73%		
A-	= 90%	C-	= 70%		
B+	= 86%	D+	= 67%		
B	= 83%	D	= 63%		
B-	= 80%	D-	= 60%		

ADDITIONAL COURSE REQUIREMENTS:

Attendance Students are required to attend each scheduled class and lab activity since some course-related contents and experiences are best learned in the classroom and laboratory settings. Failure to attend classes or lab activities may affect the learning process and subsequent student performances. Please notify the instructor in advance, if possible, when a class will be missed. Students are responsible for making up for their absences. Late homework will not be accepted unless prior arrangements are made with the instructor.

RELATED COURSE INFORMATION:

Promoting a Positive Learning Environment The School of Health Studies recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Departmental courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

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ESMS 7201/8201
Physiology of Exercise: Musculoskeletal Aspects
Fall '18
Lawrence Weiss, EdD, CSCS*D, FNSCA, RFSA, FACSM
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ESMS 7201/8201: Physiology of Exercise: Musculoskeletal Aspects
Tuesday, 1:00 – 4:00 p.m., Field House 110

Course Description: Analysis of both the physiological bases of musculoskeletal performance as well as specific acute and chronic adaptations occurring consequent to various regimens of exercise. Exploration of selected techniques for assessing musculoskeletal function and structure. Students should have successfully completed an undergraduate course in exercise physiology or obtain permission of the instructor prior to taking the course for credit.

Prerequisites: Permission of instructor

Text: – (optional) Gardiner, Phillip. (2011) Advanced Neuromuscular Exercise Physiology. Champaign, Human Kinetics.

Support of Conceptual Framework: This is one of the *exercise, sport and movement sciences* core courses that presents concepts and theories needed to effectively address problems in the field or laboratory and applies to all walks of human life.

Method of Instruction: Lecture

Key Assessments: written and oral narrative pertaining to a topic assigned by the instructor, two written exams, Socratic seminar

Course Objectives:

1. To develop an ability to clearly and concisely communicate an appropriate interpretation, critique, and synthesis of original research primarily found in refereed journals pertaining to human musculoskeletal structure and function.
2. To understand the acute and chronic effects of exercise upon the structure and function of the human musculoskeletal system.
3. To understand selected factors associated with the assessment and interpretation of muscular "strength."

4. To understand selected factors associated with the assessment and interpretation of body composition.

Content Outline: (Sequence & topics may differ slightly from the following)

8/28	T	1. Introduction and SOP; Invitation to participate; Topic selection for written and oral narrative
9/4	T	2. Bone morphology; Skeletal muscle morphology
9/11	T	3. Skeletal muscle senescence; Proprioceptors and strength/power expression; *Coactivation*, *amortization time,* and *reactive strength index* (RSI) in plyometric training; Acute hemodynamic responses to weight lifting
9/18	T	4. Assessment of skeletal muscle strength, power, & endurance
9/25	T	5. Assessment of skeletal muscle strength, power, & endurance continued
10/02	T	6. Assessment of skeletal muscle strength, power, & endurance continued
10/09	**T**	**7. Exam 1**
10/16	T	--- **Fall Break**
10/23	T	8. Meet w/ Instructor concerning written narrative & topic outline on this date or before
10/30	**T**	**9.** *Pizza Snack*; **Class Socratic seminar; Using one or more PowerPoint slides, present your topical outline to our class & receive feedback from them & your instructor** **Submit polished version 1 of written narrative;**
11/06	T	10. Basic periodization training paradigm; Training abstinence/taper and strength expression; Optimal loading for squatting force & power output
11/13	T	11. *Explosive strength deficit* (Zatsiorsky, 1995) & isokinetic predictors of vertical jump performance; Load-spectrum squats and vertical jump performance; Concentric and eccentric *rate of force development* Hang power cleans and vertical jump performance
11/20	**T**	**12. Submit preliminary PowerPoint presentation slides to instructor;** Body composition assessment theory
11/27	T	--- **Thanksgiving**
12/04	**T**	**13. Final written narrative due; oral narratives begin (send complete PowerPoints to All in class)**
12/11	**T**	**14. Exam 2**

Exams, Seminar, Written Narrative, Oral Narrative (including PowerPoints), and Grading Criteria:

Written & Oral Narrative/Presentation: Each student will complete a written narrative on a topic selected from a list provided by the instructor. For each selected topic, **two students will separately write a review paper** unless we have an "odd" number of students enrolled in class. The length of the paper will be topic dependent and will include cited information from textbooks and/or from refereed sources. If you have a question about the appropriateness of a journal or text, ask me about it well ahead of the due date for the final submission. Students should assume that multiple revisions of both the written narrative and PowerPoint presentation will be needed prior to final submission. Although the paper is to be completed independently, the PowerPoint presentation will be a joint venture. The depth of the paper and presentation should be appropriate for graduate student consumption by master's students in an Exercise, Sport & Movement Sciences program. Your **30-45 minute joint presentation** should be informative, entertaining, and professionally delivered. (The presentation time frame may be adjusted if more students enroll in the class than expected.)

Reference Format:

Journal Article

Hartung, GH, Blanco, RJ, Lally, DA, and Krock, LP. Estimation of aerobic capacity from submaximal cycle ergometry in women. Med Sci Sports Exerc 27: 452-457, 1995.

Book

Lohman, TG. Advances in Body Composition Assessment. Champaign, IL: Human Kinetics, 1992.

Chapter in an edited book

Yahara, ML. The shoulder. In: Clinical Orthopedic Physical Therapy. Richardson, JK and Iglarsh, ZA, eds. Philadelphia: Saunders, 1994. pp. 159-199. Software Howard, A. Moments [software]. University of Queensland, 1992.

Proceedings

Viru, A, Viru, M, Harris, R, Oopik, V, Nurmekivi, A, Medijainen, L, and Timpmann, S. Performance capacity in middle-distance runners after enrichment of diet by creatine and creatine action on protein synthesis rate. In: Proceedings of the 2nd Maccabiah-Wingate International Congress of Sport and Coaching Sciences. Tenenbaum, G and Raz-Liebermann, T, eds. Netanya, Israel, Wingate Institute, 1993. pp. 22 - 30.

Dissertation/Thesis

Bartholomew, SA. Plyometric and vertical jump training. Master's thesis, University of North Carolina, Chapel Hill, 1985.

Due dates: **Tues., Oct. 30** → present PowerPoint slide(s) to class of **topic outline**; **Tues., Oct. 30** → electronically submit *polished* 1st version of written narrative; **Tues., Nov. 20** → Electronically submit joint PowerPoint presentation to instructor; **Tues., Dec. 04** → Electronically submit final written narrative (NOT a joint effort) to the instructor **and** PowerPoint presentation slides (and list of references) to entire class/instructor; oral narratives also begin on this date.

Please Note: *Evaluation of the written narrative & PowerPoint slides will be based upon content and composition; however, if the composition is poor, it will adversely affect your presentation of the content. Assume your audience is comprised of entering graduate students in ESMS. Also, please note the* ***University policy on plagiarism*** *as found in this syllabus and in The University of Memphis Student Handbook. Remember, your final PowerPoint presentation should be electronically submitted to the entire class and instructor* ***before noon*** *on the day the written narrative is due.* The order of presentations will be at the discretion of the instructor.

In addition to the written and oral narratives, **8000-level students will also orally present a detailed project proposal** based on a question or problem identified in the written narrative. For course evaluation, the research proposal will be considered as an integral part of your oral narrative.

Class Socratic Seminar: "Stability Reliability and Precision: Implications for heteroscedastic data sets in exercise science."
http://itl.nist.gov/div898/handbook/eda/section3/eda33q9.htm ;
http://www.sportsci.org/jour/04/wghbias.htm
Students will be evaluated on their contribution to the **Oct. 30** seminar. Zero participation will result in a "0" grade.

Exam 1: Exam 1 will be in a written narrative format. It will reflect topics covered in class up to that point. **Space for answers is limited & legible handwriting is imperative.**

Exam 2: Exam 2 will be in a written narrative format. It will primarily reflect topics covered by both you and me in class after exam 1 (also including the Socratic seminar), although knowledge of information presented prior to exam 1 may be beneficial in addressing some topics. **Space for answers is limited & legible handwriting is imperative.**

Final Evaluation: All graded activities must be completed or the final semester grade will be an "F." Grade adjustments, if any, are made when assignments are initially evaluated. No quotas exist regarding final grades for the course.

The student's final grade is dependent upon the following:

Written Narrative Initial Submission	10%
Written Narrative Revised Submission	25%
Oral Narrative, Handout, & PowerPoint Slide Effectiveness	20%
Exam 1	20%
Exam 2	20%
Socratic Seminar	5%

Point cut-offs for final grade:

A+ ≥ 97.0 A ≥ 90.0, B+ ≥ 87.0, B ≥ 80.0, C+ ≥ 77.0, C ≥ 70.0, D ≥ 60.0, F < 60.0

Physiology of Exercise: Musculoskeletal Aspects

(Available Topics for Fall 2018 *Written & Podium Presentations*)
http://www.xpowerpoint.com/PowerPoint-Presentation--PPT.html

1. **() Typical progression of exercise-related osteoarthritis with aging: mechanism and effects.**
   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2667877/
   https://www.nature.com/articles/nrdp201672
   https://www.journals.elsevier.com/osteoarthritis-and-cartilage

2. **() Post-activation potentiation and power, speed, and strength performance.**
   https://journals.lww.com/nsca-jscr/Abstract/publishahead/Effect_of_Postactivation_Potentiation_on_Explosive.95186.aspx

3. **() Muscular strength and hypertrophic adaptations to low- versus high-repetition resistance training with and without volume control. https://journals.lww.com/nsca-jscr/Fulltext/2017/12000/Strength_and_Hypertrophy_Adaptations_Between_Low_.31.aspx**

4. **() Relationship between *sarcopenia* and *dynapenia* in senescent individuals. (old-age loss of muscle size & strength) http://www.ncbi.nlm.nih.gov/pubmed/22934016 , http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2895460/ , http://biomedgerontology.oxfordjournals.org/content/63/8/829.full.pdf+html**

5. **() Efficacy of compression garments for exercise recovery: proposed mechanism and threshold pressure required for effect.**
   https://www.ncbi.nlm.nih.gov/pubmed/28434152 ,
   https://www.ncbi.nlm.nih.gov/pubmed/28434152

6. **() Acute effects of ammonia inhalants on strength and power performance.**
   https://journals.lww.com/nsca-jscr/Fulltext/2018/01000/Acute_Effects_of_Ammonia_Inhalants_on_Strength_and.31.aspx

7. **() Whole body ultra-cryotherapy and recovery from exercise: proposed mechanism and efficacy.**
   http://www.kingstonatc.com/services/whole-body-cryotherapy
   https://www.cooperinstitute.org/2013/09/whole-body-cryotherapy-wbc-does-it-speed-recovery/
   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4586380/

Americans with Disabilities Act: The University of Memphis does not discriminate based on disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty members are required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate based on that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels. (*Disability Resources for Students* office, 110 Wilder Tower, http://www.memphis.edu/drs/index.php)

Written Assignments and Academic Misconduct: All written work submitted must be the student's original work and conform to the guidelines of the *American Psychological Association* (APA) available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers of other academic materials. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course

with a failing grade and may result in other more serious sanctions by the School of Health Studies.

Incomplete Grades: A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 90 days from the end of the semester or summer term in which it was received, the "I" will be changed to an "F," regardless of whether the student is enrolled.

Harassment: The School of Health Studies believes it is important to respond to insensitive and inappropriate behavior in a spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues:

The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate. You may speak to the instructor, the School Director (678-4165), or the University's Affirmative Action Officer (678-2713). You may contact the Assistant Dean of Students (678-2298), in the Office of Student Conduct.

It is important that you speak immediately to someone, with whom you feel comfortable, in order that your concerns can be handled promptly and fairly. In all complaints of discrimination, including sexual harassment, the Office of Affirmative Action will be notified.

The University is committed to ensuring equality in education and eliminating all acts of sexual misconduct from its campus. Sexual misconduct includes sexual harassment, sexual assault, dating violence, domestic violence and stalking. If you or someone you know has been harassed or assaulted, you can make a report to the Office for Institutional Equity at oie@memphis.edu or 901.678.2713. **Please note that if you make a report to me I am required to report it. If you want to make a confidential report you can contact the University Counseling Center, 214 Wilder Tower, 901.678.2068.**

Current Tuition & Fees for this 3-hour course:

http://www.memphis.edu/bursar/pdf/2018_fall_graduate_fee_chart.pdf.pdf

In-state → $1,827.00

Out-of-state → $3,291.00

The University of Memphis
School of Health Studies
ESMS 7210/8210
Analysis of Muscle Function
Fall '18
Lawrence Weiss, Ed.D., CSCS*D, FNSCA, RFSA, FACSM
Office: Field House 314

ESMS 7210/8210: Analysis of Muscle Function
Monday, Wednesday, 1:00 – 4:00 p.m., Field House 343

Course Description: Theoretical bases for and applications of velocity- and load-spectrum testing in evaluating skeletal muscle functional capabilities. Students are guided in the development and evaluation of new specialized assessment protocols. Data analysis and interpretation of same are stressed. PREREQUISITES: ESMS 7201, EDPR 7523, 7541 or permission of instructor.

Prerequisites: ESMS 7201, EDPR 7523, 7541 or permission of instructor

Text: None

Support of Conceptual Framework: One of the *exercise, sport and movement sciences* elective courses that provides experiences useful in understanding and effectively addressing research questions that apply to various walks of human life.

Method of Instruction: Students will engage in listening, questioning and discussing theory, research findings, and potential applications pertaining to biophysical aspects of human movement. The major focus of the course is the development and conduction of a theoretically-based project.

Key Assessment: research project development and conduction

Course Objectives:

From participating in this course, the student will:

1. Communicate an appropriate interpretation of research on selected topics pertaining to functional skeletal muscle testing.
2. Communicate an appropriate understanding of the acute effects of various intervening factors on functional skeletal muscle performance.
3. Communicate an appropriate understanding of the necessity for selected environmental controls when testing for functional skeletal muscle capabilities.
4. Develop and effectively evaluate a new theoretically-based testing protocol using load- or velocity-spectrum procedures.
5. Effectively report both in writing and verbally on the nature and efficacy of a selected

aspect of the new testing protocol.

Content Overview and Grading Criteria:

Overview: One or more relevant aspects of muscle-mechanical performance will be examined using established or prototype equipment. Data collection, analysis, and interpretation will be stressed. Each student will become proficient in the use of at least one data-collection tool employed in the class project. Each student will examine one portion of the data and develop a written introduction and methods of the project worthy of being submitted for publication in a refereed journal.

Evaluations: Evaluations will be based upon the student's performance on a faculty-directed innovative project pertaining to the musculoskeletal performance including proficient data collection, a written introduction and methods (proposal) paper, and the verbal presentation of same in class.

Final Evaluation: The student's final grade is dependent upon the following:

Project:	≥ 97 = A+	≥ 93 = A	≥ 90 = A-
Written Introduction/Methods Paper . . 50 %	≥ 87 = B+	≥ 83 = B	≥ 80 = B-
Oral Presentation . . . . . 10 %	≥ 77 = C+	≥ 73 = C	≥ 70 = C-
Collaboration w/ Classmates . . . . . 40 %	≥ 67 = D+	≥ 60 = D	< 60 = F

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Extra Credit: I strongly encourage all students to seek opportunities to get involved as participants or collaborators in research projects conducted through any of the Human Performance Laboratories to enhance your professional development. However, “extra credit” is NOT required for this class and may even be inappropriate in cases in which your time would be better spent studying. Due to the uneven nature of requirements for these types of activities, participation awards will be determined on an individual basis and I will be the sole determiner of such awards. You must get my written approval for an activity to be considered for extra credit prior to initiating it as some proposed activities may be ineligible for this purpose. The deadline for submitting proposed extra credit participation is Monday, February 12. Upon completion of the extra credit activity, a typewritten (double spaced) detailed description of your involvement and the benefits derived by you from the experience (endorsed by the respective lab director) must be submitted to me prior to the end of the term for you to receive any credit.

Written Assignments and Academic Misconduct: All written work submitted must be the student's original work and conform to the guidelines of the *American Psychological Association* (APA) available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers of other academic materials. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade and may result in other more serious sanctions by the University.

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The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate. You may speak to the instructor, and SHS faculty member, the Department Chair (678-4165), or the University's Affirmative Action Officer (678-2713). You may contact the Assistant Dean of Students (678-2298), in the Office of Student Judicial Affairs.

It is important that you speak immediately to someone, with whom you feel comfortable, in order that your concerns can be handled promptly and fairly. In all complaints of discrimination, including sexual harassment, the Office of Affirmative Action will be notified.

HSS iWebfolio Position Statement: This course satisfies one or more of the performance outcomes and curriculum standards required for program approval and/or accreditation, and some assignments may be identified for posting on an electronic portfolio (iWebfolio). Standards and outcomes for your area of study are presented at http://www.iwebfolio.com. If you are required to register for iWebfolio during this semester, more information and instructions will be provided. If iWebfolio is not used in this course this semester, you should save all projects, presentations, and assignments for uploading later.

Course #: EXSS 8202
Course Title: Phys Ex Mtbolc/Cardresp
Course Credit Hours: 3
Semester: Spring 2019
Location: Mitchell Hall 211
Instructor: Dr. Melissa Puppa
Email Address: mpuppa@memphis.edu
Phone Number: 901-678-3419
Office: Fieldhouse 306
Office Hours: By apt.



EXSS 8202: EXERCISE PHYSIOLOGY

COURSE DESCRIPTION: A more in-depth review of exercise physiology with a particular focus on metabolic and cardiovascular physiology. A discussion of these systems will be included, in addition to an overview of the acute responses and adaptations observed within these systems when exposed to exercise stress. Additional attention will be given to the process of atherosclerosis and its association to oxidative stress, anti-atherogenic drugs and nutritional therapies. The material will be presented in both lecture and discussion format, including PP slides, scientific paper reading/presentation/discussion, as well as possible laboratory activities (time permitting). Students should be prepared for each lecture by reviewing the assigned readings and lecture slides ***before each class meeting*** so that they can intelligently participate in class discussions and adequately answer questions when asked.

PREREQUISITES: EXSS 3603 and EXSS 3703 (or equivalent) or Instructor permission

TEXT(S): Exercise Physiology: Human Bioenergetics and Its Applications, 4th edition. Brooks, Fahey, Baldwin: McGraw-Hill. *(Or comparable exercise physiology text)*
****Texts are not required, but you are encouraged to have access to an upper level exercise physiology text book****

ADDITIONAL MATERIALS: PowerPoint slides and handouts to accompany the textbook will be available online. *Scientific Papers and PP slides will be available to support the textbook material.

METHODS OF INSTRUCTION: Lecture based instruction will be provided throughout this course, with opportunity for class discussion, student presentation of scientific papers, and student presentation of their research papers.

KEY ASSESSMENTS: The following will be reviewed in detail throughout this course. Students' knowledge will be tested related to these key variables.

- Bioenergetics
- Resting and exercise metabolism
- Cardiovascular function
- Responses and adaptations to exercise within the cardiorespiratory and metabolic systems

COURSE OBJECTIVES:

6. To develop a more in depth understanding of the structure and function of the metabolic and cardiovascular systems.
7. To develop knowledge related to the above systems in reference to an acute bout of exercise (responses), as well as following chronic exposure to exercise (adaptations).
8. To understand laboratory procedures used to study the above systems.
9. To be able to integrate knowledge related to the function of each system and apply this information to humans undergoing exercise training.

ASSIGNMENTS, EXAMS, AND GRADING CRITERIA:

The following methods will assist with the determination of students' final grade:

1. Exams 1, 2 (100 points each)
2. Paper (50 points)
3. Presentation (50 points)
4. Class Discussion and Interaction (50 points)

The total of 350 available points will be used to compute a percentage of 100.

Grade Values

≥ 97 A+	≥ 93 A	≥ 90 A-
≥ 87 B+	≥ 83 B	≥ 80 B-
≥ 77 C+	≥ 73 C	≥ 70 C-
≥ 67 D+	≥ 60 D	< 60 F

Exams

Exams will be essay format.

Paper

Students should choose one **specific** topic within the area of **metabolic or cardiovascular exercise physiology** and write a **brief** (6-8 page) **comparison paper**. The paper should include a brief introduction to the area of study, followed by a discussion/comparison of 3-4 investigations that chose to study the particular area (the main dependent variables should be the same). These papers should be recent (2013-present) and may or may not have similar findings. Regardless, the findings should be explained **scientifically** *in your own words*. That is, WHY do you think the investigators found what they did? WHY are the findings similar/different between studies? WHAT are potential explanations? Can these findings be better explained by future studies? WHAT are the practical applications? EXPLAIN…EXPLAIN…EXPLAIN!

In preparing this paper, students should take the following steps:

- First (before writing), review each of your chosen studies **in detail** (research design, testing, results, tables, figures, etc.) and try to make sense of the info presented
- Within your paper, discuss each study briefly and the findings presented
- *Compare and contrast* each of the studies (this may include the design…including methodology, subjects and subject number, testing, time course of study, independent and dependent variables, confounding variables, etc…anything that you feel is important!)
- Discuss WHY you believe the findings of these studies agree or disagree
- Include your opinion of these papers and the practical information they provide
- Include all references cited and list in typical journal format (this should include all papers cited…I would imagine at least the 3-4 primary articles and other papers that may have been used for support)
- Use a clear and concise SCIENTIFIC writing style
- Papers should be typed, double spaced, stapled, and *no more than 8 pages* in length (excluding title page and references)

The 3-4 articles used must be submitted for approval BEFORE the writing begins. Copies of each article used should be submitted with the paper in hardcopy. **The final papers should be submitted in dropbox on e-courseware on or before 4/8/19.** No late papers will be accepted and a grade of zero will be recorded.

Presentation

The presentation should be an oral review of your paper. The purpose of the presentation is to TEACH the class about a topic that students should be very familiar with after writing the paper. *This may have some overlap with material that we have covered previously.* **The presentation should be 12-15 minutes in length with 5 minutes for questions.** Students should use PowerPoint slides to teach the class about the topic area. The goal is to provide *scientific* information in a clear and understandable manner. See Presentation Tips and Presentation Grading Form.

Class Discussion and Interaction

Students will be expected to be ***attentive and prepared*** for each class. This goes *far beyond* simply "showing up", and includes, but is not limited to, asking and answering questions, participating class discussions, **being on time** (early), making interesting comments, sharing personal experiences, etc. At times, students may be asked to present a scientific paper for discussion (alone or in small groups). The review of the paper should be typed and copied for all class members. It should follow the research article (or review article) and include an introduction, methods, results (review of tables and figures), discussion, and conclusion. If students fail to do these things they can expect to receive a very low percentage of available points (e.g., 20%).

ATTENDANCE: Attendance is expected and required at all meetings. If students cannot be in class on a given day, they should email or call regarding their absence BEFORE class meets if at all possible. It is *students' responsibility* to inquire about and obtain the missed information if they fail to show up for class. Students may be asked to make up an assignment. Additionally, they will lose points for missed assignments not turned in if absent (or late). *Advanced notice AND a reasonable excuse* are required for making up assignments later or time (the same applies for exams). Without these, students forfeit their right to take the quiz/exam (or to turn in assignments) and will lose the available points. Additionally, students may lose participation points for missing class.

EXTRA CREDIT: No extra credit will be available at the graduate level

ACADEMIC INTEGRITY: Under this heading of "Academic Integrity" all green highlighted text below should simply be copied and pasted into your syllabus. This is standard University language and needs to be included on all syllabi.

Failure to abide by the University Honor Code will result in automatic failure of this course.

Written Assignments and Academic Misconduct: All written work submitted must be the student's original work. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. It is the student's responsibility to know all relevant University policies concerning plagiarism. Any documented cases of plagiarism can and will usually result in dismissal from the course with a failing grade and may result in other more serious sanctions by the School and/or University.

PLAGIARISM: Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers of other academic materials. Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all. Please refer to the University's "Code of Student Conduct" for actions that may result from student academic misconduct.

AWARDING AN INCOMPLETE GRADE: A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the

term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether the student is enrolled.

PROMOTING A POSITIVE LEARNING ENVIRONMENT: The School of Health Studies recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. School courses will strive to provide an opportunity for all students to openly discuss issues of diversity.

SPECIAL NEEDS: Any student who has special needs for assistance and/or accommodation, and who is registered with the Disability Resources for Students Office should meet with the instructor during the first week of classes. It is the responsibility of the student to register with the Disability Resources for Students Office if they believe they have a special need.

Americans with Disabilities Act: The University of Memphis does not discriminate based on disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty members are required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate based on that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

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SEXUAL MISCONDUCT: The University is committed to ensuring equality in education and eliminating all acts of sexual misconduct from its campus. Sexual misconduct includes sexual harassment, sexual assault, dating violence, domestic violence and stalking. If you or someone you know has been harassed or assaulted, you can make a report to the Office for Institutional Equity at oie@memphis.edu or 901.678.2713. Please note that if you make a report to me I am required to report it. If you want to make a confidential report you can contact the University Counseling Center, 214 Wilder Tower, 901.678.2068.

INCLEMENT WEATHER: If inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an inclement Weather Hotline at 678-0888.

CRISIS MANAGEMENT
To learn more about the Office of Crisis Management and what they are doing to keep our campus safe, please visit http://www.memphis.edu/crisis/

TENTATIVE COURSE OUTLINE:

Date	Topic	
1/14/19	Introduction, overview, start energy systems	
1/21/19	*MLK Day (No class)*	
1/28/19	CHO metabolism	
2/4/19	Lipid and ketone metabolism	
2/11/19	Protein Metabolism	
2/18/19	Neural-Endocrine Control; Metabolic rate	
2/25/19	Cancer Exercise and metabolism	Articles
3/4-10/19	*Spring Break (No Class)*	
3/11/19	Blood Vessels, flow, pressure	
3/18/19	Neural-Hormonal CV Control; Cardiac A&P	
3/25/19	CV Exercise Physiology	
4/1/19	Angiogenesis and vascular remodeling	Articles
4/8/19	Paper Due- No class	
4/15/19	Presentations	Presentation Grading Form (print)
4/22/19	Exam 2	

****This is a tentative outline and is subject to change****

Course Information

School: Health Studies
Course #: ESMS 7255/8255
Course Title: Anatomy of Motor Control
Hours: 3
Instructor: Douglas W. Powell, PhD, CSCS, TSAC-F, FAHA
Office: 309 Field House
Phone: 901-678-5209
Email: dwpowell@memphis.edu
Office Hrs: by appointment

COURSE DESCRIPTION: Foundation of systems-level neuroscience focusing on normal function and pathology within the central nervous system (CNS). Functional and regional neuroanatomy will be presented. Coverage includes review of axon physiology and neurotransmission, anatomical organization of the CNS, sensory and motor functions, and description of frequently encountered neurological disorders relevant to physical therapy.

PREREQUISITE: Permission of instructor.

SUPPORT OF CONCEPTUAL FRAMEWORK: Course addresses neurological structures and functions underlying attention, cognition, motor function, and sensory integration.

Course Objectives

This course should enable the student to:

1. Identify structures and functions of the nervous system.
2. Characterize the mechanisms underlying normal and pathological nervous system function at the cellular, tissue, organ and systemic levels.
3. Describe the role of the nervous system in the generation and control of movement and cognition.
4. Describe structures and processes responsible for integration of the sensory and motor systems for the generation and modulation of movement in healthy and abnormal conditions.
5. Describe the processes of neural development and plasticity in response to practice or injury.

Course Content Overview

This course should enable the student to:

1. Identify the major structures and functions of central and peripheral neuro-anatomy.
2. Identify the processes associated with electrical signal generation and conduction throughout the nervous system.
3. Identify structures and functions of the primary central visual pathways
4. List neurotransmitters based on their functional role in the nervous system.
5. List the components and functions that comprise the upper and lower motor neuronal circuits.
6. Catalogue the components of the auditory and vestibular systems based on normal and pathological function.
7. State the role of sensory feedback and its integration in motor performance in the maintenance of balance.
8. Address the role of the brain in complex functions including cognition, speech, language, sleep, arousal, emotions and memory.
9. Delineate the neurophysiological processes underlying the construction and modification of neural circuits.
10. Describe the role of the basal ganglia and cerebellum in modulating movement in normal and abnormal function.
11. Describe the interaction of upper and lower motor neuron circuits in the control of movement in healthy and pathological populations.
12. Describe the processes underlying neural development and repair.
13. Describe the process of neural plasticity and its role in the development and alteration of motor control in response to advancing age and practice.

Textbook & Supplemental Materials

Blumenfeld, Neuroanatomy through Clinical Cases, 2nd Edition.
Sinauer Publishing
ISBN: 978-0-87893-058-6

ADDITIONAL MATERIALS: Further reading assignments and handouts to accompany the textbook may be distributed to students in class or may be available online on eCourseware.

Instruction & Key Assessments

METHODS OF INSTRUCTION: Primarily lecture-based instruction will be provided throughout this course. Lectures will be offered in person and recorded to support student success.

Assignments & Grading

Examinations: There will be 4 written exams. All 4 written exams will be closed book. Exam format may include multiple choice, matching, and fill-in-the-blank.

Master's students should register only for ESMS 7255 while doctoral students should register for ESMS 8255. Doctoral students will additionally develop and present a research proposal topic preapproved by the instructor as part of their overall evaluation in this course.

All reading assignments from textbooks and websites (supplemental reading and viewing to reinforce reading and lecture material) will be provided. Students are expected to read the module assignments prior to lecture on that topic.

If a student is unable to attend an exam, it is the student's responsibility to communicate with the instructor in advance. Please see Attendance under "Student Responsibilities" listed below.

Course Grades: Grades will be based on scores from 4 closed book examinations and weekly quizzes. The weights assigned to exams and for determining the course score will be as follows:

Examinations:	4	(20% each) for total 80% grade
Quizzes:	5	(4% each) for a total 20% grade

Grades will be assigned based on the following traditional arbitrary scale:
A = 90-100%; B = 80-89.99%; C = 70-79.99%; D = 60-69.99%; F = <60%.

Exams
Exams will be administered following the completion of each section of the course. However, concepts covered in each section are not exclusive and overlap may occur. Exams will include multiple choice, true-false and fill-in-the-blank questions. **Exams will be taken online through eCourseware and will be taken during the schedule class times.** Online exams will open at the beginning of the scheduled class meeting time and will close at the end of the scheduled class meeting time. A tentative schedule for each exam can be found on this syllabus. All exams will be weighted equally for student evaluation. Make-up exams will be offered only when the student's absence is university-excused, and the student has communicated with the instructor prior to the exam period. **ALL** make-up exams will be administered on study day (December 7, 2017). Beginning an exam late will limit time allowed for test completion and the student may be subject to an alternate testing format.

Assignments and Quizzes
Throughout the semester several quizzes will occur with and without notice. These quizzes will be based on current material discussed in class or in the reading assignments as posted on the syllabus schedule. **No points will be given for individuals who were absent or late for a quiz.** These quizzes can take place anytime during the scheduled class. The student forfeits their ability to make up any quizzes by leaving early or arriving late to class without notice. Notice must come in the form of an email to dwpowell@memphis.edu prior to the beginning of class

(12:59pm) on the day the student will be unable to attend, late or leave early. **Sending an email at 1pm or later the day of being tardy or late will not allow the student to make up the missed points.**

Participation in U of M sponsored events (sports, choir, band, cheerleading, scholarly, conference, etc.) will require the student to turn in a schedule of event times, and places within one-week of the first day of class. In addition to turning in this schedule at the beginning of the semester, students will be required to notify the instructor by email the week prior to the anticipated absence and schedule a time to make up any missed work. If the student fails to contact the instructor about make up work within 5 calendar days of the absence, they forfeit their ability to make up the assignment. All make-up quizzes must be completed by Wednesday, December 6th, 2017.

Once the quiz has been missed and acceptable notification was given as previously described, the student must contact the instructor regarding making up the quiz within 5 calendar days. Students forfeit their ability to make up a quiz / assignment after 5 days from the missed quiz / assignment unless previously approved by the instructor. All make-up quizzes must be completed by Wednesday, December 6th, 2017. Notification of absence has a maximum allowance of 3 occasions per semester unless permission is given by the instructor.

Assignments for the program design project are due on the first 4 Fridays of the semester by 11:59pm. Assignments are to be submitted on eCourseware drop box. If an assignment is turned in late (starting at 12:00am on Saturday), a deduction of 10% will occur every calendar day (24 hours) until the assignment is submitted. The schedule for when each assignment is due is contained within this syllabus. Students are encouraged to start early and work ahead to avoid putting together work at the last minutes. Students are also encouraged to seek assistance from the instructor regarding assignment content with the program design project.

Participation & Attendance

Due to the nature of this course, attendance is mandatory. ***A student may miss up to 10% of the class without penalty. If the student misses more than 10% of class days, the student will lose one letter grade (~10%). If a student misses 20% of class days, the student will lose two letter grades (~20%).***

Attendance goes *far beyond* simply "showing up", and includes, but is not limited to, being on time (early), asking and answering questions, sharing personal experiences, and providing the best effort. The material covered is best learned by "doing" rather than simply "watching and listening". Attendance is expected at all meetings. **If students cannot be in class or will be late to class on a given day, email or call regarding the absence BEFORE class meets if at all possible.** It is *students' responsibility* to inquire about and obtain the missed information if they fail to show up for class. Students may be asked to make up a class assignment. *Additionally, students will lose points for missed quizzes or assignments not turned in if absent (or late).* ***Advanced notice, specific date/ time and a reasonable excuse*** are required for making up a class

activity or taking quizzes at a later date or time (the same applies for exams). Without these, students forfeit their right to take the quiz/exam and will lose the available points.

EXTRA CREDIT:
Extra credit will not be offered under any circumstances. It is advised to do your best to gain the points available in the course as designed.

iWebFolio

iWebFolio: This course satisfies one or more of the performance outcomes and curriculum standards required for program approval and/or accreditation, and some assignments may be identified for posting on an electronic portfolio (iWebfolio). Standards and outcomes for your area of study are presented at http://www.iwebfolio.com. If you are required to register for iWebfolio during this semester, more information and instructions will be provided. If iWebfolio is not used in this course this semester, you should save all projects, presentations, and assignments for uploading at a later time.

Written Assignments & Academic Misconduct

ACADEMIC INTEGRITY: Failure to abide by the University Honor Code will result in automatic failure of this course.

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and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all. Please refer to the University's "Code of Student Conduct" for actions that may result from student academic misconduct.

Incomplete Grades

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to **EXTRAORDINARY** events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Promoting a Positive Learning Environment

The Department of Health and Sport Sciences recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Departmental courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

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Dealing with Harassment

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Tentative Course Schedule

Week	Topic	Readings
Wk 1 Jan. 5-9	Neural Signaling I	Chs. 2-4
Wk 2 Jan. 12-16	Neural Signaling II	Chs. 4-6
Wk 3 Jan. 19-23	Neural Signaling III Somatic Sensory System	Chs. 7-8 Ch. 9 **EXAM I**
Wk 4 Jan. 26-30	Pain & Vision Central Visual Pathways	Chs. 10-11 Ch. 12
Wk 5 Feb. 2-6	Auditory System Vestibular System	Ch. 13 Ch. 14
Wk 6 Feb. 9-13	Lower Motor Neuron Circuits	Ch. 16 **EXAM II**
Wk 7 Feb. 16-20	Upper Motor Neuron Circuits	Ch. 17
Wk 8 Feb. 23-27	Basal Ganglia & Motor Control Cerebellum & Motor Control	Ch. 18 Ch. 19
Wk 9 Mar. 2-6	**SPRING BREAK**	
Wk 10 Mar. 9-13	Cerebellum & Motor Control Oculomotor Control & Integration	Ch. 19 Ch. 20
Wk 11 Mar. 16-20	Visceral Motor System Early Brain Development	Ch. 21 Ch. 22 **EXAM III**
Wk 12 Mar. 23-27	Construction of Neural Circuits Modification of Neural Circuits via Experience	Ch. 23 Ch. 24
Wk 13 Mar. 30-Apr. 3	Neural Repair & Regeneration Association Cortex & Cognition	Ch. 25 Ch. 26
Wk 14 Apr. 6-10	Speech & Language and Sleep & Wakefulness Sleep & Wakefulness & Emotions	Chs. 27-28 Chs. 28-29
Wk 15 Apr. 13-17	Memory Fatigue	Ch. 31
Wk 16 Apr. 20-24	**Final Exam**	**EXAM IV**

Note: Tentative course schedule is subject to change.

The University of Memphis
School of Health Studies
ESMS 8532
RESEARCH METHODS IN SPORT NEUROMECHANICS
Spring 2017
Tuesday 1-4 pm, FH171

Max Paquette, PhD
Office: 308 Roane Fieldhouse
Office hours: T, R 10:00-1:00,
W 1:30-5:30 or by appt.
mpaquette@memphis.edu

ESMS 8532 RESEARCH METHODS IN SPORT NEUROMECHANICS

Course Description: This course will be an introduction to the laboratory methods utilized in the neuromuscular analysis of sport movements. Includes typical and emerging methodologies and technologies associated with human performance biomechanics and neurophysiology.

Prerequisites: ESMS 7123/8123 or permission of instructor

Text(s): Research Methods in Biomechanics. Robertson, D. Gordon E., Ed. Human Kinetics, 2014.

Class notes will be posted at http://umdrive.memphis.edu/mpaquette/ESMS7532

Support of Conceptual Framework: Through the learning and application of current research and effective practice in biomechanics research methods, students with diverse abilities and experience levels are able to increase their knowledge of the data collection and analysis in the mechanics of human movement.

Methods of Instruction: Lecture and Laboratory

Key Assessments:
Knowledge of biomechanical instrumentation
Knowledge of biomechanical software analyses
Knowledge of biomechanical principles that underlie data collection for the following activities: walking, jogging, running, swimming, cycling, weight lifting, and carrying or moving objects.

Exams and Grading Criteria:

Exam 1	30%	February 12
Final Exam (cumulative)	30%	April 22
Research Project	40%	April 29

A (90-100%) B (80-89%) C (70-79%) D (60-69%) F (<60%)

Major Topics and Activities:

Week 1: Basic Electronics
Week 2: Signal Processing
Week 3: Force platform analyses: Gait
Weeks 4-5: Force platform analyses: Jumps
Weeks 6-7: Linear velocity and position transducers
Weeks 8-9: Jump squat and bench press throw analysis
Week 10: Videography: Manual digitizing
Weeks 11-12: Videography: Automatic digitizing
Weeks 13-16: Electromyography

Exams will consist of short answer and essay questions, as well as calculations.

Research Project: Participants in the class will collectively, under the guidance of the instructor:

1. Plan a research investigation based in proper subject selection (inclusion criteria), temporal aspects of data collection, proper a priori statistical measures and available technology
2. Collect data using various technology in the Exercise Neuromechanics Laboratory
3. Analyze neuromechanical performance data and perform statistical analyses.
4. Compose a 3000-character (including spaces) abstract or abstracts. The research project grade will be awarded based on active participation in all aspects of data collection, analysis and abstract composition. This includes giving opinions on the project, operating technology, interacting with subjects and aiding in the writing process.

Attendance: Due to the heavy laboratory component of this class, attendance is mandatory.

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on an electronic portfolio (iWebfolio). Standards and outcomes for your area of study are presented at http://www.iwebfolio.com. If you are required to register for iWebfolio during this semester, more information and instructions will be provided. If iWebfolio is not used in this course this semester, you should save all projects, presentations, and assignments for uploading at a later time.

The University of Memphis
School of Health Studies
ESMS 7542/8542
Advanced Kinesiology
Fall '17
Lawrence Weiss, Ed.D., CSCS*D, FNSCA, RFSA, FACSM
Office: Field House 314

ESMS 7542/8542: Advanced Kinesiology
Monday, Wednesday, 1:00 – 4:00 p.m., Field House 343

Course Description: Analysis of mechanical factors related to body motion using experimentation and computer analysis of biophysical data. Applications-intensive course involving collaboration between a faculty member and one or more students.

Prerequisites: ESMS 7201, EDPR 7523, 7541 or permission of instructor

Text: None

Support of Conceptual Framework: One of the *exercise and sport science* elective courses that provides experiences useful in understanding and effectively addressing research questions that apply to various walks of human life.

Method of Instruction: Students will engage in listening, questioning and discussing theory, research findings, and potential applications pertaining to biophysical aspects of human movement. The major focus of the course is the development and conduction of a theoretically-based project.

Key Assessment: research project development and conduction

Course Objectives:

From participating in this course, the student will:

1. Effectively communicate an understanding of theory pertaining to biophysical aspects of human movement.
2. Communicate an appropriate understanding of the acute effects of various intervening factors on kinesiological variables.
3. Communicate an appropriate understanding of the necessity for selected environmental controls when performing kinesiological tests.
4. Develop and effectively conduct a theoretically-based scientific experiment related to biophysical aspects of human movement.
5. Complete a written report on the scientific experiment using a style appropriate for submission to a refereed journal in the area.
6. Complete an oral report on the scientific experiment using a format customary for free communications at a professional meeting in the human performance area.

Content Overview and Grading Criteria:

Overview: One or more relevant and currently testable theories associated with the biophysical aspects of human movement will be examined. Associated laboratory equipment will be utilized.

Evaluations: Evaluations will be based upon the student's performance on a faculty-directed innovative project pertaining to the biophysical aspects of human movement and performance and the written and verbal presentation of it.

Final Evaluation: The student's final grade is dependent upon the following:

Project:		≥ 97 = A+	≥ 93 = A	≥ 90 = A-
Written Introduction/Methods Paper	50 %	≥ 87 = B+	≥ 83 = B	≥ 80 = B-
Oral Presentation	10 %	≥ 77 = C+	≥ 73 = C	≥ 70 = C-
Collaboration w/ Classmates	40 %	≥ 67 = D+	≥ 60 = D	< 60 = F

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Extra Credit: I strongly encourage all students to seek opportunities to get involved as participants or collaborators in research projects conducted through any of the Human Performance Laboratories to enhance your professional development. However, “extra credit” is will not be awarded for any of these activities.

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Harassment: The School of Health Studies believes it is important to respond to insensitive and inappropriate behavior in a spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues:

The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate. You may speak to the instructor, and SHS faculty member, the Department Chair (678-4165), or the University's Affirmative Action Officer (678-2713). You may contact the Assistant Dean of Students (678-2298), in the Office of Student Judicial Affairs.

It is important that you speak immediately to someone, with whom you feel comfortable, in order that your concerns can be handled promptly and fairly. In all complaints of discrimination, including sexual harassment, the Office of Affirmative Action will be notified.

SHS iWebfolio Position Statement: This course satisfies one or more of the performance outcomes and curriculum standards required for program approval and/or accreditation, and some assignments may be identified for posting on an electronic portfolio (iWebfolio). Standards and outcomes for your area of study are presented at http://www.iwebfolio.com. If you are required to register for iWebfolio during this semester, more information and instructions will be provided. If iWebfolio is not used in this course this semester, you should save all projects, presentations, and assignments for uploading later.

School of Health Studies

HMSE 7010: Research Methods in Health and Sport Sciences

Instructor: Keith R. Martin, PhD, MTox **Time:** Online
Office: FH 311 **Semester:** Fall 2018
Office Hours: TR: 11:00-12:00; WRF 1:00-2:00; by appt. **Course #:** 93817
Email: krmartin4@memphis.edu **Hours:** Monday 1:00-4:00

Course Description: Introduction to health, exercise science, and/or biomedical research and methodology. Comprises selected research techniques and designs applicable to health, exercise science and biomedical research, with emphasis on planning, conducting, and reporting research; applied statistical analysis and interpretation of data from health and sport sciences.

Pre-requisites: None

Textbooks & Supplementary Materials

Texts (other readings will be online):

1. Research Methods in Physical Activity, 7th Edition, Thomas, Nelson & Silverman.
    a. ISBN: 978-1450470445
2. Scientific Writing and Communication, 2nd Edition Angelika H. Hofman (also required for EXSS 7020 in Spring)
    a. ISBN: 978-0199947560

Class notes and readings will be posted on eCourseware and/or distributed in class.

Course Objectives & Schedule

- Upon completion of this course, students will be able to:
- Explore health, exercise science, and biomedical research topics and complete a literature search.
- Critique peer-reviewed health and sport science journal articles
- Identify internal and external threats to validity for health and sport science research studies
- Distinguish between various types of health and sport science research designs and methodology
- Distinguish between various types of statistical methods
- Interpret statistical analyses both descriptively and inferentially
- Write a literature review

Tentative Course Schedule

Week	Date	Weekly Contact
1	8/27	Introduction to HMSE 7010 Thomas, Chapter 1: Introduction to Research in Health Sciences Hofmann, Chapter 1: Importance of Writing in Science

2	9/3	Labor Day-No class
3	9/10	Thomas, Chapter 2: Developing the Problem and Using the Literature Hofmann, Chapter 8: References and Plagiarism
4	9/17	Hofmann, Chapter 7: The First Draft Hofmann, Chapter 18: Review Articles
5	9/24	Thomas, Chapter 3: Presenting the Problem Hofmann, Chapter 2: Individual Words Hofmann, Chapter 3: Word Location
6	10/1	Thomas, Chapter 4: Formulating the Method Hofmann, Chapter 4: Technical Sentence Hofmann, Chapter 6: From Sentences to Paragraphs
7	10/8	Thomas, Chapter 5: Ethical Issues in Research and Scholarship (Part 1-to Human Subjects)
	10/12	**Literature review topic due**
8	10/15	Fall Break-No Class
9	10/22	Thomas, Chapter 6: Introduction to Statistical Concepts Thomas, Chapter 7: Statistical Issues in Research Planning and Evaluation **Sign up for paper presentation.**
10	10/29	Thomas, Chapter 8: Relationships Among Variables Thomas, Chapter 9; Differences Among Groups Student presentation; **Outlines due.**
11	11/5	Thomas, Chapter 10: Nonparametric Techniques Thomas, Chapter 11; Measuring Research Variables Student presentation
12	11/12	Thomas, Chapter 18: Experimental and Quasi-Experimental Research Student presentation
13	11/19	Thomas, Chapter 14: Research Synthesis: Meta-Analysis Thomas, Chapter 15: Surveys Student presentation
14	11/26	Thomas, Chapter 16: Other Descriptive Research Methods Thomas, Chapter 17; Epidemiology Research

		Student presentation
15	12/3	Thomas, Chapter 21: Completing the Research Process Thomas, Chapter 22; Ways of Reporting Research Student presentation
	12/3	**Literature review due; Spreadsheet of references due.** **CITI Training certificate due.**

Attendance: Attendance is strongly encouraged, but not recorded for grade. Class time will not be spent to catch up those who do not attend.

Grade Distribution

Item	Due Date	% of Total
In-Class Article Discussions*	Weekly in class	15%
Attendance/Participation		5%
Literature Review Paper Topic	10/12	5%
Outline for Literature Review Paper	10/29	15%
Article Spreadsheet	12/3	20%
Literature Review (including 2-4 Research Questions & Updated Spreadsheet	12/3	25%:
CITI** Training	12/3	15%

*Second half of semester.
**Collaborative Institutional Training Initiative (CITI)-research ethics education to all members of the research community.

Grading
A: 90-100%
B: 80.0-89.9%
C: 70-79.9%
D: 60.0-69.9%
F: < 60.0%

Assignments:
All assignments will be turned in the eCourseware Dropbox, emailed to krmrtin4@memphis.edu, or submitted at 311 Elma Roane Fieldhouse before 5:00 pm on the above listed deadline

In-Class Article Discussions: Articles will be uploaded to eCourseware one week prior to presentation. Make sure to participate when you are not leading; consider it a favor to your classmates, as you want them to reciprocate when you lead.

Literature Review Paper Topics: Topics will be determined in consultation with your advisor and Dr. Martin. When possible, the research topic should be in an area that might lead to your thesis/applied project. It is appropriate to develop a background knowledge in the tentative topic area prior to deciding your project topic. Include your project advisor n communications regarding your research topic when appropriate.

Article Spreadsheet: This assignment will be discussed in Week 4. The spreadsheet should be an evolving document that continues to have references added to it throughout the semester. You will hand in the final article spreadsheet with your paper.

Outline for Literature Review Paper: Paper outline examples are in the Hofman text (pp. 133-138)

Literature Review Paper: This will be a literature review that will follow a funnel format. At the end, you will provide 2-4 research questions that have yet to be adequately tested based on the available literature.

CITI Training: This training is done online via access from the University of Memphis. You can take the quizzes as many times as needed to pass. You need to verify with me that you passed by printing the summary page to *.pdf and uploading it to eCourseware, emailing to krmrtin4@memphis.edu, or submission at 311 Elma Roane Fieldhouse.

Americans with Disabilities Act (ADA)

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. Any student who anticipates physical or academic barriers based on the impact of a disability is encouraged to speak with me privately. Students with disabilities should also contact Disability Resources for Students (DRS) at 110 Wilder Tower, 901-678-2880. DRS coordinates access and accommodations for students with disabilities;

Written Assignments & Academic Misconduct

All written work submitted must be the student's original work. This means any substantive ideas, phrases, sentences, and/or published ideas must be properly referenced to avoid even the appearance of plagiarism. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions by the College of Education.

Plagiarism

Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgement. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials. Your written work may be submitted to Turnitin.com or a similar electronic detection method for an evaluation if the originality of your ideas and proper use and attribution of sources. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin's restricted access database solely for the purpose if detecting plagiarism in such documents. Any assignments\ not submitted according to the procedures given by the instructor may be penalized or may not be accepted. Please refer to the University's Code for Student Conduct for actions that may result from student academic misconduct.

Promoting a Positive Learning Environment

The Department of Health and Sport Sciences recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Departmental courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age. disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Incomplete Grades

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Dealing with Harassment

The Department of Health and Sport Sciences believes it is important to respond to insensitive and inappropriate behavior in the spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues;

1. The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate.

2. You may speak to the instructor, an HSS faculty member, the Department Chair (678- 4165), or the University's Affirmative Action Officer (678-2713).

3. You my contact the Assistant Dean of Students (678-2298), in the office of Student Judicial Affairs.

It is important that you speak immediately to someone, with whom you feel comfortable, in order that your concerns can be handled promptly and fairly. In all complaints of discrimination including sexual harassment, the Office of Affirmative Action will be notified.

THE UNIVERSITY OF MEMPHIS | School of Health Studies

Exercise/Nutrition Immunology

Instructor:	Marie van der Merwe	**Time:**	Online
Office:	FH 310	**Semester:**	Fall
Office hours:	N/A – Online	**Course #:**	NUTR8002
Email:	mvndrmrw@memphis.edu	**Hours:**	3

COURSE OVERVIEW

This graduate level course is intended as an overview of the effects of exercise and nutrition on the immune system. Couse content is delivered entirely online through eCourseware and will cover basic concepts in immunology, the effects of exercise on the immune system and how nutrients alter immune responses. Students will be exposed to cutting-edge research in nutritional immunology. The course will include online lectures, activities, discussions, quizzes and examinations, and a writing component.

Course Objectives

By the end of the course, students should be able to demonstrate a broad understanding of:

- Immune system and its components
- Effect of exercise on immune function
- Effect of nutrients on immune responses

Additionally, students will be exposed to:

- Experimental methods critical to immune function analysis.

Shopify link to purchase access to Realizeit platform:
https://realizeit.myshopify.com/products/university-of-memphis-exercise-nutrition-immunology-crn-96471

Literature to be used as resources:

- Primary research articles, review articles, and book chapters as posted on eCourseware. (**required**)
- Gleeson, M. (2013) Exercise Immunology. New York, NY: Routledge. ISBN 978-0-415-50726-4. (**optional**)
- Nieman, DC. (2000) Nutrition and exercise immunology. CRC Press. ISBN 0-8493-0741-4 **(optional)**

Additional Material: All materials can be found on eCourseware.

Methods of Instruction: Online.

ASSIGNMENTS, EXAMS, AND GRADING CRITERIA

Assignments: Assignments and descriptions can be found on eCourseware and Realizeit.

Readings: Students are responsible for completing all readings. Students are responsible for purchasing their own books, necessary. Additional reading materials will be made available on eCourseware/Realizeit.

Quizzes: Students are required to complete all quizzes posted on Realizeit. Quizzes will consist of multiple choice and true/false questions and address material from readings, lectures, and discussions.

Discussion: Students will be required to contribute to discussion board posts on various topics (both instructor- and student-generated) throughout the semester as indicated. Grading criteria will take into account quality and will require a minimum number of posts for full points.

Papers and writing assignments: Students will complete various summaries indicated in the Realizeit modules. In addition two 2-3 page short review papers on a topic of their choosing related to 1) exercise and immunity (end of Realizeit module 7) and 2) a specific nutrient and its effect on immunity (end of Realizeit module 13). Paper will be due as indicated in specific module. 8-12 references are required. The bibliography does not contribute to the page count. The paper should be formatted with regard to font, margins, spacing, etc. according to the instructions at the following link: http://www.memphis.edu/gradschool/current_students/tdguide_preparation.php. Please include a title page, table of contents, and abbreviations/symbols key as well as a list of figures and list of tables as appropriate. These items do not contribute to the minimum page count. References should be formatted according to the style of the American Journal of Clinical Nutrition, which can be found at http://ajcn.nutrition.org/site/misc/ifa_format.xhtml#ref.

Final Exam: Students will complete a final exam that will be posted on eCourseware during final exam week. The exam will be cumulative, addressing material from all course readings, lectures, and discussions.

Grading: Grades will be calculated as percent total points earned per total points available.

Item	Total Points
Quizzes	100
Written Assignments	100
Papers (2)	150
Final Exam	150
Total	**500**

Percentage	Grade
≥ 90%	A
≥ 80%	B
≥ 70%	C
≥ 60%	D
< 60%	F

CLASS POLICIES

Attendance: Course logins are considered as attendance for the purpose of recording last time of attendance status.

Student Responsibilities:

1. It is the student's responsibility to read and understand the syllabus. Special circumstances may require modifications in the syllabus and in the assignments.

2. We will be using eCourseware and the Realizeit platform in this class. Students are required to have a University of Memphis email account and access to eCourseware and need to check both regularly. If you use a different email system, be sure to forward your U of M account to that other address.

3. Students are responsible for completing all assignments and materials on time. There is no provision for make-up work.

Incompletes: A grade of I (Incomplete) may be assigned by the instructor if the student is unable to complete the work due to extraordinary events beyond the individual's control. The I may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the I (within 45 days for undergraduate students or 90 days for graduate students from the end of the semester or Summer term in which it was received), the I will be changed to an F.

Academic Integrity: Failure to abide by the University Honor Code will result in automatic failure of this course. The disciplinary process is outlined at the website of the Office of Student Conduct at http://www.memphis.edu/studentconduct/academic-misconduct/process.php. All incidences of academic misconduct will be communicated to the Office of Student Conduct at the end of the disciplinary process. All written work submitted must be the student's original work. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of academic misconduct can and will result in dismissal from the course with a failing grade and may result in other more serious sanctions by the School of Health Studies.

Special Needs: Students with physical or academic barriers due to the impact of a disability should contact the Disability Resources for Students (DRS) at 110 Wilder Tower, 901-678-2880 to arrange accommodations. The DRS coordinator will prepare a list of accommodations for delivery to your instructors. Please arrange a meeting with your instructor as early as possible in the semester as accommodations cannot be applied retroactively and only take effect when the instructor is notified. As per university policy, no accommodations can be given without a written memo outlining these accommodations from DRS. Students who have or believe they may have disabilities requiring accommodations are urged to review the accommodations policies for the University of Memphis at the Disability Resources for Students website at http://www.memphis.edu/drs/disabilitysvcs, as well as the university statement on the Americans with Disabilities Act below. Students are not required to disclose their disability to their instructors but may do so if they wish.

TOPIC SCHEDULE

Please Note: This is a tentative schedule and may be modified.

Week 1	Introduction to the Immune system
Week 2	Cellular component of the Immune system: Innate Immunity
Week 3	Cellular component of the Immune system: Adaptive Immunity
Week 4	Immune dysregulation
Week 5	Factors Influencing the Immune Response
Week 6	Mucosal Immunity
Week 7	Exercise and immunity
Week 8	Exercise and immunity
Week 9	Carbohydrates, exercise and immune function
Week 10	Lipids, exercise and immune function
Week 11	Protein, exercise and immune function
Week 12	Vitamins/Minerals, exercise and immune function
Week 13	Supplements, exercise and immune function
Week 14	Special topics
Week 15	Special topics

NUTR 8100 ——— Intro to Wet Lab Methods in Health Studies

Semester: Spring 2018
Location: 341 Elma Roane Fieldhouse
Day: Thursdays and Fridays
Time: 2:00 – 4:00 PM

Instructor: Brandt D. Pence
Office: 304 Elma Roane Fieldhouse
Phone: 901-678-3407 (office); 217-549-3526 (cell)
Email: bdpence@memphis.edu

Office Hours: By appointment

Description

Theory and practical application of commonly-performed laboratory techniques used in health science research. Techniques consist of phlebotomy, biological sample handling and processing, solution preparation and distribution, use of animals and human subjects in research, dissections, protein analysis, nucleic acid analysis, tissue culture, and cell staining. Lecture contact hours: 2 per week; Laboratory contact hours: 2 per week Grades of S/U, or I will be given.

Prerequisite

Graduate standing; permission of instructor

Textbook

Each student is required to have an **unused** laboratory notebook for class use

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Objectives

My objectives as your instructor are to help you develop basic skills needed for laboratory research, including:

1. Understanding the theoretical basis for commonly used laboratory techniques in health sciences
2. Developing competency in commonly used laboratory techniques in health sciences, including the collection and analysis of biological samples
3. Acquiring the skills and understanding of techniques necessary to trouble shoot common laboratory problems related to biological sample analysis in health science.

Evaluation

This course is a pass/fail course (satisfactory/unsatisfactory). Due to the hands-on nature of the course, failure to attend and participate fully will result in a grade of unsatisfactory. Competency in laboratory techniques will be assessed through the demonstration of skills listed on a competency checklist. Students are encouraged to work together to solve problems during the hands-on portions of this course. All materials turned in to the instructor for evaluation must be prepared by each student individually and should reflect his or her own work. Submitted materials may be similar between individuals students (reflecting collaborative work) but should not be identical.

Attendance

Since this course will be a laboratory intensive, hands-on experience, attendance is required and expected at all meetings. If a student cannot attend a class meeting, he/she should notify the instructor in advance and plan to make up the missed material within two weeks of the missed class.

Other Policies

Incomplete: A grade of **I** (Incomplete) may be assigned by the instructor if the student is unable to complete the work due to extraordinary events beyond the individual's control. The **I** may **not** be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the **I (**within 90 days from the end of the semester in which it was received), the **I** will be changed to an **F**.

Accommodations: Students with physical or academic barriers due to the impact of a disability should contact the Disability Resources for Students (DRS) at 110 Wilder Tower, 901-678-2880 to arrange accommodations. The DRS coordinator will prepare a list of accommodations for delivery to your instructors. Please arrange a meeting with your instructor as early as possible in the semester as accommodations cannot be applied retroactively and only take effect when the instructor is notified. As per university policy, no accommodations can be given without a written memo outlining these accommodations from DRS. Students who have or believe they may have disabilities requiring accommodations are urged to review the accommodations policies for the University of Memphis at the Disability Resources for Students website at http://www.memphis.edu/drs/disabilitysvcs, as well as the university statement on the Americans with Disabilities Act below. Students are not required to disclose their disability to their instructors but may do so if they wish.

Americans with Disabilities Act: The University of Memphis does not discriminate based on disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty are required by law to provide reasonable accommodation to students with disabilities, so as not to discriminate based on that disability. Student

responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Mandatory Reporting: Your instructor is considered a Mandatory Reporter by the University of Memphis for Title IX compliance purposes. Any disclosure of past or current occurrences of sexual misconduct (defined to include dating violence, domestic violence, sexual assault, and stalking) to the instructor will result in an immediate report to the university Title IX coordinator, regardless of the whether the incident occurred during, prior to, or after enrollment of the individual making the disclosure at the University of Memphis. University policies on sexual misconduct and domestic violence can be found at the following website: http://umwa.memphis.edu/umpolicies/UM1786.htm.

Learning Environment: The School of Health Studies recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, SHS aspires to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation.

Academic Integrity: Failure to abide by the University Honor Code will result in automatic failure of this course. The disciplinary process is outlined at the website of the Office of Student Conduct at http://www.memphis.edu/studentconduct/academic-misconduct/process.php. All incidences of academic misconduct will be communicated to the Office of Student Conduct at the end of the disciplinary process. All written work submitted must be the student's original work. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. **Plagiarism** includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials. The University of Memphis additionally defines as plagiarism the reuse of one's own material which has been previously submitted for academic credit at this or any other institution. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of academic misconduct can and will result in dismissal from the course with a failing grade and may result in other more serious sanctions by the School of Health Studies.

Harassment: The School of Health Studies believes it is important to respond to insensitive and inappropriate behavior in a spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, a faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues: The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate. You may speak to the instructor, an SHS faculty member, the Department Chair (678-4165), or the University's Affirmative Action Officer (678-2713). You may also contact the Assistant Dean of Students (678-2298) in the Office of Student Judicial Affairs.

Assignment Grade Appeals: Any grade appeals on individual assignments must be filed with the instructor no later than one week (7 calendar days) after the assignment is returned. The burden of proof for grade appeals lies with the student making the appeal. Grade appeals must be well-justified and in written form. Emailed grade appeals are not accepted. Consistent with FERPA regulations, the instructor will not discuss grades over email.

Final Grade Appeals: The University of Memphis Graduate Catalog outlines the appeal procedure for grades a student feels were assigned based on prejudice, discrimination, capricious action, retribution, or other reasons not related to academic performance. The university deadline for grade appeals is 30 days following the grade posting deadline for each term, and the burden of proof for grade appeals lies with the student making the appeal. The five-step process for grade appeals can be found in the Graduate Catalog at http://www.memphis.edu/gradcatalog/academic_regulations/grade_appeal.php.

Other Regulations: Students are bound by and are expected to be familiar with all regulations concerning enrollment in and participation in classes at the University of Memphis as outlined in the Graduate Catalog, School of Health Studies handbooks, and any other official documents provided on behalf of the University of Memphis, the Graduate School, the School of Health Science, or any other university entity which has oversight of any program in which the student is enrolled.

FERPA: The Federal Educational Rights and Privacy Act of 1974 limits the ability of the instructor to discuss student details (including grades) with parties other than the student him- or herself, thus prohibiting disclosure to spouses, family members, and friends. Although the law does permit release of student records to parents or other parties under limited circumstances with written permission of the student, the instructor has a policy never to release protected student information to parties outside the university, whether or not the student has a FERPA release form on file with the Registrar. An exception to this policy is for letters of recommendation requested by the student. Students wishing to have letters of recommendation should fill out the recommendation request waiver form found on the UM website at http://www.memphis.edu/registrar/pdf-docs/forms/letter_rec.pdf and hand-deliver it to their instructor. Students should request letters at least 30 days in advance of the filing deadline and should waive their right to review the letter by checking the appropriate box on the form.

Changes to this Document: The instructor reserves the right to add, remove, or make changes to the policies outlined in this document at any time and for any reason. All such changes will be communicated directly to students at the time they are made.

Schedule (subject to change)

Date	Lecture	Laboratory
Jan 18 **Jan 19**	General Lab Techniques	Pipetting, Weighing, Solutions
Jan 25 **Jan 26**	Human Subjects	Phlebotomy, Sample Processing
Feb 1 **Feb 2**	PBMC Isolation	Phlebotomy, PBMC Isolation
Feb 8 **Feb 9**	Lab Animal Research	Anatomy and Dissections (most likely video)
Feb 15 **Feb 16**	Protein Isolation	Tissues, Protein Isolation
Feb 22 **Feb 23**	Standard Curves Western Blots	Bradford Assay, Standard Curve
Mar 1 **Mar 2**	No Class	No Class
Mar 8 **Mar 9**	Spring Break	Spring Break
Mar 15 **Mar 16**	None	Western Blots
Mar 22 **Mar 23**	ELISA	ELISA
Mar 29 **Mar 30**	Nucleic Acids	RNA Isolation
Apr 5 **Apr 6**	PCR/qPCR	Evaluating qPCR data
Apr 12 **Apr 13**	Cell Culture	Cell Culture, Flow Cytometry
Apr 19 **Apr 20**	Cell Staining	Immunofluorescence



NUTR 8412 – Cellular Nutrition I
Tuesday 4 pm – 7 pm
Room: 170 Elma Roane Fieldhouse
Instructor: Dr. Yufeng Zhang
Office: 313 Elma Roane Fieldhouse
Phone: 901-678-4743
Email: yzhang24@memphis.edu
Office hours: By appointment

Course description:
In depth study of carbohydrates, lipids & proteins and their biochemical functions as it applies to dietetics.

Prerequisite:
BIOL 2010/2011, 2020/2021; NUTR 3002; CHEM 3311/3301

Textbook:
Biochemical, Physiological, and Molecular Aspects of Human Nutrition. Stipanuk, Martha H., Caudill, Marie A. 3rd Ed. ISBN: 978-4377-0959-9

Course objectives:
1. Provide a comprehensive understanding of the cellular and sub-cellular metabolism of macronutrients.
2. Develop critical thinking skills through interpretation, evaluation and reporting of research data related to specific nutrient function and apply to nutrition issues.
3. Review and assess current publications.

Assignments, Exams and Grading criteria:
Exams: 2 @ 100 points each = 200 points
Mini Review and comments = 100 points
Presentation = 100 points
The total = 400 points
Grading scale: >90% A, 80 – 89% B, 70 – 79% C, 60 – 69% D, < 59% F

Attendance: Attendance is required at all class meetings, attendance will be taken. Students who are absent are responsible for obtaining class notes from fellow students. Please be on time for class.

Make up exams: No make-up exams given except under extreme circumstances and must be approved prior to exam day.

Awarding an incomplete grade: A grade of "I" (Incomplete) may be assigned by the instructor if the student is unable to complete the work due to extraordinary events beyond the individual's control. The "I" may **not** be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F,"

Special Needs: Any student who anticipates physical or academic barriers based on the impact of a disability is encouraged to speak with Dr. van der Merwe privately during the first week of class. Students with disabilities should also contact Disability Resources for Students (DRS) at 110 Wilder Tower, 901-678-2880. DRS can coordinate access and accommodations for students with disabilities.

Americans with Disabilities Act: The University of Memphis does not discriminate based on disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty are required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate based on that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Learning Environment: The School of Health Studies recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, the school aspires to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Academic integrity: Failure to abide by the University Honor Code will result in automatic failure of this course. All written work submitted must be the student's original work. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. **Plagiarism** includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers of other academic materials. It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade and may result in other more serious sanctions by the College of Education.

Harassment: The School of Health Studies believes it is important to respond to insensitive and inappropriate behavior in a spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, a faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues:

The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate. You may speak to the instructor (Dr. van der Merwe), another faculty member, the Department Chair (678-4165), or the University's Affirmative Action Officer (678-2713). You may contact the Assistant Dean of Students (678-2298) in the Office of Student Judicial Affairs

Inclement weather: If inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an inclement Weather Hotline at 678-0888. 4

Crisis management: To learn more about the Office of Crisis Management and what they are doing to keep our campus safe, please visit http://www.memphis.edu/crisis/

NUTR 8412 Tentative Course Schedule

DATE	***TOPIC***
Aug. 28	Introduction to Class/ Syllabus
	History and material review
Sept. 4	Bioenergetics
Sept. 11	Structure and properties
Sept. 18	Carbohydrate digestion, absorption, and metabolism
Sept. 25	Carbohydrate metabolism
Oct. 2	Carbohydrate metabolism
Oct. 9	**Exam 1**
Oct. 16	*Fall Break*
Oct. 23	Lipid digestion, absorption, and metabolism
Oct. 30	Lipid metabolism (Mini Review due)
Nov.6	Lipid metabolism
Nov. 13	Protein digestion, absorption, and metabolism
Nov. 20	Protein metabolism (comments for Mini Review due)
Nov. 27	Protein metabolism
Dec. 4	Conclusion
Final week	**Exam 2**

* Find 2 studies published in peer reviewed journals on a specific issue regarding substrates metabolism and write YOUR review and conclusion about these studies. Mini Review should be divided into the following sections, in this order:

1. Title page
2. Abstract (max. 150 words)
3. Review body (2-3 pages, double space)
4. Acknowledgements
5. References
6. Figures and figure legends
7. Tables

**Comments for Mini Review. Each student will be assigned to review two Mini Reviews from other students.

***Presentation: 10-15 min presentation on an original peer reviewed scientific journal article on specific substrates metabolism.

- Provide brief background information, justification for the experiment, explain what the results means and give a conclusion.



NUTR 8422 – Cellular Nutrition II (3)
MON 3 – 6 pm
Room: 343 Field House
Instructor: Dr. Marie van der Merwe
Office: 310 Field House
Phone: 901 678 3476
Cell: 901 406 7458
Email: mvndrmrw@memphis.edu
Office hours: T/TH 9:30 – 12:30
(Other times by appointment)

Course description: NUTR 8422 - Cellular Nutrition II
Cellular and subcellular metabolism of micro-nutrients; digestion, absorption, transport, utilization, and excretion of vitamins and minerals; interrelationships of micro- and macronutrients; recent advances in micronutrient research.

Prerequisite:
Student must meet the ADA Didactic Program in Dietetics requirements of permission of instruction.

Textbook:
Biochemical, Physiological, Molecular Aspects of Human Nutrition by Martha H. Stipanuk and Marie A. Caudill, 3rd Edition, Saunders Elsevier

Methods of Instruction: Lectures, discussions, projects, and presentations.

Course objective:
1. Provide a comprehensive understanding of the cellular and sub-cellular metabolism of micronutrients.
2. Examine the interrelationships of micronutrients and some of the regulatory factors influencing cellular nutrition.
3. Explore dietary interventions for treatment of micronutrients deficiencies.
4. Evaluate and critique recent nutrition research regarding micronutrients.

Key Assessments: Assignments, Exams, and Grading Criteria:

Evaluation / Assignments	Total Points
Exam 4 (@ 100 point)	400
Quizzes (5)	50
Presentation X1	75
Lit. Review X1	75
TOTAL	**600 Possible Points**

	Grading Scale
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
< 60	F

Assignments, Exams and Grading criteria:

The total of 600 points will be used to compute a percentage of 100%.

*Quizzes will be held at 1) the end of class, covering the work done during class, or 2) announced the week before or 3) be unannounced and covering the information from the previous class.

Attendance: Attendance is required at all class meetings, attendance will be taken. Students who are absent are responsible for obtaining class notes from fellow students. Please be on time for class.

Make up exams: No make-up exams given except under extreme circumstances and must be approved prior to exam day.

Awarding an incomplete grade: A grade of "I" (Incomplete) may be assigned by the instructor if the student is unable to complete the work due to extraordinary events beyond the individual's control. The "I" may **not** be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F,"

ACADEMIC INTEGRITY:

Failure to abide by the University Honor Code will result in automatic failure of this course.

Written Assignments and Academic Misconduct: All written work submitted must be the student's original work. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be

properly referenced to avoid even the appearance of plagiarism. It is the student's responsibility to know all relevant University policies concerning plagiarism. Any documented cases of plagiarism can and will usually result in dismissal from the course with a failing grade, and may result in other more serious sanctions by the School and/or University.

PLAGIARISM: Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers of other academic materials. Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all. Please refer to the University's "Code of Student Conduct" for actions that may result from student academic misconduct.

PROMOTING A POSITIVE LEARNING ENVIRONMENT: The School of Health Studies recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. School courses will strive to provide an opportunity for all students to openly discuss issues of diversity.

SPECIAL NEEDS: Any student who has special needs for assistance and/or accommodation, and who is registered with the Disability Resources for Students Office should meet with the instructor during the first week of classes. It is the responsibility of the student to register with the Disability Resources for Students Office if they believe they have a special need.

Americans with Disabilities Act: The University of Memphis does not discriminate based on disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty members are required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate based on that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

DEALING WITH HARASSMENT: The School of Health Studies believes it is important to respond to insensitive and inappropriate behavior in a spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues:

The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate. You may speak to the instructor, the School Director (office located in Fieldhouse 106), the University's Institutional Equity Officer, or the Dean of Students. It is important that you speak immediately to someone, with whom you feel comfortable, in order that your concerns can be handled promptly and fairly.

INCLEMENT WEATHER: If inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an inclement Weather Hotline at 678-0888.

CRISIS MANAGEMENT

To learn more about the Office of Crisis Management and what they are doing to keep our campus safe, please visit http://www.memphis.edu/crisis/

The University is committed to ensuring equality in education and eliminating all acts of sexual misconduct from its campus. Sexual misconduct includes sexual harassment, sexual assault, dating violence, domestic violence and stalking. If you or someone you know has been harassed or assaulted, you can make a report to the Office for Institutional Equity at oie@memphis.edu or 901.678.2713. Please note that if you make a report to me I am required to report it. If you want to make a confidential report you can contact the University Counseling Center, 214 Wilder Tower, 901.678.2068.

Tentative Course Schedule

Class	Date	Lecture or test info	Chapter	Exam Content
1	1/14	Syllabus review Presentation schedule/Lit. Review Niacin & Riboflavin	 Chapter 24	
	1/21	**No Class – ML King, Jr. Holiday**		
2	1/28	Thiamin, Folate, Choline, Vitamin B12, Vitamin B6 **Brittany Werner & Myeshia Watts**	Chapter 24, 25	
3	2/4	Biotin and Pantothenic Acid, Vitamin C **Sandra Turnbow & Faith Keating**	Chapter 26, 27	
4	2/11	**Exam 1**		Chapter 24 - 27
5	2/18	Vitamin K, A **Abigail Mills & Geri McNeilly & Elina Thomas**	Chapter 28, 30	

	2/25	**No Class – Nashville**		
	3/4	**Spring break (March 4-10)**		
6	3/11	Vitamin E, D **Brittany Logan & Caitlin Lindsey & Gabby McMaster**	Chapter 29, 31	
7	3/18	**Exam 2** Calcium	 Chapter 32	Chapter 28 - 31
8	3/25	**Hand in Lit. Review** Calcium, Phosphorus and Magnesium **Ryan Kerr & Rachael Speltz & Dalia Ayesh**	 Chapter 32, 33	
9	4/1	Sodium, Chloride, and Potassium Body Fluids and Water Balance **Victoria Guentzel & Samaria Grandberry**	Chapter 34, 35	
10	4/8	**Exam 3** Iron, Zinc	 Chapter 36, 37	Chapter 32 - 35
11	4/15	Copper, and Manganese, Iodine **Martina Faietti & Lisa Evanoff & Raed Ageeli**	Chapter 37, 38	
12	4/22	Selenium, Fluoride Molybdenum and Beneficial Bioactive Trace Elements **Paige Childs & Matthew Butawan**	Chapter 39, 40 Chapter 41	
	4/25	**Study Day**		
13	4/29	**Exam 4**		Chapter 36 - 41

Presentation: 10 min presentation of a peer reviewed scientific paper covering the lecture topic from the previous week.

➔ Give short introduction and state hypothesis (or research question), describe experiments and results and give conclusion.

Lit review: 2-3 Pages, double spaced, 10-15 References, AMA Reference citation format

➔ You should cite original work and not review papers.

Topic: Pick a current area of research on Your Favorite Vitamin.

7.3. BS in Public Health

For Approval

Presentation to the Board of Trustees

The University of Memphis Board of Trustees
For Approval

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: Approval of New Academic Programs: Bachelor of Science in Public Health

Presented by: Dr. Thomas Nenon, Provost and Executive Vice President for Academic Affairs

Background:
Among the powers given to the Board of Trustees by the FOCUS Act is the power "to prescribe curricula and requirements for diplomas and degrees." The University of Memphis has the authority to create new courses, terminate existing courses, determine course content or design, and carry out less extensive curriculum revisions. The Tennessee Higher Education Commission (THEC) must review and approve new academic programs, off-campus extensions of existing academic programs, new academic units (divisions, colleges, and schools), and new instructional locations as specified in THEC Policy No. A1:0: New Academic Programs - Approval Process and A1:1: New Academic Programs.

Designed to build and strengthen the local and regional public health workforce, this proposed undergraduate degree program will capitalize on the School of Public Health's strong interdisciplinary relationships across the University and will prepare students to compete for jobs in a wide range of public health disciplines in healthcare, government, and community organization settings. In addition to course work, students will be required to interface with community organizations through volunteer and fieldwork experiences. The proposed Bachelor of Science in Public Health (B.S.P.H) program has two primary goals: 1) Equip undergraduate students for entry-level positions in government and private health agencies, community organizations, industry, and secondary education, and 2) prepare students who plan to enter a master's program in public health or a degree in medicine, nursing, pharmacy, or other biomedical science. The design of the program includes core courses in public health (Social Justice & Public Health Social Determinants of Health, Analytical and Research Methods in Public Health I & II, Environmental Health I & II, Public Health Principles and Practice I & II, and Public Health Systems & Policy I & II) and related disciplines (e.g., Anthropology, Communication, Health Studies, and Sociology) as well as multidisciplinary elective courses aligned with students' interest. Courses will involve service within the local community, research, data analysis, report writing, and/or small group presentations.

This proposal has been considered and approved by the respective College or School faculty and Deans. Subsequently, the proposal was considered and approved by the University Council for Undergraduate Studies, which are the highest governing body that has representation across all colleges and schools. The proposal was also considered and approved by the Provost and President of the University.

Committee Recommendation:
The Academics, Research, & Student Success Committee recommends approval of the Bachelor of Science in Public Health as contained in the meeting materials and delegates authority to the Provost to make any changes necessary to facilitate program approval by THEC.

THE UNIVERSITY OF
MEMPHIS.
School of Public Health

TO: Dr. M. David Rudd
President

FROM: Dr. James G. Gurney, Dean
School of Public Health

DATE: February 25, 2019

SUBJECT: Bachelor of Science in Public Health Major

Attached is the School of Public Health proposal for the Bachelor of Science in Public Health. The program and degree were approved on February 8, 2019 by the University Undergraduate Curriculum Committee. The proposal conforms to the THEC format for their required Letter of Notification.

The School of Public Health will offer the degree beginning in the Fall of 2020 and will partner with the School of Health Studies (SHS) and the Departments of Anthropology, Communications, and Sociology on several courses for degree requirements. The inclusion of those courses in the B.S.P.H. degree requirement will be mutually beneficial to all departments involved. The proposed program combines courses already offered by the School of Public Health and by SHS and the aforementioned departments along with 13 new PUBH courses. We will be offering the BSPH courses both on-campus and online. We do not anticipate that the program will require any new faculty during the first two years. However, we plan to hire a full time undergraduate advisor/recruiter in the Spring of 2020.

I believe this major will provide a service to the region and its health-related workforce, as well as to our potential students. Furthermore, I am confident that it will generate benefits to our existing public health Master's degree programs.

Thank you for consideration of this proposal. I look forward to hearing from the Board of Trustees regarding their decision.

Attachment

Letter of Notification to Develop a New Academic Program: Bachelor of Science in Public Health

Submitted to the
Tennessee Higher Education Commission

By
The University of Memphis

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Proposed Program Name:

Bachelor of Science in Public Health

Proposed Degree Designation:

Bachelor of Science in Public Health (B.S.P.H.)

Proposed CIP Code:

51.22 - Public Health, General

Definition: A program that generally prepares individuals to plan, manage, and evaluate public health care services; to function as public health professionals in public agencies, the private sector, and other settings; and to provide leadership in the field of public health. Includes instruction in epidemiology, biostatistics, public health principles, preventive medicine, health policy and regulations, health care services and related administrative functions, public health law enforcement, health economics and budgeting, public communications, and professional standards and ethics.

Proposed implementation date:

Fall 2020

Academic Program Liaison (APL) name and contact information:

Dr. Karen Weddle-West
Vice President for Student Academic Success
University of Memphis
Administration Building
Memphis, TN 38152
Office: 901-678-2894
Email: kweddle@memphis.edu

BACKGROUND CONCERNING ACADEMIC PROGRAM DEVELOPMENT

The School of Public Health (SPH) at the University of Memphis (UofM) seeks to establish a Bachelor of Science degree in Public Health (B.S.P.H.) with an emphasis on urban health. The proposed program was developed in response to the growing recognition that communities across Tennessee, and the country as a whole, require a well-trained public health workforce in order to protect the public's health. Recent calls by the Institute of Medicine (IOM) and the Association of Schools and Programs of Public Health (ASPPH) to expand undergraduate education in public health (1, 2) have helped spur the expansion of public health education at the undergraduate level. The number of undergraduate public health degree programs has grown exponentially in the past ten years and the UofM finds itself behind the curve. Now, with a fully accredited School of Public Health at the UofM, the time appears right to establish a program that can help address the growing need for a public health-informed workforce.

PURPOSE and NATURE of PROGRAM:

Designed to build and strengthen the local and regional public health workforce, this proposed undergraduate degree program will capitalize on SPH's strong interdisciplinary relationships across the University and will prepare students to compete for jobs in a wide range of public health disciplines in healthcare, government, and community organization settings. In addition to course work, students will be required to interface with community organizations through volunteer and fieldwork experiences.

The proposed B.S.P.H. program has two primary goals: 1) Equip undergraduate students for entry-level positions in government and private health agencies, community organizations, industry, and secondary education, and 2) prepare students who plan to enter a master's program in public health or a degree in medicine, nursing, pharmacy, or other biomedical science. The design of the program includes core courses in public health (Social Justice & Public Health Social Determinants of Health, Analytical and Research Methods in Public Health I & II, Environmental Health I & II, Public Health Principles and Practice I & II, and Public Health Systems & Policy I & II) and related disciplines (e.g., Anthropology, Communication, Health Studies, and Sociology) as well as multidisciplinary elective courses aligned with students' interest. Courses will involve service within the local community, research, data analysis, report writing, and/or small group presentations. To receive their degrees, students will be required to complete a 2-credit hour fieldwork course and a 3-credit hour capstone experience in public health. Students will also be required to create a

digitized portfolio highlighting their accomplishments and document program and course outcomes. Each of these culminating experiences will require students to synthesize, integrate, and apply concepts learned throughout the core curriculum of the public health major to real-world issues.

The B.S.P.H. degree will offer students the opportunity to acquire knowledge and skills that will prepare them for future practice and study. Students will develop their abilities in critical thinking, analysis, and synthesis of information, and as graduates, these skills will enable them to demonstrate the following public health competencies:

- the ability to communicate public health information, in both oral and written forms, through a variety of media to diverse audiences;
- The ability to locate, use, evaluate and synthesize public health data and information.

A baccalaureate degree in Public Health at the University of Memphis will prepare students for a variety of career options. The major will be characterized by an evidence-informed curriculum based on established competencies, best practices, and accreditation standards. Students will combine traditional, campus-based and online academic courses with supervised community health experiences through required internships and field experiences.

Graduates with a B.S. in Public Health degree from the University of Memphis will be competitive for employment opportunities in Memphis, the state, the Mid-South region, and the nation. The employment outlook for program graduates is detailed in the ***Feasibility Study*** section starting on page 9.

ALIGNMENT with STATE MASTER PLAN and INSTITUTIONAL MISSION:

The Master Plan for Tennessee Postsecondary Education 2015-2025 calls for a statewide strategic development of higher education programs that: a) increases the educational attainment levels of Tennesseans; b) addresses the state's economic development, workforce development, and research needs; and c) calls for institutional mission differentiation to realize statewide efficiencies through institutional collaboration, minimized redundancy, a focus on location and research (3).

We believe the proposed Bachelor of Science in Public Health degree is in alignment with both the state master plan and the Drive to 55 initiative - an

effort to increase the proportion of Tennesseans with a college degree or certificate to 55 percent by the year 2025. The B.S.P.H. program will attract both traditional and online learners, offering opportunities to raise the educational attainment levels of Tennesseans.

Furthermore, the program will create an undergraduate degree program and associated curriculum that focus on a segment of one of Tennessee's largest economic sectors: Healthcare.

The proposed B.S.P.H. will also contribute to the University of Memphis' mission to "provide the highest quality education by focusing on research and service benefiting local and global communities." This mission goes to the heart of public health and the design of our proposed program. The program will address the following priorities stated in the University's strategic plan.

- **Student Success, Access, and Affordability:** In keeping with the UofM's ranking as the #1 online college in the state of Tennessee, all of the core public health courses in the B.S.P.H. program will be offered online as well as in traditional classroom settings. In addition, by offering an undergraduate degree in public health, students at UofM will be eligible for the first time to compete for a scholarship from the Harry S. Truman Foundation. The SPH will work closely with the UofM Honors College to support students interested and eligible for this opportunity.

- **Academic Excellence**: The mission of the SPH is to produce the next generation of interdisciplinary public health leaders who can influence population health. Using the expertise of faculty and academic practice partners, we will promote health equity through innovation and excellence in interdisciplinary education, research, service, community engagement. Our vision is to be recognized as one of the nation's premier metropolitan schools of urban public health and a leader in education, research and practice.

  Through our accomplishments in graduate education, service, and research, the SPH has contributed to the University's priority of academic excellence and is now ready to do so through undergraduate education. Indicators of current success include attainment of Council on Education for Public Health (CEPH) accreditation as a public health graduate program in 2015, national rankings for our MPH and MHA degrees[1], a high 4-year student retention rate

[1] The School of Public Health's Master in Public Health (MP H) and Master in Healthcare Administration

(94.7%), and a 95% rate of graduate employment, continued education, or post-graduate fellowships.

- **Research and Innovation:** The proposed B.S. in Public Health program - and the entire UofM SPH - aligns with this priority, with the School's overall focus on instruction, service, and research in urban health and health disparities. The work of the UofM SPH faculty, staff, and students is focused on addressing the most challenging issues of the 21st century.

- **Diversity and Inclusion:** The current student body of the UofM SPH reflects tremendous diversity with 46% of the student population from underrepresented race and ethnicity groups. Building on this diversity, as well as the existing diversity of the UofM undergraduate student body, this proposed B.S. in Public Health degree at UofM is well-positioned to be responsive to this priority and to the workforce's need for diverse, highly-trained public health professionals. In addition, it is a goal of the program to prepare public health leaders to work collaboratively with diverse communities, to foster health equity, and to reflect social justice and cultural humility.

- **Community, Alumni and External Collaborations:** Through our proposed integrated core courses, service learning requirements, and the Capstone Experience, students will be immersed in the local community and will have multiple opportunities to engage with community organizations and learn from public health and healthcare leaders in the Memphis area. Faculty will partner with community agencies to design experiences that not only enhance student learning, but also meet a need of the agencies involved.

The B.S.P.H. program will be unique in its infusion of urban health content throughout its course offerings and practical field service and Capstone experiences. Such a curriculum will provide a rich set of learning experiences for students and provide preparation for either employment in a variety of roles within health and human services sector or for graduate education for those seeking an advanced degree. An undergraduate public health program at UofM will be popular among students and will support efforts to increase college completion, a State and University of Memphis priority.

(MHA) programs are ranked #9 and #12 in the country by TopMastersinPublicHealth.com and TopMasters in Healthcare.com, respectively.

In addition, the establishment of a B.S. degree in Public Health is consistent with the Institute of Medicine's (IOM) recommendation "that all undergraduates should have access to education in public health"(1). This is also consistent with that body's call for expansion of undergraduate public health education to address two priority needs: (a) a serious disparity between the number of graduates produced by schools of public health and the number of workers needed (i.e., a workforce shortage), and (b) the need for a large, well-educated public health workforce that is able to respond effectively to emerging trends that impact population health, such as proliferation of chronic illness, population aging, globalization, urbanization, health disparities, and alterations to the US healthcare system (4).

INSTITUTIONAL CAPACITY to DELIVER the PROPOSED ACADEMIC PROGRAM

The B.S.P.H. program will fit within the existing UofM School of Public Health, leveraging the current administrative infrastructure and faculty expertise while complementing the School's established graduate degree programs. The B.S.P.H. degree will meet the requirements for a CEPH-accredited, baccalaureate public health program and provide an introduction to the core disciplines in public health – epidemiology, biostatistics, environmental health sciences, health services administration and policy, and social and behavioral science.

The B.S.P.H. proposal received strong support from members of the University Undergraduate Curriculum Council. This was due, in part, because of the interdisciplinary nature of the planned curriculum. In addition to core public health courses, the program includes a multidisciplinary core set of required courses offered by the departments of Anthropology, Communications, Health Sciences and Sociology as well as selected electives from these and other University departments. This should serve to increase course enrollments in those disciplines rather than lead to lost enrollments. In addition, the B.P.H.S. will provide new course offerings for students enrolled in the University College’s Bachelor of Professional Studies Program.

EXISTING PROGRAMS OFFERED at PUBLIC and PRIVATE TENNESSEE INSTITUTIONS

There are currently three institutions in Tennessee with baccalaureate degree programs within the 51.22 CIP series. Public institutions East Tennessee State University (ETSU) and Middle Tennessee State University (MTSU) both offer B.S.P.H. degrees as does Belmont University, a private institution in Nashville.

The UofM and Tennessee State University (TSU) offer a bachelor of science in Health Sciences - a related degree but outside the 51.22 CIP Code for Public Health for Public Health. Two of these institutions have enrollment sizes similar to UofM and, thus, have informed our estimates of student enrollment in an undergraduate public health program. In addition, Rhodes College and Christian Brothers University offer concentrations in Urban & Community Health and Public Health, respectively, but do not offer a public health degree. Each of the three existing B.S.P.H. degree programs is described in more detail below.

ETSU: The Bachelor of Science in Public Health is described as a program that "prepares graduates for careers in health administration, community health and other public health disciplines, as well as for graduate study." The program offers concentrations in Community Health and Health Care Administration. ETSU also offers a Bachelor of Science in Health Sciences (BSHS) with concentrations in Microbiology and Human Health and a BS in Environmental Health. ETSU has one of the longest standing B.S.P.H. degree programs in the country and is nationally accredited by the Council on Education for Public Health (CEPH).

Since 1989, ETSU has awarded over 1,500 undergraduate degrees through its College of Public Health. We have been in communication about our proposed program with Dr. Robert Pack, Associate Dean for Academic Affairs, and he has expressed his support for the program and has offered his assistance as we move forward.

- 2018/19 enrollment: 554 students
- Degrees conferred in 2018: 141

MTSU: Located in Murfreesboro, the College of Behavioral and Health Sciences at MTSU offers a Bachelor of Science degree in Community and Public Health with two concentrations: Public Health and Health Education & Lifetime Wellness. The program is not CEPH-accredited but the Public Health concentration is approved by SABPAC (SOPHE/AAHE Baccalaureate Program Approval Committee). The program has been in existence since the late 1990s and total enrollment averages at about 175 students. This information was provided by the MTSU Health and Human Performance Department Chair, Dr. Doug Winborn, who oversees the B.S.P.H program.

- 2018/19 enrollment: 175-200 students
- Degrees conferred in 2018: 49

Belmont University: This private Tennessee institution established an undergraduate major in public health in 2017. The program, which offers a B.S.P.H. degree through the College of Nursing, has one faculty member, Dr. Christian Williams, who is also the Program Director. Dr. Williams reported that the program has grown from two students in 2017-18 to 19 students in 2018-19.

- 2018/19 enrollment: 19 students
- Degrees conferred in 2018: 0

In addition to these public health degree programs, programs at Rhodes College and Christian Brothers University both offer concentrations in or related to public health.

Rhodes College: Located in Memphis, Rhodes College's Urban Studies program has offered a concentration in Urban and Community Health for the past seven years. The program has approximately 7-10 Urban and Community Health concentrators per year. In personal communications with the program director, Dr. Kendra Hotz, there is great interest in public health among students in the program and she is certain that the majority of them would major in this discipline if the opportunity were available to them.

Christian Brothers University: Memphis-based CBU offers a Bachelor of Arts in Professional Psychology with a concentration in Public Health. They also offer a Public Health concentration within their Bachelor of Science in Business Studies program.

FEASIBILITY STUDY

A comprehensive study of the feasibility of offering a bachelor of science degree in Public Health was conducted by the School of Public Health in the Fall of 2018. The study findings are detailed below. The study includes analysis of student interest, local and regional need for the program, employer need and demand, and future sustainable demand.

Student interest for the proposed academic program

Student interest was examined from three perspectives: national trends, state experience, and interest among current undergraduate students at UofM and other local institutions.

National Trends: The growth in the number of colleges and universities offering

undergraduate public health degrees speaks to student interest on a national level. The Association of Schools and Programs of Public Health (ASPPH) and the de Beaumont Foundation published a report in 2015 (5) that examined the growth trends in undergraduate public health education over the past two decades. Using data from the National Center for Education Statistics, the results show that public health is now one of the fastest growing undergraduate majors in the United States. According to the report, there were almost 50,000 undergraduate students earning public health degrees from 1992 to 2012; almost half of those degrees were conferred after 2008. The number of public health bachelor' s degrees increased from 759 in 1992 to 6,464 in 2012 (5).

More recently, researchers at Johns Hopkins Bloomberg School of Public Health and George Washington University reported on the growth in public health education at the undergraduate level and examined the potential effects on the public health field. They reported on the distribution of the 75,165 public health undergraduate degrees granted from 2003 through 2016 by race and geography. Their conclusion was that undergraduate public health education is experiencing rapid growth and is attracting a diverse student body (6).
The experiences from other institutions provide some insight on the types of students who elect to pursue an undergraduate degree in public health (7). These students typically fall into one of four categories:

- Pre-health Students: these students often plan further studies to obtain a medical or other health profession degree. They are searching for an alternative to the traditional pre-medical curriculum. They want an opportunity to incorporate social, behavior al, and biological sciences in their coursework. Some simply see public health as a backup in the event their pre-health plans fall through.

- Pre-med Direction Changers: It is not uncommon for pre-med students to change their academic direction, either voluntarily or involuntarily. Student interests evolve, their intellectual curiosities push them in a new direction, or they find they are not competitive for medical school. They may seek out public health because of its tie to medicine and the fact that their coursework may count toward required or elective courses, meaning a smooth transition to a related major.

- Future Public Health Workers: Some students enroll in public health because they want to pursue a career centered on population-focused disease prevention and health promotion. They may want to pursue employment in departments of health, federal agencies, non-profit organizations working

domestically or globally, or even pharmaceutical companies. Some may choose to pursue an advanced degree, such as a Master of Public Health degree, or graduate work in another health-related discipline.

- Undecided Students: This group of students may enroll in a public health course with no clear intent to pursue a degree, but they are drawn to the topics and content because it piques or complements their interests. The applied nature of public health engages students, and some will subsequently make an informed decision to pursue a public health degree.

Student Survey: An electronic survey was distributed to undergraduate UofM students enrolled in the Honors College and the College of Nursing, and undergraduate Urban Studies majors at Rhodes College. In addition, current UofM MPH and PhD students were also surveyed. A total of 125 current undergraduate students and 33 public health graduate students participated. Among undergraduates 35% indicated they would have been extremely or very interested in exploring a public health major if it had been available. An additional 28% said they would have been somewhat interested in exploring the major. When asked if they would have chosen a public health major if they had the opportunity, 23% said it was extremely or very likely and 28% said it was somewhat likely that they would have chosen this major had it been offered.

There was also considerable interest in a minor in public health: 42% would have been extremely or very interested in this option.

All Respondents N=125	Extremely Interested	Very Interested	Somewhat Interested	Not Very/ Not at all Interested
Interest in exploring a public health major	21 (16.8%)	23 (18.4%)	35 (28 .0%)	46 (36.8%)
Likely to choose a public health major	15 (12.0%)	14 (11.2%)	35 (28.0%)	61 (48.8%)
Interest in minoring in public health	28 (22.4%)	25 (20.0 %)	31 (24 .8%)	41 (32.8%)

When responses were filtered for health-related majors (Anthropology, Biology, Health Studies, Nursing, Psychology), student interest in an undergraduate public health degree was even greater. The table below displays responses from the 56 students with these majors. Among these students, 62.5% indicated an interest in exploring a public health major and 48% reported that they would have been likely to choose such a major had it been available to them. Nearly 72% indicated a high interest in public health as a minor.

These results indicate strong support for establishing a public health degree at

the UofM. With concentrated efforts to work with the Honors College to promote the program, the inclusion of lower level public health courses in the undergraduate catalog, and the addition of an undergraduate advisor, we believe we can capitalize on this potential interest.

Related Majors N=56	Extremely Interested	Very Interested	Somewhat Interested	Not Very/ Not at all Interested
Interest in exploring a public health major	14 (25.0%)	21 (37.5%)	10 (17.9%)	11 (19.6%)
Likely to choose a public health major	11 (19.6%)	16 (28.6%)	17 (30.4%)	12 (21.4%)
Interest in minoring in public health	19 (33.9%)	21 (37.5%)	10 (17.9%)	6 (11.0%)

Among public health graduate students, there was also strong endorsement of offering an undergraduate degree in public health. Forty-two percent (14 of 33) said they would have majored in public health if they had the opportunity.
In sum, the current and projected interest in a B.S. in Public Health degree is strong. There is little doubt that an undergraduate degree in public health at UofM would be a popular major and one that would serve the interests of students, the university, the public health workforce, and the state.

Local and regional need/demand for the proposed academic program

Historically, the health sector has been a leading contributor to the nation's economy and it has largely been immune to fluctuations observed in other sectors. For example, from December 2007 to June 2009, the health care sector added 428,000 jobs at a time when there was an overall job loss of 7.5 million (8). More recently, an October 2017 report from the U.S. Bureau of Labor statistics indicated that "healthcare support occupations are projected to be among the fastest growing occupational groups during the 2016-26 projections decade" (9). The report also goes on to project that employment in the health care and social assistance sector will add close to 4 million jobs by 2026 - the equivalent of nearly one-third of all new jobs. This will represent an increase in health care and social assistance employment from 12.2 percent in 2016 to 13.8 percent in 2026. If projections hold true, by that date, healthcare will become the largest major sector in the US.

The health sector in Tennessee has consistently performed well over time. The health care and social assistance industry in Tennessee is projected to mirror national trends and continue to lead all industries in job growth. The Center for Economic Research in Tennessee's (CERT) 2018 Labor and Educational Alignment Program report (10) listed healthcare occupations as

being the third highest in employer demand across Tennessee. Most of Tennessee's in-demand healthcare jobs are found within the healthcare service industries. The healthcare sector is projected to show strong continued growth as baby- boomers enter retirement and as the population continues to age.

According to the Bureau of Labor and Statistics, the outlook is very good for many programs in the healthcare area. Students earning a Bachelor's degree in any of these programs have a favorable job outlook:

- Health Services Administration
- Community Health and Preventive Medicine
- Public Health, General
- Environmental Health
- Public Health Education and Promotion
- Behavioral Aspects of Health
- International Public Health/International Health
- Maternal and Child Health
- Occupational Health and Industrial Hygiene

The table below provides national job growth projections for relevant occupations.

SOC Code	SOC Code Description	US Employment 2016	Projected US Employment 2026	Projected US Employment Growth 2016 - 2026	Median Annual Salary	CIP Code	CIP Code Description
11-9111	Medical and Health Services Managers	352,200	422,000	19.80%	$96,540	512211	Health Services Administration
						512208	Community Health and Preventive Medicine
						512201	Public Health, General
19-2041	Environmental Scientists and Specialists, Including Health	89,500	99,300	11.10%	$68,910	512202	Environmental Health
21-1091	Health Educators	61,000	69,900	14.50%	$53,070	512207	Public Health Education and

							Promotion
						512212	Behavioral Aspects of Health
						512210	International Public Health/International Health
						512209	Maternal and Child Health
						512201	Public Health, General
29-9011	Occupational Health and Safety Specialists	83,700	90,100	7.60%	$70,920	512206	Occupational Health and Industrial Hygiene
						512202	Environmental Health

There is also strong growth projected for health occupations requiring training beyond the bachelor's degree. The proposed B.S. in Public Health degree provides a foundation and pathway to these advanced degrees in public health, allied health, and medicine. The annual growth projection for related occupations include:

- Physician assistants (5.3% annual growth)
- Occupational therapists (2.7% annual growth)
- Survey researchers (2.4% annual growth)
- Healthcare social workers (1.8% annual growth)

In response to this demand, last year, the three existing Tennessee B.S.P.H. programs collectively produced 190 graduates with bachelor's degrees in public health. The Tennessee Department of Labor has projected growing demand for healthcare and social assistance positions, a sector that added 7,100 new jobs from 2016-17. With only approximately 200 public health baccalaureate degrees granted in Tennessee each year, existing Tennessee programs will only contribute less than 3% to the projected annual workforce demand.

In addition, the Loewenberg College of Nursing at the University of Memphis annually receives 1,100 applications to their Bachelor of Nursing program and accepts only about 27 - 30% per year (about 320). If only the 50-60% of applicants that meet admissions criteria are considered, the College accepts about 55% of qualified applicants. That leaves about 270 qualified students who could be attracted to a public health degree.

Employer need/demand

The rate of urbanization is at a record high, with over half of the world's population now living in an urban area. By 2030, 60% of the world's population will live in cities. By 2050, 2.5 billion people will be added to urban areas, with the most urbanized area being North America (82% in urban areas). Urban living has a distinct effect on human behaviors, interactions, eating patterns, and, ultimately, on health. Public health workers will be needed to facilitate access to clean water, clean air, adequate and healthy foods, safe and affordable housing, and access to health care. Recent worldwide experiences with infectious diseases – HIV/AIDS, Ebola, H1N1 (swine flu virus), Zika virus, and Severe Acute Respiratory Syndrome (SARS) — illustrate our nation's vulnerability to public health threats occurring thousands of miles away and the need for a public health workforce that is prepared to respond to the interconnectedness of our global population. Additionally, non-communicable diseases driven by poor diet, physical inactivity and tobacco use (e.g., obesity, diabetes, cancer, etc.) have followed a similar pattern, with a need for public health intervention and prevention. Well-trained public health workers are needed to address these important problems.

According to the CDC, (11) due to a longer lifespan and the baby boomer generation entering their elder years, the elderly population will double in the US over the next 25 years. By the year 2030, it is estimated that 20 percent of the population will be elderly, totaling approximately 72 million Americans. These population-aging shifts will likely increase the burden and distribution of chronic diseases, requiring a larger, better-trained health workforce that is competent in both medicine and public health principles. Effectively serving this population is directly tied to the nation's and state's health and economic viability and security interests.

Health disparities are also increasing. In the US, investments in the traditional health care system have not yielded health outcomes commensurate with the national per capita expenditures. The persistence of intergroup differences in health (e.g., by race, income, disability, and region of residence) presents both a pressing challenge to the nation as well as an opportunity to implement innovative approaches to mitigate public health problems.

Public health and health care workers who are able to design and provide preventive services, effective systems of care, and disease management strategies will be especially valuable as they help to ease pressure on federal and state budgets and enable policymakers to invest in the next generation. Students in the B.S.P.H. program will be informed about barriers to having

healthier cities and urban areas. A key part of their training will include practical program planning, implementation and evaluation skills based on field experiences serving in the city of Memphis. This training is consistent with the framework recommended by the Association of Schools and Programs of Public Health Framing the Future: A New Vision for Education in Public Health for the 21st Century expert panel of 24 public health professionals, researches and academics from across the globe (12).

For a local illustration of need, one needs only look to current healthcare positions in Memphis and Tennessee. Employing 94,100 people in 2017, the Education and Health Services sector was the largest employer in the Memphis metropolitan area and it showed a 1.7% increase over the previous year (13). Across Tennessee, healthcare makes up 9.5% of total employment (14). As the healthcare field continues to grow in Tennessee and across the country, the need for a qualified, public health-informed workforce will also continue to grow.

The geographic location of the UofM in the heart of a vital health sector, along with our CEPH-accredited School of Public Health and our nationally ranked, CAHME-accredited Master of Health Administration program, combine to create an environment within which students will receive a high quality program of study that prepares them for career opportunities in this growing industry sector. In addition to local and regional employers, national employers will also benefit from the graduates produced by this major at UofM.

Future sustainable need/demand

In 2014, the Association of State and Territorial Health Officials (ASTHO) conducted a national survey of the governmental public health workforce. The resulting report, *Information to Action: The Workforce Data of Public Health WINS,* indicated that at least 38 percent of the current workforce will have left governmental public health by 2020 due to retirement or change of employment. This finding clearly indicates the need to produce sufficient public health graduates to replace these losses. In addition, ASPPH estimates that by 2020, the US will need 250,000 additional public health workers.

Current graduate programs are unable to meet these demands (15). Recognizing this critical threat to the nation's public health infrastructure and capacity, Healthy People 2020, a comprehensive set of ten-year national goals and objectives for improving the health of all Americans, has established a goal for increasing the proportion of four-year colleges and universities that provide public health education

(16).

Tennessee offers a wealth of opportunity for students interested in public health. The state's population of over 6.4 million includes 17% living in poverty and 53% of children and 31% of adults classified as obese. Chronic disease is also common in Tennessee: 40% of adults have hypertension and 13% have diabetes - the fifth highest rate in the country. Public health professionals are needed now and will be needed in the future to ensure that these vulnerable citizens receive health-related support and education on how to manage and improve their health.

The development of this Letter of Notification involved numerous meetings with and encouragement by employers in the surrounding region who experience difficulty in filling positions in the health and healthcare sector. Evidence of this need is found in the attached letters of support provided by leaders and organizations in the healthcare sector including the Shelby County Health Department, the Tennessee Public Health Association, Memphis Health Center, Church Health, the West Tennessee Regional Office of the Tennessee Department of Health, and others (Appendix A). These organizations recognize the need for increased post-secondary education opportunities in public health and have offered their support of the proposed baccalaureate program at the University of Memphis. The common theme expressed by each of these community leaders is reflected by the director of the Shelby County Health Department, Dr. Alisa Haushalter, who stated, "Providing undergraduate students with practical, hands-on training and useful public health competencies will enhance our public health system in Shelby County and in the State of Tennessee."

PROGRAM COSTS/ REVENUES

This degree will not require special facilities or equipment. A number of the required courses are already offered within the University of Memphis and existing SPH faculty will be responsible for delivering newly proposed courses. However, we have budgeted for one full-time administrative position, an undergraduate advisor, beginning in the first year of the program. Additional full-time and/or adjunct faculty are not anticipated to be required until year three as enrollment grows.

A complete accounting of one-time and recurring costs, as well as revenue projections are provided in Appendix B (THEC Financial Projections Form). Expenses include salary for an undergraduate advisor/recruiter and salaries for additional full-time and adjunct faculty beginning in year three as the program grows. We project that the proposed degree program will be funded entirely through tuition and fee revenue. For purposes of this Letter of Notification, we have calculated tuition and

fee revenue based on a conservative course enrollment projection of 13 majors in Year 1 increasing to 25 in Year 5. We have used a three (3) percent annual increase for recurring expenses. We do not anticipate the receipt of any grant funds or gifts to support this program.

Summary:

From the information that we have collected from students, academic institutions, agencies and organizations, as well as data from other sources, we are confident that the B.S. in Public Health program addresses Tennessee's economic and workforce development needs and will be attractive to a large body of prospective students. Students' interest, local and regional needs, employer's demand, and sustainable future job market demand provide clear evidence of the great need for this program. The interdisciplinary nature of the program's structure ensures collaboration and efficiency within the University. We believe the strength of our School of Public Health as well as the opportunities for engagement within the Memphis community will lead to a successful academic program and will result in increased degree production for the University.

List of Support Letters:

1) Marilyn Barnes, Director, West TN Regional Office, TN Department of Health
2) Susan Cooper, Chief Integration Officer and Senior Vice President of Ambulatory Services, Regional One Health
3) Kimberly Harrell, Executive Director, TN Public Health Association
4) Willeen Hastings, Executive Director, Memphis Health Center
5) Dr. Alisa Haushalter, Director, Shelby County Health Department
6) Ann Langston, Chief Strategic Officer, Church Health
7) Dr. Kenneth Robinson, President and CEO, United Way of the Mid-South
8) Dr. Jan Young, Executive Director, Assisi Foundation

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APPENDIX A: Letters of Support

TN Department of Health

December 13, 2018

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dr. Gurney:

As Director of the West Tennessee Region of the Tennessee Department of Health, I am pleased to learn of the proposed Bachelor of Science in Public Health program at the University of Memphis. The West Tennessee Rural Region consists of 19 counties, and we are critically aware of the need for well-trained public health professionals who are able to design, implement, and measure effective systems of care that address prevention and advancing community health. Moreover, our current public health workforce is aging. According to national statistics, between 40-50% of public health employees will become eligible to retire in the next five years. Therefore, your new undergraduate program will fill an important workforce need.

The West Tennessee Regional Health Department fully expects that we will benefit as the University of Memphis provides us with the outstanding professionals we will require in the future. We support the proposed B.S. in Public Health program and look forward to the opportunity to collaborate with students, faculty, and graduates in academic, experiential, and professional opportunities.

Sincerely,

Marilyn Barnes, MPH
West Tennessee Regional Director
Tennessee Department of Health
295 Summar Avenue
Jackson, TN 38301

West TN Regional Office • 295 Summar Drive • Jackson, TN 38301
Tel: 731-423-6600 • Fax: 731-935-7093 • tn.gov/health

Regional One Health

January 28, 2019

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dr. Gurney:

I am writing to express my full support of the University of Memphis School of Public Health's proposed Bachelor of Science in Public Health program.

I write to you in two capacities: first as a former Commissioner of Health for the State of Tennessee and secondly as the Chief Integration Officer and Senior Vice President for Regional One Health. In the latter capacity, I oversee the Center for Population Health. We are focused on assuring the health of populations and providing leadership in promoting and protecting the health of community residents. As a result, we appreciate the need for well-trained public health professionals who are able to support and promote improved community health.

We trust that graduates of your proposed program will have the requisite skills to design, implement, and measure effective programs and interventions that address not only health and healthcare needs, but also the social determinants of health as well. Graduates with these capabilities are already in great demand as our population ages and is faced with more and more chronic illness.

As hospitals expand beyond their walls, we are seeking employees who can understand the drivers of poor health and who can implement interventions to improve the health of populations and communities. The workforce of the future will require that new entrants understand the synergy that can exist between health systems, public health systems and improving social determinants.

I, both personally and professionally, support the proposed B.S. in Public Health program and we look forward to the opportunity to collaborate with you, your students, and the graduates of this program.

Sincerely,

Susan R Cooper

Susan R. Cooper MSN, RN, FAAN
Chief Integration Officer, Senior Vice President
Regional One Health
Commissioner of Health, State of Tennessee 2007-2011

January 9, 2019

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dr. Gurney:

I am pleased to hear of the proposed Bachelor of Science in Public Health program at the University of Memphis. As the official professional organization for those engaged or interested in public health services in our state, the Tennessee Public Health Association is endorsed by the Administration of the Tennessee Department of Health. We are focused on maintaining high standards of quality in all aspects of public health. As a result, we appreciate the need for well-trained public health professionals who are able to design, implement, and measure effective systems of care that address prevention and advancing community health. Individuals with these capabilities will be in increasingly high demand as our population ages and is faced with more and more chronic illness.

The proposed curriculum is comprehensive and will undoubtedly produce individuals with the knowledge and skills that Tennessee needs to improve the health of our population.

The Tennessee Public Health Association fully expects that we will benefit as the University of Memphis provides us with the outstanding professionals we will require in the future. We support the proposed B.S. in Public Health program and look forward to the opportunity to collaborate with students, faculty, and graduates in academic, experiential, and professional opportunities.

Sincerely,

Kimberly H. Harrell
Executive Director

P.O. Box 301, Hendersonville, Tennessee 37077
615.426.1667
www.tnpublichealth.org

Memphis Health CENTER

www.memphishealthcenter.org

January 10, 2019

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dr. Gurney:

As Chief Executive Officer of Memphis Health Center, Inc., I am pleased to write a letter in support of the proposed Bachelor of Science in Public Health degree program at the University of Memphis School of Public Health (SPH).

As you are well aware, there is an increasing need for diverse, highly-trained public health professionals both in Memphis and across the region. In particular, there currently exists a need for health care workers who are able to design and provide preventive services, effective systems of care, and disease management strategies. I have reviewed the proposed curriculum and believe that this program will provide us with the bachelor-level health professionals we require within our organization. We also see this program as providing an excellent foundation for advanced study at the graduate level in public health.

Memphis Health Center, Inc. (MHC) is a Federally Qualified Non-Profit Health Center (FQHC) with the mission of improving community health and well-being to the citizens of Memphis and Shelby counties. Our vision is to provide 100% access and 0% disparity. MHC has been an integral provider of care to medically underserved populations for nearly five (5) decades. We provide a comprehensive array of healthcare services, behavioral health, dental, ophthalmology, podiatry and enabling services that are an important safety net for area residents. We feel the addition of the SPH program will further enhance the ability to improve population health.

We fully expect that you will be successful in your pursuit of this degree program and MHC looks forward to partnering with the School of Public Health at the University of Memphis through the provision of practicum placements and other opportunities to engage with your students and faculty.

We are in full support of your proposed B.S. in Public Health program and look forward to hearing of your success.

Sincerely,

Willeen W. Hastings, R.N, BSN, MHSA
Chief Executive Officer

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Office: 901.261.2000
Fax: 901.888.6978

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Rossville, TN 38066
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Towne Center Family Health Services
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Memphis, TN 38106
Office: 901.672.8390
Fax: 901.672.8401

Whitehaven Health Center
4593 Elvis Presley Blvd.
Memphis, Tennessee 38116
Office: 901.261-3030
Fax: 901-345-0909

SHELBY COUNTY HEALTH DEPARTMENT

LEE HARRIS
MAYOR

ALISA R. HAUSHALTER, DNP, RN, PHNA-BC
DIRECTOR

HELEN MORROW, MD, MPA
HEALTH OFFICER

Public Health
Prevent. Promote. Protect.

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dr. Gurney:

As the Director of the Shelby County Health Department (SCHD), I am pleased to offer this letter of support of the School of Public Health (SPH) at the University of Memphis' (U of M) proposed plan to establish a Bachelor of Science (BS) degree in Public Health. SCHD works to protect, promote and improve the health of those who live, learn, work, and play in Shelby County. In our continuing efforts to create a healthier community, what we all do collectively to assure the conditions in which people can be healthy is of primary importance.

As you are well aware, the SCHD and the SPH have a long-standing history of collaboration. We have long been proud to count the SPH among our partners in the community. This proposed BS degree in public health will provide another avenue for students interested in improving the lives of their fellow Tennesseans through study, research, and practice. In Shelby County, as in Tennessee, the health care and social service industry is projected to mirror national trends and continue in job growth. There is now, and will be for the foreseeable future, an increasing need for diverse, highly trained public health professionals and public health scientists.

I believe that a program like the one you propose can help expand the public health workforce, as well as increase the overall public health literacy of college students. Providing undergraduate students with practical, hands-on training and useful public health competencies will enhance our overall public health system in Shelby County and in the State of Tennessee.

I hope that you will be successful in adding this needed program to complement the current excellent offerings of the School of Public Health at U of M and I look forward to future collaborations.

Sincerely,

Alisa R. Haushalter

Alisa Haushalter, DNP, RN, PHNA-BC
Director, Shelby County Health Department

January 14, 2019

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dr. Gurney:

As Senior Director of Strategic Partnerships and Opportunities at Church Health, I am pleased to write a letter in support of the proposed Bachelor of Science in Public Health degree program at the University of Memphis School of Public Health.

As you are well aware, the health care industry in Tennessee is projected to mirror national trends and continue to lead most industries in job growth. Therefore, there is now, and will be for the foreseeable future, an increasing need for diverse, highly-trained public health professionals. In particular, there will be a need for health care workers who are able to design and provide preventive services, effective systems of care, and disease management strategies. I have reviewed the proposed curriculum and believe that this program will provide us with the bachelor-level health professionals we require within our organization. We also see this program as providing an excellent foundation for advanced study at the graduate level in public health.

Church Health will continue to benefit from our partnership with the School of Public Health at the University of Memphis by providing us with the professionals that are passionate about service to the community. We have recently partnered with the University in the hiring and placement of a Ph.D. Director of Research at Church Health. Her work will be focused on the many projects and partnerships that Church Health has with multiple disciplines at the University, coordinating with the School of Public Health to learn the impact and plan improvements. The opportunities for students to learn and move into employment with Church Health as professionals will grow as this research work informs and leads us.

We are in full support of your proposed B.S. in Public Health program and look forward to hearing of your success.

Sincerely,

Ann W. Langston

Church Health 1350 Concourse Avenue, Suite 142 | Memphis, TN 38104 | 901.272.7170 | fax 901.722.8078 | churchhealth.org

United Way of the Mid-South

REV. KENNETH S. ROBINSON, M.D.
President & CEO

February 15, 2019

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dean Gurney:

I am writing to express my enthusiastic support of the University of Memphis School of Public Health's proposed Bachelor of Science in Public Health program. As a former Commissioner of the Tennessee Department of Health – our state's Public Health authority, a governmental Public Health consultant, and the developer of a multiple public-private community health collaboratives, I have dedicated much of my career to highlighting and addressing the pivotal and predominant role of social determinants of health in creating the racial and ethnic health disparities affecting health outcomes. Today, as President and CEO of United Way of the Mid-South, I am privileged to be leading and implementing a coordinated and resilient system of care for the human services sector in Memphis - *Driving the Dream. Driving the Dream* is client-focused; linking high-performing non-profits together to build a more effective, integrated ecosystem of services, ensuring that people in the system have a realistic path from poverty to prosperity. This effort is cutting-edge and challenging; but the development of *Driving The Dream* has reinforced the reality that many health and human service agencies welcome the opportunity to build capacity to collaboratively address the multifaceted, multigenerational challenges which we know are negatively impacting both the personal health of individuals and families living in poverty, and also the health of our community.

The United Way of the Mid-South is pleased to be collaborating currently with the School; as I participate on your advisory committees and as we build a structured relationship regarding community health systems, the evaluation of agency and systems-level service data, and the determination of impact for *Driving The Dream.* I now specifically applaud the School's intent to establish a B.S. in Public Health program. Given my broad knowledge of the non-profit health and human services community in Memphis, I am confident that Bachelor's level graduates of the program – armed with a fuller understanding of the complexities and interrelatedness of the social determinants of health, and the positive, long-range impact of health in all policies – will find opportunities in our service sector for relevant employment and careers at multiple agencies which have need for staff who will embrace and advance the culture shift that United Way is fostering; a culture requisite to ensuring holistic health among vulnerable families. I have reviewed your proposed course of study and believe that the proposed B.S. in Public Health program will provide the caliber of graduates and health professionals needed to address the growing health disparities in our community.

Sincerely,

Rev. Kenneth S. Robinson, M.D.
President & CEO, United Way of the Mid-South
Former Commissioner of Health, State of Tennessee

UWMIDSOUTH.ORG
United Way of the Mid-South
1005 Tillman Street, Memphis, TN 38112
OFFICE: 901.433.4300



THE ASSISI FOUNDATION

OF MEMPHIS, INC.

January 25, 2019

James G. Gurney, PhD
Dean, Hardin Endowed Professor
School of Public Health
The University of Memphis
236A Robison Hall
3825 DeSoto Ave.
Memphis, TN 38152

Dear Dr. Gurney:

On behalf of the Assisi Foundation of Memphis, Inc., I am pleased to support the University of Memphis School of Public Health's proposed Bachelor of Science in Public Health program. As a health legacy foundation serving the community since 1994, we appreciate and understand the need for a public health-informed workforce in Memphis. As a funding partner for the School of Public Health, we have engaged with your faculty and students in a variety of mutually beneficial relationships through contracted work, internships, and community work. We are confident of your ability to successfully implement your plan.

Thank you for a thorough explanation of your proposed course of study at a recent meeting. The program will provide the caliber of health professionals needed to address the growing health disparities in our community. As more agencies in our social service sector embrace the collective impact of addressing social determinants of health, your graduates will be poised to contribute in meaningful ways. With the field of public health continuing to evolve, having baccalaureate level students and graduates will help create a stronger, more versatile, workforce positioned to serve as direct service providers as well as in management roles. Because your graduates will understand the issues influencing health inequities in a community with an almost thirty percent poverty rate, the variety of career options are plentiful whether in the nonprofit, government, or private sectors.

The Assisi Foundation of Memphis enthusiastically supports the proposed B.S. in Public Health program and looks forward to seeing the future contributions of your School, faculty, students, and the graduates of this program.

Respectfully,

Jan Young
Executive Director

515 Erin Drive • Memphis, Tennessee 38117 • 901.684.1564 • Fax 901.684.1997

APPENDIX B: THEC Financial Projection Form

Tennessee Higher Education Commission
Attachment A: THEC Financial Projections
University of Memphis
Bachelor of Science in Public Health (BSPH)

Seven-year projections are required for doctoral programs.
Five-year projections are required for baccalaureate and Master's degree programs
Three-year projections are required for associate degrees and undergraduate certificates.
Projections should include cost of living increases per year.

	Year 1	Year 2	Year 3	Year 4	Year 5
I. Expenditures					
A. One-time Expenditures					
New/Renovated Space, New Furniture Rob 106	$ 10,000	$ -	$ -	$ -	$ -
Equipment	-	-	-	-	-
Library	-	-	-	-	-
Consultants	-	-	-	-	-
Travel	-	-	-	-	-
Other	-	-	-	-	-
Sub-Total One-time	$ 10,000	$ -	$ -	$ -	$ -
B. Recurring Expenditures					
Personnel					
Administration					
Salary	$ -	$ -	$ -	$ -	$ -
Benefits	-	-	-	-	-
Sub-Total Administration	$ -	$ -	$ -	$ -	$ -
Faculty					
Salary - Instructor, 3% salary increase	$ -	$ -	$ 70,000	$ 72,100	$ 74,263
Benefits - flat benefit rate	-	-	24,570	25,307	26,066
Sub-Total Faculty	$ -	$ -	$ 94,570	$ 97,407	$ 100,329
Support Staff					
Salary - UG academic counselor 3% salary increase	$ 45,000	$ 46,350	$ 47,741	$ 49,173	$ 50,648
Benefits flat benefit rate	15,795	16,269	16,757	17,260	17,777
Sub-Total Support Staff	$ 60,795	$ 62,619	$ 64,497	$ 66,432	$ 68,425
Graduate Assistants					
Salary	$ -	$ -	$ 30,000	$ 30,000	$ 60,000
Benefits	-	-	570.00	570.00	1,140.00
Tuition and Fees* (See Below)	-	-	6,355	6,926	15,100
Sub-Total Graduate Assistants	$ -	$ -	$ 36,925	$ 37,496	$ 76,240
Operating					
Travel - faculty + one student @ conference	$ 2,000	$ 2,000	$ 2,000	$ 2,000	$ 2,000
Printing	500	500	500	500	500
Equipment - computer kiosks	1,500	1,500	1,000	1,000	1,000
Library - eJournals, memberships	-	500	500	500	500
Other - Advertising	1,500	1,000	1,000	500	500
Other - lab software	-	-	-	-	-
Other - Student Awards	-	-	250	250	250
Sub-Total Operating	$ 5,500	$ 5,500	$ 5,250	$ 4,750	$ 4,750
Total Recurring	**$ 66,295**	**$ 68,119**	**$ 201,242**	**$ 206,086**	**$ 249,744**
TOTAL EXPENDITURES (A + B)	**$ 76,295**	**$ 68,119**	**$ 201,242**	**$ 206,086**	**$ 249,744**

***If tuition and fees for Graduate Assistants are included, please provide the following information.**

Base Tuition and Fees Rate	$ 5,348.50	$ 5,829.87	$ 6,354.55	$ 6,926.46	$ 7,549.84
Number of Graduate Assistants	-	-	1	1	2

	Year 1	Year 2	Year 3	Year 4	Year 5
II. Revenue					
Tuition and Fees[1]	81,591	145,370	183,867	197,082	197,082
Institutional Reallocations[2]	(5,296)	(77,251)	17,375	9,004	52,662
Federal Grants[3]	-	-	-	-	-
Private Grants or Gifts[4]	-	-	-	-	-
Other[5]	-	-	-	-	-
BALANCED BUDGET LINE	**$ 76,295**	**$ 68,119**	**$ 201,242**	**$ 206,086**	**$ 249,744**

Notes:

(1) In what year is tuition and fee revenue expected to be generated and explain any differential fees. Tuition and fees include maintenance fees, out-of-state tuition, and any applicable earmarked fees for the program.

YR1: 142 course enrollments across all cohorts	81,591	80% of net fees generated by course enrollments
YR2: 253 course enrollments across all cohorts	145,370	80% of net fees generated by course enrollments
YR3: 320 course enrollments across all cohorts	183,867	80% of net fees generated by course enrollments
YR4: 343 course enrollments across all cohorts	197,082	80% of net fees generated by course enrollments
YR5: 343 course enrollments across all cohorts	197,082	80% of net fees generated by course enrollments

(2) Please identify the source(s) of the institutional reallocations, and grant matching requirements if applicable.

Academic Counselor salary support will be culled from existing School of Public Health resources, benefits will be funded by central administration
Yr2 Central Administration will fund new faculty at Instructor level and pay benefits centrally

(3) Please provide the source(s) of the Federal Grant including the granting department and CFDA(Catalog of Federal Domestic Assistance) number.

No Federalgrants will be providing support

(4) Please provide the name of the organization(s) or individual(s) providing grant(s) or gift(s).

No organizations or individuals will be providing gifts

(5) Please provide information regarding other sources of the funding.

No other sources of funding

NEW ACADEMIC PROGRAM PROPOSAL

Proposal for a Bachelor of Science in Public Health Major

IMPLEMENTATION TIMELINE

- Accreditation considerations for professional disciplinary accreditation organizations

The School of Public Health is currently conducting a self-study in preparation for reaccreditation of its Masters and Doctoral programs by the Council on Education for Public Health (CEPH) which will take place in 2020. Anticipating a Fall 2020 start date for the B.S.P.H. program, the earliest that the undergraduate program will be able to apply for accreditation is 2022 and the process is estimated to take two to three years. Therefore, the earliest that the B.S.P.H. program can be accredited is 2024.

- Proposed dates for the external judgment site visit

SPH faculty and administrative staff for the B.P.H.S. program propose an external site visit during the first two weeks of September 2019 followed by a report of the external review report to THEC and the UofM by early October 2019.

- Estimated date of institution's response to external review (within 30 days upon receipt

We anticipate that the UofM would provide a response to the external review by the end of October or early November 2019.

- Proposed date of the institutional governing board meeting the new academic program would be considered for approval

The B.S.P.H. program was approved by the University Undergraduate Curriculum Council on February 8, 2019. The proposal will be submitted to the University's Board of Trustees for approval on June 6, 2019.

- Proposed date of the THEC meeting for the academic program to be considered for Commission approval.

We respectfully propose that the UofM SPH B.S.P.H. proposal be considered for Commission approval at the first meeting of 2020.

CURRICULUM

Description of Program: Public health is an interdisciplinary field encompassing the science and practice of promoting the health and well-being of communities and populations. This happens through such approaches as health education, health analytics, identifying and addressing social and other determinants of health, preventive interventions and services, and the monitoring and control of communicable diseases and environmental hazards. The Bachelor of Science in Public Health major at the University of Memphis is designed to provide students with a strong foundation in public health through evidence-informed course content; a curriculum based on established competencies, best practices, and accreditation standards; and community-based internships and practicum experiences. The Public Health B.S. degree is recommended for students planning to pursue a career or continue graduate education in Public Health or related biomedical fields.

Students will learn to design and test public health initiatives using an experiential approach

through engaged scholarship opportunities including:

- Public health internships with government and nonprofit agencies
- Service learning and community engagement opportunities through Volunteer Compass, as well as partnerships with numerous community organizations
- Individual and community-based, participatory research opportunities with faculty mentors, including senior projects
- Group projects in course-based undergraduate research experiences
- Forums and informal discussions with practitioners in the field.

This program is designed to reflect professional standards set forth by the Council on Education for Public Health (CEPH). These standards are critical indicators of program quality and include instruction in the following domains:

- the history and philosophy of public health as well as its core values, concepts and functions across the globe and in society
- the basic concepts, methods and tools of public health data collection, use and analysis and why evidence-based approaches are an essential part of public health practice
- the concepts of population health, and the basic processes, approaches and interventions that identify and address the major health-related needs and concerns of populations
- the underlying science of human health and disease, including opportunities for promoting and protecting health across the life course
- the socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities
- the fundamental concepts and features of project implementation, including planning, assessment and evaluation
- the fundamental characteristics and organizational structures of the US health system as well as the differences between systems in other countries
- basic concepts of legal, ethical, economic and regulatory dimensions of health care and public health policy and the roles, influences and responsibilities of the different agencies and branches of government
- basic concepts of public health-specific communication, including technical and professional writing and the use of mass media and electronic technology.
- In addition, students must demonstrate the following competencies:
- the ability to communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences
- the ability to locate, use, evaluate and synthesize public health information.

Curriculum Overview: The total number of credit hours is 62, including ten (10) integrated core courses (30 credit hours), five (5) interdisciplinary core courses (15 credit hours), one (1) field experience course (2 credit hours), four (4) guided elective courses (12 credit hours), and a capstone experience (3 credit hours). Below is the entire B.S. in Public Health course of study required. All courses currently exist at the UofM, with the exception of the newly proposed Public Health courses (highlighted in yellow on the next page).

Program Summary for B.S.P.H.

I.	General Education	41 hours
II.	Integrated Public Health Core	30 hours
III.	Interdisciplinary Core	15 hours
IV.	Field Experience & Capstone	5 hours
V.	Guided Electives	12 hours
VI.	General Electives	17 hours

Program Learning Outcomes:

Program learning outcomes are guided by undergraduate program competencies and learning outcomes identified by CEPH, accrediting agency, and by other accredited undergraduate public health programs. These competencies include:

CEPH Competencies:

1. The ability to communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences. (PUBH 3130, PUBH 4131, PUBH 3150, PUBH 4151, PUBH 3180, PUBH 4181, PUBH 3710, PUBH 4711, PUBH 4985)
2. The ability to locate, use, evaluate and synthesize public health information. (PUBH 3120, PUBH 4121, PUBH 3130, PUBH 4130, PUBH 3150, PUBH 4151, PUBH 3180, PUBH 4181, PUBH 3710, PUBH 4711, PUBH 4985)

School of Public Health Competencies:

1. Describe the history, philosophy, core values, concepts, functions, and population-based approaches of public health. (PUBH 1180, PUBH 3180, PUBH 4181)

2. Describe the major formal organizational structures within the United States responsible for monitoring and improving the public's health. (PUBH 1180, PUBH 2101, PUBH 3180, PUBH 4181)

3. Identify and assess public health problems to develop appropriate public health programs based on sound theoretical foundations of health behavior. (PUBH 3130, PUBH 4131, PUBH 3180, PUBH 4181)

4. Explain disease processes from a biological, environmental, social and behavioral perspective. (PUBH 3120, PUBH 4121, PUBH 3150, PUBH 4151)

5. Explain the behavioral, environmental, biological, and socio-economic determinants that impact human health and contribute to health disparities. (PUBH 1180, PUBH 3120, PUBH 4121, PUBH 3130, PUBH 4131, PUBH 3180, PUBH 4181, PUBH 3710)

6. Identify the role of health disparities in explaining the health needs of communities and improving population health. (PUBH 1180, PUBH 2101, PUBH 3130, PUBH 4131, PUBH 3180, PUBH 4181, PUBH 3710)

7. Describe how data and study design methodology are utilized in quantifying public health problems. (PUBH 3120, PUBH 4121, PUBH 3150, PUBH 4151, PUBH 3180, PUBH 4181)

8. Describe the basic approaches and purposes of epidemiology and biostatistics, the two major analytical methods of public health. (PUBH 3150, PUBH 4151)

9. Design, implement and evaluate public health programs for at-risk populations and communities. (PUBH PUBH 3120, PUBH 3130, PUBH 4131, PUBH 3180, PUBH 4181)

10. Apply multidisciplinary strategies and interventions in addressing public health issues. (PUBH 3130, PUBH 4131, PUBH 3180, PUBH 4181, PUBH 4010, PUBH 4985)

11. Apply concepts of planning and management in public health programs. (PUBH 3180, PUBH 4181, PUBH 3710, PUBH 4711)

12. Describe the fundamental characteristics and organizational structures of the U.S. health system as well as the systems in other countries. (PUBH 2101, PUBH 3710, PUBH 4711)

13. Describe the organization, financing, and delivery of health services and public health systems. (PUBH 2101, PUBH 3710, PUBH 4711)

14. Describe the legal, ethical, economic, and regulatory aspects of public health practice and health policy. (PUBH 3710, PUBH 4121, PUBH 4711)

Academic Program Requirements:

Minimum Required for Graduation: 120 hours

- Students must complete at least 60 hours from a 4-year institution.
- Students must complete at least 50 hours of upper-division credit (3000 or 4000-level).
- Students must complete at least 30 of the last 60 hours through the University of Memphis.

I. General Education (41 hours)

General Education requirements include courses in Communication, History, Humanities and Fine Arts, Mathematics, Natural Sciences, and Social/Behavioral Sciences. The following General Education courses are recommended for the Bachelor of Science in Public Health major:

- BIOL 1110/1111 General Biology I/Lab (Natural Sciences)
- BIOL 2010/2011 Anatomy/Physiology I (Natural Sciences)
- MATH 1530 Prob/Statistics/Non-Calculus (Mathematics) OR
- MATH 1910 Calculus I (Mathematics)

To be eligible for the public health major, students must successfully complete their General Education required courses with a grade of "C" (2.5) or higher on their first or second attempt at the University of Memphis. Students interested in the public health major are encouraged to enroll in PUBH 1180 Population Health & Society and PUBH 2101 Healthcare in America.

II. Integrated Public Health Core: 30 hours

PUBH 3120 Environmental Health I: Basics & Methods (3)
PUBH 4121 Environmental Health II: Practice & Application (3) PUBH 3130 Introduction to Social Determinants of Health (3) PUBH 4131 Public Health & Social Justice (3)
PUBH 3150 Analytic & Research Methods in Public Health I (3)
PUBH 4151 Analytic & Research Methods in Public Health II (3)
PUBH 3180 Public Health Principles & Practice I (3)
PUBH 4181 Public Health Principles & Practice II (3)
PUBH 3710 Public Health Systems & Policy I (3)
PUBH 4711 Public Health Systems & Policy II (3)

III. Interdisciplinary Core: 15 hours

ANTH 4511 Medical Anthropology (3) ANTH 4531 Alcohol, Drugs & Culture (3)
COMM 4015 Health Literacy (3)
HLSC 4200 Cultural Competence in Health (3)
SOCI 4442 Sociology of Poverty (3)

IV. Field Experience & Capstone: 5 hours

PUBH 4010 Fieldwork (2)
PUBH 4985 Capstone Experience (3)

Senior Capstone Experience (3 hours)

The senior Capstone Experience is a student's culminating experience or capstone designed to synthesize and integrate the content of a student's program of study. The senior project is intended to coalesce the theoretical and applied areas of study into an academically-relevant example of scholarship. Students will complete research on a topic of their choice with approval of their senior project instructor. The senior capstone project is completed during a student's final semester.

V. Guided Electives: 12 hours – Select at least four (4) courses from the list below

PUBH 3101 Environmental Health in the Media (3)
PUBH 3102 Epidemics: From the Plague to Ebola (3)
ANTH 3500 Anth of Global Health (3)
ANTH 3511 Culture/Kin/Family (3)
ANTH 4111 Evolution & Human Health (3)
ANTH 4417 Hidden Worlds of Food (3)
ANTH 4521 Culture, Soc & Mental Health (3)
ANTH 4571 Race and Health Disparities (3)

CDFS 3401 Parent Child Relations (3)
CDFS 3410 Social Emotional Learning in Early Childhood (3)
CJUS 4460 Race/Ethnicity/Gender /America (3)
COMM 4016 Public Health Campaigns (3)
HLSC 4100 Health & Aging (3)
NUTR 4602 Community Nutr (3)
SOCI 4851 Medical Sociology (3)
SWRK 3902 Human Behavior/Soc Envrnmnt (3)
SWRK 4061 Substance Abuse Treatment (3)

VI. General Electives (17 hours)

Electives will be chosen to bring the total number of hours to 120 with a minimum of 62 upper-division hours.

Syllabi for all existing and newly proposed public health courses for the B.S.P.H. degree program are included in NAPP Appendix 1.

The curriculum covers all recommended critical component elements of an undergraduate major in public health, as recommended by the Association of Schools and Programs of Public Health (1). The curriculum is also fully compliant with the recently updated CEPH accreditation requirements (2). The undergraduate CEPH competencies are listed below along with the corresponding courses that cover them (in parentheses):

Current Courses and Existing Programs- *List current courses and existing institutional programs that will give strength to the proposed program.*
The B.S.P.H. program will rely on existing UofM courses that constitute the interdisciplinary core requirements and guided electives. These courses include:

ANTH 4511 Medical Anthropology (3)
ANTH 4531 Alcohol, Drugs & Culture (3)
COMM 4015 Health Literacy (3)
HLSC 4200 Cultural Competence in Health (3)
SOCI 4442 Sociology of Poverty (3)
PUBH 3101 Envrnmtnl Health in the Media (3)
PUBH 3102 Epidemics: From the Plague to Ebola (3)
ANTH 3500 Anth of Global Health (3)
ANTH 3511 Culture/Kin/Family (3)
ANTH 4111 Evolution & Human Health (3)
ANTH 4417 Hidden Worlds of Food (3)
ANTH 4521 Culture, Soc & Mental Health (3)
ANTH 4571 Race and Health Disparities (3)
CDFS 3401 Parent Child Relations (3)
CDFS 3410 Social Emotional Learning in Early Childhood (3)
CJUS 4460 Race/Ethnicity/Gender /America (3)
COMM 4016 Public Health Campaigns (3)
HLSC 4100 Health & Aging (3)
NUTR 4602 Community Nutr (3)
SOCI 4851 Medical Sociology (3)
SWRK 3902 Human Behavior/Soc Envrnmnt (3)
SWRK 4061 Substance Abuse Treatment (3)

The program will also work with the Honors College to develop an Honors Contract that will enable students to earn Honors credit in Public Health.

New Courses Needed- *List any new courses that must be added to initiate the program; include a catalog description for each of these courses.*

Thirteen new courses are required to initiate the B.S.P.H. program. These courses and their catalog descriptions include:

PUBH 1180 Population Health & Society – This course offers a broad overview of the study of population health and will introduce students to the major social variables—social class, race, gender, poverty, income distribution, social networks/support, community cohesion, the work and neighborhood environment—that affect population health. The course covers the theoretical underpinnings of each construct (e.g. "race" as a social category), and surveys the research linking each to population health status. The course will also examine population-based approaches to improve the health of the public.

PUBH 3120 Env Hlth I: Basics and Methods – This course serves as an intro to the historic, contemporary, & emerging environmental pollution problems on the local, regional, and global scales, and explores their links to human health. It introduces basic concepts of environmental health, environmental agents, and environmentally-related health outcomes. It teaches methods to study the links between environment and health and health impacts of various environmental processes & exposures. It introduces policies, laws, regulations, and standards relating to environmental & occupational hazards. The course equips students with approaches to assessing & controlling environmental risks & promoting health. Article reviews & case studies will be used.

PUBH 4121 Env Health II: Practice & Application – This course introduces specific substances & hazards in the natural and built environment that affect human health. The course is comprised of a broad range of topics viewed through an environmental justice lens. Topics include air pollution, water quality, solid waste management, food safety, built environment, healthy homes, environmental disasters, & occupational health. Discussions include the role of state, local, & federal agencies in protecting public health, roles of community groups, & venues and approaches to communicating with the public. Students will develop an understanding of the scope, depth, & magnitude of current environmental problems & challenges to ensuring env justice. Prereq 3120

PUBH 3130 Intro to Social Determ of Health - This course introduces students to the social and economic conditions that affect individual and population health. We will explore social influences (e.g., income, race, gender, education, employment, neighborhood, food security, healthcare, life course) that affect disease prevention and control. We will also examine the role of public health practitioners in working with communities to improve health outcomes. This course is part one of a two-course sequence on social influences on health. The second course will focus on the application of social justice principles in community settings.

PUBH 4131 Social Justice & Public Health – This course introduces students to the concept

of social justice as a public health construct. We will explore barriers to disease prevention opportunities, health care, and other impactors of health that are not equally distributed. We will examine methods for creating equal opportunities that improve population health. We also will examine the role of public health practitioners in implementing social justice principles in order to improve health outcomes. This course is part two of a two-course sequence on social influences on health. The first course (PUBH 3130) introduced students to concepts related to social determinants of health (the social and economic conditions that affect individual and population health). Prerequisite 3130

PUBH 3150 Analytic & Research Methods in PH 1 - This course is part one in a two-part course that aims to provide students of public health with the foundation needed to interpret and analyze epidemiological data. The course will focus on introductory biostatistics, as well the history of epidemiology, public health surveillance, measures of disease occurrence and study designs.

PUBH 4151 Analytic & Research Methods in PH 2 – This course builds on the foundations built in Analytic and Research Methods in Public Health I and provides additional skills to analyze and interpret epidemiological data. The course will focus on intermediate biostatistics, as well as bias, confounding, design issues and critically evaluating epidemiologic studies. Prerequisite: PUBH 3150.

PUBH 3180 Pub Hlth Principles & Practice I – This course is part one of a two-course sequence on planning, implementing, & evaluating public health interventions. Students will be introduced to theory and application of community-based program planning and evaluation. Concepts in community assessment, organization, and mobilization for the purposes of addressing identified public health concerns will serve as the foundation for the public health planning process. Program theory, partnership building techniques, planning strategies, data collection and analysis, and evidence-based decision-making will be introduced. The second course in this sequence (PUBH 4181) will focus on the application of principles taught in this course in community settings.

PUBH 4181 Pub Hlth Principles & Practice II – This course is part two of a two-course sequence on planning, implementing, & evaluating public health interventions. The focus of this course will be on the application of principles taught in PUBH 3180 in community settings. The goal of the course is to facilitate the work of student teams with a community agency to develop a program plan for the agency that includes: 1) an assessment of needs and assets, 2) a theory- based program plan to meet the needs and capitalize on the assets including the collaboration of other key community partners, 3) an implementation plan with budget outline, and 4) a process and outcome evaluation plan. Prerequisite: PUBH 3180

PUBH 3710 PH Systems & Policy I – This undergraduate course is the first section of the two- part series Public Health Systems and Policy. This course covers the history and development of the health care system in the United States. The course will further examine the forces affecting health policy, the impact of policy on health services delivery, and the most recent health care reform efforts. The course will cover the United States public health systems as well. Major topics to be covered include healthcare organization, determinants of health, health care providers, health insurance, public insurance programs, quality improvement

programs in health care, changes in health care organizations and health care reform.

PUBH 4711 PH Systems & Policy I – This undergraduate course is the second section of the two-part series Public Health Systems and Policy. This course will introduce the health policy making process in the United States. It presents different frameworks to understand the social, political, economic dimensions of health care policy making in the United States. Major topics to be covered include role of government in health policy making, law and the legal system, health insurance, health economics in health policy context, government health insurance programs, and health policy analysis. Prerequisite PUBH 3710

PUBH 4010 PH Fieldwork – The public health fieldwork experience provides an opportunity for students to work in a community setting in a position that carries responsibility and is of particular interest. Each placement is different, but all depend upon completion of most coursework, the ability to work with minimal supervision, and acquiring permission of the student's advisor and on-site preceptor/supervisor. The Council on Education for Public Health (CEPH) requires that each B.S.P.H. student be able to demonstrate the application of these concepts through an internship or fieldwork experience that is relevant to public health.

PUBH 4985 B.S.P.H. Capstone Experience – This is the final requirement in the public health core curriculum and involves the synthesis and application of BS public health program content and competencies in a practice setting with emphasis on student identified areas for professional growth. This course is required for all public health majors enrolled in the BS degree program. It is restricted to senior level standing and requires the completion of most major core coursework. Students may opt to enroll in the course in either the fall or spring semester of their senior year only with approval from their academic advisor.

Distance Learning – *Indicate whether this program will be offered via distance learning and which courses are available via distance learning.*

All undergraduate public health courses will be offered in both traditional and on-line formats beginning in the Fall of 2020.

Course Syllabi
Syllabi for new and existing Public Health courses are presented in NAPP Appendix 1.

Academic Standards: *The admission, retention and graduation standards should be clearly stated, be compatible with institutional or governing board policy, and encourage high quality.*

Students who choose the B.S.P.H. degree option are required to take courses related to the five core areas in public health: epidemiology, health administration, environmental health, biostatistics, and social and behavioral health. They also take courses that expose them to the basic fundamentals required of a public health professional in the areas of measurement and evaluation, theoretical and practical treatment of the concepts of disease prevention and health promotion, health disparities, research methods, public health program planning, and urban health. At the conclusion of their course work, students must complete a Capstone course which allows them to experience the day-to-day operations of a community or public health agency in addition to participating in the development, implementation and evaluation of

specific public health programs.

Admission Standards: Consistent with the admission procedures and policies in place at the UofM, the proposed B.S.P.H. academic program will admit capable students who demonstrate an aptitude for developing competence in public health knowledge and skills and have an interest in working with communities and urban populations. The admission policies and criteria are also consistent with other undergraduate public health programs in comparable institutions. Students who have successfully completed the lower division prerequisite requirements and have a cumulative GPA of 2.5 or higher and are in good academic standing may apply to the B.S.P.H. major. Students are advised to declare the Public Health major no later than their first semester of junior year to ensure completion of the major by their anticipated graduation date. Only courses with "C" or better may be counted toward the major.

Retention Requirements: Students must earn a grade of B (3. 0) or higher in all required courses. The B.S.P.H. program will adhere to the University's undergraduate policy regarding course grades and repetition of courses.

Graduation Standards: This is a four-year program leading to the degree Bachelor of Science in Public Health with emphasis in urban health. Graduation requirements include:

- completion of general education requirements
- completion of public health major requirements
- a minimum of 120 successfully completed credit hours which count toward the degree program
- a minimum 2.5 cumulative GPA
- No Pass/Fail except for PUBH 4010 and free electives.

Students are advised to review information regarding Degree Requirements, General Education Requirements, Major/Concentration Requirements, and Minor Requirements by accessing the UMdegree audit tool. This tool reflects all changes to a student's academic record and is used in determining whether a student has successfully completed all graduation requirements. www.my.memphis.edu.

Equity: *Provide information regarding how the proposed program will recruit, retain, and graduate a diverse population of students including underserved and historically underrepresented students.*

National data indicate that women and minority students have greater representation of public health degrees conferred compared to undergraduate degree conferrals in general. Students graduating with a bachelor's degree in public health also tend to be more diverse than undergraduates overall (4). One of the strengths of the SPH is the diversity of its student body on the graduate level, with 46% of the student population representing U.S. minority communities and international students. Among our current graduate students, about 15-20% students are adult part-time students. We anticipate attracting a similarly diverse group of undergraduate students.

Based on these national trends and the composition of the student body in the past years at

the UofM School of Public Health, we are confident that the B.S.P.H. program will serve a diverse population of students, as well as underserved and historically underrepresented population of students or international students.

In addition, our plan to offer an on-line option for all of our required public health courses will enable us to attract a more diverse population of students including adult working professionals, and students who prefer distance learning.

Program Enrollment and Graduates: *Provide the projected number of declared majors and graduates expected over the first three years (associate and certificate), 5 years (baccalaureate and master's programs) or 7 years (doctoral programs).*

Public health is among the top 10 fastest growing undergraduate majors. The number of undergraduates receiving degrees in public health has grown steadily since 1992. Data from the ASPPH show that there is strong demand for undergraduate public health programs among member institutions. According to one study (3) that examined the growth in undergraduate public health programs, among the 39 participating institutions, enrollments ranged from 18 to 3,200 students. Schools of public health had the largest enrollments (range: 48 – 3200).

As encouraging as these data are, we are projecting a conservative enrollment estimate and expect relatively low enrollment in the first two years. The numbers of annual enrollments of students (majors) will gradually grow from thirteen (13) in Year One to 25 in Year Five, with an average new enrollments of 21 per year. Because we expect to have some part-time students and other students may dropout or transfer, we are projecting that we will graduate no more than eleven students in Year Two increasing to 23 graduates in Year Five.

Year	**2020/21**	**2021/22**	**2022/23**	**2023/24**	**2024/25**
Projected # of New Majors	13	20	20	25	25
Projected Accumulated # Majors	13	31*	38	43	50
Projected # Graduates*	--	11	18	18	23

*The number of graduates is projected based on the assumption that from 2021/22 onward two students per year will drop out or transfer out for diverse reasons.

Administrative Structure: *Provide the administrative unit and program director that will be responsible to ensure success of the proposed program.*

Dr. James Gurney, the Dean of the School of Public Health, will have administrative oversight of this B.S.P.H. program. The primary role of Dr. Gurney is to support the administrative, research, and training programs in the SPH.

Director of the Undergraduate Public Health Program: Debra Bartelli, DrPH will work collaboratively with the Dean (Gurney), other academic units, and community partners to launch and administer the bachelor's program in public health and ensure its conformity with the accreditation guidelines of the Council on Education for Public Health (CEPH). The Program Director is also responsible for student recruitment, matriculation, and degree completion. It is anticipated that Dr. Bartelli will teach four courses per year.

Faculty Resources: *Current and/or anticipated faculty resources should ensure a program of high quality. The number and qualification of faculty should meet existing institutional standards and should be consistent with external standards, where appropriate. The adequacy of the number of faculty should be paramount in the planning process as institutions build increasing numbers of interdisciplinary and cross-disciplinary academic programs. The student/faculty ratio for the proposed program should be included in the documentation.*

> Current Faculty – *List the name, rank, highest degree, primary department and estimate of the level of involvement of all current faculty members who will participate in the program. Attach a three page vita for each faculty member listed including relevant related activities for the past five years.*
>
> Anticipated Faculty - *Describe the additional faculty needed during the next five years for the initiation of the program and list the anticipated schedule for addition of these faculty members.*

The B.S.P.H. program is a multidisciplinary program involving faculty holding academic degrees in several public health disciplines including statistics, epidemiology, social behavioral sciences, and environmental health. SPH faculty, along with faculty in the departments of Anthropology, Communications, Health Studies, and Sociology, have all the needed faculty resources. We do not plan to recruit new Public Health faculty members until year three. However, if the number of students increases more rapidly than expected, then we may need to recruit new faculty at an earlier point. Alternatively, we may decide to maintain the projected recruitment plan to avoid hiring new faculty and overloading existing faculty. Information about core public health faculty members is provided below and brief curricula vitae for each are provided in NAPP Appendix 3.

Core SPH Faculty Members for the B.S.P.H. Program: All the core faculty members are currently members of the School of Public Health faculty.

Pratik Banerjee, PhD: Dr. Banerjee is an Associate Professor in the Division of Epidemiology, Biostatistics and Environmental Health. Dr. Banerjee's research interest is in the area of food safety focusing on rapid detection of pathogens and toxins in food and drinking water. He will co-teach (with Dr. Chunrong Jia) two of the integrated Public Health core courses (PUBH 3120 Environmental Health I: Basics & Methods and PUBH 4121 Environmental Health II: Practice & Application). Both courses will be taught in traditional and on-line formats each year.

Debra Bartelli, DrPH: Dr. Bartelli is a full-time faculty member and Associate Research Professor in the Division of Epidemiology, Biostatistics and Environmental Health. Her research interests include the relationship between the built environment and chronic illness

and health and aging. She will co-teach (with Dr. Satish Kedia) two courses in the integrated Public Health core (PUBH 3180 and PUBH 4181 Public Health Principles & Practice I and II), a new lower level course (PUBH 1180 Population Health & Society) and an existing undergraduate elective environmental health course (PUBH 3101 Environmental Health in the Media). Both courses will be taught in traditional and on-line formats each year. Dr. Bartelli will also direct the undergraduate program.

Soumitra Bhouyan, PhD, MPH: Dr. Bhuyan is an Assistant Professor in the Division of Health Systems Management and Policy. His research interests include health disparities, healthcare quality and healthcare information technology. Dr. Bhouyan will co-teach (with Dr. Aram Dobalian) two of the integrated Public Health core courses (PUBH 3710 and PUBH 4711Public Health Systems & Policy I and II). Both courses will be taught in traditional and on-line formats each year.

Aram Dobalian, PhD, JD, MPH: Dr. Dobalian is Professor and Director of the Division of Health Systems Management and Policy. His research interests include natural and manmade disasters, emergencies, and other crises; access and quality of health care; and health policy and healthcare reform. Dr Dobalian will co-teach (with Dr. Soumitra Bhuyan) two of the integrated Public Health core courses (PUBH 3710 and PUBH 4711Public Health Systems & Policy I and II). Both courses will be taught in traditional and on-line formats each year.

Brook Harmon, PhD, RD, FAND: Dr. Harmon is an Assistant Professor in the Division of Social and Behavioral Sciences. Dr. Harmon's research interests include community-based participatory research, nutrition and physical activity behavior change, obesity and chronic disease prevention, and the influence of health messaging and social networks on behavior change She will co-teach (with Dr. Kenneth Ward) two of the integrated Public Health core courses (PUBH 3130 Intro to Social Determinants of Health and PUBH 4131 Social Justice and Public Health). Both courses will be taught in traditional and on-line formats each year.

Chunrong Jia, PhD: Dr. Jia is an Associate Professor in the Division of Epidemiology, Biostatistics and Environmental Health and Program Coordinator in Environmental Health. Dr, Jia's research interests include air pollution exposure and risk assessment, environmental epidemiology, indoor air quality, and environmental disparity. He will co-teach (with Dr. Pratik Banerjee) two of the integrated Public Health core courses (PUBH 3120 Environmental Health I: Basics & Methods and PUBH 4121Environmental Health II: Practice & Application). Both courses will be taught in traditional and on-line formats each year.

Satish Kedia, PhD: Dr. Kedia is a Professor in the Division of Social and Behavioral Sciences. His research interests include alcohol and drug abuse treatment and caregiving and adherence issues associated with HIV/AIDS. Dr. Kedia will co-teach (with Dr. Debra Bartelli) two courses in the integrated Public Health core (PUBH 3180 and PUBH 4181 Public Health Principles & Practice I and II). Both courses will be taught in traditional and on-line formats each year.

Vikki Nolan, PhD: Dr. Nolan is an Associate Professor in Epidemiology in the Division of Epidemiology, Biostatistics and Environmental Health. Dr. Nolan's research interests are sickle cell and cancer epidemiology. She will co-teach (with Dr. Matthew Smeltzer) two of the integrated Public Health core courses (PUBH 3150 and PUBH 4151 Analytic & Research

Methods in Public Health 1 and 2). Both courses will be taught in traditional and on-line formats each year. Dr. Nolan will also offer an existing elective epidemiology course (PUBH 3102 Epidemics: From the Plague to Ebola).

Matthew Smeltzer, PhD: Dr. Smeltzer is an Assistant Professor in the Division of Epidemiology, Biostatistics and Environmental Health. Dr. Smeltzer has research experience in childhood cancer, breast cancer, immunology, anesthesiology, and biomedical engineering. He will co-teach (with Dr. Vikki Nolan) two of the integrated Public Health core courses (PUBH 3150 and PUBH 4151 Analytic & Research Methods in Public Health 1 and 2). Both courses will be taught in traditional and on-line formats each year.

Kenneth Ward, PhD: Dr. Ward is a Professor and Division Director in Social and Behavioral Sciences. His research interests include tobacco use epidemiology and intervention, behavioral and community-based prevention of chronic disease, and global health. Dr. Ward will co-teach (with Dr. Brook Harmon) wo of the integrated Public Health core courses (PUBH 3130 Intro to Social Determinants of Health and PUBH 4131 Social Justice and Public Health). Both courses will be taught in traditional and on-line formats each year.

Library and Information Technology Resources: *Provide documentation to demonstrate adequate library and information technology resources to support a high quality academic program which meets recognized standards for study at a particular level or in a particular field.*

The University libraries are significant resources for both the University of Memphis and the Mid-South region. While the primary mission of the University libraries is to serve the University community, library services are extended to students and faculty in other colleges and universities in the Memphis area, local and regional corporations, governmental agencies, and adult citizens of the community. The Ned R. McWherter Library was designed to provide state-of-the-art access to information technology and to be fully accessible to the disabled. It has 725 network connections throughout the building, including those in study carrels, group study rooms, and the 24-hour TigerLan Lab. The University of Memphis library system partners with other libraries across the state, affording researchers the opportunity to access electronic journals. The library has added $15,000 from their budget to support national and international journals, books, and databases focusing on public health.

In terms of technological resources, for the commonly used statistical computing software such as SAS and SPSS, the University offers students free online access. These software programs can be used at any time and on any computer. This is a tremendous help to students financially, in addition to providing easy access.

Library and Information Technology Acquisitions Needed: *Describe additional library and information technology acquisitions needed during the first three years (associate and certificate), five years (undergraduate and master's programs), or seven years (doctoral programs) for the successful initiation of the academic program.*

We do not anticipate requiring any additional library or information technology acquisitions.

Support Resources: *Provide documentation to demonstrate adequate other existing and/or anticipated support resources including clear statements of support staff, student advising resources, arrangement for clinical or other affiliations, and professional development for faculty necessary for a successful program.*

- **Evidence of willingness to partner** – *Provide evidence of established partnerships with appropriate entities which can include business, government, education, and healthcare institutions.*

  We recognize that public health is a multidisciplinary field best practiced in partnership with a range of sectors including business, education, government, and healthcare. We have developed our curriculum to model that reality. In addition to the 30 hour integrated public health core, majors will be required to take 15 hours of interdisciplinary courses in Anthropology, Communications, Health Studies, and Sociology and will be encouraged to take elective courses in Social Work, Child Development and Family Studies and other relevant disciplines. In addition, throughout their coursework, students will engage with community leaders in business, non-profit social services, and healthcare. We believe that the interdisciplinary nature of the program's structure will ensure collaboration and efficiency within the University and will capitalize on the many existing partnerships that SPH has within the Memphis community.

- **Other support currently available** – *Include support staff, university and non-university assistance.*

  The School of Public Health currently has four full-time support staff members that include a Business Officer III (Deanna McMillian), Academic Services Coordinator (Shirl Sharpe), Extramural Funding Coordinator (Ashley Yacoubian) and an Administrative Associate (Chaundra Walker). They service all divisions and programs of the School of Public Health and will provide support for the undergraduate program.

- **Other support needed --** *List additional staff and assistance needed during the first three years (associate and certificate), five years (baccalaureate and master's programs), or seven years (doctoral programs).*

  In addition to existing SPH staff, we plan to hire an Academic Advisor who will assist undergraduate students interested in pursuing a public health degree and will assist students with class schedules and other academic issues. This TBH position will work closely with the University's Academic Counseling Center and will also serve on the School of Public Health Marketing Committee and will assist with student recruitment. We anticipate requiring one new full-time faculty hire in Year 3 and graduate assistant (GA) support beginning with one in Years 3 and 4 and two GAs in Year 5.

Existing Facilities and Equipment: *Assess the adequacy of the existing physical facilities and equipment available for the proposed academic program. Include special classrooms, laboratories, physical equipment, computer facilities, etc.*

The B.S.P.H. program will utilize the existing facilities currently applied to the existing MPH and PhD programs, including classrooms, conference rooms and student meeting space.

> **Additional Facilities and Equipment Required or Anticipated:** *Describe physical facilities and equipment that will be required/anticipated during the first three years (associate or certificate programs), five years (undergraduate and master's programs), or seven years (doctoral programs).*
>
> We plan to purchase furniture and computer equipment as well as make minor renovations to office space in Robison Hall to accommodate the Academic Advisor position. We do not anticipate requiring any additional facilities and equipment.

Marketing and Recruitment Plan: *A plan, including marketing and recruitment, to ensure all prospective students will have equitable access to the program so as not to impede the state's commitment to diversity and access in higher education (Post Geier). Note: Programs may not be advertised nor students admitted prior to Commission approval.*

The SPH Marketing and Recruitment Committee, consisting of representatives from each program and concentration in the SPH, developed a formal plan to increase admissions (including undergraduate admissions), with the specific intent to enroll a qualified, diverse student body. The recruitment plan was presented to SPH students representing masters and doctoral programs (10 MPH, 4 PhD, and 3 MHA students) and revised after taking into consideration their valuable input.

Special efforts will be made to recruit a diverse student body that reflects the communities we serve. Healthcare is a multi-trillion dollar industry, spanning international borders and growing faster than almost any other segment of the world economy. The growth and diversification of the healthcare enterprise is also sparking a critical shortage of adequately trained individuals in healthcare organizations. The rapid changes in the organization and financing of healthcare are dramatically transforming the understanding and skill sets required of people who work in these institutions. Accordingly, the program is structured to allow students to participate both in person and online.

SPH is now seeking to deliver consistent messaging and branding to create awareness and support program recruitment goals, and to build its brand name nationwide, across all programs, and will do so for this new program as well. The marketing program includes both print and online media, public relations, recruitment, community outreach, and alumni engagement. The goal of the marketing program is to enhance and increase the quality and diversity of students that apply to the program, with a special focus on reaching out to underrepresented communities to ensure and enhance the state's commitment to diversity and access in higher education.

Advertising for the undergraduate program will be intended to create continued awareness and

recognition of the program, to help foster word of mouth advertising, and maintain first in mind visibility when potential students consider this program. The media strategy will utilize various channels to reach a broader region-wide audience to create brand awareness. This strategy is intended to improve the perceived value of the school and its programs by positively impacting the nationwide rankings conducted by organizations such as US News and World Report, as well as through effective media and public relations efforts.

Media channels will be targeted to optimize maximum exposure to potential students. SPH is currently implementing innovative, targeted marketing techniques, based on the market data provided through competitive analyses, alumni surveys and focus groups, and careful assessment of program trends.

Tactics to increase applications include the following:

- Enhance website – first priority identified by students (in process)
- Website revision to include student experiences – quotes and videos (in process)
- Increase national, regional, state, and local visibility (in process)
- Emphasis on high urban need, relatively affordable tuition
- Webinars for regional and national student recruitment
- Creation and maintenance of a SPH Facebook page (the most important social media tool identified by students); the MPH Student Association already has a Facebook page, but the SPH needs one to utilize more broadly for all academic programs, faculty highlights, research, etc.
- Explore the possibility of creating and maintaining a SPH LinkedIn account
- Make more use of the School's Twitter account (https://twitter.com/UofMemphisSPH)
- Increase presence at national, state, local professional venues

Assessment and Evaluation: *Although the primary responsibility for program quality rests with the institution and its institutional governing board or its system, THEC considers pertinent information to verify that high standards have been established for the operation and evaluation of the programs. Evidence must be proposed to demonstrate that careful evaluation is undertaken periodically throughout the lifetime of the program indicating:*

- *the schedule for program assessments or evaluations, (including program evaluations associated with Quality Assurance, institutional program review, student evaluations, faculty review, accreditation, and employer evaluation),*
- *those responsible for conducting program assessments or evaluations, and accreditation, and*
- *a plan for how results will inform the program post-approval.*

Assessment plans for the School of Public Health mirror the standards of the Tennessee Higher Education Commission and accreditation criteria for the Council on Education for Public Health (CEPH) and will include assessing productivity through graduation rates. Outcomes related to accreditation criteria of the CEPH will be measured as follows:

a) A database will be maintained documenting demographics and status of major declarations and enrollment rates based on criteria such as GPA, and gender, and

number of underrepresented students.

b) An e-portfolio will be maintained on each student, compiling their academic, research, service, and other scholarly achievements during their undergraduate study.

c) Prior to their graduation, students will be asked to complete a survey related to their experience with the program, perceptions of their training, preparedness for public health careers, and general satisfaction with the program.

d) A database will be maintained to track graduation statistics, including the number of students graduating and their gender, ethnicity, time enrolled in program, and credit hour production. The information collected will be used for assessment by THEC.

e) Employers will be surveyed periodically to obtain their perceptions of students' training and level of preparedness.

f) After one year, graduates will be contacted by telephone or email to determine their employment status, professional responsibilities, and overall impression of the level of preparedness for their career in public health.

g) Alumni will be contacted on a semi-annual basis by the program to gather data for an annual a publication that highlights graduates' employment and achievements (publications, scholarly achievements, presentations, research). A database of these accomplishments will be maintained.

h) Core faculty will document their research activity, presentations and publications, teaching and mentoring experience, student inclusion in publications, and community service as part of the routine annual evaluation and tenure/promotion processes.

i) Core faculty research activity will be tracked in terms of submissions, funded projects, funding sources, amount of award, student participation on grants, and whether a project is community-based.

j) A database of staff supporting the program will include social and demographic information, FTE (full or part-time), and duties.

Accreditation: The national accreditation body for this degree is "Council on Education for Public Health (CEPH)." The School of Public Health received CEPH accreditation in June 2015. The program will be reviewed again every five years. The next review will be in July, 2020. The earliest the B.S.P.H. program can be considered for accreditation application is 2022.

Funding: *A budget projection using the THEC Financial Projection form that documents the institution's capacity to deliver the proposed program within existing and projected resources must be submitted including an explanation of the current departmental budget in which the proposed program will be housed and estimated additional costs for the first three years*

(associate degrees), 5 years (undergraduate and master's degrees) or 7 years (doctoral degrees) for the proposed program. Please note that these costs for each year are incremental costs not cumulative costs. Include all accreditation costs and proposed external consultations as related to accreditation. Identify any grants or gifts which have been awarded or anticipated.

The THEC Financial Projection Form for the proposed B.S.P.H. is included in the LON Appendix B on pages 30-32. All courses in the curriculum will be taught by existing faculty for the first two years or until enrollment expands to the degree necessary to hire additional faculty. In addition, for Master students, we will not offer graduate assistantships. Except for a $10,000 outlay in Year 1 for office furniture, computer, and minor office space renovation and salary costs associated with the proposed Academic Advisor position, we do not anticipate any additional program costs until Year 3.

Sources

1. Association of Schools and Programs of Public Health (2012). The Recommended Critical Component Elements of an Undergraduate Major in Public Health. http://www.publichealthreports.org/issueopen.cfm?articleID=3062

2. Council on Education for Public Health (2015). Revised Curricular Criteria. http://ceph.org/criteria-revision/

3. Resnick B, Selig S, and Riegelman R. (2017). An examination of the growing US undergraduate public health movement. Public Health Reviews; 38:4.

NAPP APPENDIX 1: COURSE SYLLABI

PUBH 2101 (4101)
Healthcare in America
The University of Memphis
Class Schedule: TBD
Class Location: N/A

Professor:

Aram Dobalian, PhD, MPH
Professor, Division of Health Systems Management & Policy
E-Mail: dobalian@memphis.edu
Phone: 901-678-0383
Office: 132 Robison Hall
Office Hours: By appointment only (please email for appointment)

Course Description:

This course is designed for the undergraduate students interested in or majoring in public health. Multiple topics that address contemporary issues in the American healthcare system are presented by the instructor, guest speakers, and community leaders. The major purpose of the course is to introduce students to the complexity of the U.S. health care system, including its historical development. The course covers the history and development of health policy and organization in the U.S., the forces affecting health policy, the impact of policy on health services delivery, the most recent health care reform efforts, and an overview of the major approaches used for leading and managing healthcare organizations.

Course Prerequisites:

None

Learning Objectives:

By the end of this course, students will be able to:

- Understand the fundamental characteristics and organizational structures of the US health system as well as the differences between systems in other countries.
- Assess the basic concepts of legal, ethical, economic and regulatory dimensions of health care and public health policy and the roles, influences and responsibilities of the different agencies and branches of government.

- Comprehend the health policy process at the federal level in the U.S.
- Demonstrate effective communication and advocacy skills for populations.
- Apply multidisciplinary strategies and interventions in addressing public health issues.
- Integrate and apply knowledge, skills, and principles for health improvement
- Understand the U.S. health care system, including its historical evolution, structure, financing, and major provider components
- Appreciate how consumers interface with the health care system
- Analyze major issues facing the health care system in the U.S.
- Assess alternative approaches to improve the health care system

Required Texts

L. Shi and D.A. Singh (2017). *Essentials of the U.S. Health Care System*, 4nd edition. Boston: Jones and Bartlett. ISBN 0-7637-6380. (**S&S**)

Required Supplemental Readings

All required supplemental readings are listed in the attached session-by-session schedule and will be provided electronically on eCourseware by Dr. Gentry. A number of supplemental readings are taken from the following two books:

C.S. Weissert and W.G. Weissert (2006). *Governing Health: The Politics of Health Policy*, 3rd edition. Baltimore: Johns Hopkins University Press. (**W&W**)

Course Evaluation, Grading Criteria and Expectations

(A) Point distribution

Grading is based on class readiness (coming to class prepared), participation and discussions in class, team work, homework/pre-work, professional behavior during class sessions, and two seminar critical thinking briefs.

The final course grade will be computed as follows (*partially determined by consensus of enrolled students—using a team-based approach—during the first class of the semester*):

Class preparation, participation, & performance	50%
Individual assessment (I-RAT)*	20%
Group assessment (G-RAT)	60%
Peer evaluation	10%
Instructor assessment**	10%
Individual homework/pre-work* (at least 6; 5% each)	30%
Critical thinking briefs (2 X 10%)	20%
TOTAL:	100%

*****At least one, lowest I-RAT and homework/pre-work grade will be dropped.

******Rubric for Participation: Participation is a function of class attendance, being on time, and active, appropriate participation in class. "C" level participation indicate suboptimal performance due to

absences, tardiness, lack of preparation for class, under/over participation, and/or unprofessional behavior (a pattern of this behavior and performance over the entire semester can result in grades of "D" or "F" for this portion of a student's grade. "B" level participation means arriving to class on-time, with assigned readings completed, and participating appropriately (not over-participating or under-participating, as well as demonstrating a professional level of respect for divergent opinions). "A" level participation includes all of these elements, and adds the following: tying readings into the team and class discussions, asking insightful and (respectfully) provocative questions, synthesizing/building on discussion themes, and finding ways to apply course content to management, policy and public health practice.

(B) Class Attendance and Participation

Students are required to attend and be on time for all classes, and should notify the instructor at least 12 hours before a class if (s)he cannot attend unless any emergency happens. There is a strong correlation between regular class attendance and good performance. Should a student elect not to attend a class, (s)he is responsible for any handouts, announcements, reading material and contents of missed lectures. Class attendance, being on time and class participation will be factored into the final grade.

Additionally, for this course, students are expected to:

- Maintain a professional demeanor at all times; this includes:
  - Arriving for classes on time and remaining attentive throughout the class period
  - Turning off all mobile phones and other hand-held devices, laptops and pagers while class is in session (at least one 15-minute break will be provided)
- Active participation is critical and expected
- Listed, required readings are to be completed prior to the class period listed in the syllabus (see attached session-by-session schedule for the semester)
- Assignments are due at the start of the class period listed if not otherwise instructed; lateness, regardless of cause, will result in loss of some credit; some assignments, such as pre-work and homework assignments, that are the basis for in-class discussions, will not be accepted late.

(C) Grading Scale

The letter grades are assigned using the following grading scale:

Percentage Grade	Letter Grade	GPA	Percentage Grade	Letter Grade	GPA
≥97%	A+	4.00	77-79%	C+	2.33
93-96%	A	4.00	73-76%	C	2.00
90-92%	A-	3.84	70-72%	C-	1.67
87-89%	B+	3.33	67-69%	D+	1.33
83-86%	B	3.00	60-66%	D	1.00
80-82%	B-	2.67	<60%	F	0.00

(D) Academic Conduct

Plagiarism is absolutely not allowed. Copy of assignments or term papers, or any cheating behaviors during exams will result in failure of this course. It is the responsibility of each student to be knowledgeable about the University's rules and regulations that govern student conduct and activities. These policies are available in the Graduate Student Handbook. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

(E) Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation from the Student Disability Services (SDS) Office. Professors are responsible for providing accommodations from the time they receive notice of the disability via memo from SDS.

(F) Promoting a Positive Learning Environment

The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Departmental courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

(G) Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 90 days (for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

(H) Inclement Weather Policy

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PUBH 2101: WEEKLY COURSE OUTLINE

Week 1—Course Introduction		
	Session Topics	*Readings*
Dr. Aram Dobalian	• Introductions • Team-based learning (TBL) • Review of syllabus	• "Fundamental Principles and Practices of Team-Based Learning," from L. Michaelsen, et al., *Team-Based Learning for Health Professions Education*, (2010) (provided) • Course syllabus

Week 2—Part 1: The Policy Process		
	Session Topics	*Readings*
Dr. Aram Dobalian	• "The Psychological Contract" • Introduction to health policy • The policy process • Introduction to healthcare organizations	• "The Psychological Contract," from J. Osland, et al., *Organizational Behavior: An Experiential Approach*, (2007) (provided) • S&S: Chapter 13, Health Policy • W&W: Chapter 6, The Policy Process (provided)

Week 3—Part 2: History of U.S. Healthcare Policy and Reform Efforts		
	Session Topics	*Readings*
Dr. Aram Dobalian	• History of health policy in the U.S. • Incremental health policy making • The Medicaid program • Reform efforts	• S&S: Chapter 3, Historical Overview of U.S. Health Care Delivery • Kaiser Family Foundation Report on Medicaid (provided)

Week 4—Part 3: Policy Analysis & Evaluation for Healthcare		
	Session Topics	*Readings*
Dr. Aram Dobalian	• Policy analysis and evaluation	• TBA for "policy analysis and evaluation" (provided)

	• The Medicare program • The Patient Protection and Affordable Care Act (PPACA) of 2010	• Kaiser Family Foundation Report on Medicare (provided) • W&W: Chapter 7, Problem to Policy: Politics of the Medicare Prescription Drug Law (provided)

Week 5—Part 4: Public Health Policy		
Dr. Aram Dobalian	*Session Topics* • Public health policy • Evidence-based public health • Tobacco policy and prevention (Dr. Gentry's research) • Obesity policy and prevention (Dr. Gentry's research)	*Readings* • S&S: Chapter 2, Foundations of U.S Health Care Delivery • S&S: Chapter 11, Underserved Populations • TBA for "evidence-based public health and health policy" (provided) • TBA for tobacco and obesity policy and prevention (provided)

Week 6—Part 1: A Framework for Analysis and Evaluation—Access, Cost and Quality in Healthcare		
Dr. Aram Dobalian	*Session Topics* • The US health care system • Access, cost and quality • "Triple Aim"	*Readings* • S&S: Chapter 1, Major Characteristics of U.S. Health Care Delivery • S&S: Chapter 12, Cost, Access and Quality • S&S: Chapter 11, Underserved Populations • TBA for "The Triple Aim" (provided)

Week 7—Part 2a: Health Care Resources—Money, People and Technology in Healthcare		
Dr. Aram Dobalian Guest Panel:	*Session Topics* • Financing of health services • Evolution of financing and payment methods • Managed care • Accountable care organizations (ACOs)	*Readings* • S&S: Chapter 6, Financing and Reimbursement Methods • S&S: Chapter 9, Managed Care and Integrated Systems • TBA for "ACOs"

Week 8—Part 2b: Health Care Resources—Money, People and Technology in Healthcare		
Dr. Aram Dobalian	• Health care professionals • Technology as a driving force for health policy and systems change	*Readings* • S&S: Chapter 4, Health Care Providers and Professionals • S&S: Chapter 5, Technology and Its Effects

Week 9—Part 3: The Institutions of Healthcare		
Dr. Aram Dobalian	*Session Topics* • Care delivered in hospitals and health systems • Care delivered in the community • Case management, medical home and other integrated care models • Long term care	*Readings* • S&S: Chapter 8, Hospitals • S&S: Chapter 7, Outpatient Services and Primary Care • S&S: Chapter 10, Long-Term Care Services

Week 10—Part 1: Organizational Design, Values and Culture in Healthcare		
Dr. Aram Dobalian	*Session Topics* • Organizational design • Values and the Workplace • Organizational Culture	*Readings* • Chapters 21, 6 and 16 in Osland, et al. (provided)

Week 11—Part 2: Managing People & Performance in Healthcare		
Dr. Aram Dobalian	*Session Topics* • Managing people • Managing up • Performance management • Balanced scorecards • Employee evaluations	*Readings* • Chapters 2 and 20 in Osland, et al. (provided)

Week 12—Part 3: Groups & Teams, Communication, and Conflict & Negotiation in Healthcare		
Dr. Aram Dobalian	*Session Topics* • Group dynamics and work teams • Interpersonal communication • Conflict and negotiation	*Readings* • Chapters 10, 8, and 13 in Osland, et al. (provided)

Week 13—Part 5: Problem-Solving, Decision-Making, and Leadership in Healthcare		
Dr. Aram Dobalian	*Session Topics* • Problem solving • Quality improvement processes • Decision making • Leadership	*Readings* • Chapters 11, 17 and 15 in Osland, et al. (provided)

Week 14—Facilitated Book Seminar in small groups		
Dr. Aram Dobalian	*Session Topics* • TBD	*Readings* • "thin book" to be chosen by class at beginning of the semester

Week 15—Exam Week

Course Number: PUBH 3120
Course Title: Environmental Health 1: Basics & Methods
The University of Memphis
Semester Year: Fall 2020
Class Schedule and Location: TBD

Instructors: Dr. Chunrong Jia, Dr. Pratik Banerjee
Email Address: cjia@memphis.edu, pbnerjee@memphis.edu
Phone: 901-678-2655 (Dr. Jia), 901-678-4443 (Dr. Banerjee)
Office Location: 337 Robison Hall (Dr. Jia), 338 Robison Hall (Dr. Banerjee)
Office Hours: TBD

Course Description

This course serves as an introduction to the historic, contemporary, and emerging environmental pollution problems on the local, regional, and global scales, and explores their links to human health. It introduces basic concepts of environmental health, environmental agents, and environmentally-related health outcomes. It teaches methods to study the links between the environment and health and the health impacts of various environmental processes and exposures. It introduces policies, laws, regulations, and standards relating to environmental and occupational hazards. The course equips students with approaches to assessing and controlling environmental risks and promoting health. Students will gain familiarity with course concepts through paper review and case studies. Part two of the series will be offered for majors in the Spring and will focus on application of concepts learned in the introductory course.

Course Prerequisites

None; however, a basic knowledge of biology and chemistry will facilitate the learning and understanding of course materials.

Learning Objectives

Upon the completion of the course, students will be able to:

1. Identify and describe the major physical, chemical, and biological agents in a range of common environments;
2. Describe the sources of these exposures and their pathway to humans
3. Explain what kinds of evidence are used to assess the health consequences of these exposures, including toxicology, epidemiology, and risk assessment
4. Summarize the known and suspected health consequences of these exposures
5. Cite the major preventive approaches used by environmental public health practitioners
6. List the major legal and policy approaches used in the United States to control environmental health hazards

7. Recognize how to assess the seriousness of an environmental health problem through information gathered from appropriate sources
8. Understand different subdisciplines in environmental health sciences (exposure assessment, epidemiology, toxicology, and risk assessment), and possible career opportunities in the field;
9. Explain the theoretical framework which guides environmental health practitioners and differentiates them from other environmental and health professionals.

Competencies

Public Health Bachelor's Degree Foundational Domains

- the basic concepts, methods and tools of public health data collection, use and analysis and why evidence-based approaches are an essential part of public health practice;
- the underlying science of human health and disease, including opportunities for promoting and protecting health across the life course;
- the socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities;
- basic concepts of legal, ethical, economic and regulatory dimensions of health care and public health policy and the roles, influences and responsibilities of the different agencies and branches of government.

CEPH B.S.P.H. Competencies

1. The ability to locate, use, evaluate and synthesize public health information.

Additional Competencies Relating to Environmental Health

1. Describe how data and study design methodology are utilized in quantifying public health problems.
2. Design, implement and evaluate public health programs for at-risk populations and communities.
3. Explain the behavioral, environmental, biological, and socio-economic determinants that impact human health and contribute to health disparities.
4. Identify the role of health disparities in explaining the health needs of communities and improving population health.

Required Text(s)

Howard Frumkin. 2016. Environmental Health - From Global to Local (3rd Ed.). John Wiley & Sons. ISBN-13: 978-1118984765. ISBN-10: 1118984765.

Supplemental Text(s)/Required Readings

Weekly lecture notes and reading materials will be posted on eCoursware.

Online Resource

eCourseware: https://elearn.memphis.edu/
Log in with your UUID and password.

Course Evaluation and Grading Criteria

(A) Point distribution

Grading is based on participation and discussion in class, assignments and one term project, one mid-term exam, and final examination.

Weekly assignments	30%
Term Project	15%
Midterm exam	25%
Final exam	25%
Participation	5%
Total	100%

(B) Quiz, homework, and the term project

Quiz and homework: there will be a quiz or assignment for each lecture.

Term project: The term project starts right after the mid-term exam. A paper will be prepared on a current environmental health topic to be assigned in class.

Late submission:

The quiz/assignment/project is due on the specified date and students are required to submit it on time for the full credit. A quiz/assignment/project turned in after the due date and time will be downgraded 50% for the first day and then 5% for each subsequent day of late submission.

(C) Exams

There are midterm and final exams. Exams are closed-book (a detailed instruction on how to take online exams will be provided at an appropriate time). The final exam will cover all the materials presented during the course, i.e., it will be cumulative.

Exams must be taken on designated dates and times. Any exception needs prior consent from the instructor.

(D) Participation

[For traditional delivery of course]: Attendance and participation are critical parts of the learning process in this course. All students are expected to come to class and share their insights on the readings and assignments on which they are working. Students are encouraged to discuss the relevant issues they find challenging or interesting while reading or exploring materials for this course.

[For on-line delivery of course]: On-line students will be provided time-windows during which they can respond to discussion questions and take exams. The details of the discussion questions will be communicated at appropriate times during the course. On-line students will be evaluated by their responses to discussion questions.

Grading Scale

The letter grades for each requirement are assigned using the following grading scale:

Percentage Grade	Letter Grade	GPA
93-100%	A	4.00
90-92%	A-	3.84
87-89%	B+	3.33
83-86%	B	3.00
80-82%	B-	2.67
77-79%	C+	2.33
73-76%	C	2.00
70-72%	C-	1.67
<70%	F	0.00

Promoting a Positive Learning Environment

The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Personal Conduct

As a community of scholars, it is expected that the instructor and students will work together at all times to create an atmosphere that fosters shared discovery and mutual respect. The instructor will be prepared for each class meeting, and likewise, students are expected to arrive prepared to ask questions, discuss, and learn. Students are expected to handle feedback from the instructor in a constructive manner. Students are expected to complete all assigned readings and writing assignments, and to participate in discussions.

Make-Up and Absentee Policy

Students are responsible for the content presented and are not excused from assignment due dates. You may be asked to make up for the missed assignment(s) in the form of written critical commentaries on the readings, additional assignments, or tests.

Writing Standards

Effective managers, leaders, and teachers are also effective communicators. Written communication is an important element of the communication process. The School of Public Health undergraduate program recognizes and expects exemplary writing to be the norm for course work.

Academic Conduct

All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy. Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions, such as reduction or zero grade in that assignment, suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Here is more information on what constitutes plagiarism.

Cheating is also not acceptable at the University of Memphis. Cheating includes but is not limited to the following: using any unauthorized assistance in taking quizzes or tests; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

"Your written work may be submitted to Turnitin, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy

In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination.* Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs

Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

Inclement Weather Policy

In the event that inclement weather requires the cancellation of classes at the University of Memphis, local radio and television media will be notified, according to the Emergency Closing Policy. Additionally, the University of Memphis has established an inclement weather hotline 901-678-0888.

Tentative Schedule of Topics and Readings

Fall Semester

Week	Topic
1-1	Introduction to Environmental Health
1-2	Ecology and Ecosystems as Foundational for Health
2-1	Sustainability and Health
2-2	Journal Article Review and Critique
3-1	Environmental and Occupational Epidemiology
3-2	Journal Article Review and Critique
4-1	Geospatial Data for Environmental Health
4-2	Journal Article Review and Critique
5-1	Environmental Toxicology
5-2	Genes, Genomics, and Environmental Health
6-1	One Health
6-2	Journal Article Review and Critique
7-1	Course Review and Discussion
7-2	Mid-term Exam
8-1	Environmental Exposure Assessment
8-2	Occupational Health and Industrial Hygiene
9-1	Journal Article Review and Critique

9-2	Environmental Risk Assessment
10-1	Cancer and non-cancer risks
10-2	Journal Article Review and Critique
11-1	Environmental Psychology
11-2	Environmental Health Ethics
12-1	Environmental Justice and Vulnerable Populations
12-2	Journal Article Review and Critique
13-2	Climate Change and Human Health
13-1	Case Study Presentation and Discussion
14-1	Course Review and Summary
14-2	Final Exam

Note: The schedule and contents of classes are subject to change.

Course Number: PUBH 4121
Course Title: Environmental Health: Practice & Applications
The University of Memphis
Semester Year: Spring 2021
Class Schedule and Location: TBD

Instructors: Dr. Chunrong Jia, Dr. Pratik Banerjee
Email Address: cjia@memphis.edu, pbnerjee@memphis.edu
Phone: 901-678-2655 (Dr. Jia), 901-678-4443 (Dr. Banerjee)
Office Location: 337 Robison Hall (Dr. Jia), 338 Robison Hall (Dr. Banerjee)
Office Hours: TBD

Course Description

This course introduces specific substances and hazards in the natural and built environment that affect human health. The course is comprised of a broad range of topics viewed through an environmental justice lens. Topics include air pollution, drinking water quality, solid waste management, food safety, built environment, healthy homes, environmental disasters, and occupational health. Discussions include the role of state, local, and federal agencies in protecting public health, the roles of community groups, and venues and approaches to communicating with the public. Students will develop deep understanding of the scope, depth, and magnitude of current environmental problems and challenges to ensuring environmental justice through case studies and the term project.

Course Prerequisites

None; however, a basic knowledge of biology and chemistry will facilitate the learning and understanding of course materials.

Learning Objectives

Upon the completion of the course, students will be able to:

1. Critically evaluate contemporary environmental health issues using the environmental health paradigm;
2. Discuss how upstream processes (urbanization, housing, transportation, energy use, industrial and work organization, migration, globalization) create environmental risks for health;
3. Explain, and be able to illustrate with examples, how social factors, such as community perceptions, public health law, traditions, socioeconomic conditions, politics and interpersonal communications, may influence the practice of environmental health;
4. Develop a focused assessment of specific issues related to air, water, waste, food, occupation, and climate change.
5. Find and apply information (e.g., policies, databases) relevant to the environmental health sciences.

Competencies

Public Health Bachelor's Degree Foundational Domains

- the basic concepts, methods and tools of public health data collection, use and analysis and why evidence-based approaches are an essential part of public health practice;
- the underlying science of human health and disease, including opportunities for promoting and protecting health across the life course;
- the socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities;
- basic concepts of legal, ethical, economic and regulatory dimensions of health care and public health policy and the roles, influences and responsibilities of the different agencies and branches of government.

CEPH B.S.P.H. Competencies

1. The ability to communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences.
2. The ability to locate, use, evaluate and synthesize public health information.

Additional Competencies Relating to Environmental Health

1. Apply the fundamental principles of environmental health to domestic and international population issues.
2. Describe how data and study design methodology are utilized in quantifying public health problems.
3. Design, implement and evaluate public health programs for at-risk populations and communities.
4. Demonstrate effective communication and advocacy skills for populations.
5. Explain the behavioral, environmental, biological, and socio-economic determinants that impact human health and contribute to health disparities.

Required Text(s)

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Supplemental Text(s)/Required Readings

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70-72%	C-	1.67
<70%	F	0.00

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Writing Standards

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Academic Conduct

All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy. Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

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suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Here is more information on what constitutes plagiarism.

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"Your written work may be submitted to Turnitin, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy

In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination.* Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs

Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

Inclement Weather Policy

In the event that inclement weather requires the cancellation of classes at the University of Memphis, local radio and television media will be notified, according to the Emergency Closing Policy. Additionally, the University of Memphis has established an inclement weather hotline 901-678-0888.

Tentative Schedule of Topics and Readings

Spring Semester

Week	Topic
1-1	Air Pollution
1-2	Energy and Human Health
2-1	Healthy Communities
2-2	Journal Article Review and Critique
3-1	Heavy metals
3-2	Water and Health
4-1	Solid and Hazardous Waste
4-2	Pest Control and Pesticides
5-1	Food systems
5-2	Pathogens
6-1	Food borne diseases
6-2	Food Systems and Public Health
7-1	Journal Article Review and Critique
7-2	Mid-term Exam
8-1	Organic chemicals
8-2	Indoor Air Quality
9-1	Healthy Homes
9-2	Journal Article Review and Critique
10-1	Work, Health, and Well-Being
10-2	Radiation
11-1	Injuries
11-2	Environmental Disasters
12-1	Nature Contact
12-2	Communicating Environmental Health
13-2	Environmental Public Health Practice
13-1	Case Study Presentation and Discussion
14-1	Course Review and Summary
14-2	Final Exam

Note: The schedule and contents of classes are subject to change.

PUBH 3130
Introduction to the Social Determinants of Health
University of Memphis
Fall 2020
Class Schedule:
Class Location:

Instructor: Brook E. Harmon, PhD, RD, FAND
Title: Assistant Professor
Email Address: bharmon1@memphis.edu
Phone: 901-678-1687
Office Location: 200 Robison Hall
Office Hours: TBD

Co-Instructor: TBD
Title: Professor
Email Address:
Phone: 901-678-
Office Location: Robison Hall
Office Hours:

Course Description

This course introduces students to the social and economic conditions that affect individual and population health. We will explore social influences (e.g., income, race, gender, education, employment, neighborhood, food security, healthcare, life course) that affect disease prevention and control. We will also examine the role of public health practitioners in working with communities to improve health outcomes.

Learning Objectives

By the end of this course, students will be able to:

1. Describe key social and environmental influences on public health;
2. Understand relationships between social determinants and their cumulative influence on health;
3. Identify strategies being used to address social determinants of health.

CEPH Competencies

1. Ability to communicate public health information in both oral and written forms, through a variety of media and to diverse audiences;
2. Ability to locate, use, evaluate, and synthesize public health information.

SPH Competencies

1. Explain the behavioral, environmental, biological, and socio-economic determinants that impact human health and contribute to health disparities.
2. Identify the role of health disparities in explaining the health needs of communities and improving population health.
3. Apply multidisciplinary strategies and interventions in addressing public health issues.

Schedule of Topics

Week 1 |

Class 1: Course Overview and Introduction to Social Determinants of Health
Class 2: Introduction to Social Determinants of Health and Health Disparities

Week 2 |

Class 1: The Role of Income and Health
Class 2: The Role of Income and Health: Case Study

Week 3 |

Class 1: The Role of Education and Health
Class 2: The Role of Education and Health: Case Study

Week 4 |

Class 1: The Role of Race/Ethnicity and Health
Class 2: The Role of Race/Ethnicity and Health: Case Study

Week 5 |

Class 1: The Role of Gender and Health
Class 2: The Role of Gender and Health: Case Study

Week 6 |

Class 1: Exam
Class 2: The Relationship Between Income, Education, Employment and Health

Week 7 |

Class 1: **Fall Break**
Class 2: Social Support, Social Capital, Social Exclusion

Week 8 |

Class 1: How Where We Live, Work, and Play Impacts Health
Class 2: Housing Impacts on Health

Week 9 |

Class 1: Neighborhood Impacts on Health
Class 2: Food Insecurity

Week 10 |

Class 1: Exam
Class 2: Community Resiliency

Week 11 |

Class 1: Health Care Access
Class 2: Unequal Care: Social Determinants, Health Equity, and the Health Care System

Week 12 |

Class 1: Social Determinants and Life Course (Childhood to Young Adulthood)
Class 2: Social Determinants and Life Course (Adulthood to Older Adulthood)

Week 13 |

Class 1: Social Patterns of Behavior
Class 2: Thanksgiving Break

Week 14 |

Class 1: Public Policy's Impact on Health
Class 2: Public Policy's Impact on Health: Case Study

Week 15 |

Class 1: Final Presentations
Class 2: Final Presentations

- *Note: The schedule and readings are tentative and are subject to change.*

PUBH 4131
Social Justice and Public Health
University of Memphis
Spring 2021
Class Schedule:
Class Location:

Instructor: Brook E. Harmon, PhD, RD, FAND
Title: Assistant Professor
Email Address: bharmon1@memphis.edu
Phone: 901-678-1687
Office Location: 200 Robison Hall
Office Hours: TBD

Co-Instructor: TBD
Title: Professor
Email Address:
Phone: 901-678-
Office Location: Robison Hall
Office Hours:

Course Description

This course introduces students to the concept of social justice as a public health construct. We will explore barriers to disease prevention opportunities, health care, and other impactors of health that are not equally distributed. We will examine methods for creating equal opportunities that improve population health. We also will examine the role of public health practitioners in implementing social justice principles in order to improve health outcomes.

Learning Objectives

By the end of this course, students will be able to:

1. Describe social and environmental factors that lead to health inequalities.
2. Work with community partners to address health issues related to social justice.
3. Assess social and environmental needs in communities that create health inequalities.

CEPH Competencies

1. Ability to communicate public health information in both oral and written forms, through a variety of media and to diverse audiences;
2. Ability to locate, use, evaluate, and synthesize public health information.

SPH Competencies

1. Explain the behavioral, environmental, biological, and socio-economic determinants that impact human health and contribute to health disparities.
2. Identify the role of health disparities in explaining the health needs of communities and improving population health.
3. Apply multidisciplinary strategies and interventions in addressing public health issues.

Schedule of Topics

Week 1 |

Class 1: Course Overview and Introduction to Social Justice
Class 2: Social Determinants of Health and Health Equality

Week 2 |

Class 1: What Does Social Justice and Public Health Look Like
Class 2: What Does Social Justice and Public Health Look Like in Memphis: OUT Memphis, MICAH, Latino Memphis; Benjamin L. Hooks Institute, Civil Rights Museum, Memphis Tilth

Week 3 |

Class 1: Poverty Simulation
Class 2: Poverty Simulation

Week 4 |

Class 1: Developing Community Health Needs Assessments
Class 2: Implementing Community Health Needs Assessments

Week 5 |

Class 1: Introduction to Community Partner and Engaged Scholarship Project
Class 2: Community Site Visit for Engaged Scholarship Project

Week 6 |

Class 1: Development of Group Goals, Objectives, and Deliverables for Project
Class 2: Development of Group Goals, Objectives, and Deliverables for Project

Week 7 |

Class 1: Presentations of Group Goals, Objectives, and Deliverables for Project for Class Feedback
Class 2: Presentations of Group Goals, Objectives, and Deliverables for Project for Class Feedback

Week 8 |

Spring Break

Week 9 |

Class 1: Work with Group Towards Deliverables
Class 2: Work with Group Towards Deliverables

Week 10 |

Class 1: Work with Group Towards Deliverables
Class 2: Work with Group Towards Deliverables

Week 11 |

Class 1: Work with Group Towards Deliverables
Class 2: Work with Group Towards Deliverables

Week 12 |

Class 1: Interim Presentations on Goals, Objectives and Deliverables to Class
Class 2: Interim Presentations on Goals, Objectives and Deliverables to Class

Week 13 |

Class 1: International Perspective on Social Justice and Public Health
Class 2: Work with Group Towards Deliverables

Week 14 |

Class 1: Policy Perspective on Social Justice and Public Health
Class 2: Work with Group Towards Deliverables

Week 15 |

Class 1: Final Presentation of Engaged Scholarship Projects
Class 2: Final Presentation of Engaged Scholarship Projects

- *Note: The schedule and readings are tentative and are subject to change.*

PUBH 3150
Analytic and Research Methods in Public Health I
The University of Memphis
Semester Year
Class Schedule:
Class Location:

Vikki G. Nolan, DSc, MPH
Associate Professor of Epidemiology
vgnolan@memphis.edu
901-678-1696
228 Robison Hall
Office hours: Tuesdays 2:00pm to 5:00pm and by appointment

Matthew Smeltzer, PhD, MStat
Assistant Professor
msmltzer@memphis.edu
(901) 678-3702
222 Robison Hall
Office Hours M 4:00-5:00 or by appointment

Course Description

This course is part one in a two-part course that aims to provide students of public health with the foundation needed to interpret and analyze epidemiological data. The course will focus on introductory biostatistics, as well the history of epidemiology, public health surveillance, measures of disease occurrence and study designs.

Learning Objectives

By the end of this course, students will be able to;

- Define epidemiology
- Describe the difference between descriptive and scientific/analytic epidemiologic studies in terms of information/evidence provided for medicine and public health
- Describe and explain the distinguishing features of the most common descriptive study designs
- Perform basic, one sample and two sample hypothesis tests

Competencies

CEPH Public Health Domains
1. The concepts and applications of basic statistics

4. The basic concepts, methods, and tools of public health data collection, use, and analysis and why evidence-based approaches are an essential part of public health practice

CEPH Competencies

1. The ability to communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences.
2. The ability to locate, use, evaluate and synthesize public health information.

SPH Competencies

1. Explain disease processes from a biological, environmental, social and behavioral perspective.
2. Describe how data and study design methodology are utilized in quantifying public health problems.

Required Text(s)

Merrill, Ray M. 2013. *Fundamentals of epidemiology and biostatistics: combining the basics*. Burlington, MA: Jones & Bartlett Learning.

Principles of Epidemiology, 3rd Edition, available for free on the internet. Link to PDF found here: Principles of Epidemiology

Supplemental (Optional) Text

Blair RC, Taylor RA. *Biostatistics for the Health Sciences*. Pearson Publishing. 1st Edition.

Required Readings

TBA

Online Resources

Principles of Epidemiology, 3rd Edition, available for free on the internet. Link to PDF found here: Principles of Epidemiology

eCourseware

The syllabus, readings and class notes will be available here. eCourseware

Course Requirements and Grading Criteria

Exam 1	25%
Exam 2	25%
Exam 3	25%
Homework	15%

Attendance	10%
TOTAL	100%

Description, Requirements and Evaluation

There will be three exams that will cover everything discussed in class. Exams are a combination of multiple choice, matching, computation and short answer questions. Each exam will be worth 25% of your final grade.

Six total homework assignments will be assigned (2 assignments in preparation for each Exam), reinforcing the material covered in lecture.

Late Assignments

Any assignment turned in after the due date and time will be downgraded one point per day of late submission. **Late assignments will not be accepted more than one week after they are due!**

Class Attendance and Participation

Attendance and participation are critical parts of the learning process in this course. All students are expected to come to class and share their insights on the readings and projects on which they are working. Students are encouraged to discuss the relevant issues they find challenging or interesting while reading or exploring materials for this course.

Missed classes will affect your grade. Three unexcused absences will result in a loss of 1 point from your attendance grade and for each additional unexcused absence, you will lose an additional 1 point.

Grading Scale (use any of these options)

The letter grades for each requirement are assigned using the following grading scale:

≥96%	A+	4.00 GPA	76 - <80%	C+	2.33 GPA
93 - <96%	A	4.00 GPA	73 - <76%	C	2.00 GPA
90 -< 93%	A-	3.84 GPA	70 - <73%	C-	1.67 GPA
86 - <90%	B+	3.33 GPA	66 - <70%	D+	1.33 GPA
83 - <86%	B	3.00 GPA	60 - <66%	D	1.00 GPA
80 - <83%	B-	2.67 GPA	<60%	F	0.00 GPA

Promoting a Positive Learning Environment

The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity
for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Personal Conduct

As a community of scholars, it is expected that the instructor and students will work together always

to create an atmosphere that fosters shared discovery and mutual respect. The instructor will be prepared for each class meeting, and likewise, students are expected to arrive prepared to ask questions, discuss, and learn. Students are expected to handle feedback from the instructor in a constructive manner.
Students are expected to complete all assigned readings and writing assignments, and to participate in class discussions.

Class attendance is an important component of the course. In the event of an unavoidable absence, please notify the instructor beforehand if possible. Certain behaviors are disruptive and disrespectful to the instructor and other students and are not acceptable. These include tardiness, use of cell phones or PDAs, or engaging in side conversations while others are talking. If arriving late is unavoidable, notify the instructor in advance, if possible. Set your cell phone to silent if it must be available for an emergency.
In addition, the students will not be allowed to use any electronic devices during the exam. Use of such devices during exam may result in a failing grade. Students who engage in these behaviors may be asked to leave and not allowed to return until a meeting with the instructor has occurred during which a plan to avoid future classroom disruptions has been worked out.

Make-Up and Absentee Policy

Students missing class are responsible for the content presented and are not excused from assignment due dates. You may be asked to make up for the missed class in the form of written critical commentaries on the readings, additional assignments, or tests. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards

Effective managers, leaders, and teachers are also effective communicators. Written communication is an important element of the communication process. The School of Public Health graduate program recognizes and expects exemplary writing to be the norm for course work.

Academic Conduct

All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy.
Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions, such as reduction or zero grade in that assignment, suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Here is more information on what constitutes plagiarism.

Cheating is also not acceptable at the University of Memphis. Cheating includes but is not limited to unauthorized as

other online tutoring services; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

"Your written work may be submitted to Turnitin, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin's restricted access database solely for detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy

In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination.* Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs

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Inclement Weather Policy

In the event that inclement weather requires the cancellation of classes at the University of Memphis, local radio and television media will be notified, according to the Emergency Closing Policy. Additionally, the University of Memphis has established an inclement weather hotline 901-678-0888.

Date	Topic
Class 1	**Introduction to course** ▪ Syllabus **Introduction to epidemiology and biostatistics** ▪ History of epidemiology and biostatistics **Reading:** Chapters 1, Principles of Epidemiology, 3rd Edition
Class 2	**Introduction to Statistical Thought and Biostatistics** ▪ Philosophy of Statistics, Overview of Biostatistics ▪ Methods to describe data **Reading:** Chapter 2, *Fundamentals of epidemiology and biostatistics*
Class 3	**Introduction to probability** ▪ **B**asic concepts of probability ▪ Sampling **Reading:** Chapter 6, *Fundamentals of epidemiology and biostatistics* Chapter 3, Biostatistics for the Health Sciences.
Class 4	**Introduction to probability (Continued)** ▪ Conditional Probability ▪ Bayes Rule **Reading:** Chapter 6, *Fundamentals of epidemiology and biostatistics* Chapter 3, Biostatistics for the Health Sciences.
Class 5	**Discrete probability functions** ▪ Random Variables ▪ Binomial ▪ Poisson **Reading:** Chapter 7, *Fundamentals of epidemiology and biostatistics* Chapter 3, Biostatistics for the Health Sciences.
Class 5	**Continuous probability functions** **Reading:** Chapter 7, *Fundamentals of epidemiology and biostatistics* Chapter 3, Biostatistics for the Health Sciences. ▪ Random Variables ▪ Normal Distribution ▪ Central Limit Theorem
Class 6	**Core public health Functions** **Reading:** Chapter 1, Principles of Epidemiology, 3rd Edition
Class 7	**Dynamics of disease transmission, occurrence and natural history of disease** **Reading:** Chapter 1, Principles of Epidemiology, 3rd Edition

Class 8 | **Public health surveillance**
- Surveillance of reportable conditions
- Characteristics of surveillance systems
- Surveillance of risk factors

Reading: Chapter 5, Principles of Epidemiology, 3rd Edition

Class 9 | **Outbreak investigation**
- Steps of an investigation
- Evaluating investigation
- **Reading:** Chapter 6, Principles of Epidemiology, 3rd Edition

Class 10 | **Exam #1**

Class 11 | **Guest lecture: David Sweat, MPH Shelby County Department of health**

Class 12 | **Measures of disease occurrence**
- Risk, Prevalence, Incidence, Attributable Risk

Reading: Chapters 3, Principles of Epidemiology, 3rd Edition

Class 13 | **Presenting and interpreting tables and graphs**
- Bar Charts
- Histograms
- Box Plots, Stem and Leaf Plots

Reading: Chapter 4, *Fundamentals of epidemiology and biostatistics*
Chapter 4, Principles of Epidemiology, 3rd Edition

Class 14 | **Statistical inference**
- One sample methods

Reading: Chapter 4, Biostatistics for the Health Sciences.

Class 15 | **Statistical inference**
- One sample methods (continued)

Reading: Chapter 4, Biostatistics for the Health Sciences.

Class 16 | **Introduction to study designs**
- Analytic vs. descriptive
- Ecological study
- Cross-sectional study

Reading: Chapter 10, *Fundamentals of epidemiology and biostatistics*

Class 17 | **Public health surveillance data/Cross-sectional study examples**
- CDC/MMWR
- National Center for Health Statistics studies (https://www.cdc.gov/nchs/index.htm)

Class 18 | **Quantitative data collection**
- Survey/questionnaire design
- Variable

- Continuous vs. categorical data

Reading: https://psr.iq.harvard.edu/book/questionnaire-design-tip-sheet

Class 19 | **Case-control study**

- Design
- Control definition/selection
- Selection bias
- Analysis: Calculation and interpretation of OR

Reading: Chapter 10, *Fundamentals of epidemiology and biostatistics*

Class 20 | **Cohort study**

- Design
- Timing/Direction
- Selection of subjects
- Analysis: Calculation and interpretation of RR, IRR, AR and AF

Reading: Chapter 10, *Fundamentals of epidemiology and biostatistics*

Class 21 | **Clinical Trials**

- Introduction to clinical trials
- Randomization
- Placebo effect and blinding
- Ethical issues of clinical trials
- Evaluation of clinical trials

Reading: Chapter 10, *Fundamentals of epidemiology and biostatistics*

Class 22 | **Exam #2**

Class 23 | **Hypothesis testing**

- Developing null and alternative hypotheses (H1, H0)
- Random error
- Rejecting or failing to reject the null hypothesis
- Confidence intervals
- Interpretations

Reading: Chapter 8, *Fundamentals of epidemiology and biostatistics.*
Chapter 5 & 6, Biostatistics for the Health Sciences.

Class 24 | **Statistical Inference**

- Two sample tests
  - Correlation
  - T-test

Reading: Chapter 8, *Fundamentals of epidemiology and biostatistics.*
Chapter 5 & 6, Biostatistics for the Health Sciences.

Class 25 | **Statistical Inference**

- Two sample tests
  - X^2 test
- Paired Data

Reading: Chapter 8, *Fundamentals of epidemiology and biostatistics.*
Chapter 5 & 6, Biostatistics for the Health Sciences.

Class 26 | **Introduction to EpiInfo**
https://www.cdc.gov/epiinfo/index.html

Class 25 | **Creating a database/entering data in EpiInfo**

Class 26 | **Creating a database/entering data in EpiInfo (continued)**

Class 27 | **Analyzing data in EpiInfo**

- Frequencies
- Chi-square
- T-tests

Class 28 | **Review**

Class 29 | **Final Exam/project due**

Note: The schedule and readings are tentative and are subject to change.

THE UNIVERSITY OF MEMPHIS
School of Public Health

PUBH 4151
Analytic and Research Methods in Public Health
The University of Memphis
Semester Year
Class Schedule:
Class Location:

Vikki G. Nolan, DSc, MPH
Associate Professor of Epidemiology
vgnolan@memphis.edu
901-678-1696
228 Robison Hall
Office hours: Tuesdays 2:00pm to 5:00pm and by appointment

Matthew Smeltzer, PhD, MStat
Assistant Professor
msmltzer@memphis.edu
(901) 678-3702
222 Robison Hall
Office Hours M 4:00-5:00 or by appointment

Course Description

This course builds on the foundations built in Analytic and Research Methods in Public Health I and provides additional skills to analyze and interpret epidemiological data. The course will focus on intermediate biostatistics, as well as bias, confounding, design issues and critically evaluating epidemiologic studies.

Prerequisites

PUBH 3150

Learning Objectives

By the end of this course, students will be able to;

- Identify and evaluate confounding and effect modification
- Perform multiple linear, logistic and Poisson regression
- Critically evaluate epidemiologic reports

Competencies

CEPH Public Health Domains
1. The concepts and applications of basic statistics
4. The basic concepts, methods, and tools of public health data collection, use, and analysis and why evidence-based approaches are an essential part of public health practice

Required Text(s)

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Supplemental (Optional) Text

Blair RC, Taylor RA. *Biostatistics for the Health Sciences*. Pearson Publishing. 1st Edition.

Required Readings

TBA

Online Resources

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eCourseware

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Course Requirements and Grading Criteria

Exam 1	25%
Exam 2	25%
Exam 3	25%
Homework	15%
Attendance	10%
TOTAL	100%

Description, Requirements and Evaluation

There will be three exams that will cover everything discussed in class. Exams are a combination of multiple choice, matching, computation and short answer questions. Each exam will be worth 25% of your final grade.

Six total homework assignments will be assigned (2 assignments in preparation for each Exam), reinforcing the material covered in lecture.

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Missed classes will affect your grade. Three unexcused absences will result in a loss of 1 point from your attendance grade and for each additional unexcused absence, you will lose an additional 1 point.

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The letter grades for each requirement are assigned using the following grading scale:

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available for an emergency.
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Students missing class are responsible for the content presented and are not excused from assignment due dates. You may be asked to make up for the missed class in the form of written critical commentaries on the readings, additional assignments, or tests. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards

Effective managers, leaders, and teachers are also effective communicators. Written communication is an important element of the communication process. The School of Public Health graduate program recognizes and expects exemplary writing to be the norm for course work.

Academic Conduct

All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy.
Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions, such as reduction or zero grade in that assignment, suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Here is more information on what constitutes plagiarism.

Cheating is also not acceptable at the University of Memphis. Cheating includes but is not limited to the following: using any unauthorized assistance in taking quizzes or tests such as Chegg.com or any other online tutoring services; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

"Your written work may be submitted to Turnitin, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin's [illegible] se solely for dete[illegible] documents. Any assignment not

submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy

In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination.* Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs

Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

Inclement Weather Policy

In the event that inclement weather requires the cancellation of classes at the University of Memphis, local radio and television media will be notified, according to the Emergency Closing Policy. Additionally, the University of Memphis has established an inclement weather hotline 901-678-0888.

Schedule of Topics and Readings

Date	Topic
Class 1	**Introduction to course** ▪ Syllabus **Review of Study designs** ▪ Case-control ▪ Cohort **Reading:** Chapter 10: *Fundamentals of epidemiology and biostatistics*

Class 2 | **Review of Measures of Association**
- OR, RR, and IRR
- Interpretation

Reading: Chapter 11: *Fundamentals of epidemiology and biostatistics*

Class 3 | **Introduction to Confounding and Effect Modification**
- Definitions
- Examples

Reading: Reading: Chapter 10: *Fundamentals of epidemiology and biostatistics*

Class 4 | **Stratified analyses**
- Assessment of confounding and EM
    - 10% rule

Reading: Chapter 10: *Fundamentals of epidemiology and biostatistics*

Class 5 | **Introduction to Statistical Modeling**
Reading: *Chapter 9: Biostatistics for the Health Sciences*

Class 6 | **Introduction to SAS Software**

Class 7 | **Introduction to SAS Software (continued)**

Class 8 | L**inear Regression**
- Simple linear regression

Reading: *Chapter 9: Biostatistics for the Health Sciences*

Class 9 | **Linear Regression (continued)**
- Regression diagnostics

Reading: *Chapter 9: Biostatistics for the Health Sciences*

Class 10 | **Linear Regression (continued)**
- Multiple regression
- Model building

Reading: *Chapter 9: Biostatistics for the Health Sciences*

Class 11 | **Exam #1**

Class 12 | **The Generalized Linear Model**
Reading: Course Notes; Chapter 3: Agresti, A. *An Introduction to Categorical Data Analysis*, 2nd Edition. Wiley Publications

Class 13 | **Logistic Regression**
- Introduction
- Odds Ratio

Reading: Course Notes; Chapter 4: Agresti, A. *An Introduction to Categorical Data Analysis*, 2nd Edition. Wiley Publications

Class 14 | **Logistic Regression (continued)**
- Multiple

Reading: Course Notes; Chapter 4: Agresti, A. *An Introduction to Categorical Data Analysis*, 2nd Edition. Wiley Publications

Class 15 | **Evaluating Effect Modification with Multiple Logistic Regression**
Reading: Course Notes; Chapter 7: Klienbaum & Klein, *Logistic Regression*

Class 16 | **Evaluating Confounding with Multiple Logistic Regression**
- 10% rule

Reading: Course Notes; Chapter 7: Klienbaum & Klein, *Logistic Regression*

Class 17 | **Introduction to Count Data**
- Raw Count
- Rates
- Person-year

Reading: Course Notes; Chapter 7: Agresti, A. *An Introduction to Categorical Data Analysis*, 2nd Edition. Wiley Publications

Class 18 | **Poisson Regression for Count Data**
- Introduction
- Model fit
- Incidence Rate Ratios

Reading: Course Notes; Chapter 7: Agresti, A. *An Introduction to Categorical Data Analysis*, 2nd Edition. Wiley Publications

Class 19 | **Exam #2**

Class 20 | **Bias in Epidemiologic Studies**
- Selection bias
- Information Bias

Reading: http://sphweb.bumc.bu.edu/otlt/MPH-Modules/EP/EP713_Bias/

Class 21 | **Epidemiologic Approach to Causation**
Reading: Course notes; Chapter 14, Aschengrau A, Seage GR. *Essentials of Epidemiology in Public Health* 4th ed. Burlington, MA: Jones and Bartlett Publishers, Inc.; 2018

Class 22 | **Evaluating Scientific Literature**
Reading: Chapter 14, *Fundamentals of Epidemiology and Biostatistics*

Class 23 | **Ethics in Research**
- CITI training

Reading: Course notes; Chapter 17, Aschengrau A, Seage GR. *Essentials of Epidemiology in Public Health* 4th ed. Burlington, MA: Jones and Bartlett Publishers, Inc.; 2018

Class 24 | **Read and Discuss Journal Article**
Reading: TBA

Class 25 | **Analysis of Survival Data**
- Introduction to time-to-event

Reading: *Chapter 5: Fundamentals of epidemiology and biostatistics.*

Class 26 | **Analysis of Survival Data (Continued)**
- Kaplan Meier and Lifetest

Reading: Chapter 5 & 13: *Fundamentals of epidemiology and biostatistics*

Class 27 | **Analysis of Survival Data (Continued)**
- Proportional Hazards Model

Reading: Chapter 13: *Fundamentals of epidemiology and biostatistics*.

Class 28 | **Review**

Class 29 | **Final Exam Due**

Note: The schedule and readings are tentative and are subject to change.

THE UNIVERSITY OF MEMPHIS
School of Public Health

PUBH 3180
Public Health Principles & Practice I
University of Memphis
Fall 2020

Class Schedule:
Class Location:

Instructor: Debra Bartelli, DrPH
Title: Associate Research Professor
Email Address: dbrtelli@memphis.edu
Phone: 901-678-1395
Office Location: 233 Robison Hall
Office Hours:

Co-Instructor: Satish Kedia, PhD
Title: Professor
Email Address: skkedia@memphis.edu
Phone: 901-678-1433
Office Location: Robison Hall
Office Hours:

This course is part one of a two-course sequence on public health practice. Students will work in teams and will be introduced to real-life public health issues and intervention approaches in an urban setting. Concepts in community organization, planning, and mobilization for the purposes of addressing identified public health concerns will be covered. Teamwork and partnership-building techniques, planning strategies, data collection and analysis approaches, and evidence-based decision-making will be introduced. The second course in this sequence (PUBH 4181) will focus on the application of principles taught in this course within a community setting.

Course Description

Public health focuses on populations and strategies that can be used to promote public health and prevent disease. The course will take a "hands-on" approach, using problem-based and student-directed learning through lectures and small group discussions to highlight the roles of theory and practice in public health, teach team-based strategies that can be used to improve the health of entire populations, and critique various approaches to or models of public health interventions.

Learning Objectives

Upon the completion of this course, students will be able to:

1. Demonstrate basic understanding of the role of community context (socioeconomic factors, geography, built environment) on population health outcomes.
2. Define evidence-based public health interventions and demonstrate how to locate information on these approaches in the literature.
3. Demonstrate basic understanding and application of assessment, planning and

intervention models (e.g., RE-AIM, PRECEDE-PROCEED, MATCH, and HIA) in public health interventions.
4. Demonstrate collaboration as an effective team member to improve community health.
5. Engage in critical thinking (analyze and evaluate), creative thinking (imagine and create), and practical thinking (solve problems and make decisions) with regard to public health program planning, implementation, and evaluation strategies.

CEPH Competencies

1. Ability to communicate public health information in both oral and written forms, through a variety of media and to diverse audiences;
2. Ability to locate, use, evaluate, and synthesize public health information.

SPH Competencies

1. Identify and assess public health problems to develop appropriate evidence-based public health interventions.
2. Identify the role of health disparities and community context in explaining the health needs of communities and improving population health.
3. Apply multidisciplinary strategies and interventions in addressing public health issues.
4. Apply concepts of planning and management in public health programs.

CEPH Bachelor's Degree Cross-Cutting Concepts

- Community dynamics
- Critical thinking and creativity
- Cultural contexts in which public health professionals work
- Organizational dynamics
- Professionalism
- Teamwork and leadership

Required Text

Community-Based Health Interventions, 3rd Edition (2010) by Sally Guttmacher and Patricia J. Kelly. Publisher: Jossey-Bass

Any additional readings will be made available on the class eCourseware site at least one week prior to the session in which the topic is covered, and will be clearly identified as either required or optional. Students are expected to read assigned articles thoroughly before the class session.

Course Requirements and Grading Criteria

Class Attendance & Participation	10%
Initial course assignment	5%
Exam	15%
Community Assessment Report	20%
Team Program Plan Report (draft)	20%
Group Presentation	10%
Final Report with Evaluation Plan	20%
Total:	**100%**

Schedule of Topics

Week 1 |

Class 1: Course Overview and Introduction of Topics

Class 2: Introduction to the Community Tool Box

Week 2 |

Class 1: Context of a Community Health Intervention: Political environment, local/state priorities, feasibility, acceptability, stakeholders and other factors

Class 2: Understanding the Local Context: Shelby County Health Dept. Guest Lecture
Designation of Student Teams
Teams Select Community Health Priority

Week 3 |

Class 1: Program Planning Step 1: Defining the Health Problem

Class 2: Models for public health planning, implementation & evaluation: MATCH, PRECEDE-PROCEED, RE-AIM, HIA

Week 4 |

Class 1: How to conduct Literature Reviews (Health Sciences Library Guest Lecturer)

Class 2: Principles of community based participatory action and community partnerships
Initial assignment: Literature Review Due

Week 5 |

Class 1: Community Level Change and Developing Effective Community-based Health Interventions

Class 2: Community Health Assessment: Assessing Needs and Resources

Week 6 |

Class 1: Community Health Assessment: How to query data sets and find, access, use and interpret existing data sources

Class 2: Steps in Creating a Community Health Improvement Plan

Week 7 |

Class 1: Fall Break

Class 2: Exam
Community Health Assessment Report Due

Week 8 |

Class 1: Team Discussions of Community Assessment Activities/Challenges & Lessons Learned

Class 2: Lessons from the Literature: Critique of Community Health Interventions

Week 9 |

Class 1: Societal and Policy Level Change: Application of the RE-AIM framework to assess the impact of health policies

Class 2: Urban vs Rural Health – Exploring the County Health Rankings

Week 10 |

Class 1: Developing a Community Improvement Plan

Class 2: Developing a Community Improvement Plan – Continued

Week 11 |

Class 1: Program Implementation – Developing a Budget

Class 2: Program Implementation – Sustainability
Team Community Improvement Plan Draft Report Due

Week 12 |

Class 1: Choosing a Framework for an Evaluation Plan

Class 2: Qualitative and Quantitative Evaluation Methods

Week 13 |

Class 1: Process Evaluation: What it is/Why It Matters

Class 2: Outcome Evaluation: What it is/Why It Matters

Week 14 |

Class 1: Sharing Your Evaluation Results: Report Writing

Class 2: Disseminating Your Findings to the Community and Beyond

Week 15 |

Class 1: Team Presentations of Final Report & Feedback from Community Organization Panel

Class 2: Team Presentations of Final Report & Feedback from Community Organization Panel
Team Final Community Improvement Report Due

- Note: The schedule and readings are tentative and are subject to change.

THE UNIVERSITY OF MEMPHIS
School of Public Health

PUBH 4181
Public Health Principles & Practice II
University of Memphis
Spring 2021

Class Schedule:
Class Location:

Instructor: Debra Bartelli, DrPH
Title: Associate Research Professor
Email Address: dbrtelli@memphis.edu
Phone: 901-678-1395
Office Location: 233 Robison Hall
Office Hours:

Co-Instructor:
Title: Professor
Email Address:
Phone: 901-678-
Office Location: Robison Hall
Office Hours:

Course Description

This course is part two of a two-course sequence on public health practice in an urban setting. The focus of this course will be on the application of principles taught in PUBH 3180 within an urban community setting. The goal of the course is to facilitate the work of student teams with a community agency to develop a program plan for the agency that includes: 1) an assessment of needs and assets, 2) a theory- and evidence-based program plan to meet community and agency needs and capitalize on existing assets, 3) an implementation plan with budget, and 4) a process and outcome evaluation plan.

The course is organized into three sections. Section 1 provides students with an in-depth understanding of the context in which health programs exist through the development of a needs and assets assessment for a specific Memphis/Shelby County community agency. Section 2 deals with planning and developing a public health program/intervention that is responsive to both the agency and the specific public health issue. Section 3 focuses on designing and presenting an implementation and evaluation plan. This course involves students in community service and will count toward service-learning requirements of the degree and applies the experience to personal and academic development.

Learning Objectives

Upon the completion of this course, students will be able to:

1. Appropriately assess community and agency needs.
2. Use theory-based intervention methods to plan a public health program.
3. Engage in critical thinking (analyze and evaluate), creative thinking (imagine and create), and practical thinking (solve problems and make decisions) with regard to program planning, implementation, and evaluation strategies.
4. Use critical reflection to analyze concepts, evaluate experiences, and form opinions about the service learning process while examining and questioning personal beliefs, opinions, and values.

CEPH Competencies

1. Ability to locate, use, evaluate, and synthesize public health information.

School Competencies

1. Construct and evaluate a community level intervention that addresses a current public health issue.
2. Integrate public health theories into practice.
3. Design, implement and evaluate public health programs for at-risk populations and communities.
4. Demonstrate tools and techniques used to promote team development and to diagnose and respond to conflict.

CEPH Bachelor's Degree Cross-Cutting Concepts

- Community dynamics
- Critical thinking and creativity
- Cultural contexts in which public health professionals work
- Organizational dynamics
- Professionalism
- Teamwork and leadership

Required Readings

There is no required text for this course. Readings will be made available on the class eCourseware site at least one week prior to the session in which the topic is covered, and will be clearly identified as either required or optional. Students are expected to read assigned articles thoroughly before the class session.

Course Requirements and Grading Criteria

Class Attendance & Participation	5%
Needs/Asset Assessment Report	15%
Program Plan Report	15%
Program Implementation Report	15%
Group Presentations (3)	30%
Final Report with Evaluation Plan	20%
Total:	**100%**

Schedule of Topics

Week 1 |

Class 1: Course Overview and Introduction

Class 2: Meeting the Stakeholders and Listening to the Community

Week 2 |

Class 1: Developing a Community/Agency Needs/Assets Assessment: Defining goals, objectives, methods, & responsibilities

Teams Assigned/Choose Community Agency Partner

Class 2: Conducting Focus Groups and Key Informant Interviews

Week 3 |

Class 1: Teams Work with Community Agencies to Review Needs Assessment Plans and Identify Focus Group Participants and Key Informants

Class 2: Teams Work to Prepare for Data Collection

Week 4 |

Class 1: Completion of Assets/Needs Assessment Activities

Class 2: Completion of Assets/Needs Assessment Activities

Week 5 |

Class 1: Discussion of Assets/Needs Assessment Process: Successes and Lessons Learned

Class 2: Developing a Program Plan: Essential Components for Effective Program Planning
Needs Assessment Reports Due

Week 6 |

Class 1: Critiquing Community-Based Public Health Programs: What Works/What Doesn't

Class 2: Development of Program Plan: Theory, Goals, and Objectives (in consultation with agency)

Week 7 |

Class 1: Development of Program Plan: Evidence-based Practice

Class 2: Team Presentations of Program Plans
Program Plan Report Due

Week 8 |

Spring Break

Week 9 |

Class 1: Developing an Implementation Plan

Class 2: Action Planning and Setting Reasonable Expectations

Week 10 |

Class 1: Creating a Logic Model and Data Plan

Class 2: Sharing Draft Implementation Plans with Community Partners

Week 11 |

Class 1: Team Presentations and Review of Implementation Plans

Class 2: Group Discussion of Planning Process: Lessons Learned
Program Implementation Plan Report Due

Week 12 |

Class 1: Developing a Program Evaluation Plan

Class 2: Selecting Process and Outcome Measures: What's Feasible?

Week 13 |

Class 1: Teams Pilot Outcome Measures

Class 2: Finding Suitable Comparison Data

Week 14 |

Class 1: Meet with Community Organizations for Feedback on Program and Evaluation Plans

Class 2: Fine-tuning Program and Evaluation Plans

Week 15 |

Class 1: Final Reports Presented to Community Partners

Class 2: Final Reports Presented to Community Partners
Final Written Reports Due

- Note: The schedule and readings are tentative and are subject to change.

PUBH 3710
Public Health Systems & Policy (I)
The University of Memphis
Class Schedule: TBD
Class Location: N/A

Professor:

Aram Dobalian, PhD, MPH
Professor, Division of Health Systems Management & Policy
E-Mail: dobalian@memphis.edu
Phone: 901-678-0383
Office: 132 Robison Hall
Office Hours: By appointment only (please email for appointment)

Co-Instructor:

TBD

Course Description:

This undergraduate course is the first section of the two-part series Public Health Systems and Policy. This course covers the history and development of the health care system in the United States. The course will further examine the forces affecting health policy, the impact of policy on health services delivery, and the most recent health care reform efforts. The course will cover the United States public health systems as well. Major topics to be covered include healthcare organization, determinants of health, health care providers, health insurance, public insurance programs, quality improvement programs in health care, changes in health care organizations and health care reform.

Course Prerequisites:

None

Learning Objectives:

By the end of this course, students will be able to:

- Examine the concepts of population health, and the basic processes, approaches and interventions that identify and address the major health-related needs and concerns of populations;
- Understand the history and philosophy of public health as well as its core values, concepts and functions across the globe and in society
- Examine the socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities;

- Develop a framework to organize knowledge and understanding of the health care system (including public health system)
- Describe the history, philosophy, core values, concepts, functions, and population-based approaches of public health.
- Describe the major formal organizational structures within the United States responsible for monitoring and improving the public's health.

Required Text(s):

L. Shi and D.A. Singh (2017). Delivering Healthcare in America; A Systems Approach 7th edition. Boston: Jones and Bartlett. (ISBN-13: 9781284124491)

Required Readings:

All required supplemental readings are listed in the attached course schedule and will be made available on the eCourseware site for this course.

Course Requirements and Grading Criteria:

Weekly Quiz* (10 Weeks*20 Points/ Week)	20%
Class Discussions (10 Weeks* 30 Points/ Week)	30%**
Midterm exam (200 Points)	20%
Final Research Paper (300 Points)	30%
TOTAL	100%

*We have a Weekly Quiz for 12 weeks. We will drop the two lowest quiz grades. The final grade will be calculated with the highest 10 graded quizzes.

** Requirement if the course is online

For the online course, students are expected to participate in all online discussions. Participation in class discussion is a vital part of the learning experience in this course. Lack of online participation will result in a lower final grade as outlined above. Please be sure and comment on the weekly discussion topics no later than the date/time indicated in the syllabus. The instructor reserves the right to refuse class participation points for disrespectful or disruptive behavior in class discussions, including but not limited to profanity, degrading remarks, and bullying behavior. Repeat offenders, who have previously received a warning from the instructor, will forfeit all class participation points. Depending on their extent and seriousness, such behaviors may lead to additional academic discipline, as outlined in the academic conduct section, above, and the referenced University of Memphis polices.

Assignment Submission Requirements:

Final assignment the course (Final Research Paper) must be submitted through the course website Dropbox. Any assignments not submitted through the Dropbox, without prior approval from the instructor, will not be accepted.

Class Attendance and Participation:

Since the course is taught entirely online, students are expected to participate in all online discussions. Participation in class discussion is a vital part of the learning experience in this course. Lack of online participation will result in a lower final grade as outlined above. Please be sure and comment on the weekly discussion topics no later than the date/time indicated in the syllabus. The instructor reserves the right to refuse class participation points for disrespectful or disruptive behavior in class discussions, including but not limited to profanity, degrading remarks, and bullying behavior. Repeat offenders, who have previously received a warning from the instructor, will forfeit all class participation points. Depending on their extent and seriousness, such behaviors may lead to additional academic discipline, as outlined in the academic conduct section, above, and the referenced University of Memphis polices.

Assignments:

1. Weekly Quiz: Weekly quiz will be based on the assigned chapter from the Shi and Singh textbook. The students will have 30 minutes to complete the quiz.
2. Class Discussions: Based on the class topic and the weekly assigned readings, there will be 2-3 discussion questions each week. Each student is expected to contribute to the discussion
3. Mid-Term Exam: Multiple choice and easy type questions.
4. Final Research Paper: Each student will select one of the topics discussed as the focus of his/her final research paper.

   Content Checklist for the Final Research Paper:

   - ✓ The background section clearly states the main goal and the specific objectives of the research paper, explains the importance of the study, and provides all necessary background information.
   - ✓ The middle section will be based on your readings and findings from peer-reviewed articles, published books and other credible sources.
   - ✓ The last section should include meaningful conclusions and recommendations you propose.

   The paper should be 5-6 pages long. Papers should be double spaced, in 12 pt. size font (Arial or Times New Roman) and 1-inch margins. Please see the writing rubric for the breakdown of the grades.

Grading Scale:

- 97-100% |A+ |4.00
- 93-96% |A |4.00
- 90-92% |A- |3.84
- 87-89% |B+ |3.33
- 84-86% |B |3.00
- 80-83% |B- |2.67
- 77-79% |C+ |2.33

- 74-76% |C |2.00
- 70-73% |C- |1.67
- 60-69% |D |1.00
- 0-59% |F |0.00

Promoting a Positive Learning Environment:

The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Use of eCourseware/late assignments:

All class materials will be posted on eCourseware. Students will be responsible for checking eCourseware routinely for assignments, change in assignments, notices, etc. Email regarding class must be sent via eCourseware email. Every effort will be made to answer email sent via eCourseware email within 48 hours (Monday-Friday, not including holidays) unless you are notified otherwise. Remember eCourseware does NOT accept email from outside email system including UM outlook. You may send email out from eCourseware but not send email in from other systems. All assignments must be submitted to the assignment drop box in eCourseware. Students are responsible for keeping up with submission deadlines. No late submission of any assignment may be submitted to the instructor without prior approval. The instructor reserves the right to refuse a late submission and assign a grade of "0" for that assignment.

Other Considerations:

As a matter of professionalism and in accordance with applicable laws and policies governing student information and records, the instructor will not discuss any course-related matters, including grades, assignments, or questions/concerns with anyone except students enrolled in the course. The only exceptions are in cases of severe illness or recognized disability and then only with representatives recognized by the university.

Personal Conduct:

As a community of scholars, it is expected that the instructor and students will work together at all times to create an atmosphere that fosters shared discovery and mutual respect. The instructor will be prepared for each class meeting, and likewise, students are expected to arrive prepared to ask questions, discuss, and learn. Students are expected to handle feedback from the instructor in a constructive manner. Students are expected to complete all assigned readings and writing assignments, and to participate in class discussions.

Make-Up and Absentee Policy:

Students missing class are responsible for the content presented and are not excused from assignment due dates. You may be asked to make up for the missed class in the form of written critical commentaries on the readings, additional assignments, or tests. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards:

Written assignments are intended to help you critically analyze important issues that are central to your mastery of specific competencies. As a undergraduate student, you are expected to write clearly, professionally, and in accordance with established standards. For this course, and unless otherwise indicated on the Assignment Summary, these standards include use of APA 6th citation style and use of either Times New Roman 12 point or Calibri 11 point fonts. Papers must have one-inch margins on all sides and must be doubled-spaced. Papers should be free of typographical and grammatical errors. Page requirements do not include a cover sheet and references. Abstracts are not necessary. So that papers may be graded and feedback provided electronically, all papers must be submitted in Microsoft Word (.doc or .docx) format. Papers not submitted using this format will not be accepted. Above all else, any work that is not your own must be appropriately cited. Referenced material must be of suitable academic quality including assigned texts/readings, books, journals/periodicals, etc. Citing Wikipedia or other non- academic or non-scholarly sources is not appropriate and will result in loss of points. The instructor highly recommends the use of reference management software such as EndNote, RefWorks, or other similar programs. Failure to meet these minimum standards will result in loss of points on the assignments. As outlined above, plagiarism in any form will not be tolerated and will result in serious consequences.

Papers will be graded using track changes in MS Word and returned to you with a graded rubric attached. A writing rubric, provided below, will be used to grade all written assignments. Students, who need or desire writing support, can and should take advantage of the university's Center for Writing and Communication (http://www.memphis.edu/cwc) and the Educational Support Program (http://www.memphis.edu/esp). Of particular interest is the English Learning Center (ELC), which is designed to enhance the student's evaluation of his/her own writing and to produce clear, coherent work. The ELC offers tutors who provide instruction in all phases of the writing process from choosing a topic to reviewing and revising for a final draft. Hours (subject to change, see website for more information): Monday-Thursday, 8:00am to 7:00pm; Friday, 8:00am to 12:00pm. For general questions, please email tutoringesp@memphis.edu

Academic Conduct:

Expectations for academic integrity and student conduct are described in detail on the website of the Office of Student Judicial and Ethical Affairs (http://saweb.memphis.edu/judicialaffairs). Please look, in particular, at the sections about "Academic Dishonesty," "Student Code of Conduct and Responsibilities," and "Disruptive Behaviors." Students are expected to be aware of these guidelines and to conduct themselves accordingly.

POLICIES REGARDING INCOMPLETE GRADES, PLAGIARISM AND GRIEVANCE PROCEDURES: As outlined in the Student Handbook, "cheating" and "plagiarism" will result in severe disciplinary action to be decided by the instructor. Either offense will be grounds for receiving an "F" on the assignment or examination and possibly an "F" for the course, depending on the severity of the offense. Please contact the instructor if you have any questions about these topics.

Undergraduate students should become familiar with the University's policies on plagiarism in its various forms. Additionally, research papers and reports may not be used to meet the requirements of more than one course unless approved in advance by both instructors. The academic conduct policies applicable to this course are not limited to

those expressly outlined in this syllabus. Again, it is the student's responsibility to be familiar with these policies and procedures.

Awarding an Incomplete Grade:

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy:

In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

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The University of Memphis is committed to providing equal opportunity and challenge to all academically qualified students with disabilities and is compliant with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Register with the Student Disabilities Services (SDS) by providing current and appropriate medical and professional documentation and meeting with an SDS coordinator for an intake appointment. It is against University policy for professors to provide disability accommodations to students who have not given them a memo from SDS. Professors are responsible for providing accommodations only from the time they receive notice of the Disability via the memo from SDS. Students should contact the Division of Student Affairs (http://www.memphis.edu/studentaffairs and/or http://www.memphis.edu/drs/) for more information.

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Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

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Schedule of Topics and Readings:

This is a general course schedule. Since this course is taught entirely online, students may self-pace certain aspects of the course (e.g. readings, assignments, etc.). However, students should be aware of assignment deadlines and

must participate in weekly class discussions (which also have deadlines).
Specific topics for weekly discussions will be posted in the appropriate discussion board(s). Assignment details, in the form of an assignment summary, will be provided far in advance of the due date.

Week 1 (Session I & II)

|Introductions, Expectations, what is a health care system

|Shi & Singh, Chapter 1

|Assignments due: Self-Introduction, Weekly Quiz

Week 2 (Session I & II)

|Determinants of Health and Evolution of the Health Services in the US

| Shi & Singh, Chapters 2 & 3

| Bauchner H. Health Care in the United States: A Right or a Privilege. JAMA. 2017;317(1):29. doi:10.1001/jama.2016.19687

|Assignments due: Weekly Quiz Week 3

(Session I & II)

| Health Services Professionals
| Shi & Singh, Chapter 4

|Draper, D. A., Hurley, R. E., & Lauer, J. R. (2008). Public health workforce shortages imperil nation's health. Res. Briefs., 1-8.

| Yee, T., Boukus, E. L. L. Y. N., Cross, D., & Samuel, D. I. V. Y. A. (2013). Primary care workforce shortages: Nurse practitioner scope-of-practice laws and payment policies. National Institute for Health Care Reform Research Brief, 13, 1-7.

| Assignments due: Weekly Quiz

Week 4 (Session I & II)

|Medical Technology

|Shi & Singh, Chapter 5

| Bhuyan, S. S., Lu, N., Chandak, A., Kim, H., Wyant, D., Bhatt, J., ... & Chang, C. F. (2016). Use of mobile health applications for health-seeking behavior among US adults. Journal of medical systems, 40(6), 153.

|Halamka, J. D. (2009). Making smart investments in health information technology: core principles.

Health Aff (Millwood.), 28, w385-w389.

|Assignments due: Weekly Quiz

Week 5 (Session I & II)

|Health Services Financing

| Shi & Singh, Chapter 6

| Robinson, J. C. & Ginsburg, P. B. (2009). Consumer-driven health care: promise and performance. Health Aff. (Millwood.), 28, w272-w281.

| Assignments due: Weekly Quiz

Week 6 (Session I & II)

|Inpatient Care, Outpatient Care, and Primary Care Services

| Shi & Singh, Chapter 7 & 8

| Werner RM, Kolstad JT, Stuart EA, Polsky D. (2011). The effect of pay-for-performance in hospitals: lessons for quality improvement. Health Aff (Millwood). 2011 Apr; 30(4):690-8.

| Guterman, S. (2006). Specialty hospitals: a problem or a symptom? Health Aff (Millwood.), 25, 95-105.

| Assignments due: Weekly Quiz

Week 7 (Session I & II)

|Midterm Review and Midterm Exam

Week 8 (Session I & II)

|Fall Break

Week 9 (Session I & II)

| Managed Care and Integrated Organizations

| Shi & Singh, Chapter 9

| Borenstein, J., Badamgarav, E., Henning, J. M., Gano, A. D., & Weingarten, S. R. (2004). The association between quality improvement activities performed by managed care organizations and quality of care. The American journal of medicine, 117(5), 297-304.

| Assignments due: Weekly Quiz, Idea for the Final Research Paper Due

Week 10 (Session I & II)

|Long-Term Care

| Shi & Singh, Chapter 10

| Kaye HS, Harrington C, LaPlante MP. Long-term care: who gets it, who provides it, who pays, and how much? Health Aff (Millwood). 2010 Jan-Feb;29(1):11-21.

| Doty, P., Nadash, P., & Racco, N. (2015). Long-Term Care Financing: Lessons From France. The Milbank Quarterly, 93(2), 359-391.

|Assignments due: Weekly Quiz

Week 11 (Session I & II)

| Health Care for Special Populations

| Shi & Singh, Chapter 11

| Zuckerman S, Waidmann TA, Lawton E. (2011) Undocumented immigrants, left out of health reform, likely to continue to grow as share of the uninsured. Health Aff (Millwood). 2011 Oct;30(10):1997-2004

| Assignments due: Weekly Quiz

Week 12 (Session I & II)

| Access to Healthcare, Cost and Quality of Healthcare

|Shi & Singh, Chapter 12

| Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: care, health, and cost. Health Aff. (Millwood.), 27, 759-769.

|Assignments due: Weekly Quiz

Week 13 (Session I & II)

| Health Policy

| Shi & Singh, Chapter 13

| Oberlander, J. (2010). Long time coming: why health reform finally passed. Health Aff(Millwood.), 29, 1112-1116.

| Morone JA. (2010) Presidents and health reform: from Franklin D. Roosevelt to Barack Obama. Health Aff (Millwood) 29(6):1096-100.

| Assignments due: Weekly Quiz

Week 14 (Session I & II)

| Healthcare Reform

| Obama, B. (2016). United States health care reform: progress to date and next steps. JAMA, 316(5), 525-532.

| Orszag PR. US Health Care Reform Cost Containment and Improvement in Quality. JAMA. 2016; 316(5):493–495. doi:10.1001/jama.2016.9876

Week 15 (Session I & II)

| The Future of Health Services Delivery

| Shi & Singh, Chapter 14

|Honore, P. A., Wright, D., Berwick, D. M., Clancy, C. M., Lee, P., Nowinski, J. et al. (2011). Creating a framework for getting quality into the public health system. Health Aff (Millwood.), 30, 737-745.

| Callaghan, T. H., & Jacobs, L. R. (2017). The Future of Health Care Reform: What Is Driving Enrollment? Journal of health politics, policy and law, *42*(2), 215-246.

| Assignments due: Weekly Quiz

Week 16| Final Week (04/29-05/02)

|Assignments due: Final Research Paper

Note: The schedule and readings are tentative and are subject to change.

WRITING RUBRIC (Hot Topic Paper and Final Research Paper)

Standards	Professional/Very Good	Good to Average	Poor	Score
Communication	Paper effectively captures reader's attention and communicates purpose, tone and topic. Establishes purpose, thesis clearly, explicitly.	Paper is generally well written, but may be lacking in purpose or topic. States significance but thesis is buried.	Paper poorly related to assignment purpose. Reader is distracted. Some or no indication of thesis/purpose.	5 4 3 2 1
Organization	Excellent use of language, ordered and clear links to thesis statement.	Some connection to thesis statement. Some lack of clarity.	Lack of care, time and effort.	5 4 3 2 1
Development and Analysis	Impressive depth of insight/analysis. Author presents ideas and uses others' ideas for support. Offers opposing viewpoint. Facts, examples, data, and quotations strongly support ideas.	Adequate depth. Recitation of other's ideas coherently. No opposing viewpoint. Facts, examples, data, and quotations somewhat support ideas but may be tangential.	Little or no depth or insight. Lack of understanding of material read. Lack of facts, examples, data or quotations which support main ideas.	10 9 8 7 6 5 4 3 2 1
Length	Paper is of sufficient length to fully present thesis and supporting documentation as assigned.	Paper meets minimum assigned length but could more adequately discuss thesis.	Paper is not of sufficient length to fully explore thesis; does not meet assigned minimum.	5 4 3 2 1
Conclusion	Effectively closes the paper. Ties together all elements = effectively integrated.	Adequate integration and conclusion.	Weak conclusion and integration.	5 4 3 2 1
Overall Cohesion	Clear, readable, coherent & mature. Avoids empty & pretentious language. Avoids ambiguities-abstractions.	Readable; somewhat coherent. Uses empty language; at times ambiguous.	Poorly constructed, unreadable, very ambiguous or pretentious.	5 4 3 2 1
Assignment Relevance	Paper is clearly and highly related to the assigned topic and incorporates all required elements.	Paper generally addresses assigned topic. Clarity/focus may be lacking. May not incorporate some required elements.	Paper fails to address the assigned topic or fails to incorporate most if not all required elements.	5 4 3 2 1
Referencing	Wide variety of well-researched, quality sources. Few if any non-reviewed internet sources. Uses the correct citation style, font size, and margins.	Reliance on non-academic sources. Generally uses the correct citation style, font size, and margins. However, mistakes are present and/or styles are not consistent.	Material not checked for validity. Fails to uses the correct citation style, font size, and margins as required in the syllabus and assignment summary.	5 4 3 2 1
Style	Clear sentences. Variety of paragraph & sentence length. Strong clear leads. Smooth transitions. Grammatically and typographically superior. No errors or one per page.	Sentences somewhat muddled with little variety in length. Grammatical and typographical errors. (2-3 errors per page)	Poor grammar in sentence and paragraph structure. Awkward. Significant grammatical and typographical errors. (4+ per page)	5 4 3 2 1

Hot Topic Paper: (sum of all categories, 50 possible):_____X 4
Final Research Paper: (sum of all categories, 50 possible):_____X 6

Total Score (sum of all categories, 50 possible):_____X Point value of assignment (total points possible on a given assignment):_____= Final Score for Assignment: _____

(Note: The group assignment will be graded initially using this rubric and then be weighted individually based on the self/peer evaluation. See below for more detail

PUBH 4711
Public Health Systems & Policy (II)
The University of Memphis
Class Schedule: TBD
Class Location: N/A

Professor:

Aram Dobalian, PhD, MPH
Professor, Division of Health Systems Management & Policy
E-Mail: dobalian@memphis.edu
Phone: 901-678-4130
Office: 132 Robison Hall
Office Hours: By appointment only (please email for appointment)

Co-Instructor:

TBD

Course Description:

This undergraduate course is the second section of the two-part series Public Health Systems and Policy. This course will introduce the health policy making process in the United States. It presents different frameworks to understand the social, political, economic dimensions of health care policy making in the United States. Major topics to be covered include role of government in health policy making, law and the legal system, health insurance, health economics in health policy context, government health insurance programs, and health policy analysis.

Course Prerequisites:

PUBH 3710

Learning Objectives:

By the end of this course, students will be able to:

- Understand the basic concepts, methods and tools of public health data collection, use and analysis and why evidence-based approaches are an essential part of public health practice;

- Examine the socioeconomic, behavioral, biological, environmental and other factors that impact human health and contribute to health disparities;
- Develop skills to communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences.
- Assessing ability to locate, use, evaluate and synthesize public health information
- Describe the major formal organizational structures within the United States responsible for monitoring and improving the public's health.

Required Text(s):

Teitelbaum, Joel B., and Sara E. Wilensky. Essentials of health policy and law. Jones & Bartlett Publishers, 2013.

Required Readings:

All required supplemental readings are listed in the attached course schedule and will be made available on the eCourseware site for this course.

Course Requirements and Grading Criteria:

Weekly Quiz* (10 Weeks*20 Points/ Week)	20%
Class Discussions (10 Weeks* 30 Points/ Week)	30%**
Midterm exam (200 Points)	20%
Health Policy Analysis Paper (300 Points)	30%
TOTAL	100%

*We have a Weekly Quiz for 12 weeks. We will drop the two lowest quiz grades. The final grade will be calculated with the highest 10 graded quizzes.

** For online section of the class

For the online, students are expected to participate in all online discussions. Participation in class discussion is a vital part of the learning experience in this course. Lack of online participation will result in a lower final grade as outlined above. Please be sure and comment on the weekly discussion topics no later than the date/time indicated in the syllabus. The instructor reserves the right to refuse class participation points for disrespectful or disruptive behavior in class discussions, including but not limited to profanity, degrading remarks, and bullying behavior. Repeat offenders, who have previously received a warning from the instructor, will forfeit all class participation points. Depending on their extent and seriousness, such behaviors may lead to additional academic discipline, as outlined in the academic conduct section, above, and the referenced University of Memphis polices.

Assignment Submission Requirements:

The final assignment of the course (Final Research Paper) must be submitted through the course website Dropbox. Any assignments not submitted through the Dropbox, without prior approval from the instructor, will not be accepted.

Class Attendance and Participation:

[For traditional version]: Participation in class discussion is a vital part of the learning experience in this course.

[For online version]: Since the course is taught entirely online, students are expected to participate in all online discussions. Participation in class discussion is a vital part of the learning experience in this course. Lack of online participation will result in a lower final grade as outlined above. Please be sure and comment on the weekly discussion topics no later than the date/time indicated in the syllabus. The instructor reserves the right to refuse class participation points for disrespectful or disruptive behavior in class discussions, including but not limited to profanity, degrading remarks, and bullying behavior. Repeat offenders, who have previously received a warning from the instructor, will forfeit all class participation points. Depending on their extent and seriousness, such behaviors may lead to additional academic discipline, as outlined in the academic conduct section, above, and the referenced University of Memphis polices.

Assignments:

1. Weekly Quiz: Weekly quiz will be based on the assigned chapter from the Shi and Singh textbook. The students will have 30 minutes to complete the quiz.
2. Class Discussions: Based on the class topic and the weekly assigned readings, there will be 2-3 discussion questions each week. Each student is expected to contribute to the discussion
3. Mid-Term Exam: Multiple choice and easy type questions.
4. Health Policy Analysis Paper: Each student will select one of the topics discussed as the focus of his/her health policy paper.

   Content Checklist for the health policy paper:

   - ✓ The background section clearly states the main goal and the specific objectives of the research paper, explains the importance of the study, and provides all necessary background information.
   - ✓ The middle section will be based on your readings and findings from peer-reviewed articles, published books and other credible sources.
   - ✓ The last section should include meaningful conclusions and recommendations you propose.

   The paper should be 5-6 pages long. Papers should be double spaced, in 12 pt. size font (Arial or Times New Roman) and 1-inch margins. Please see the writing rubric for the breakdown of the grades.

Grading Scale:

- 97-100% |A+ |4.00
- 93-96% |A |4.00
- 90-92% |A- |3.84
- 87-89% |B+ |3.33
- 84-86% |B |3.00
- 80-83% |B- |2.67
- 77-79% |C+ |2.33
- 74-76% |C |2.00
- 70-73% |C- |1.67
- 60-69% |D |1.00
- 0-59% |F |0.00

Promoting a Positive Learning Environment:

The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Use of eCourseware/late assignments:

All class materials will be posted on eCourseware. Students will be responsible for checking eCourseware routinely for assignments, change in assignments, notices, etc. Email regarding class must be sent via eCourseware email. Every effort will be made to answer email sent via eCourseware email within 48 hours (Monday-Friday, not including holidays) unless you are notified otherwise. Remember eCourseware does NOT accept email from outside email system including UM outlook. You may send email out from eCourseware but not send email in from other systems. All assignments must be submitted to the assignment drop box in eCourseware. Students are responsible for keeping up with submission deadlines. No late submission of any assignment may be submitted to the instructor without prior approval. The instructor reserves the right to refuse a late submission and assign a grade of "0" for that assignment.

Other Considerations:

As a matter of professionalism and in accordance with applicable laws and policies governing student information and records, the instructor will not discuss any course-related matters, including grades, assignments, or questions/concerns with anyone except students enrolled in the course. The only exceptions are in cases of severe illness or recognized disability and then only with representatives recognized by the university.

Personal Conduct:

As a community of scholars, it is expected that the instructor and students will work together at all times to create an atmosphere that fosters shared discovery and mutual respect. The instructor will be prepared for each class meeting, and likewise, students are expected to arrive prepared to ask questions, discuss, and learn. Students are expected to handle feedback from the instructor in a constructive manner. Students are expected to complete all assigned readings and writing assignments, and to participate in class discussions.

Make-Up and Absentee Policy:

Students missing class are responsible for the content presented and are not excused from assignment due dates. You may be asked to make up for the missed class in the form of written critical commentaries on the readings, additional assignments, or tests. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards:

Written assignments are intended to help you critically analyze important issues that are central to your mastery of specific competencies. As an undergraduate student, you are expected to write clearly, professionally, and in accordance with established standards. For this course, and unless otherwise indicated on the Assignment Summary, these standards include use of APA 6th citation style and use of either Times New Roman 12 point or Calibri 11 point fonts. Papers must have one-inch margins on all sides and must be doubled-spaced. Papers should be free of typographical and grammatical errors. Page requirements do not include a cover sheet and references. Abstracts are not necessary. So that papers may be graded and feedback provided electronically, all papers must be submitted in Microsoft Word (.doc or .docx) format. Papers not submitted using this format will not be accepted. Above all else, any work that is not your own must be appropriately cited. Referenced material must be of suitable academic quality including assigned texts/readings, books, journals/periodicals, etc. Citing Wikipedia or other non-academic or non-scholarly sources is not appropriate and will result in loss of points. The instructor highly recommends the use of reference management software such as EndNote, RefWorks, or other similar programs. Failure to meet these minimum standards will result in loss of points on the assignments. As outlined above, plagiarism in any form will not be tolerated and will result in serious consequences. Papers will be graded using track changes in MS Word and returned to you with a graded rubric attached. A writing rubric, provided below, will be used to grade all written assignments. Students, who need or desire writing support, can and should take advantage of the university's Center for Writing and Communication (http://www.memphis.edu/cwc) and the Educational Support Program (http://www.memphis.edu/esp). Of particular interest is the English Learning Center (ELC), which is designed to enhance the student's evaluation of his/her own writing and to produce clear, coherent work. The ELC offers tutors who provide instruction in all phases of the writing process from choosing a topic to reviewing and revising for a final draft. Hours (subject to change, see website formore

information): Monday-Thursday, 8:00am to 7:00pm; Friday, 8:00am to 12:00pm. For general questions, please email tutoringesp@memphis.edu

Academic Conduct:

Expectations for academic integrity and student conduct are described in detail on the website of the Office of Student Judicial and Ethical Affairs (http://saweb.memphis.edu/judicialaffairs). Please look, in particular, at the sections about "Academic Dishonesty," "Student Code of Conduct and Responsibilities," and "Disruptive Behaviors." Students are expected to be aware of these guidelines and to conduct themselves accordingly.

POLICIES REGARDING INCOMPLETE GRADES, PLAGIARISM AND GRIEVANCE PROCEDURES: As outlined in the Student Handbook, "cheating" and "plagiarism" will result in severe disciplinary action to be decided by the instructor. Either offense will be grounds for receiving an "F" on the assignment or examination and possibly an "F" for the course, depending on the severity of the offense. Please contact the instructor if you have any questions about these topics.

Students should become familiar with the University's policies on plagiarism in its various forms. Additionally, research papers and reports may not be used to meet the requirements of more than one course unless approved in advance by both instructors. The academic conduct policies applicable to this course are not limited to those expressly outlined in this syllabus. Again, it is the student's responsibility to be familiar with these policies and procedures.

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A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

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Week 1 (Session I & II)

| Overview of Policy and Law in the United States

| Teitelbaum and Wilensky Chapter 1

|Assignments due: Self-Introduction, Weekly Quiz

Week 2 (Session I & II)

|Policy and Policymaking Process

| Teitelbaum and Wilensky Chapter 2

|Assignments due: Weekly Quiz

Week 3 (Session I & II)

|Law and the Legal System

| Teitelbaum and Wilensky Chapter 3

| Assignments due: Weekly Quiz

Week 4 (Session I & II)

|Understanding of Health Insurance

| Teitelbaum and Wilensky Chapter 4

|Assignments due: Weekly Quiz

Week 5 (Session I & II)

|Health Economics in Health Policy Context

| Teitelbaum and Wilensky Chapter 5

| Assignments due: Weekly Quiz

Week 6 (Session I & II)

|Government Health Insurance programs: Medicaid, SCHIP, and Medicare

| Teitelbaum and Wilensky Chapter 6

| Assignments due: Weekly Quiz

Week 7 (Session I & II)

|Midterm Review and Midterm Exam

Week 8 |Spring Break

Week 9 (Session I & II)

| The Uninsured and Health Reform

| Teitelbaum and Wilensky Chapter 7

| Assignments due: Weekly Quiz, Idea for the Health Policy Analysis Paper

Week 10 (Session I & II)

|Individual Rights in Healthcare and Public Health

| Teitelbaum and Wilensky Chapter 8

|Assignments due: Weekly Quiz

Week 11 (Session I & II)

| Health Care for Vulnerable

| Readings

| Assignments due: Weekly Quiz

Week 12 (Session I & II)

| Health Policy Analysis

| Teitelbaum and Wilensky Chapter 10

|Assignments due: Weekly Quiz

Week 13 (Session I & II)

| Health care quality policy and law

| Teitelbaum and Wilensky Chapter 9

| Assignments due: Weekly Quiz

Week 14 (Session I & II)

| Healthcare Reform and future of health policy

| Readings

Week 15 (Session I & II)

| Student Presentation

Week 16| Final Week

|Assignments due: Health Policy Analysis Paper

Note: The schedule and readings are tentative and are subject to change.

WRITING RUBRIC (Hot Topic Paper and Final Research Paper)

Standards	Professional/Very Good	Good to Average	Poor	Score
Communication	Paper effectively captures reader's attention and communicates purpose, tone and topic. Establishes purpose, thesis clearly, explicitly.	Paper is generally well written, but may be lacking in purpose or topic. States significance but thesis is buried.	Paper poorly related to assignment purpose. Reader is distracted. Some or no indication of thesis/purpose.	5 4 3 2 1
Organization	Excellent use of language, ordered and clear links to thesis statement.	Some connection to thesis statement. Some lack of clarity.	Lack of care, time and effort.	5 4 3 2 1
Development and Analysis	Impressive depth of insight/analysis. Author presents ideas and uses others' ideas for support. Offers opposing viewpoint. Facts, examples, data, and quotations strongly support ideas.	Adequate depth. Recitation of other's ideas coherently. No opposing viewpoint. Facts, examples, data, and quotations somewhat support ideas but may be tangential.	Little or no depth or insight. Lack of understanding of material read. Lack of facts, examples, data or quotations which support main ideas.	10 9 8 7 6 5 4 3 2 1
Length	Paper is of sufficient length to fully present thesis and supporting documentation as assigned.	Paper meets minimum assigned length but could more adequately discuss thesis.	Paper is not of sufficient length to fully explore thesis; does not meet assigned minimum.	5 4 3 2 1
Conclusion	Effectively closes the paper. Ties together all elements = effectively integrated.	Adequate integration and conclusion.	Weak conclusion and integration.	5 4 3 2 1
Overall Cohesion	Clear, readable, coherent & mature. Avoids empty & pretentious language. Avoids ambiguities-abstractions.	Readable; somewhat coherent. Uses empty language; at times ambiguous.	Poorly constructed, unreadable, very ambiguous or pretentious.	5 4 3 2 1
Assignment Relevance	Paper is clearly and highly related to the assigned topic and incorporates all required elements.	Paper generally addresses assigned topic. Clarity/focus may be lacking. May not incorporate some required elements.	Paper fails to address the assigned topic or fails to incorporate most if not all required elements.	5 4 3 2 1
Referencing	Wide variety of well-researched, quality sources. Few if any non-reviewed internet sources. Uses the correct citation style, font size, and margins.	Reliance on non-academic sources. Generally uses the correct citation style, font size, and margins. However, mistakes are present and/or styles are not consistent.	Material not checked for validity. Fails to uses the correct citation style, font size, and margins as required in the syllabus and assignment summary.	5 4 3 2 1
Style	Clear sentences. Variety of paragraph & sentence length. Strong clear leads. Smooth transitions. Grammatically and typographically superior. No errors or one per page.	Sentences somewhat muddled with little variety in length. Grammatical and typographical errors. (2-3 errors per page)	Poor grammar in sentence and paragraph structure. Awkward. Significant grammatical and typographical errors. (4+ per page)	5 4 3 2 1

Hot Topic Paper: (sum of all categories, 50 possible):_____X 4
Final Research Paper: (sum of all categories, 50 possible):_____X 6

Total Score (sum of all categories, 50 possible):_____X Point value of assignment (total points possible on a given assignment):_____= Final Score for Assignment: _____

(Note: The group assignment will be graded initially using this rubric and then be weighted individually based on the self/peer evaluation. See below for more detail

PUBH 4010
Public Health Fieldwork
Fall/Spring/Summer

Instructor and Contact Information

Each student's faculty advisor or designee serves as the instructor for the fieldwork. Faculty advisors are involved in selection and approval of fieldwork sites and special projects; development of documents for IRB approval, if necessary; supervision of the fieldwork experience; and determination of pass/fail.

Please contact your faculty advisor to determine their office hours, email policy, and preferred method of contact.

Course Description and Purpose of the Course

Description: The fieldwork experience provides an opportunity for each student to work in a community setting in a position that carries responsibility and is of particular interest. Each placement is different, but all depend upon completion of most coursework, the ability to work with minimal supervision, and acquiring permission of the student's advisor and on-site preceptor/supervisor. The B.S.P.H. is a professional degree that prepares individuals to develop basic public health skills. The Council on Education for Public Health (CEPH), our accrediting agency, requires that each B.S.P.H. student be able to demonstrate the application of these concepts through an internship or fieldwork experience that is relevant to public health. This experience must be appropriately planned, supervised, and evaluated. Students should have completed the core classes before registering for fieldwork. To be sure about when you are eligible to register for your fieldwork experience, check with your advisor.

Purpose: To enable students to apply entry-level competencies acquired in the classroom setting to public health practice through field experiential activities.

CEPH Competencies/Course Learning Objectives Alignment:

Competencies define what a successful learner should know and be able to do upon completion of a particular program. These statements describe in measurable terms the knowledge, skills and abilities a successful graduate will demonstrate at the conclusion of the program. Each CEPH and School competency is mapped to course learning objectives (CLOs). The course learning objective is what the student is expected to be able to do upon successfully completing this course. The relationship between competencies and course learning objectives (the incremental learning experiences at the course and experiential levels that lead to the development of the competencies) should be explicit and aligned with the program's mission, goals and objectives. (CEPH Accreditation Criteria Public Health Programs)

At the completion of this course students will be able to:

Apply at least three (3) competencies with the skill expected from a practical experience. Of these three (3) competencies, students must select a minimum of one (1) Foundational Competency. The remaining two (2) competencies can be a combination of Foundational or School Competencies.

CEPH Competencies	School Competencies	rse Learning Objectives	sments Used to Assess
		PUBH 4010 1: Describe newly acquired knowledge in one or more specific public health area(s).	Final products including final paper and poster to be displayed at the Spring PH Lecture.

Credit Hours:
This course is worth 2 credit hours.

Prerequisites:
Completion of all core courses required for degree.

Required Textbook(s):
None

Time Requirements/Commitment:
You must complete a minimum of 180 contact hours with the organization during the two semesters in which you register for the fieldwork.

Submitting Assignments:
Assignments should be submitted through eCourseware by the specified due date. Each assignment will have a submission link.

Course Schedule:

Module #	Topic	Readings	Activities/Due Dates	Module Learning Objectives
Module 1	**Fieldwork Description and Agreement**	*None*	**Prior to the start of Class**	
Module 2	**Student Midpoint**	*None*		
Module 3	**Preceptor/Site Supervisor Midpoint**	*None*		
Module 4	**Faculty Midpoint Meeting Confirmation**	*None*		
Module 5	**Student Final Evaluation**	*None*		

Module 6	**Preceptor/Site Supervisor Midpoint**	*None*		
Module 7	**Final Poster**	*None*	**Spring PH Lecture (April)**	
Module 8	**Final Project (paper)**	*None*	**Last Day of Class in 2nd semester**	

Grading

Attendance and Participation:
You must complete a minimum of 180 contact hours with the organization over the semester in which you are registered for the fieldwork experience.

Instructor Response Time:
Final grades will be posted by the due date listed in the Academic Calendar.

Grading Scale:
This course is graded as Pass/No Pass based on completion of all internship requirements, including supervisor midpoint and final evaluation, the final projects (s) and poster presentation.

Technology Requirements and Support

- Reliable high-speed Internet connection
- Web browser (Internet Explorer, Chrome, Firefox, Safari)
- Access to e-Courseware: https://elearn.memphis.edu/d2l/home
- Software: Microsoft Office- Word, Powerpoint, Adobe
- Applications: as assigned

Communication Guidelines

Online Communication Etiquette:
When participating in a discussion, please be respectful of everyone's post. While it is acceptable to disagree with someone's opinion, you should always do so in a respectful manner. This respect should be extended to entities (instructors, businesses, other students, etc.) outside of the class as well. Do not refer to people outside of the class by name or criticize other instructors or teaching methods within posts. Keep posts relevant to the discussion board topic. This is an academic discussion, not a sounding board.

Additionally, you should use appropriate language in your posts: avoid "net speak" such as TTYL, LOL, L8R, U (instead of you). When beginning a post, address your post to the CLASS (in all capital letters). If you are responding, use the person's name to whom you are responding in all capital letters (This is the only time you should use all capital letters).

Academic Policies

Late Assignments:
Assignments must be turned in on time. In extreme circumstances *(verifiable medical or school related event)* the instructor will consider appropriate accommodations. **Make-up** exams or assignments will be given **only when a verifiable medical or school related excuse** has been given to and approved by the instructor. ***There are no exceptions.*** Consideration for make ups will only be given to those with verifiable medical emergencies who have notified the instructor by e-mail **prior to** the assigned activity. If you fail to do this, you may **forfeit the make-up and receive a "0" on the quiz or exam. Failure to submit work as scheduled will result in receiving a "0" for the assignment.**

Academic Integrity:
Failure to abide by the University Honor Code will result in automatic failure of this course.

Written Assignments and Academic Misconduct: All written work submitted must be the student's original work. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. It is the student's responsibility to know all relevant University policies concerning plagiarism. *Any documented cases of plagiarism can and will usually result in dismissal from the course with a failing grade, and may result in other more serious sanctions by the School and/or University*.

Plagiarism: Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers of other academic materials. Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all. Please refer to the University's "Code of Student Conduct" for actions that may result from student academic misconduct.

Awarding an Incomplete Grade: A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether the student is enrolled.

Promoting a Positive Learning Environment: The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the

appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. School courses will strive to provide an opportunity for all students to openly discuss issues of diversity.

Special Needs: Any student who has special needs for assistance and/or accommodation, and who is registered with the Disability Resources for Students Office should meet with the instructor during the first week of classes. It is the responsibility of the student to register with the Disability Resources for Students Office if they believe they have a special need.

Americans with Disabilities Act: The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty members are required by law to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Dealing with Harassment: The School of Public Health believes it is important to respond to insensitive and inappropriate behavior in a spirit of collegiality, mutual respect, and professionalism. If you believe that you have been the target of discrimination by another student, faculty member, or staff member, due to age, disability, ethnicity, gender, race, religious beliefs, sexual orientation, or cultural group membership, you can choose to pursue one or more of the following avenues:

The most direct approach, if you feel comfortable doing so, is to speak directly to the person whose behavior you consider to be inappropriate. You may speak to the instructor, or the University's Institutional Equity Officer. It is important that you speak immediately to someone, with whom you feel comfortable, in order that your concerns can be handled promptly and fairly.

Sexual Misconduct: The University is committed to ensuring equality in education and eliminating any and all acts of sexual misconduct from its campus. Sexual misconduct includes sexual harassment, sexual assault, dating violence, domestic violence and stalking. If you or someone you know has been harassed or assaulted, you can make a report to the Office for Institutional Equity at oie@memphis.edu or 901.678.2713. Please note that if you make a report to me I am required to report it. If you want to make a confidential report you can contact the University Counseling Center, 214 Wilder Tower, 901.678.2068.

Inclement Weather: If inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an inclement Weather Hotline at 678-0888.

Crisis Management

To learn more about the Office of Crisis Management and what they are doing to keep our campus safe, please visit http://www.memphis.edu/crisis/

THE UNIVERSITY OF MEMPHIS
School of Public Health

PUBH 4985
Bachelor of Science in Public Health Capstone
University of Memphis
Semester: Fall/Spring
Class Schedule:
Class Location:

Instructors:
Office:
Office Hours:
Phone:
Email:

Course Description:

The B.S.P.H. Capstone course is the culmination of the core curriculum for the B.S.P.H. and involves the synthesis and application of curriculum content and competencies. The course emphasizes active participation and honing of learned skills through group activities. A secondary goal of the Capstone experience is to facilitate individual growth and career development through a series of guest lecture presentations on job and professional development opportunities, reflection essays, and the completion of a professional public health e-portfolio.

Rationale:

The Council on Education in Public Health (CEPH), our accrediting body, requires that all students complete a capstone experience. The capstone requirement for the undergraduate Public Health major is designed to review, integrate, and apply concepts and methods presented in the core courses. The Capstone Requirement must be taken for a letter grade and fulfilled in your senior year. Course

Restrictions:

This course is required for all public health majors enrolled in the BS degree program. It is restricted to senior level standing and requires the completion of most major core coursework. Students may opt to enroll in the course in either the fall or spring semester of their senior year only with approval from their academic advisor.

Program Competencies Addressed:

Since this course is designed as a culminating experience, it will address the following overall degree program competency areas.

Students will demonstrate the ability to:

1. Communicate public health information, in both oral and written forms, through a variety of media and to diverse audiences
2. Locate, use, evaluate, and synthesize public health information
3. Write appropriately for an entry-level position in the field of public health.
4. Explain basic concepts of public health administration and its effect on society.
5. Demonstrate a general understanding of public health history, competencies, and current issues.
6. Adapt acquired knowledge and skills to address new challenges.

Course Objectives:

To meet the program competencies listed above, students are expected to fulfill the following course objectives:

1. Communicate in writing and orally how their capstone experience contributed to their understanding of public health issues that affect society as a whole as well as those that affect vulnerable populations.
2. Articulate their personal beliefs, values and goals for how they will contribute to public health problem-solving through the application of a multidisciplinary understanding of enhancing health and prevention of disease.
3. Apply knowledge and skills gained in their courses and capstone experience to demonstrate mastery of integrating learning needed for further professional development and career exploration.
4. Provide and receive feedback, including difficult conversations and negotiating conflicts

Required Readings and Resources:

A variety of readings and resources will be assigned during the semester. **Please check eCouseware regularly for course materials.**

Assignments:

All course assignments are listed in eCoursware. Assignments must be submitted in eCourseware on or before 11:59PM on the due date. A few assignments are due in class. Points will be subtracted for late assignments. Please follow the directions for the specific assignment.

B.S.P.H. Capstone Portfolio: Each student will utilize eCourseware throughout the core curriculum to create and maintain an ePortfolio of work and reflections. The ePortfolios, which will be completed by the end of this course, should demonstrate each student's ability to synthesize and apply professional and academic core concepts to the "real world." A written reflection paper containing entries during the semester is a required component of each student's portfolio. Detailed criteria and guidelines for the portfolio will be posted on eCourseware.

B.S.P.H. Capstone Portfolio Presentation: Each student will be required to provide a brief presentation of their capstone experience and portfolio. Detailed guidelines for the presentations will be posted on eCourseware. Presentations may take a variety of formats from posters, blogs, PowerPoint presentations, DVDs, youtube videos, or other suitable media formats. Class members may decide to coordinate a showcase for public review.

"What I Want to Accomplish in Public Health" Assignment: Students will write a 1-page maximum (1.5 line-spaced) on one change in public health that you would like to accomplish during your public health career and why.

Ethics Assignment and in-class discussion:

Group presentation of public health intervention: Working in groups, students will present a public health intervention using the tools and methodologies learned in public health core courses. The presentation will be 3.5 minutes maximum and should include: brief description of problem, examples of the intervention, and budget (especially cost/benefit).

Systems thinking modeling exercises

Other Assignment to be Developed

NAPP APPENDIX 2 – B.S.P.H. Faculty Curriculum Vitae

Pratik Banerjee, Ph.D., M.Tech.

Associate Professor, Environmental Health Science
Division of Epidemiology, Biostatistics, and Environmental Health
Science School of Public Health, University of Memphis
338 Robison Hall, Memphis, TN 38152
Tel: 901-678-4443; Fax: 901-678-4504; E-mail:
pbnerjee@memphis.edu

EDUCATION

2008 **Ph. D.** (Food Science), Center for Food Safety Engineering, Department of Food Science, Purdue University, West Lafayette, Indiana, USA

2000 **M. Tech.** (Biotechnology), Department of Life Science and Biotechnology, Jadavpur University, Kolkata (Calcutta), India

1997 **B. Tech.** (Dairy Technology), Faculty of Dairy Technology, West Bengal University of Animal & Fishery Sciences, Kolkata (Calcutta), India

PROFESSIONAL APPOINTMENTS

Sep 2018 - to date	Associate Professor (*tenured*), Division of Epidemiology, Biostatistics, & Environmental Health Science, School of Public Health, University of Memphis, Memphis, TN
Aug 2012 – Aug 2018	Assistant Professor, Division of Epidemiology, Biostatistics, & Environmental Health Science, School of Public Health, University of Memphis, Memphis, TN
Jan 2017 - to date	Adjunct Member, Bioinformatics Program, Department of Biology, University of Memphis, Memphis, TN
Aug 2009 – Jul 2012	Assistant Professor, Department of Food & Animal Sciences, Alabama A&M University, Huntsville, AL
Apr 2008 – Jul 2009	Principal Scientist, LacPro Industries, LLC, Fort Wayne, IN
Mar 2008 - Apr 2008	Post-doctoral Research Fellow, Whistler Center for Carbohydrate Research, Department of Food Science, Purdue University, West Lafayette, IN
Aug 2003 – Feb 2008	Graduate Research Assistant, Molecular Food Microbiology Laboratory, Department of Food Science, Purdue University, West Lafayette, IN
Jun 2006 - Aug 2006	Intern, R & D, Assay & Product Development, Innovative Biosensors, Inc., College Park, MD
Apr 2002 – Jun 2003	Senior Research Fellow (SRF), Council of Scientific & Industrial Research, Govt. of India, Department of Pharmaceutical Technology, Jadavpur University, Calcutta, India
Sep 2002 - Jun 2003	Research Associate, R & D, Sinha Institute of Medical Science & Technology, Calcutta, India

PROFESSIONAL AWARDS AND HONORS

2018	Biologistics Research Fellow, FedEx Institute of Technology, Memphis
2017	Food Science Early Career Award, Department of Food Science, Purdue University 2017 Smart City Fellow, FedEx Institute of Technology, Memphis
2016	Outstanding Contribution in Reviewing, The Editors of LWT - FOOD SCIENCE AND TECHNOLOGY, Elsevier, Amsterdam, The Netherlands
2014	First Time Principal Investigator recognition, University of Memphis Vice President for Research, Memphis, TN

2013-16 Member, FDA Advisory Panel of Auburn University Food Systems Institute
2013 Nominated and Elected as *Top Public Health Professors & Administrators* by CNA Class (CNAClasses.org)
2012-16 Member, Review Panel, USDA National Institute of Food and
Agriculture 2006- pres. Nominated to Phi Tau Sigma, Food Science honor society
2012 Recipient Secretary of Section of Merit Award, for the IFT South Eastern
Section 2011 Elected as the Secretary, IFT South Eastern Section
2006 *Vince Lombardi Employee of the Month* (June-July), Innovative Biosensors, Inc.,
MD 2002 Government of India Senior Research Fellowship
1999-2000 Department of Biotechnology, Govt. of India fellowship
1999 Tata Institute Scholar, Tata Institute of Fundamental Research (TIFR), Visiting Student Research Program (VSRP) scholar

RECENT REFEREED PUBLICATIONS

***** *Denotes Corresponding Author;* **GR** *Denotes Graduate Advisee (of Pratik Banerjee).*

1. Kovalic AJ, **Banerjee P,** Tran QT, Singal AK, Satapathy SK*. Genetic and Epigenetic Culprits in the Pathogenesis of Nonalcoholic Fatty Liver Disease. *J Clin Exp Hepatol. 2018; (in press)*
2. Higgins D **GR**, Pal C, Sulaiman IM, Jia C, Zerwekh JT, Dowd SE, **Banerjee P***. Application of high-throughput pyrosequencing in the analysis of microbiota of food commodities procured from small and large retail outlets in a U.S. metropolitan area – A pilot study. *Food Res Int.* 2018; 105: 29-40.
3. Sulaiman IM*, **Banerjee P,** Hsieh YH, Miranda N, Simpson S, Kerdahi K. Rapid detection of *Staphylococcus aureus* and related species isolated from food, environment, cosmetics, medical device, and clinical samples using VITEK MS microbial identification system. *J AOAC Int.* 2018; 101(4):1135-1143.
4. Adhikari A*, Kurella S, **Banerjee P**, Mitra A. Aerosolized bacteria and microbial activity in dental clinics during cleaning procedures. *J Aerosol Sci.* 2017;114: 209-218.
5. **Banerjee P*,** Sulaiman IM, Schneider G, Ray U, Jagadeesan B. Novel Microbial Diagnostic Methods for Clinical, Environmental, and Food Samples. *Biomed Res Int.* 2017; 2017: 3942801.
6. Miranda N, **Banerjee P,** Simpson S, Kerdahi K. Sulaiman IM*. Molecular surveillance of *Cronobacter* spp. isolated from a wide varieties of foods from 44 different countries by sequence typing of 16S rRNA, *rpo*B and O-antigen genes. *Foods.* 2017; 6(5), 35:E36.
7. Mukherjee N **GR**, Patra C, Dowd SE, Chauhan BV **GR**, Bartelli D, **Banerjee P***. Microbial diversity of source and point-of-use water in rural Haiti – a pyrosequencing-based metagenomic survey. *PLoS One.* 2016; 11(12):e0167353.
8. Mukherjee N **GR**, Sulaiman IM, **Banerjee P*.** Characterization of methicillin-resistant *Staphylococcus aureus* isolates from fitness centers in the Memphis metropolitan area, Tennessee. *Am J Infect Control.* 2016;44(12): 1681–1683.
9. Kaur H, Nyochembeng LM., Mentreddy SR, **Banerjee P**, Cebert E. Assessment of the antimicrobial activity of *Lentinula edodes* against *Xanthomonas campestris* pv. *vesicatoria*. *Crop Prot*. 2016;89: 284-288.
10. Kennedy NM **GR**, Mukherjee M **GR**, **Banerjee P*.** *Escherichia coli* O157:H7 Cells Exposed to Lettuce Leaf Lysates in Refrigerated Conditions Exhibit Differential Expression of Selected Virulence and Adhesion-related Genes with Altered Mammalian Cell Adherence. *J Food Prot.* 2016;79(7): 1259- 1265.
11. Montgomery NL **GR**, **Banerjee P***. Inactivation of *Escherichia coli* O157:H7 and *Listeria monocytogenes* in biofilms by pulsed ultraviolet light. *BMC Res Notes.* 2015; 8:235.
12. Mukherjee N **GR**, Dowd SE, Wise A, Kedia S, Vohra V, **Banerjee P***. Diversity of bacterial communities of fitness center surfaces in a U.S. metropolitan area. *Int J Environ Res Public*

Health. 2014; 11(12): 12544–61.

13. Najafi R [GR], Mukherjee S, Hudson J, Sharma A, **Banerjee P***. Development of a rapid capture-cum- detection method for *Escherichia coli* O157 from apple juice comprising nano-immunomagnetic separation in tandem with surface enhanced Raman scattering. *Int J Food Microbiol*. 2014;189:89– 97.
14. **Banerjee P***, Kintzios S, Prabhakarpandian B. Biotoxin detection using cell-based sensors. *Toxins*. 2013;5(12):2366–83.

Book Chapters

15. Sarkar P, Panigrahi SS, Nayak A, Prasad K, Roy E, **Banerjee P***, 2017. Nanosensors in food safety, *in:* Kintzios S. (Ed.), *Portable Biosensors and Point-of-Care Systems*, The Institution of Engineering and Technology (IET) Publishing, Stevenage, SG1 2AY, United Kingdom. pp. 183–207.
16. Kintzios S, **Banerjee P***, 2015. Mammalian cell-based sensors for high throughput screening for detecting chemical residues, pathogens, and toxins in food, *in:* Bhunia, A.K., Kim, M.S., Taitt, C.R. (Eds.), *High Throughput Screening for Food Safety Assessment*, Woodhead Publishing Series in Food Science, Technology and Nutrition. Woodhead Publishing (Elsevier imprint), pp. 123–146.

RECENT SCIENTIFIC PRESENTATIONS & INVITED TALKS

Peer-reviewed conference presentation

1. Higgins D, Sulaiman IM, Hanna S, Dunn J, **Banerjee P*.** Status of Selected Virulence Genes in Antibiotic-Resistant and Sensitive Salmonella Clinical Isolates from Tennessee, presented at the International Association for Food Protection annual meeting, July 8-11, 2018. Salt Lake City, UT [Poster presentation]
2. Sulaiman IM, **Banerjee P,** Hsieh YH, Miranda N, Simpson S, Kerdahi K. Identification of Staphylococcus aureus and Closely Related Species using VITEK® MS System and 16S rRNA Sequence Typing, 7th Annual FDA Foods and Veterinary Medicine Science and Research Conference, October 17-18, 2017. Washington, DC [Poster presentation]

RECENT GRANTS/FUNDING

Total funding received to date as PI and Co-PI: $1,346,130 (since joining UofM: $734,590)

External Funding Received

1) 2017-2018 **Banerjee, P.** (Co-I), PI: Jia, C. "Antimicrobial Chemicals and Resistance Genes in Indoor Environments" Harvard-JPB Environmental Health Fellowship Program, Harvard University.

TEACHING

Environmental Health Microbiology (PUBH 7125) [3]	Spring 2014	Instructor
Environmental Health 1(PUBH 7120/8120) [3] (In-class and online)	Spring 2014, 2015, 2016, 2017, 2018	Co-Instructor
Environmental Toxicology (PUBH 7124/8124) [3]	Fall 2014, 2015, 2016, 2017, 2018	Instructor
Environmental Sampling and Analysis (PUBH 7129) [3]	Spring 2015, 2016	Co-Instructor
Master's Project Seminar (PUBH 7992) [3] In-class & online	Spring 2017	Co-Instructor

DEBRA BARTELLI

University of Memphis School of Public Health
3825 Desoto Ave., 233 Robison Hall, Memphis, TN 38152
901-678-1395

Education

DrPH 2001 Sociomedical Sciences, Mailman School of Public Health, Columbia University, New York, NY

MPH 1989 Population & Family Health, Mailman School of Public Health, Columbia University, New York, NY.

MA 1977 Speech and Language Pathology, University of Kansas, Lawrence, KS

BSE 1975 Speech and Language Pathology, University of Kansas, Lawrence, KS

Academic Appointments

2014- University of Memphis School of Public Health, Memphis, TN
Research Associate Professor
Division of Epidemiology, Biostatistics and Environmental Health

2007 Rhodes College, Memphis, TN
Adjunct Professor, Psychology Department: Community/Program Evaluation

2001-2003 University of Tennessee-Memphis
Instructor, School of Social Work: Evaluative Research

Other Professional Experience

2012-2014 Common Table Health Alliance, Memphis, TN
Director, Healthy Shelby Initiative
Directed a multi-sector public/private community initiative designed to achieve the triple aims of better population health, improved patient experience of care, and lower healthcare costs in Shelby County.

2002-2012 Phillliber Research Associates, Accord, NY
Senior Research Associate
Designed, implemented and oversaw programmatic outcome evaluations and research for health and human service agencies and foundations.

1999-2002 Methodist-Le Bonheur Healthcare, Partnership for Women's & Children's Health, Memphis, TN
Director, Community HIV Programs
Responsible for development and coordination of comprehensive approach to the delivery of HIV/AIDS services, research, and education throughout the state of Tennessee. Oversight of federal grants totaling $1.5 million annually.

1994-1997 University of Medicine and Dentistry of New Jersey, Newark
Director, Division of AIDS Education-Center for Continuing Education in the Health Professions. Principal Investigator of three major service grants: New Jersey AIDS

Education and Training Center; HIV Case Worker Training Program; Drug Abuse & HIV Training Project. Responsible for operationalizing the University-wide Center for AIDS Education and developing a comprehensive approach to providing AIDS education to healthcare and social service professionals throughout the state. Managed an annual operating budget of approximately $1.5 million.

1988-1994 Columbia University School of Public Health

Director of Program Development (1991-1994)
Responsible for design and oversight of nine federal- and state-funded projects totaling $4 million annually. Managed 20 subcontracts with major hospitals and health care agencies throughout New York City and State. Contributed to the development of disease prevention and health promotion programs with emphasis on HIV/AIDS prevention and service provision.

Program Coordinator (1989-91)
Managed five major funded service projects with primary responsibilities associated with budget management and fiscal accountability, program evaluation and grant acquisition and renewal. Represented the School in various project-related advisory and steering committees.

Research Assistant (1988-1989)
Provided AIDS education and pre- and post-test counseling to high-risk pregnant women. Assisted with data collection and document preparation for faculty studying pediatric AIDS.

Recent Funded Grants / Contracts

2018-2019 **Urban Child Institute:** D. Bartelli (Co-PI) $255,000 grant to conduct a comprehensive outcome evaluation of iIMPACT at the University of Memphis.

2017- **Memphis Research Consortium/UTHSC**: D. Bartelli (Co-Investigator) CRA-Fostering Resilience through Neurofeedback.

2015-2019 **Plough Foundation:** D. Bartelli (Lead Evaluator) $241,740 subcontract with MIFA to evaluate the No Hungry Senior project; a multi-agency collaboration to reduce food insecurity among senior citizens in Shelby County.

2017-2018 **Urban Child Institute:** D. Bartelli (PI) $77,000 grant to provide evaluation support to iIMPACT grantees at the University of Memphis.

2013-14 **Medtronic Foundation:** D. Bartelli (PI) $75,000 2-year grant to support Healthy Shelby's community hypertension registry - a data driven initiative designed to reduce therapeutic inertia and improve clinical management of hypertension.

2012 **United Way of the Mid-South Catalyst Fund:** D. Bartelli (PI) $100,000 one-year grant to support Healthy Shelby's efforts to reduce infant mortality, improve chronic disease prevention and management, and coordination of end-of-life care.

2010 - 2012 **Children's Home + Aid Chicago:** D. Bartelli (Lead Evaluator) $288,660 annually for five years to evaluate the effectiveness of the *Carrera Adolescent Pregnancy Prevention Program* in three high-risk elementary schools in Chicago. Funded by the

USDHHS, Office of Adolescent Health.

2006 - 2011 **Evaluation of Responsible Sexual Behavior Education in the Cleveland Metropolitan School District:** D. Bartelli (PI) Funded by **Community Solutions**, a multi-year study measured changes in student knowledge, attitudes and behaviors and assessed parent, teacher and administrators' acceptance of the program. ($75,000 annually)

Honors / Awards

2015 National Institutes of Health Translational Health Disparities Scholar

1996 Graduate Student Paper Award, Division of Health, Health Policy, and Health Services of the Society for the Study of Social Problems

1994 Alumni Association Scholarship Award for Excellence in Academic Work and Contributions to the Field of Public Health, Columbia University

1988 Fellow, International Fellows Program, Columbia University

Select Publications

Schauss S, Nobbman K, Horn G, Reeves T, Ellmo F, Zettler H, **Bartelli D**, Olaleye M, Cogdal P, West S. (in press). Fostering Intrinsic Resilience: A Neuroscience Informed Model of Conceptualizing and Treating Adverse Childhood Experiences. *Journal of Mental Health Counseling*.

Mukherjee N, **Bartelli D**, Patra C, Chauhan BV, Dowd SE, Banerjee P. Microbial diversity of source and point-of-use water in rural Haiti - a pyrosequencing-based metagenomic survey. *PLoS ONE,* 2016; 11(12): 1-16.

Chervin, DD, Philliber, S, Brindis, CD, Chadwick, AE, Revels, ML, Kamin, SL, Wike, RS, Kramer, JS, **Bartelli D**, Schmidt, CK, Peterson, SA, Valderrama, LT. Community capacity building in CDC's Community Coalition Partnership Programs for the Prevention of Teen Pregnancy. *Journal of Adolescent Health,* 2005; 37(3): S11-19.

Kramer, JS, Philliber, S, Brindis, CD, Kamin, SL, Chadwick, AE, Revels, ML, Chervin, DD, Driscoll, A, **Bartelli, D**, Wike, RS, Peterson, SA, Schmidt, CK, Valderrama, LT. Coalition models: lessons learned from the CDC's Community Coalition Partnership Programs for the Prevention of Teen Pregnancy. *Journal of Adolescent Health,* 2005; 37(3): S20-30.

Bartelli, D. AIDS and the Family. In: Hawes JM and Shores EF (eds), The Family In America: An Encyclopedia, Santa Barbara, CA: ABC-CLIO pp 62-67, 2002.

Bartelli, D. Drug and Alcohol Abuse. In: Hawes JM and Shores EF (eds), The Family In America: An Encyclopedia, Santa Barbara, CA: ABC-CLIO 2002.

Thomas, R, **Bartelli D**. HIV Services for a New Generation. *Marketing Health Services,* 2001; 21(4): 25-29.

Greenberg J, Hennessy M, Lifshay J, Kahn-Krieger S, **Bartelli D**, Downer A, and Bliss M. Childhood Sexual Abuse and Its Relationship to High-Risk Behavior in Women Volunteering for an HIV and STD Prevention Intervention" *AIDS and Behavior,* 1999; 3(2):149-156.

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EDUCATION

University of California, Los Angeles (UCLA) — Los Angeles, CA
School of Public Health
Ph.D., Health Services Research — 2001
- Cognate in Social Psychology

UCLA School of Public Health — Los Angeles, CA
M.P.H., Health Services Organization — 1996

Whittier Law School — Costa Mesa, CA
J.D., Law — 1995
- Editor-in-Chief of Whittier Law Review

Vanderbilt University — Nashville, TN
B.S., Physics; Minor, Mathematics — 1992

PROFESSIONAL EXPERIENCE

University of Memphis — Memphis, TN
Division of Health Systems Management and Policy (HSMP) at School of Public Health
Division Director and Professor — 2017-present

US Department of Veterans Affairs (VA) — North Hills, CA
Veterans Emergency Management Evaluation Center (VEMEC)
Founding Director — 2010-17

VA Greater Los Angeles Healthcare System — North Hills, CA
Health Services Research & Development (HSR&D) Center for the Study of Healthcare Innovation, Implementation and Policy (CSHIIP)
Research Health Scientist/Affiliate Investigator — 2004-17

University of California, Los Angeles (UCLA) — Los Angeles, CA
Department of Health Policy and Management at Jonathan and Karin Fielding School of Public Health & School of Nursing
Adjunct Professor — 2015-17
Associate Adjunct Professor — 2008-15
Assistant Adjunct Professor — 2005-08
Associate Director for Executive Education Programs in Healthcare Management and Policy — 2006-07
Visiting Assistant Professor — 2004-05

University of Florida — Gainesville, FL
Department of Health Services Research, Management & Policy, College of Public Health and Health Professions
Assistant Professor — 2001-04

Aram Dobalian

RESEARCH SUPPORT (ONGOING)

- Principal Investigator and Director; Veterans Health Administration (VHA) Office of Patient Care Services (PCS); XVA 65-020; "Veterans Emergency Management Evaluation Center (VEMEC)." 7/12/2010-9/30/2018.

RECENT RESEARCH SUPPORT (COMPLETED)

- Co-Investigator (PI: RP Duncan); Contract No. 230-02-0006, American Medical Student Association Foundation (Health Resources and Services Administration). "Evaluation of the Leadership Seminar Series." 10/1/2002 – 9/30/2007.
- Co-Principal Investigator (PI: JCI Tsao); 1 R03DA017026, National Institute on Drug Abuse (NIDA); "Pain and drug abuse in HIV: Impact on health services." 6/1/04-5/31/07. Total Costs: $154,000.
- Principal Investigator; 1 U01HS14355, 7 U01HS014355, Agency for Healthcare Research and Quality (AHRQ); "Bioterrorism preparedness in rural and urban communities." 9/30/2003-9/29/2007.
- Principal Investigator; MRP 03-328, Merit Review Entry Program(MREP) career development award (Primary Mentor: Lisa V. Rubenstein, MD, MSPH; Co-Mentors: Debra Saliba, MD, MPH & Elizabeth M. Yano, PhD); VHA HSR&D Service. "Advance directives and resource use in VA nursing homes." 7/01/04-9/30/07 (Focus shifted to public health emergency preparedness in 2006).

RECENT PEER-REVIEWED ARTICLES

1. Der-Martirosian C, Pinnock L, Dobalian A. Accessing VA health care during large-scale natural disasters. Hosp Top (2017). 95(1):1-9 doi: http://dx.doi.org/10.1080/00185868.2016.1276748.

2. Kranke D, Weiss EL , Gin J, Der-Martirosian C, Brown JLC, Saia R, Dobalian A. A "Culture of Compassionate Bad-Asses": A qualitative study of Combat Veterans engaging in peer-led disaster relief and utilizing Thought Restructuring to mitigate mental health stigma. Best Pract Ment Health (2017). 13(1):20-33.

3. Dobalian A, Claver M, Riopelle D, Wyte-Lake T, Canelo I. The Development of a Veterans Health Administration Emergency Management Research Agenda. PLoS Curr. PLoS Curr. 2017 Mar 23;9. pii: ecurrents.dis.c0c84b1b680388649227be71823e6adf. doi: 10.1371/currents.dis.c0c84b1b680388649227be71823e6adf.

4. Couig MP, Gable A, Griffin A, Langan JC, Katzburg JR, Wolgast KA, Qureshi K, Dobalian A, Lavin RP, Veenema TG. Progress on a Call to Action: Nurses as Leaders in Disaster Preparedness and Response. Nurs Adm Q. 2017 Apr/Jun;41(2):112-117. PMID: 28263268. doi: 10.1097/NAQ.0000000000000226.

5. Rodriguez HR, Dobalian A. Provider and Administrator Experiences With Providing HIV Treatment and Prevention Services in Rural Areas. AIDS Educ Prev. 2017 Feb;29(1):77-91. doi: 10.1521/aeap.2017.29.1.77.

6. Kranke D, Gin J, Saia R, Schmitz S, Weiss E, Dobalian A. Destigmatizing Experience among Combat Veterans Engaged in Civilian Disaster Relief Efforts: Implications for Community Transition. Adv Soc Work (in press).

7. Schmitz S, Wyte-Lake T, Dobalian A. Facilitators and Barriers to Preparedness Partnerships: A VA Medical Center Perspective. Disaster Med Public Health Prep. 2017 Sep 13:1-6. doi: 10.1017/dmp.2017.92. [Epub ahead of print] PMID: 28899438.

8. Veenema TG, Lavin RP, Couig MP, Dobalian A, Griffin AR, Gable A. Call to Action: The Case for Advancing Disaster Nursing Education in the United States. J Nurs Scholarsh. 2017 Aug 23. doi: 10.1111/jnu.12338. [Epub ahead of print] PMID:

9. Dobalian A. The US Department of Veterans Affairs and Sustainable Healthcare Coalitions. Disaster Med Public Health Prep. 2015 Dec;9(6):726-7. doi: 10.1017/dmp.2015.136. PMID: 26545196 (Invited Paper).

10. Veenema TG, Griffin AR, Gable A, MacIntyre L, Simons N, Couig MP, Walsh JJ, Lavin RP, Dobalian A, Larson E. Nurses as Leaders in Disaster Preparedness and Response, A Call to Action. J Nurs Scholarsh. 2016 Mar;48(2):187-200. doi: 10.1111/jnu.12198. Epub 2016 Feb 11. PMID: 26869230.

11. Dobalian A, Stein J, Radcliff TA, Riopelle D, Brewster P, Hagigi F, Der-Martirosian C. Developing Valid Measures of Emergency Management Capabilities within US Department of Veterans Affairs Hospitals: A Cross-Sectional, Confirmatory Factor Analysis. Prehosp Disaster Med. 2016 Oct;31(5):475-84. doi: 10.1017/S1049023X16000625. PMID: 27492572.

12. Hall DE, Feske U, Hanusa BH, Ling BS, Stone RA, Gao S, Switzer GE, Dobalian A, Fine MJ, Arnold RM. Prioritizing Initiatives for Institutional Review Board (IRB) Quality Improvement. Am J Bioeth Empirical Bioethics. 2016;7(4): 265-74. http://dx.doi.org/10.1080/23294515.2016.1186757.

13. Morris AM, Ricci KA, Griffin AR, Heslin KC, Dobalian A. Personal and Professional Challenges Confronted by Hospital Staff Following a Natural Disaster: A Qualitative Assessment of Management Perspectives. BMC Emergency Medicine. 2016;16:18. doi: 10.1186/s12873-016-0082-5.

14. Kranke D, Schmitz SL, Der-Martirosian C, Dobalian A. Stigma as a barrier to engaging in mental health services among adolescents who survive natural disasters. Soc Work Ment Health. 2017; 15(2):171-83. doi: 10.1080/15332985.2016.1199392.

15. Der-Martirosian C, Riopelle D, Gable A, Hagigi FA, Brewster P, Dobalian A. Assessing hospital disaster readiness over time at the US Department of Veterans Affairs. Prehosp Disaster Med. 2017 Feb;32(1):46-57. doi: 10.1017/S1049023X16001266. PMID: 27964767.

16. Wyte-Lake T, Claver M, Der-Martirosian C, Davis D, Dobalian Developing a Home-Based Primary Care Disaster Preparedness Toolkit. Disaster Med Public Health Prep. 2016 Nov 14:1-8. PMID: 27839522.

17. Wyte-Lake T, Griffin AR, Dobalian A. Supporting staff through a complete hospital evacuation and extended displacement period. J of Healthc Manag (in press).

18. Rodriguez HR, Dobalian A. Provider and Administrator Experiences with Providing HIV Treatment and Prevention Services in Rural Areas. AIDS Educ Prev (in press).

CURRICULUM VITAE

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EDUCATION

- **Post-Doctoral Fellowship**, Cancer Epidemiology Program, University of Hawaii's Cancer Center, 2012-2014
- **Doctor of Philosophy,** Health Promotion, Education, and Behavior, Arnold School of Public Health, University of South Carolina, 2012
  Delta Omega Honorary Society in Public Health - Mu Chapter, inducted 2012
- **Certificate of Study**, Gerontology, University of South Carolina, 2004
- **Master of Science**, Exercise Science, Arnold School of Public Health, University of South Carolina, 2003
- **Bachelor of Science**, Human Nutrition, Winthrop University, 2001
  Semester Abroad, University of Northampton, Northampton, UK, 2000

REGISTRATIONS AND LICENSES

- Registered Dietitian, 2002-present

PROFESSIONAL EXPERIENCE

- **Assistant Professor,** University of Memphis, School of Public Health, Division of Social and Behavioral Sciences, August 2014-present
- **Post-Doctoral Fellowship,** University of Hawai'i Cancer Center, Epidemiology Department, August 2012-June 2014
- **Graduate Research Assistant,** University of South Carolina, Cancer Prevention and Control Program, January 2010-June 2012
- **Director of Dietary Interventions**, University of South Carolina, Cancer Prevention and Control Program, August 2006-December 2010

PEER REVIEWED PUBLICATIONS

1. Panizza, C., Shvetsov, Y., **Harmon, B.**, Wilkens, L., Le Marchand, L., Haiman, C., Reedy, J., Boushey, C. (2018). Testing the predictive validity of the Healthy Eating Index-2015 in the Multiethnic Cohort: Is the score associated with a reduced risk of all-cause and cause-specific mortality? *Nutrients*. 10(4), 452; doi:10.3390/nu10040452. PMCID: PMC5946237.
2. **Harmon, B.E.**, Strayhorn, S.*, Webb, B.L., Hebert, J.R. (2018). Leading God's people: Perceptions of influence among African-American pastors. *Journal of Religion and Health*. doi: 10.1007/s10943-018-0563-9. PMCID: PMC6026478.
3. **Harmon, B.E.** (2017). Rethinking physical activity for children: Implications for the working poor. *Translational Behavioral Medicine*, 7(1), 69-71. doi: 10.1007/s13142-017-0467-3. PMCID: N/A

4. **Harmon, B.E.**, Wirth, M.D., Boushey, C.J., Wilkens, L.R., Draluck, E.*, Shivappa, N., Steck, S.E., Hofseth, L., Haiman, C.A., Le Marchand, L., Hebert, J.R. (2017). The Dietary Inflammatory Index is associated with colorectal cancer risk in the Multiethnic Cohort. *Journal of Nutrition*, 147(3), 430-438. doi: 10.3945/jn.116.242529. PMCID: PMC5320401.
    - *Journal of Nutrition* Volume 147, Issue 3 Editor's Pick
5. **Harmon, B.E.**, Forthofer, M., Bantum, E.O., Nigg, C.R. (2016). Perceived influence and college students' diet and physical activity behaviors: an examination of ego-centric social networks. *BMC Public Health*, 16(1). doi: 10.1186/s12889-016-3166-y. PMCID: PMC 4895992

* Indicates a student/mentee of Dr. Harmon

BOOK CHAPTERS

1. Webb, B.L., **Harmon, B.E.**, Bopp, M. (2018). Faith-based settings and physical activity promotion. In Bornstein, D.B., Eyler, A.A., Maddock, J.E., Moore, J.B. (Eds.) *Physical Activity and Public Health Practice*, New York, New York: Springer.
2. Nigg, C. & **Harmon, B.** (2017). The sedentariness epidemic - Demographic considerations. In Sachs, M. & Razon, S. (Eds.), *Applied Exercise Psychology: The Challenging Journey from Motivation to Adherence*, New York, New York: Routledge.

PEER REVIEWED CONFERENCE PRESENTATIONS

1. Leak, C.L.*, **Harmon, B.E.**, Jiang, Y., Nickelson J.E. (2019). Individual, Social, and Physical Environment Influences on Adolescent Fruit and Vegetable Intake. Society of Behavioral Medicine Annual Meeting, Washington, DC, poster presentation.
2. San Diego, E.R.*, Ahuja, N.A.*, Johnson, B.M.*, Lewis, J.C., French, N., **Harmon, B.E.**, (2019). Prevalence of Cardiovascular Disease Risk Factors by Key Demographic Variables among Mid-South Clergy in 2012-2017. Society of Behavioral Medicine Annual Meeting, Washington, D.C., poster presentation.
3. **Harmon, B.E.**, Strayhorn, S.*, Grant, L.*, Webb, B. Smith, S. (2018). Designing Fit with Faith: An eHealth Intervention for Clergy and their Spouses, Society of Behavioral Medicine Annual Meeting, New Orleans, LA, oral presentation.
4. Strayhorn, S.M.*, **Harmon, B.E.**, Carter, A.*, Hebert, J. R. (2017). Prevalence of Culturally Tailored Cancer Messages in African-American Churches, American Association for Cancer Research Conference on The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved, Atlanta, GA, poster presentation.
5. **Harmon, B.E.**, Strayhorn, S.M.*, Carter, A.*, Wirth, M.D., Hebert, J. R. (2017). Exploring the Prevalence of Cancer Messaging within Rural African American Churches in South Carolina, Rural Cancer Control: Challenges and Opportunities meeting, Memphis, TN, poster presentation.

* Indicates a student/mentee of Dr. Harmon

CURRENT EXTERNAL RESEARCH SUPPORT

Project Title:	Events-of-interest Capture Using Novel Body-worn Fully-passive Wireless Sensors for Smart and Connected Communities
Funding Agency:	National Science Foundation – Early-concept Grants for Exploratory Research (EAGER)
PI:	B Morshed
Role:	Co-PI/10-12% ($20,242)
Funding Period:	08/06/2016-07/31/2019

TEACHING & MENTORING EXPERIENCE

- **University of Memphis**, School of Public Health, Division of Social and Behavioral Sciences, Spring 2015-present
  Graduate Courses – Advanced Psychosocial Theories of Health and Health Behavior
  Research Methods in Social and Behavioral Sciences
  Social and Behavioral Sciences Principles
  Eating Behavior, Nutrition, and the Family
  Mentoring: 11 PhD candidates, 5 master's level, 2 undergraduate level
- **University of Hawai'i (Manoa)**, Office of Public Health, 2013 & 2014
  Undergraduate Courses – Nutrition and Disease Prevention (guest lecturer)
  Mentoring: 2 master's level, 1 undergraduate level
- **Winthrop University**, Department of Human Nutrition, 2004-2010
  Graduate Courses - Nutrition and Aging (Spring 2010)
  Dietetic Internship Preceptor
- **University of South Carolina**, 2008-2010
  Graduate Courses - Nutrition through the Life Cycle, Department of Health Promotion, Education and Behaviors (guest lecturer)
  Undergraduate Courses - University 101
  Independent Study in Nutrition, Department of Exercise Science
  Mentoring: 3 master's level, 12 undergraduate level
- **University of South Carolina**, Department of Exercise Science, 2001-2003
  Undergraduate Courses – Exercise Science Practicum Supervisor (graduate assistant)
  Physical Activity and Physical Dimensions of Aging Lab (teaching assistant)

PROFESSIONAL MEMBERSHIPS

- Academy of Nutrition and Dietetics, 1998-present
  - Fellow, Academy of Nutrition and Dietetics, 2016
- American Association for Cancer Research, 2012-present
- Society of Behavioral Medicine, 2013-present
  - Society of Behavioral Medicine Annual Meeting, Citation Abstract
- American Society for Nutrition, 2014-present
- Obesity Society, 2016-present
- International Society of Behavioral Nutrition and Physical Activity, 2015-2018

Chunrong Jia, Ph.D., M.Eng.
Associate Professor of Environmental Health
School of Public Health, University of
Memphis 337 Robison Hall, Memphis, TN
38152
Tel: 901-678-2655; Fax: 901-678-4504; E-mail: cjia@memphis.edu

1. Education

2007 Ph.D. in Environmental Health Sciences, University of Michigan, Ann Arbor, Michigan, USA
2001 M.E. in Environmental Engineering, Nankai University, Tianjin, China
1998 B.S. in Environmental Sciences, Nankai University, Tianjin, China

2. Professional Appointments

2015- Associate Professor, School of Public Health, University of Memphis, Memphis, TN 2009-2015 Assistant Professor, School of Public Health, University of Memphis, Memphis, TN 2009- Graduate Faculty, University of Memphis, Memphis, TN
2007-2009 Postdoc, School of Public Health, University of Michigan, Ann Arbor, MI
2002-2007 Research Assistant, School of Public Health, University of Michigan, Ann Arbor, MI 2001-2002 Research Associate, College of Environmental Sciences & Engineering, Nankai University, Tianjin, China
Engineer, Institute of Environmental Planning and Assessment, Nankai University, Tianjin, China

3. Recent Research Projects

City of Memphis Chunrong Jia (PI) 12/01/16-08/31/17
Linking Home Energy Insecurity to the Built Environment and Population Health in Memphis
This study aims to collect home energy insecurity (HEI) data in Memphis and assess the linkage of HEI with the built environment and health.
Budget: $10,000

HUD Diana Hernandez (PI) 11/01/16-10/30/19
Evaluating Compliance and Refining Enforcement of Smoke-free Housing Policy in Low-Income Multiple Unit Housing
Total budget: $700,000 Role: Co-investigator

EPA XA-00D42616 Shelby County Health Department (PI) 05/12/16-09/30/18
Characterizing Community Exposure to Polycyclic Aromatic Hydrocarbons (PAHs) in a Tri-State Area
The overall objective of this study is to delineate the concentrations and distributions of PAHs in ambient air in Memphis Tri-state Area, identify major sources and characterize near-source PAH profiles, and assess non-carcinogenic and carcinogenic risks.
Total budget: $594,407; Subcontract budget: $545,407 Role: Proposal developer and subcontract PI

Memphis Research Consortium Jia & Banerjee (PI) 01/01/15-04/30/16
Interaction of Weight Status and Environmental Exposure on Effectiveness of In-Home Asthma Intervention The overall objective of this proposed project is to explore the roles of weight status, indoor environmental exposure, and in-home asthma intervention in determining asthma status and their interactions. Budget: $75,000 Role: joint PI

JPB Foundation-Harvard University Jia (PI) 10/01/14-06/30/18
Fellow of JPB Environmental Health Fellowship Program. The goal of this program is to support multidisciplinary environmental health research targeting disadvantaged communities in the U.S. Budget: $350,000 Role: PI

4. Recent Publications

4.1 Journal Articles (*: Corresponding author)

(1) Liu B, Xue ZQ, Zhu XL, **Jia CR***. 2017. Long-term trends (1990-2014), health risks, and sources of atmospheric polycyclic aromatic hydrocarbons (PAHs) in the U.S. *Environmental Pollution*. 220: 1171-1179.

(2) Liu B, **Jia CR**. 2016. Effects of profession on urinary PAH metabolite levels in the US population.
International Archives of Occupational and Environmental Health. 89(1): 123-135.

(3) Liu B, **Jia CR**. 2015. Effects of exposure to mixed volatile organic compounds on the neurobehavioral test performance in a cross-sectional study of US adults. *International Journal of Environmental Health Research*. 25(4): 349-363.

(4) **Jia CR***, James W, Kedia S. 2014. Relationship of racial composition and cancer risks from air toxics exposure in Memphis, Tennessee, U.S.A. *International Journal of Environmental Research and Public Health*. 11(8): 7713-7724.

(5) **Jia CR***, Ward KD, Mzayek F, Relyea F. 2014. Blood 2,5-dimethyfuran as a sensitive and specific biomarker for cigarette smoking. *Biomarkers*. 19(6): 457-462.

(6) Batterman S, Su F-C, Li S, Mukherjee B, **Jia C**. 2014. Personal Exposure to Mixtures of Volatile Organic Compounds: Modeling and Further Analysis of the RIOPA Data. Research Report 181. Boston, MA: Health Effects Institute.

(7) **Jia CR***, Foran JA. 2013. Air toxics concentrations, source identification, and health risks: An air pollution hot spot in Southwest Memphis, TN. *Atmospheric Environment*. 81: 112-116.

(8) Foran JA, **Jia CR**. 2013. Decisional inconsistencies in the management of contaminated, sport- caught fish. *Journal of Health and Human Services Administration*. 36(2): 208-227.

(9) Chin J-Y, Godwin C, **Jia CR**, Robins T, Lewis T, Parker E, Max P, Batterman S. 2013. Concentrations and risks of p-dichlorobenzene in indoor and outdoor air. *Indoor Air*. 23(1): 40-49.

(10) **Jia CR***, Batterman S, Relyea GE. 2012. Variability of indoor and outdoor VOC measurements: An analysis using variance components. *Environmental Pollution*. 169: 152-159.

(11) James W, **Jia CR***, Kedia S. 2012. Uneven magnitude of disparities in cancer risks from air toxics. *International Journal of Environmental Research and Public Health*. 9(12): 4365-4385.

(12) Su F-C, **Jia CR**, Batterman S. 2012. Extreme value analyses of VOC exposures and risks: A comparison of RIOPA and NHANES datasets. *Atmospheric Environment*. 62: 97-106.

(13) **Jia CR***, Yu XH, Maziak W. 2012. Blood/air distribution of volatile organic compounds (VOCs) in a nationally representative sample. *Science of the Total Environment*. 419: 225-232.

(14) Zhu XL, **Jia CR***. 2012. Apportioning variability of polycyclic aromatic hydrocarbons (PAHs) and chlordanes in indoor and outdoor environments. *Journal of Environmental Monitoring*. 14: 1926- 1934

4.2 Recent Peer-Reviewed Conference Papers and Abstracts

(1) **Jia CR**, Ngee-Sing Chong, Jim Holt, Larry Smith. 2015. Reducing Exposure to Airborne Chemical Toxics (REACT): Community-Scale Air Monitoring in Memphis. 2015 National Air Toxics Monitoring and Data Analysis Workshop. Research Triangle Park, NC. October 26-28, 2015.

(2) Xue ZQ, Chong N-S, Yu XT, Holt J, **Jia CR**. 2015. Air toxics in Memphis: Levels, sources, and health risks. The 9th ISHVAC and 3rd COBEE joint conference. Tianjin, China, July 12-15, 2015.

(3) **Jia CR**, Ward KD, Mzayek F, Relyea G. 2014. Blood 2,5-dimethyfuran as a sensitive and specific biomarker for cigarette smoking. International Society of Exposure Science 24th Annual Meeting. Cincinnati, OH, USA, October 12-16, 2014.

(4) Liu B, **Jia CR**. 2014. Subtle neurocognitive effects associated with blood concentrations of common volatile organic compounds in US adults. New York City Epidemiology Forum First Annual Conference. New York City, NY, USA. February 28, 2014.

(5) Tirumala A, Yu XT, Nguyen D, Seteh E, Ooi BG, Chong, N-S, **Jia CR**, Xue, ZQ, Holt J. 2014. Ambient air monitoring in Memphis and surrounding areas. The 66th Southeast Regional Meeting of the American Chemical Society, Nashville, TN, United States, October 16-19 (2014), SERMACS-698.

5. Honors and Awards

2014 Harvard University JPB Environmental Health Fellow (Only 9 selected in the U.S.)
2014 Second Place, University of Memphis Tiger Blue Goes Green 2014 Faculty Research Competition
2013 The University of Memphis 2012-2013 First-Time Principle Investigator
2012 2012 Increasing Diversity in Nicotine and Tobacco Research Travel Scholarship, Society for Research on Nicotine and Tobacco.
2009 Nominee, Young Professional (YP) Best Paper Award, The Air & Waste Management Association's 2009 Annual Conference & Exhibition, Detroit, Michigan, June 16-19, 2009.
2006 "High impact" article with cover photo in *Journal of Environmental Monitoring*
2005 University of Michigan Rackham International Conference
Grant 2004 Best Paper of *China Environmental Science* in 2003
2001 Excellent Master's Thesis of Nankai University

02/04/2010 "Human Exposure to Airborne Volatile Organic Compounds: Measurements, Determinants, Risks, and Future Studies", Public Health Research Series, School of Public Health, University of Memphis.

6. Teaching

2015- PUBH 7129 Environmental Sampling & Analysis, University of Memphis
2010- PUBH 7120 Environmental Health I, University of Memphis
2011- PUBH 7120 Environmental Health I-Online, University of Memphis
2010- PUBH 7203 Principles of Exposure and Risk Assessment, University of Memphis 2010 PUBH 7122 Environmental Health II, University of Memphis
1999 Environmental Impact Assessment, Nankai University, China

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University of Memphis, School of Public Health
Division of Epidemiology and Biostatistics
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Memphis, TN 38152
vgnolan@memphis.edu 901-678-1696

EDUCATION

Boston University, Boston,
MA School of Public Health
Doctor of Science (DSc) degree in Epidemiology, 2009

Yale University, New Haven, CT
School of Public Health
Master's degree in Public Health (MPH), 2000
Concentration in Epidemiology of Microbial
Diseases

Hofstra University, Hempstead, NY
Bachelor of Arts (BA) in Biology,
1998 Minors in Chemistry and
Sociology

EXPERIENCE

8/2010 – present	**University of Memphis, School of Public Health**, Memphis, TN *Assistant Professor*, Department of Epidemiology and Biostatistics
5/2011 – 8/2011	**St. Jude Children's Research Hospital,** Memphis, TN *Consultant,* Department of Epidemiology and Cancer Control
7/2008 – 8/2010	**St. Jude Children's Research Hospital,** Memphis, TN *Epidemiologic Research Analyst,* Department of Epidemiology and Cancer Control
9/2002 – 6/2008	**Boston University School of Medicine,** Boston, MA *Data Analyst,* Departments: Genetics; Hematology, Center for Excellence in Sickle Cell Disease; Gerontology, New England Centenarian Study
11/2000 – 9/2002	**New York City Department of Health**, New York, NY *Public Health Epidemiologist* and *Consultant*, Community HealthWorks
5/1999 – 5/2000	**Emerging Infections Program**, New Haven, CT *Research Assistant*, Yale FoodNet

RECENT PUBLICATIONS

Berding K, Makarem P, Hance B, Abel AM, **Nolan VG**, Buddington KK, Buddington RK. Responses of preterm pigs to an oral fluid supplement during parenteral nutrition. Journal of Parenteral and Enteral Nutrition. 2015. *In Press*

Nolan VG, Nottage KA, Cole EW, Hankins JS, Gurney JG. Prevalence of vitamin D deficiency in sickle cell disease: A systematic review. PLoS ONE. Mar 2015; 10(3): e0119908

Pourcyrous M, **Nolan VG**, Goodwin A, Davis SL, Buddington RK. Fecal short-chain fatty acids of very

low-birth-weight preterm infants fed expressed breast milk or formula. *Journal of pediatric gastroenterology and nutrition.* Dec 2014;59(6):725-731.

Nolan VG, Krull KR, Gurney JG, Leisenring W, Robison LL, Ness KK. Predictors of future health-related quality of life in survivors of adolescent cancer. Pediatric blood & cancer 2014;61:1891-4.

Kirby J, Dolendo M, Guimera D, Castillo C, Johnson KM, Mzayek F, **Nolan VG**, Relyea G, Caniza MA. Predictors of wait-time for antibiotic initiation and association of wait-time with hospital length of stay and ICU admission among children with cancer at the Southern Philippines Medical Center. Pediatric blood & cancer 2014;61:680-6.

Guthikonda K, Zhang H, **Nolan VG**, Soto-Ramírez N, Ziyab AH, Ewart S, Arshad HS, Patil V, Holloway JW, Lockett GA, Karmaus W. Oral contraceptives modify the effect of GATA3 polymorphisms on the risk of asthma at the age of 18 years via DNA methylation. Clinical Epigenetics 2014;6(1):17.

Green DM, **Nolan VG**, Goodman PJ, Whitton JA, Srivastava D, Leisenring WM, Neglia JP, Sklar CA, Kaste SC, Hudson MM, Diller LR, Stovall M, Donaldson SS, Robison LL. The cyclophosphamide equivalent dose as an approach for quantifying alkylating agent exposure: a report from the Childhood Cancer Survivor Study. Pediatric blood & cancer 2014;61:53-67.

Cox CL, **Nolan VG**, Leisenring W, Yasui Y, Ogg SW, Mertens AC, Neglia JP, Ness KK, Armstrong GT, Robison LL. Noncancer-related mortality risks in adult survivors of pediatric malignancies: the childhood cancer survivor study. Journal of cancer survivorship : research and practice 2014;8:460-71.

Belfer I, Youngblood V, Darbari DS, Wang Z, Diaw L, Freeman L, Desai K, Dizon M, Allen D, Cunnington C, Channon KM, Milton J, Hartley SW, **Nolan V**, Kato GJ, Steinberg MH, Goldman D, Taylor JGt. A GCH1 haplotype confers sex-specific susceptibility to pain crises and altered endothelial function in adults with sickle cell anemia. American journal of hematology 2014;89:187-93.

Nolan VG, Gapstur R, Gross C, Neglia J, Gajjar A, Klosky J, Merchant T, Stoval M, Ness KK. Sleep disturbances in adult survivors of childhood brain tumors. Quality of life research: an international journal of quality of life aspects of treatment, care and rehabilitation 2013;22:781-9.

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Kurt BA, **Nolan VG**, Ness KK, Neglia JP, Tersak JM, Hudson MM, Armstrong GT, Hutchinson RJ, Leisenring WM, Oeffinger KC, Robison LL, Arora M. Hospitalization rates among survivors of childhood and adolescent cancer in the Childhood Cancer Survivor Study. Pediatr Blood Cancer. Pediatr Blood Cancer. 2012 Jul 15;59(1):126-32.

Smith WA, **Nolan VG**, Robison LL, Hudson MM, and Ness KK. Physical activity among cancer survivors and individuals with no history of cancer: A report from the National Health and Nutrition Survey 2003-2006. Am J Transl Res. 2011 Aug 15;3(4):342-50.

Joyce ED, **Nolan VG**, Ness KK, Ferry RJ, Robison LL, Pui C, Hudson MM, Kaste SC. Association of Muscle Strength and Bone Mineral Density in Adult Survivors of Childhood Acute Lymphoblastic Leukemia. Arch Phys Med and Rehabil 2011 Jun;92(6):873-9

Green DM, **Nolan VG**, Kawashima T, Stoval M, Donaldson SS, Srivastava DK, Leisenring W, Robison LL, Sklar CA. Decreased fertility among female childhood cancer survivors who received 22 to 27 Gy hypothalamic/pituitary irradiation: A report from the Childhood Cancer Survivor Study Fertility and Sterility 2011 Mar 2 Fertil Steril. 2011 May;95(6):1922-7

Hudson MM, Ness KK, **Nolan VG**, Green DM, Armstrong GT, Morris EB, Spunt SL, Metzger ML, Krull KR, Klosky J, Srivastava DK, Robison LL. Prospective medical assessment of adults surviving childhood cancer: study design, cohort characteristics, and feasibility of the St. Jude Lifetime Cohort Study. Pediatr Blood Cancer 2011 May;56(5):825-36.

MANUSCRIPTS UNDER REVIEW

Smeltzer MP, **Nolan VG**, Yu X, Nottage KA, Wang WC, Hankins JS, Gurney JG. The Effects of Distance from an Urban Sickle Cell Center on Routine Healthcare Management and Rates of Hospitalization. Under Review Pediatric Blood and Cancer

Dallas RD, Kedia SK, **Nolan VG**, Relyea G, Flynn PM. Predictors of Post-Health Care Transition Clinical Outcomes among Adolescents Living with HIV Under Review Pediatrics

RECENT PUBLISHED ABSTRACTS

Smith WA, Li C, Nottage K, Srivastava DK, Lanctot JQ, Green DM, **Nolan VG**, Laver JH, Gurney JG, Robison LL, Hudson MM, Ness KK. Dietary intake and metabolic syndrome in adult survivors of childhood cancer J Clin Oncol 30, 2012 (suppl; abstr 9526)

Green DM, **Nolan VG**, Srivastava DK, Leisenring W, Neglia JP, Sklar CA, Hudson MM, Diller L, Stovall M, Robison LL. Quantifying alkylating agent exposure: Evaluation of the cyclophosphamide equivalent dose - A report from the Childhood Cancer Survivor Study. J Clin Oncol 29: 2011 (suppl; abstr 9547)

Green DM, **Nolan VG**, Kawashima T, Stovall M, Donaldson SS, Sklar CA, Robison LL. Hypothalamic/pituitary radiation exposure in low doses may result in decreased fertility in female childhood cancer survivor study (CCSS) participants. J Clin Oncol 28:15s, 2010 (suppl; abstr 9542)

TEACHING

University of Memphis, School of Public Health

Public Health Epidemiology I	Fall 2011 - 2014
Public Health Epidemiology I – Online	Fall 2011 - 2014
Masters Project Seminar	Spring 2011, 2014, 2015
Infectious Disease Epidemiology	Spring 2013, 2014, 2015

University of Memphis, Public Health Institute

Introduction to SAS	Summer 2012 and 2014, Fall 2012
Epidemiology for non-epidemiologists	Summer 2013
Critically reading scientific literature	Summer 2013

SUPPORT

9/2004 – 8/2006	Research training in blood diseases and resources. NIH/NHLBI (PI: A. Lerner: T32 HL07501)

MATTHEW P. SMELTZER

University of Memphis, School of Public Health
3825 Desoto Avenue, Robison Hall 222, Memphis, TN 38152 E-mail: msmltzer@memphis.edu

EDUCATION

PhD	2014	Epidemiology School of Public Health, University of Memphis, Memphis, TN
MStat	2004	Statistics Department of Statistics, University of Florida, Gainesville, FL
BS	2001	Mathematics (cum laude) Harding University, Searcy, AR

ACCREDITATION

PStat	2014-	Accredited Professional Statistician by the American Statistical Association

APPOINTMENTS

Assistant Professor (tenure-track), Epidemiology and Biostatistics University of Memphis, School of Public Health	2015-
Director of Epidemiology and Biostatistics, Thoracic Oncology Research Group Baptist Cancer Center, Memphis, TN	2016-
Member, Graduate Faculty University of Memphis Graduate School	2015-
Epidemiologist and Biostatistician, Thoracic Oncology Research Group Baptist Cancer Center, Memphis TN	2015-2016
Lead Senior Biostatistician, Department of Biostatistics St. Jude Children's Research Hospital, Memphis, TN	2012-2015
Senior Biostatistician, Department of Biostatistics St. Jude Children's Research Hospital, Memphis, TN	2009-2012
Biostatistical Consultant, Thoracic Oncology Research Group, University of Tennessee Cancer Institute, Memphis, TN	2008-2014
Biostatistician, Department of Biostatistics St. Jude Children's Research Hospital, Memphis, TN	2006-2009
Statistical Analyst, Department of Biostatistics St. Jude Children's Research Hospital, Memphis, TN	2004-2006

TEACHING ACTIVITIES

Assistant Professor, University of Memphis 2015-

- Biostatistical Methods I (PUBH 7150/8150) Fall 2015
- Applied Categorical Data Analysis (PUBH 7311/8311) Spring 2016
- Applied Survival Analysis (PUBH 7309/8309) Fall 2016

Graduate Teaching Assistant, University of Florida, College of Medicine, 2002

- Evidence Based Medicine (PAS 5013) - Graduate Teaching Assistant

Graduate Teaching Assistant, University of Florida, Department of Statistics, 2001-2003

- Introduction to Statistics (STA 2023)- Graduate Teaching Assistant (4 semesters)
- Mathematical Statistics with Computer Applications (STA 4033) - Graduate Teaching Assistant

RECENT PUBLICATIONS

1. Osarogiagbon RO, **Smeltzer MP**, Faris N, Rami-Porta R, Goldstraw P, Asamura H. Comment on the Proposals for the Revision of the N Descriptors in the Forthcoming 8th Edition of the TNM Classification for Lung Cancer. J Thorac Oncol., In press.

2. Loeffler RB, McCarville MB, Wilson A, **Smeltzer M**, Krafft AJ, Song R, Hankins J, Hillenbrand CM. Can Multi-slice or Navigator-gated R2*-MRI Replace Single-slice Breath-hold Acquisition for Hepatic Iron Quantification? Pediatric Radiology, in press.

3. Sachdev JC, Snider JN, Allen JW, Schwartzberg LS, Young RR, Javed AY, **Smeltzer MP**, Yunus F, Verrier CS, Jahanzeb M. Neoadjuvant Weekly nab-Paclitaxel Plus Carboplatin Followed by Doxorubicin Plus Cyclophosphamide With Bevacizumab Added Concurrently to Chemotherapy for Palpable and Operable Triple-Negative Invasive Breast Cancer, in press.

4. Nottage K, Ware RE, Aygun B, **Smeltzer MP**, Kang G, Moen J, Wang W, Hankins J, Helton K,. Hydroxyurea Treatment and Brain MRI/MRA Findings in Children with Sickle Cell Anaemia. British Journal of Haematology, in press.

5. Li Q, Zhan P, Dongmei Y, Lv Y, Krupnick AS, Passaro A, Brunelli A, **Smeltzer MP**, Osarogiagbon RU, Song Y. Prognostic value of lymph node ratio in patients with pathological N1 non-small cell lung cancer: a systematic review with meta-analysis. Transl Lung Cancer Res. 2016 Jun;5(3):258-64.

6. **Smeltzer MP**, Faris N, Yu X, Spencer D, Berry A, Sales E, Finch-Cruz C, Osarogiagbon RO. The Survival Impact of Missed Lymph Node Metastasis in Surgically Resected Non-Small Cell Lung Cancer. Ann Thorac Surg. 2016 Aug;102(2):448-53.

7. Nottage KA, Hankins JS, James D, Richardson J, Christensen R, Kang G, **Smeltzer MP**, Cancio M, Wang WC, Anghelescu D. Addressing Challenges of Clinical Trials in Acute Pain: ThePain Management of Vaso-occlusive Crisis in Sickle CellDisease Study. ClinTrials. 2016 Aug;13(4):409-16.

8. **Smeltzer MP**, Nolan VG, Yu X, Nottage KA, Davis B, Yang Y, Wang WC, Gurney JG, Hankins JS. The Birth Prevalence of Sickle Cell Trait and Sickle Cell Disease in Shelby County, TN. Pediatr Blood Cancer. 2016 Jun;63(6):1054-9.

9. Osarogiagbon RU, Lin CC, **Smeltzer MP**, Jemal A. Prevalence, prognostic implications and survival modulators of incompletely resected non-small-cell lung cancer in the US National Cancer Data Base. Journal of Thoracic Oncology, J Thorac Oncol. 2016 Jan;11(1):e5-e16. PMID: 26762752

10. Pestina T, Hargrove PW, Zhao HF, **Smeltzer MP**, Weiss MJ, Wilber A, Persons DA. Amelioration of murine sickle cell disease by nonablative conditioning and γ-globin gene-corrected bone marrow cells. Mol Ther Methods Clin Dev. 2015;2:15045.

11. Hankins JS, McCarville MB, Rankine-Mullings A, Reid ME, Lobo C, Moura P, Ali S, Soares D, Aldred K, Jay DW, Aygun B, Bennett J, Kang G, Goldsmith JC, **Smeltzer MP**, Boyett JM, Ware RE. Prevention of Conversion to Abnormal TCD with Hydroxyurea in Sickle Cell Anemia: A Phase II International Randomized Clinical Trial. American Journal of Hematology, 2015 90(12): 1099–1105.

12. **Smeltzer MP**, Nolan VG, Yu X, Nottage KA, Wang WC, Hankins JS, Gurney JG. The Effects of Distance from an Urban Sickle Cell Center on Routine Healthcare Management and Rates of Hospitalization. Hemoglobin, 2015 Sep 15:1-6. [Epub ahead of print] PMID: 26372097

13. Yu X, Klesges L, **Smeltzer MP,** Osarogiagbon R. Measuring improvement in populations: implementing and evaluating successful change in lung cancer care. Trans. Lung Cancer Research, 2015; 4(4): 373-384.

14. Cancio MI, Helton KJ,Schreiber JE, **Smeltzer MP**, Kang G, Wang WC. Silent cerebral infarcts in very young children with sickle cell anaemia are associated with a higher risk of stroke. British Journal of Haematology, 2015 Oct;171(1):120-9.

List of Published Work in MyBibliography:

http://www.ncbi.nlm.nih.gov/sites/myncbi/matthew.smeltzer.1/bibliograpahy/50372746/public/?sort=date&direction=descending

RECENT RESEARCH SUPPORT

U01HL133996-01 (PI: Jane Hankins, MD, M.S) 07/01/2016-06/30/2022
ReHASH: Re-aiming at Hydroxyurea Adherence for Sickle Cell with mHealth (Budget: $4,290,004)
Role: Co-Investigator

Memphis Research Consortium Award-S3595 (PI: Matthew Smeltzer, PhD) 01/01/2016 - 01/01/2017
A quantitative evaluation to inform a future provider-level educational intervention to address suboptimal hydroxyurea utilization for sickle cell disease in Shelby County, TN.
Role: Principal Investigator

Epidemiology and Biostatistics Support for Baptist Lung 03/15/2015 - 08/31/2017
Multidisciplinary (lung MD) Program
Total Project Costs: $118,925
Role: Principal Investigator

R01CA172253 (PI: Raymond Osarogiagbon, MBBS). 04/01/2013-03/31/2018
Dissemination of a Corrective Intervention to Improve Lymph Node Examination in Resected Lung Cancer; National Cancer Institute
Role: Co-Investigator

IH-1304-6147. PCORI. (PI: Raymond Osarogiagbon, MBBS). 02/03/2014 – 02/02/2017
Building a multidisciplinary bridge across the quality chasm in thoracic oncology.
The goal of this study, funded under PCORI's 'Improving Healthcare Systems' portfolio, is to evaluate barriers to implementation of multidisciplinary care for lung cancer patients from a multi-stakeholder perspective, leading up to a comparative effectiveness study of lung cancer patients' experience and outcomes within and outside a structured multidisciplinary environment.
Role: Co-Investigator

Kenneth D. Ward, PhD
Division of Social and Behavioral Sciences, School of Public Health
The University of Memphis
201 Robison Hall, Memphis, TN 38152-3480 USA
Phone: (901) 678-1702
FAX: (901) 678-1715
e-mail: kdward@memphis.edu

EDUCATION

1998	**PhD**, The University of Memphis, Memphis TN (Clinical Psychology; behavioral medicine track; APA approved)
1997-1998	**Residency**, Clinical Psychology Residency Training Consortium, University of Mississippi Medical Center/G.V. "Sonny" Montgomery Veterans Affairs Medical Center, Jackson MS (behavioral medicine track, APA approved)
1995	**MS**, The University of Memphis, Memphis TN (Clinical Psychology; behavioral medicine track)
1986	**AB**, Brown University, Providence, RI (Psychology, with honors)

CERTIFICATIONS

2018-present	National Certificate in Tobacco Treatment Practice (Certificate #NT0866)
2015-present	Certified Tobacco Treatment Specialist (Certificate #564)

PROFESSIONAL APPOINTMENTS
Primary Academic Appointments:

2009-present	Professor of Social and Behavioral Sciences (tenured), School of Public Health, The University of Memphis, Memphis TN
2004-2009	Associate Professor of Health Promotion (tenured), Department of Health and Sport Sciences, The University of Memphis, Memphis TN
1998-2004	Assistant Professor, Center for Community Health, The University of Memphis, Memphis, TN.

Administrative Appointments:

2016-2017	Interim Director, Division of Health Systems Management and Policy, School of Public Health, University of Memphis.
2010-2011	Director of Graduate Studies, School of Public Health, University of Memphis.
2009-present	Director, Division of Social and Behavioral Sciences, School of Public Health, University of Memphis.
2004-2009	Director, Center for Community Health, The University of Memphis, Memphis, TN. (Provided campus-wide pre- and post-award support for health-related grantsmanship; supervised 4 faculty and 10 professional staff members; organized and directed several initiatives including mentoring programs, administrative and statistical support, grant-writing training, creation of inter-disciplinary research teams, and competitive pilot grant program).

Other Academic Appointments:

2016 (March-May)	Educator in Residence and Visiting Fulbright Scholar, Division of Population Health Sciences, Royal College of Surgeons in Ireland, Dublin, Ireland. Project title: "Increasing Capacity for Healthcare Provider Smoking Cessation Intervention in Ireland."
1999-present	Adjunct Professor of Preventive Medicine, College of Medicine, University of Tennessee Health Science Center, Memphis, TN. (Adjunct Assistant Professor,

1999-2005; Adjunct Associate Professor 2005-2011; Adjunct Full Professor 2011-present). Guest lecture in the M.S. program in epidemiology, and collaborate with faculty on research projects.

RESEARCH INTERESTS

Tobacco control, including epidemiology of tobacco use, community-based intervention development, and cessation/prevention efforts in developing countries and underserved populations.

Behavioral interventions for chronic disease prevention, particularly in underserved populations and developing countries.

CURRENT EXTERNAL FUNDING

Co-Investigator (W. Maziak PI). "Translating evidence and building capacity to support waterpipe control in the Eastern Mediterranean." Fogarty International Center/National Institutes of Health, 1R01TW010654-01 (2016-2021). $1,856,584 total costs (2017-2022).

Consultant (W. Maziak, P.I.). "Advancing addiction research and capacity to guide tobacco control in the Eastern Mediterranean region." National Cancer Institute (4R01 DA035160). $1,250,000 direct costs, $1,550,215 total costs. (2012-2017).

Consultant (D. Lee, P.I.). "A novel worksite smoking cessation intervention for Hispanic construction workers." National Cancer Institute (5R21CA202993). $350,368 direct costs. (2016-2018).

RECENT PEER REVIEWED PUBLICATIONS (SINCE 2018, FROM A TOTAL OF 145 PUBLICATIONS)

(Underlined names are of students working under my supervision)

Alexander, A.C., **Ward, K.D.,** Forde, D.R., Stockton, M., & Read, M.C. Do smokers use more cigarettes and become more dependent on nicotine because of psychological distress after a natural disaster? In press, *Addictive Behaviors.*

Asfar, T. Schmidt, M., Kalan, M.E., Wu, W., **Ward, K.D.,** Nakkash, R., Thrasher, J., Eissenberg, T., & Maziak. W. An international Delphi study to reach consensus on a set of potential waterpipe-specific health warning labels. In press, *Tobacco Control.*

Asfar, T., Taleb, Z.B., Osibogunm O., **Ward, K.D.,** Sallou, R.G., & Maziak, W. How do waterpipe smoking establishments attract smokers? Implications for policy. In press, *Substance Use and Misuse.*

Bahelah, R., Ben Taleb, Z. Jaber, R., DiFranza, J.R., **Ward, K.D.,** Osibogun, O., Eissenberg, T, & Maziak. W. Determinants of progression of nicotine dependence symptoms in adolescent waterpipe smokers. In press, *Tobacco Control.*

Kedia, S., **Ward, K.D.,** Digney, S.A., Jackson, B.M., Rugless, F., Faris, N., Roark, K.S., & Osarogiagbon, R.U. A qualitative assessment of organizational barriers to optimal lung cancer care, In press, *Journal of Community and Supportive Oncology.*

Alexander, A.C., & **Ward, K.D.**, Forde, D.R., & Stockton, M. (2019). Are posttraumatic stress and depressive symptoms pathways to smoking relapse after a natural disaster? Findings from Hurricane Katrina. *Drug and Alcohol Dependence, 195*, 178-185.

Allen, A.M., Jung, A.M., Lemieux, A., Alexander, A.C., Allen, S.S., **Ward, K.D.,** & Al'Absi, M. Stressful life events are associated with perinatal cigarette smoking. (2019). *Preventive Medicine, 118*, 264-271.

Collins, A.C., **Ward, K.D.,** McClanahan, B.M., Slawson, D.L., Vukadinovich, C.M., Mays, K.E. Wilson, N., & Relyea, G. (2019). Bone accrual in child and adolescent non-elite swimmers: a two-year longitudinal study. *Clinical Journal of Sport Medicine, 29*, 43-48.

Ahn, S., Lee, J., Carson, L., Bartlett-Prescott, J., Post, L., & **Ward, K.D.** (2018). Evaluation of a behavioral intervention with multiple components among low-income and uninsured adults with obesity and diabetes. *American Journal of Health Promotion, 18*, 409-422. *[Editor-in-Chief Paper of the Year Award, 2018].*

Alexander, A.C., Chen, V., & **Ward, K.D.** (2018). Is intelligence associated with mortality from the use of lethal force by law enforcement? *Intelligence, 70*, 30-35.

Alexander, A.C., & **Ward, K.D.** (2018). Understanding post-disaster substance use and psychological distress using concepts from the self-medication hypothesis and social cognitive theory. *Journal of Psychoactive Drugs, 50,* 177-186*.*

Alomari, M.A., Al-Sheyab, N.A., & **Ward, K.D.** (2018). Adolescent waterpipe use is associated with greater body weight: The Irbid-TRY. *Substance Use and Misuse, 53*, 1194-1202*.*

Alexander, A.C. Obong'o, C.O., Chavan, P., Vander Weg, M.W., & **Ward, K.D.** (2018). Applying the Problem Behavior Theory to childhood drug use: findings from a cross-sectional sample of young boys participating in a community-based youth organization. *Substance Use and Misuse, 53*, 610-621*.*

Asfar, T., Caban-Martinez, A., McClure, L.A., Ruano-Herreria, E.C., Sierra, D., Gilford Jr. C.G. Samano, D., Dietz, N.A., **Ward, K.D.,** Arheart, K.L., & Lee, D.J. (2018). A cluster-randomized pilot trial of a tailored worksite smoking cessation intervention targeting Hispanic/Latino construction workers: intervention development and research design. *Contemporary Clinical Trials, 67*, 47-55*.*

Carswell, A.L., **Ward, K.D.,** Vander Weg, M.W., Scarinci, I., Girsch, L., Relyea, G., & Chen, W. (2018). Prospective associations of breastfeeding and smoking cessation among low-income pregnant women. *Maternal and Child Nutrition, 14, e12622. https://doi.org/10.1111/mcn.12622*

Dietz, N.A., Asfar, T., Caban-Martinez, A., **Ward, K.D.,** Santiago, K., Padron, C,. Ruano-Herreria, E.C., Moore, K., Stillman, J.D., Poveda, A., McClure, L., & Lee, D.J. (2018). Developing a worksite-based culturally adapted smoking cessation intervention for Hispanic/Latrino construction works. *Journal of Smoking Cessation. doi: 10.1017/jsc.2018.16, 10 pages.*

Sharpe, T., Alsahlanee, A., **Ward, K.D.,** & Doyle, F. (2018). Systematic review of clinician-reported barriers to provision of smoking cessation interventions in hospital inpatient settings. *Journal of Smoking Cessation, 1-11. doi.org/10.1017/jsc.2017.25*

Smeltzer, M.P., Rugless, F., Faris, N.R., Ray, M., Meadows, M., Jackson, B., Foust, C., Boetang, N., Patel, A., Robbins, E.T., **Ward, K.D.,** Klesges, L., & Osarogiagbon, R. (2018). Pragmatic trial of a multidisciplinary lung cancer care model in a community healthcare setting: study design, implementation evaluation, and baseline clinical results. *Translational Lung Cancer Research, 7*, 88-102*.*

Ullmann, G., Kedia, S.K., Homayouni, R., Akkus, C., Schmidt, M., Klesges, L.M., & **Ward, K.D.** (2018). Memphis FitKids: Implementing an mHealth tool to enhance parents' participation in improving child health. *BMC Public Health, 18:1068. https://doi.org/10.1186/s12889-018-5968-6*.

Vander Weg, M.W., Coday, M., Stockton, M.B., McClanahan, B., Relyea, G., Read, M.C., Wilson, N., Connelly, S., Richey, P., Johnson, K.C., & **Ward, K.D.** (2018). Community-based physical activity as adjunctive smoking cessation treatment: Rationale, design, and baseline data for the Lifestyle Enhancement Program (LEAP) randomized controlled trial. *Contemporary Clinical Trials Communications, 9*, 50-59.

HONORS AND AWARDS

2017	Elected Fellow, Academy of Behavioral Medicine Research
2017	Research Laureate Award, American Academy of Health Behavior *(Highest award bestowed by the Academy, for significant and inveterate contributions to the health education and health promotion profession through a body of research).*
2016	Fulbright Scholarship, U.S. Department of State
2014	Summer Commencement Speaker, 102nd Commencement of The U of M
2014	Willard R. Sparks Eminent Faculty Award, University of Memphis
2012	Principal Investigator "Millionaire" Award, University of Memphis
2011	Elected Fellow, Society of Behavioral Medicine
2010-2013	Faudree University Professorship, University of Memphis
2007	Elected Fellow, American Academy of Health Behavior
2005	Distinguished Service Award, Society for Research on Nicotine and Tobacco.

7.4. MS in Data Science

Presentation to the Board of Trustees

The University of Memphis Board of Trustees
For Approval

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: Approval of New Academic Programs: MS in Data Science

Presented by: Dr. Thomas Nenon, Provost and Executive Vice President for Academic Affairs

Background:
Among the powers given to the Board of Trustees by the FOCUS Act is the power "to prescribe curricula and requirements for diplomas and degrees." The University of Memphis has the authority to create new courses, terminate existing courses, determine course content or design, and carry out less extensive curriculum revisions. The Tennessee Higher Education Commission (THEC) must review and approve new academic programs, off-campus extensions of existing academic programs, new academic units (divisions, colleges, and schools), and new instructional locations as specified in THEC Policy No. A1:0: New Academic Programs - Approval Process and A1:1: New Academic Programs.

The purpose of the proposed Master of Science in Data Science (MS-DS) program is two-fold: 1) train students for positions in government and private agencies, industry, and research institutes, and 2) prepare students who plan to enter a doctoral program in Data Science and related fields. Among the outcomes of the MS-DS program we mention increase in State education attainment levels, meet the needs of economic, workforce, and research needs, and to increase degree production.

The nature of the program includes core courses in theoretical foundations of Data Science, i.e., a set of Computer Science and Statistics courses, and elective courses in discipline-specific quantitative analysis methods. The elective courses are clustered in specific disciplines such as Economics or Biomedical. This model has been proposed based on a market analysis of top programs (Columbia University, University of Michigan, University of Rochester) as well as programs from peer universities (University of Texas at El Paso, Southern Methodist University) around the country. The model offers foundational training as well as discipline-specific training in Data Science thus enabling students to become Data Scientists in specific areas such as Biology, Economics, Public Health, Government Policy, Logistics and Transportation, Inventory Management, Information Technology, inter alia, and a variety of other data driven fields.

This design should make the degree attractive to students who want to focus on Data Science methods in particular disciplines. It should be noted that one of the clusters is core Data Science which is meant to attract students who want to focus on core Data Science topics and possibly pursue a Ph.D. The target audience is college students who want to pursue Data Science careers with a focus on various disciplines

ranging from political science to biology to public health to economics as well as professionals who want to acquire advanced Data Science skills in order to be able to advance their careers and competitiveness of their organizations by exploiting big data sets available nowadays with the goal of improving their organization's processes, products, and services.

This proposal has been considered and approved by the respective College or School faculty and Deans. Subsequently, the proposal was considered and approved by the University Council for Graduate Studies, which are the highest governing body that has representation across all colleges and schools. The proposal was also considered and approved by the Provost and President of the University.

Committee Recommendation:
The Academics, Research, & Student Success Committee recommends approval of the Master of Science in Data Science as contained in the meeting materials and delegates authority to the Provost to make any changes necessary to facilitate program approval by THEC.



THE UNIVERSITY OF MEMPHIS®

Graduate School

New Academic Degree Program Proposal
for a
Master of Science in Data Science

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LETTER OF NOTIFCATION

ACADEMIC PROGRAM NAME

Data Science

DEGREE DESIGNATION

Master of Science (MS)

PROPOSED CIP CODE

11.0701 (Computer Science), 27.0501 (Statistics)

CIP CODE TITLE

Computer Science (11.0701), Statistics (27.0501)

PROPOSED IMPLEMENTATION DATE

Spring 2020

ACADEMIC PROGRAM LIAISON (APL) NAME AND CONTACT INFORMATION

Dr. Robin Poston, rposton@memphis.edu, 901.678.5739

BACKGROUND CONCERNING ACADEMIC PROGRAM DEVELOPMENT

"The coming century is surely the century of data" (Donoho, 2000). Data Science is emerging as a new, transformative paradigm in science and technology. With large volumes of data being generated every day from multiple sources (including business data, biomedical data, educational data, science data, engineering data, and personal data), the importance of systematic and rigorous approaches to understanding and putting these large volumes of data to good use is now well recognized. With this explosion of data, there is a significant demand for experts in industry, government, education, healthcare, etc., that have requisite skills to collect, process, and analyze data. Indeed, demand for Data Science master's degrees has exploded in the last couple of years as indicated by the fact that the number of master's degrees awarded in this area has quadrupled from around 5,000 to around 20,000 between 2016 and 2018 (see Figure 5). Our feasibility study, presented later, provides ample evidence on student interest and labor market needs in this area of Data Science including local and regional need, nationwide employer need, and future sustainable need and demand.

Human expertise bottleneck. As noted, data is being generated at an unprecedented rate from varied sources such as social media, sensors, vehicles, smartphones, etc. We can collect a variety of data at high velocity and in large volumes using various data collection devices (sensors). For instance, we can

deploy billions of sensors in cellphones and cars and have the information they collect sent to a digital storage server; similarly, millions of people observe and reported instantly traffic information using their cellphones – this information is then shared with all other drivers improving the overall efficiency of the transportation system. Just to illustrate the volume of data being currently collected and available digitally, IBM estimates that 90 percent of the data in the world today has been created in the past two years.

Exploiting the large and diverse data (big data) offers tremendous opportunities to improve processing, products, and services (Berman et al., 2018) as big data is assumed to carry insights and knowledge which would otherwise be inaccessible (Cao, 2017). For instance, in healthcare, big data holds the promise of reducing costs and increasing the quality of services (Brennan & Bakken, 2015; Frakt & Pizer, 2016). In other areas such as social and behavioral sciences (Lazer et al., 2009), agriculture (Kirkpatrick, 2019), law & justice (Quemy, 2017; also see the Data Driven Justice Initiative at https://www.naco.org/resources/signature-projects/data-driven-justice and the Big Data Social Justice Initiative at http://www.bigdatasocialjustice.com/social-justice-initiatives), or government (www.data.gov), there are similar opportunities. To deliver on those promises, we need to solve, above all, the human expertise bottleneck challenge by increasing the number of students trained in and knowledgeable of Data Science.

Indeed, we can now scale data collection (by deploying at scale billions of data collection devices/sensors), storage (which is cheap and abundant), and processing (we can access millions of computers through cloud services). However, we cannot scale human expertise without a strategic, sustained, and concerted effort by all stakeholders. We face a human expertise bottleneck when it comes to big data.

To meet this demand, universities around the country and the world have designed and been offering degrees in Data Science (for instance, there are more than 500 programs listed on the www.datascience.community) or establish entire institutes (see University of Rochester's Goergen Data Science Institute and many others), departments, or schools (see University of Virginia's School of Data Science - https://news.virginia.edu/content/uva-plans-new-school-data-science-120-million-gift-largest-university-history). The State of Tennessee and in particular the West Tennessee region will greatly benefit from a master's level program in Data Science as indicated later by our feasibility study. The proposed Master's in Data Science will address this acute need for Data Scientists in West Tennessee and beyond.

PURPOSE AND NATURE OF ACADEMIC PROGRAM

The purpose of the proposed Master of Science in Data Science (MS-DS) program is two-fold: 1) train students for positions in government and private agencies, industry, and research institutes, and 2) prepare students who plan to enter a doctoral program in Data Science and related fields. Among the outcomes of the MS-DS program we mention increase in State education attainment levels, meet the needs of economic, workforce, and research needs, and to increase degree production.

The nature of the program includes core courses in theoretical foundations of Data Science, i.e., a set of Computer Science and Statistics courses, and elective courses in discipline-specific quantitative analysis methods. The elective courses are clustered in specific disciplines such as Economics or Biomedical. This model has been proposed based on a market analysis of top programs (Columbia University, University of Michigan, University of Rochester) as well as programs from peer universities (University of Texas at El Paso, Southern Methodist University) around the country. The model offers foundational training as well as discipline-specific training in Data Science thus enabling students to become Data Scientists in specific areas such as Biology, Economics, Public Health, Government Policy, Logistics and Transportation, Inventory Management, Information Technology, inter alia, and a variety of other data-driven fields.

This design should make the degree attractive to students who want to focus on Data Science methods in particular disciplines. It should be noted that one of the clusters is core Data Science which is meant to attract students who want to focus on core Data Science topics and possibly pursue a Ph.D. The target audience is college students who want to pursue Data Science careers with a focus on various disciplines ranging from political science to biology to public health to economics as well as professionals who want to acquire advanced Data Science skills in order to be able to advance their careers and competitiveness of their organizations by exploiting big data sets available nowadays with the goal of improving their organization's processes, products, and services.

Specifically, the MS-DS degree requires completion of 33 semester credit hours as follows: 15 credits from a set of core courses, 15 credits from a list of electives (with the recommendation that 9 credits must be from a concentration area), and 3 credits as master's project. A Master's Thesis option (6 credits) is also available in which case only 12 credits are needed from the list of electives.

The delivery method will be on-ground and hybrid initially as only some of the courses are available both on-ground and online as of this writing. We do plan to have the degree available entirely online as soon as all the courses included are available online.

ALIGNMENT WITH STATE MASTER PLAN AND INSTITUTIONAL MISSION

The function of the State Master Plan includes holding accountable higher education programs for increasing the educational attainment levels of Tennesseans, being able to address the state's economic development, workforce development, and research needs, and aiming to ensure increased degree production within the state's capacity to support higher education. In addition, minimizing redundancy in degree offerings is another aspect of the State Master Plan.
The proposed MS-DS program aligns with the State Master Plan noted above. The MS-DS program aims to increase State education attainment levels, meet the needs of economic, workforce, and research needs, and to increase degree production.

Based on a recent self-study conducted under the Data Science Initiative at The University of Memphis, we have identified a major need to offer a full graduate-level degree in Data Science. Indeed, the self-study revealed a number of gaps in our Data Science offerings at The University of Memphis. First, while we offer a number of graduate certificates in Data Science as a form of systematic graduate-level training in this area, there are no full-degrees offered. The table below lists these certificates. For instance, the School of Public Health offers a certificate in Health Analytics (established in 2016) which consists of 6 courses. Similarly, there is a Master's in Bioinformatics and a certificate in Bioinformatics to fill the growing need for technical staff who can work with and analyze genomic data. These certificates do not offer the depth and breadth necessary for training Data Scientists due to their limitations in terms of the number of courses that could be included in such certificates.

Table 1. Graduate Certificates related to Data Science at The University of Memphis.

Department	Program	Summary
Computer Science	Graduate Certificate in Data Science	2 required courses in core data science and 2 electives that can be chosen from a broad range of data science topics
School of Public Health	Graduate Certificate in Health Analytics	5 required courses predominantly in biostatistics
Biology	Graduate Certificate in Bioinformatics	5 required courses distributed between computer science and biostatistics
Business Information and Technology	Graduate Certificate in Business Intelligence and Analytics	4 courses with electives distributed mainly between computer science and MIS
Education	Graduate Certificate in Quantitative Studies in Educational Research	2 required courses and 3 elective courses predominantly in statistics

Second, while some programs, e.g., Psychology, at The University of Memphis do offer intensive training, over a number of courses, on certain aspects of data analysis (e.g. inferential statistics), they lack offerings in terms of basic programming and big data processing. A set of several courses introducing students to basic programming and computational data processing techniques, e.g., in the cloud, could be a solution.

Third, there is a lack of training in Machine Learning, an area of Computer Science that makes extensive use of data and which can offer domain experts a set of powerful tools that could be used to address key tasks in, say, biomedical sciences, e.g., predicting the right type of cancer based on gene expression level. Our proposed Master of Science degree will address these issues with training students at the necessary depth and breadth to become successful Data Scientists in a domain of their interest.

The proposed plan serves the institutional mission well. The University of Memphis is fully dedicated to preparing students with solid quantitative skills and competencies to apply to a wide variety of fields

and prepare them for future endeavors in their career and subsequent studies. As seen in the objectives stated in the section of Purpose and Nature of the Program, the MS-DS program will bring a strong component of computational and statistical theory and in-depth innovative practical training opportunities, which will result in competitive graduate students who are more prepared for future career and research opportunities.

Furthermore, the proposed Master of Science program (in addition to the existing graduate certificates in Data Science) will have a strong potential to increase university enrollment overall, based on data from other universities. In addition, we expect the enrollment in related programs and courses outside the Data Science program will also increase due to the importance of data in all areas including socio-behavioral, engineering, humanities, and business and economics areas.

Enrollments in Data Science are growing fast as well. For instance, the Data Science program at The University of Berkeley “is the fastest-growing program in the history of Berkeley” according to a statement by University of Berkeley’s Provost Paul Alivisatos in front of the congressional subcommittee on research and technology in July 2017. At the University of Memphis, the Fundamentals of Data Science and Machine Learning courses are the largest graduate level courses, in terms of enrollment, in the department of Computer Science with more than 50 students enrolled on a regular basis and demand is growing. The graduate certification in Data Science is also the largest certificate in the department of Computer Science in terms or enrollment with 9 students being currently enrolled and many testimonials from our students during the so-called exit interview indicate the need for a full degree in Data Science.

Furthermore, in the Department of Biological Sciences, a department not typically known for an emphasis on Data Science, the recently developed graduate course Data Science for Biologists has received great interest and shown a consistent enrollment over the last two years of 12-13 students. The proposed degree is also based on market needs. Based on our research, demand for Data Scientists is growing fast. A recent study by Mckinsey states that "a shortage of the analytical and managerial talent necessary to make the most of Big Data is a significant and pressing challenge (for the U.S.)." Further, the report also states that there would be roughly four to five million jobs in the U.S. requiring data analysis skills by 2018. According to Glassdoor.com, “data scientist” was the number 1 job in America in 2016. In 2019, “data scientist” was found to be the most promising job (defined by high salary, high demand, continual growth, and potential for advancement) by LinkedIn.com. Local organizations such as St. Jude’s Research Hospital, AutoZone, and FedEx are investing heavily in data centers and are in much need for data scientists. Please see the letters of support in the Appendix B.

INSTITUTIONAL CAPACITY TO DELIVER THE PROPOSED ACADEMIC PROGRAM

The University of Memphis has strong programs in core Data Science areas such as Computer Science and Statistics as well as discipline-specific data analysis expertise and course offerings (see the list of core courses and discipline-specific courses later). There is no need to develop new courses to have the program started. However, there is a need to provide an organizational structure and corresponding

resources (e.g., Program Director, administrative assistant, etc. – see the Support Resources section) in order to run the program. The University of Memphis has the capacity and is committed to invest the necessary resources to have the proposed program started. We already offer a Data Science graduate certificate which will constitute the basis of the new MS-DS program. The departments of Computer Science and Mathematics have jointly developed this program proposal in close collaboration with other departments spanning different colleges including public health, biology, business and information technology, and economics. All these departments have agreed to collaborate in order to successfully implement the proposed program once approved. Given the fast growth in the area of Data Science we expect net gains in terms of enrollment. The goal is to offer potential students interested in pursuing a Data Science graduate degree the opportunity to do enroll at The University of Memphis as opposed to other institutions. Currently, The University of Memphis is missing on this great opportunity of attracting such students by not offering any Data Science degree despite extraordinary growth in this area (see the Feasibility Study section for details). For instance, the number of master's degrees awarded in this area has quadrupled from around 5,000 to around 20,000 between 2016 and 2018 (see Figure 5).

EXISTING PROGRAMS OFFERED AT PUBLIC AND PRIVATE TENNESSEE INSTITUTIONS

Lipscomb University in Nashville offers a MS in DS degree
https://www.lipscomb.edu/academics/programs/data-science-graduate
Vanderbilt University offers a 48-credit hour MS in DS program housed in the Data Science Institute
https://www.vanderbilt.edu/datascience/academics/msprogram/admissions/).

FEASIBILITY STUDY

Our feasibility study focused on student interest and labor market evidence including local and regional need, nationwide employer need, and future sustainable need and demand. Feedback from our alumni and current students, as well as feedback from local and regional institutes and companies, are included in the study. In addition to these sources, we also provided data from different universities on enrollment in Master of Science in Data Science, as well as national data on the number of graduates from related programs (MS in Computer Science and MS in Statistics) and the need of Data Scientists in the job market. These are followed by data on future need and demand of Master level Data Scientists.

Student interest

We investigated students' interest from various perspectives. We surveyed current students and asked them about their interest in the MS-DS program. As an example, Lasang Tamang (his letter is attached), our graduate student, has expressed to our faculty members (Professor Vasile Rus) over a year ago about his interest in an MS in Data Science. He is eager to enhance his skills in computational and statistical methods to better prepare him for the projects he is working on. The MS in DS apparently is an excellent fit for local students like him. Steve Lee, who completed an MA in Economics and is now a master's student in Computer Science, indicated the critical need for a deep understanding of machine learning methods (letter attached), which will be covered by the MS in DS but not covered in current non-CS graduate certificates.

Our contact with our alumni and students in computer science/statistics/mathematics/specific disciplines resulted in the same message: The MS-DS degree is greatly needed and sought after by students locally and regionally. We sent out a survey to our alumni and students in the Departments of Computer Science, Mathematical Sciences, Biology, Public Health, and Economics, asking them about their feedback about a master's program in Data Science. Among the 135 who responded to the survey, 97% noted that Data Science was an important area, 97% believed a degree in Data Science will improve their employment prospects, and 100% of participants noted that they would recommend a graduate degree in Data Science to those willing to further their careers. Someone they knew would be interested in the MS program.

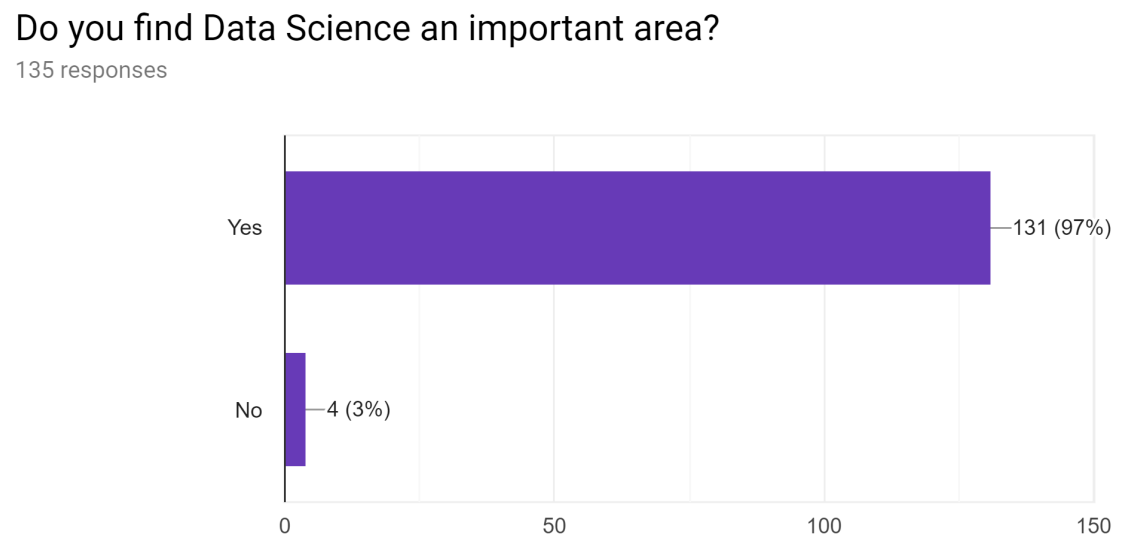


Figure 1. Responses to the following survey question: Do you find Data Science an important area?

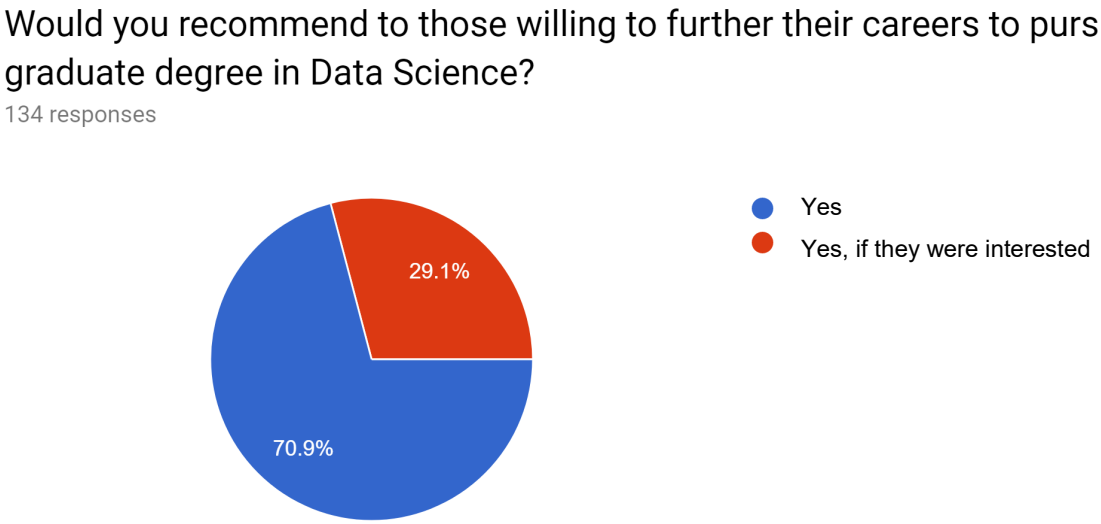


Figure 2. Responses to the following survey question: Would you recommend to those willing to further their careers to pursue a graduate degree in Data Science?

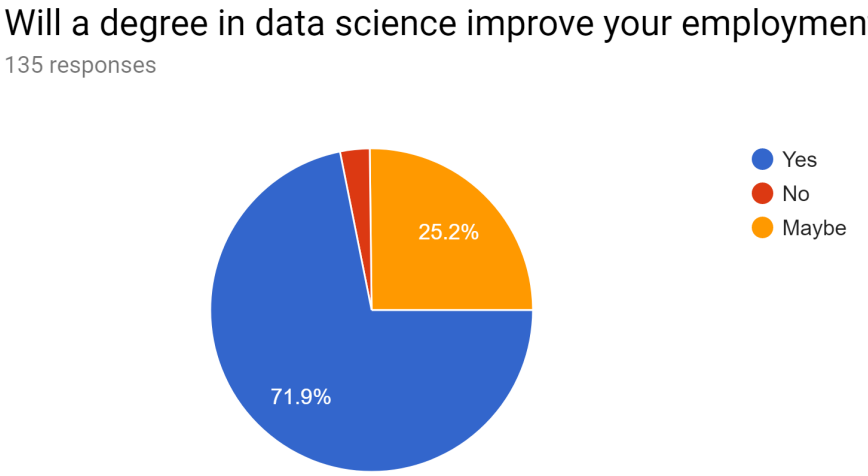


Figure 3. Responses to the following survey question: Will a degree in Data Science improve your employment prospects?

We further contacted 3 students randomly selected from our pool of alumni with a focus on fundamentals of data analysis methods (Dr. Rajendra Banjade – now at Amazon, Dr. Archana Bhattarai – now at Apple, Inc, and Dr. Vivek Datla – now at Phillips Research in Cambridge, MA). Dr. Rajendra Banjade, who received his Ph.D. in Computer Science in August 2017, emphasized the importance of Data Science compared to other academic majors in terms of its great applicability and need in many fields (letter attached) in an era in which data is collected and stored in unprecedented volumes. Dr.

Archana Bhattarai noted that “in coming 5 years, we will run short in data science resources in the United States.” Dr. Vivek Datla indicated that “many companies across many domains (e.g., logistics, healthcare, pharma, banking, manufacturing, etc.) including ours are eagerly seeking new hires with Data Science background.”.

Not only do our students and alumni express great interest in the MS in DS program, data provided by other universities convey the same message. Many universities already offer programs in Data Science; for instance, there are more than 500 programs listed on the www.datascience.community. Table 1 shows the cumulative growth in the number of applicants to MS in Data Science programs as well as the number of graduates.

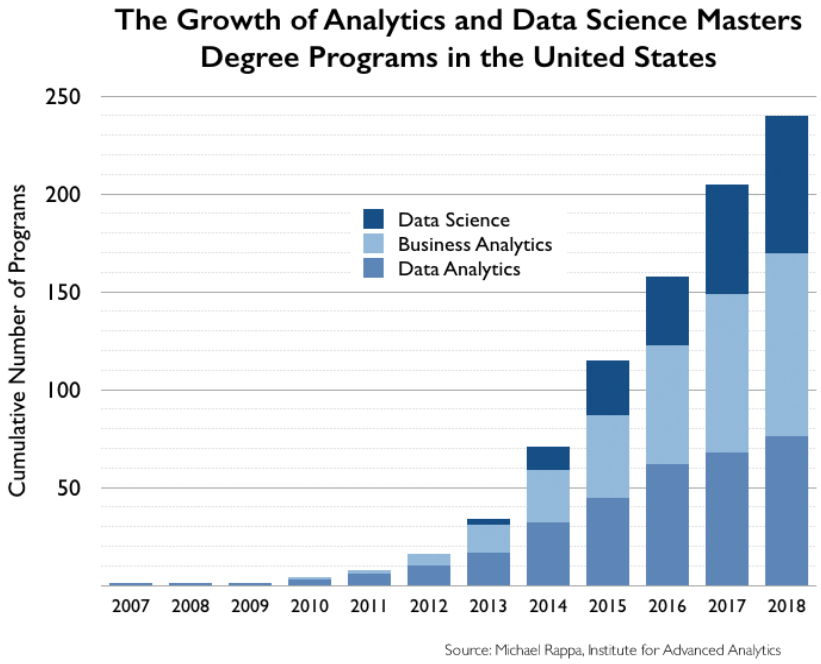


Figure 4. Growth of Analytics and Data Science Master’s degree programs in the United States.

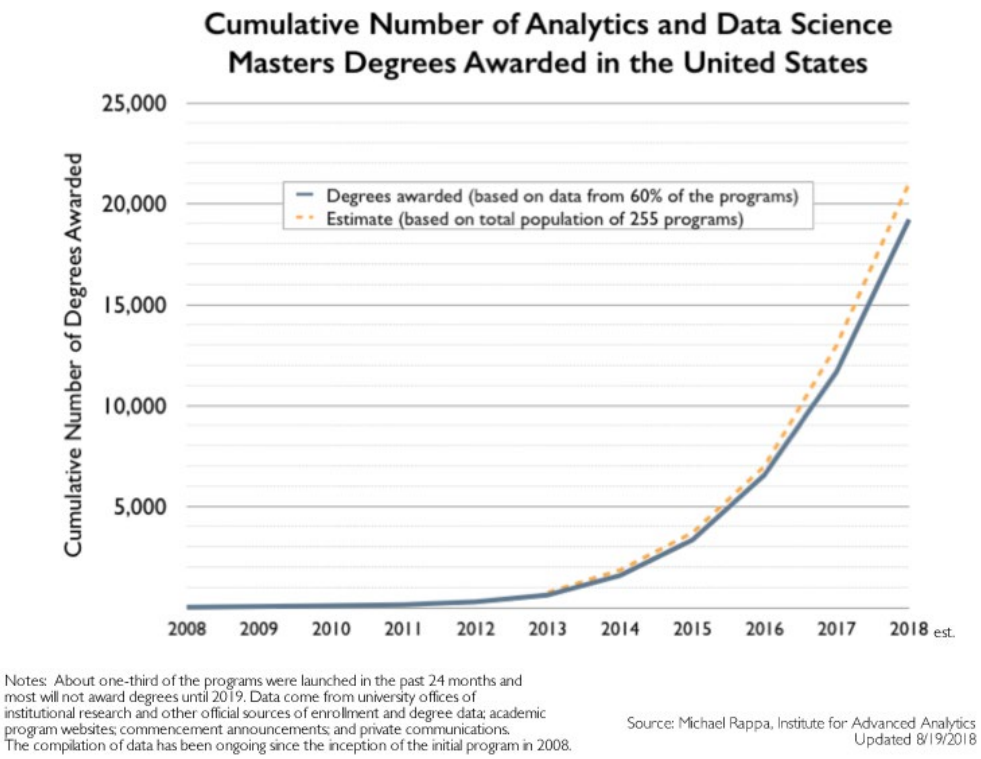


Figure 5. Cumulative master's degrees awarded in Data Science in the United States.

Employer need/demand

Due to the emerging nature of the Data Scientist profession, the Bureau of Labor Statistics, for instance, does not yet have an entry for it and therefore Data Scientist job demand is not available from federal government sources. Instead, we will report from various sources demand predictions for related jobs.

Local and regional need/demand

For local and regional need/demand, as mentioned, we surveyed local and regional institutes and companies. In the Memphis area, we contacted in total 5 organizations including AutoZone, FedEx, International Paper, University of Tennessee Health Science Center, and St. Jude Children's Research Hospital. These are all well-known large organizations in the Memphis area with a diverse focus from auto component retail chain (AutoZone) to logistics (FedEx) to paper-based products (International Paper) to health-related research and consulting (University of Tennessee Health Science Center, St. Jude Children's Research Hospital). Among the five organizations we sought feedback from, four responded (AutoZone, International Paper, University of Tennessee Health Science Center, St. Jude Children's Research Hospital, LeBonheur Children's Hospital, FedEx) and all were positive and supportive of the MS program. Overall, all the research institutes and companies expressed their high demand and a great need for Data Scientists holding a Master of Science degree in Data Science (support letters from Ron Griffin, SVP/CIO, Customer Satisfaction AutoZone; Dr. Bala Vaidyanathan, Director of Advanced Analytics and Industry Research at Fedex; James Dutkosky, Senior Manager of Information Technology International Paper; Dr. Daniel L. Johnson, Molecular Bioinformatics Core Director and Parya Zareie,

Data Manager, at University of Tennessee Health Science Center; and Drs. Li Tang and Hui Zhang, Department of Biostatistics, St. Jude Children's Research Hospital).

Dr. Zhang noted in his letter the importance of Data Science, "The great progresses in computer science, statistics and data generations during past decades have resulted in a great era of data science. For example, St. Jude Children's Research Hospital is investing $50 million to build a data center for the 2016-2021 strategy. The new data center, as well as many other St. Jude units, such as the Department of Biostatistics and the Department of Computational Biology, are in great need of data scientists, who must have extensive training in both computer science and mathematics/statistics." In addition, he noticed the lack of qualified individuals with Data Science skills: "However, the greater Memphis area faces a huge deficit of highly educated experts in data science. In addition, as the president of West Tennessee Chapter of American Statistical Associate, I have extensive interaction with data analysis groups in local industries, such as FedEx, AutoZone, International Paper Inc., Medtronic, etc. I noticed they are facing a similar situation as St. Jude does and are competing with us to recruit qualified data scientists, especially those who received training in database system, machine learning and statistical learning simultaneously."

For institutes and companies outside Memphis, we focused on a diverse group of companies such as Discover (credit card), Audible/AutoZone, and Lilly (pharma). Response from Lilly was received, and the feedback is positive. In particular, Dr. Qu mentioned in his letter that "…… The demand for trained expertise in Data Science continues to increase as the world becomes more dependent on large and predictive data and numerical reasoning. As one of the global pharmaceutical companies, Eli Lilly recently formed the Department of Advanced Analytics & Data Sciences (AASD) and continues hiring more and more data scientists. As a Data Scientist with Eli Lilly I predict a shortage of Data Scientists will exist for the next decade."

In addition to feedback from local and regional employers, we assessed employment data in Tennessee Master level Data Scientists and related jobs such as computer scientists and statisticians. Computer Scientists have an average pay of $114,520 per year according to the Bureau of Labor Statistics (https://www.bls.gov/ooh/computer-and-information-technology/computer-and-information-research-scientists.htm) and according to BLS "Employment of computer and information research scientists is projected to grow 19 percent from 2016 to 2026, much faster than the average for all occupations. Computer scientists are likely to enjoy excellent job prospects, because many companies report difficulties finding these highly skilled workers."

Tennessee's demand for Master level Computer Scientists in May 2017 is higher than or comparable to the demand in most States in the U.S as shown in Figure 6. The average pay in TN for this profession is $109,450.

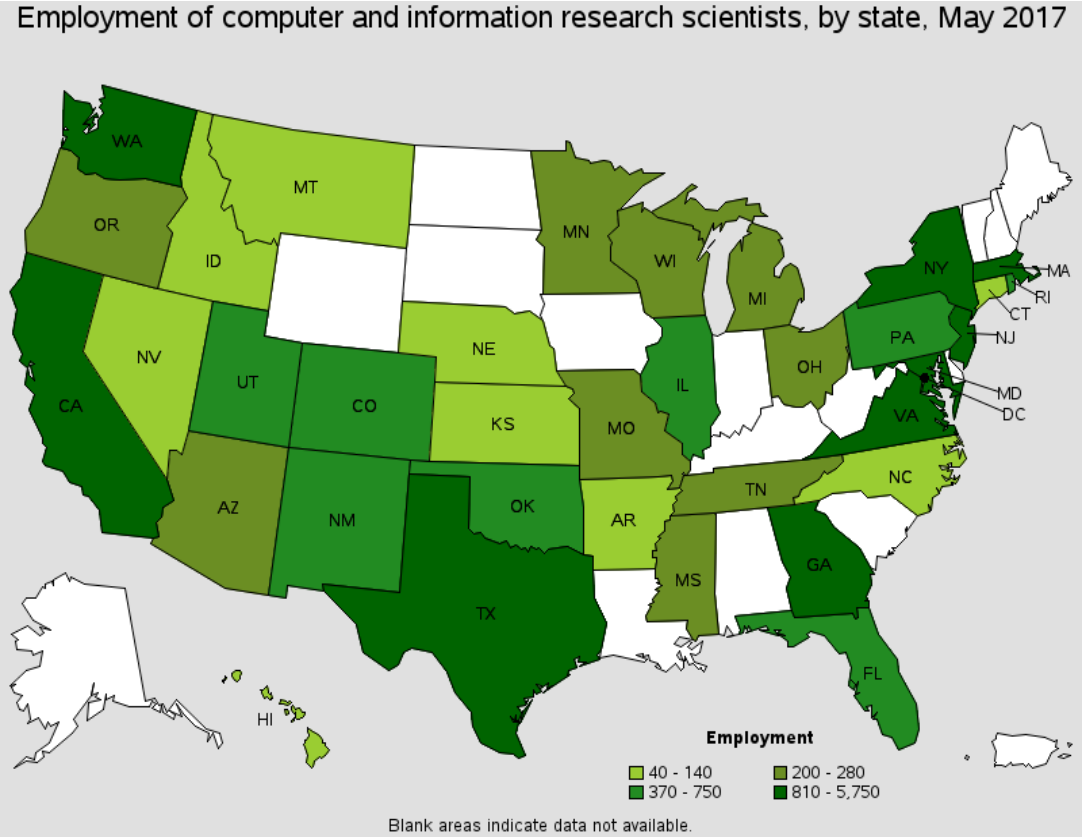


Figure 6. Employment of computer and information research scientists by state.

Statisticians have an average pay of $84,760 and for the period 2016-2026 the "Overall employment of mathematicians and statisticians is projected to grow 33 percent from 2016 to 2026, much faster than the average for all occupations. Businesses will need these workers to analyze the increasing volume of digital and electronic data."(https://www.bls.gov/ooh/math/mathematicians-and-statisticians.htm) Similarly, as shown in 7 (Bureau of Labor Statistics [BLS], https://www.bls.gov/oes/current/oes152041.htm), Tennessee's demand for Master level statisticians in May 2016 is higher than or comparable to the demand in most States in the U.S.

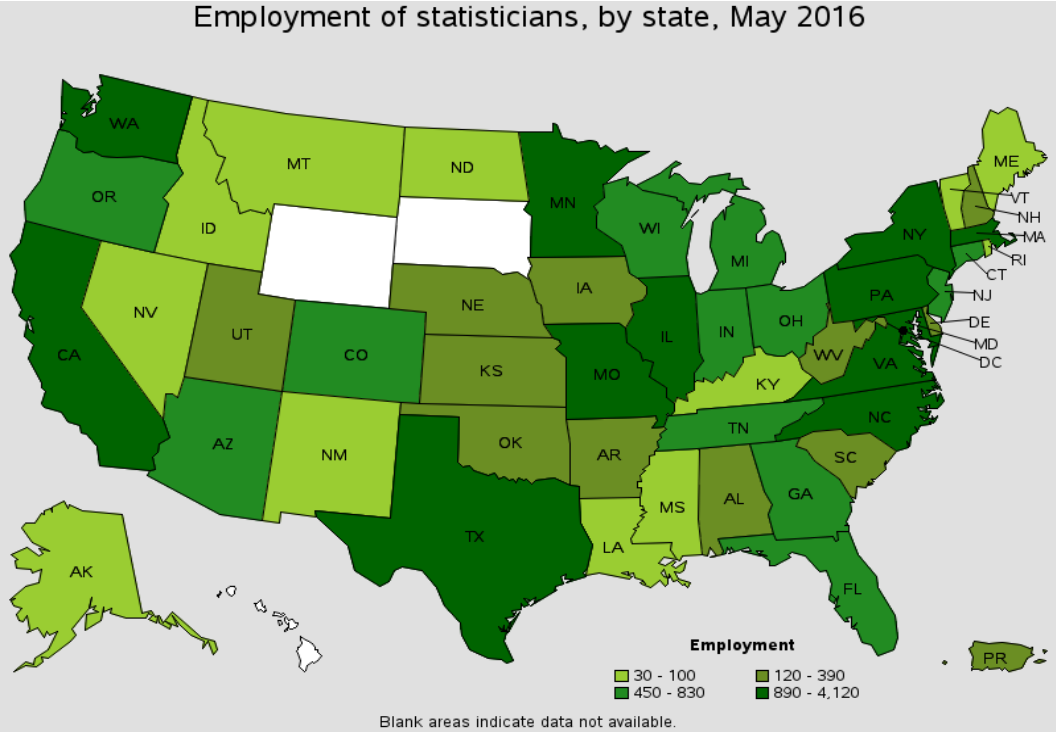


Figure 7. Employment of statisticians by state. Tennessee's employment is above national average.

While BLS does not yet provide reports on the new profession of Data Scientists, other job websites do. For instance, Glassdoor indicates an average salary of $111,782 for Data Scientists in the Memphis area (https://www.glassdoor.com/Salaries/memphis-data-scientist-salary-SRCH_IL.0,7_IM551_KO8,22.htm). Similarly, according to the 2018 Top 50 best jobs in America report by Glassdoor, Data Scientists are at position #1 (https://www.glassdoor.com/List/Best-Jobs-in-America-LST_KQ0,20.htm). In fact, for the third year in a row, Data Scientist topped Glassdoor's list as the best job in America. "Data scientist has ruled as one of the hottest jobs for years, proven by its third consecutive No. 1 ranking," according to Glassdoor Chief Economist Dr. Andrew Chamberlain. "This is due to the high demand (4,524 open jobs), the high salary ($110,000 median base salary) and high job satisfaction (4.2/5). Not only are tech companies scrambling to hire data scientists, but industries across the board, from health care to nonprofits to retail, are also searching for this talent." To determine which jobs have the most to offer, Glassdoor looks at the 50 best jobs in America for 2018. Glassdoor generated this ranking by considering earning potential, jobs satisfaction and number of job openings.

Given the potential strength and increasing demand for MS-DS degrees locally and regionally, we further investigated the potential of The University of Memphis offering an MS-DS degree by assessing similar programs in the Tennessee area and its surrounding regions to examine local and regional demands. There are limited formal programs in Tennessee that focus on Data Science.

Lipscomb University in Nashville offers a MS in DS degree: https://www.lipscomb.edu/academics/programs/data-science-graduate . A closer analysis of the courses listed as part of the degree reveals the absence of Machine Learning, a key course offering much

needed fundamental skills for Data Scientists. Furthermore, they lack the paired (core, domain specific) cluster design that our proposed MS-DS degree offers. That is, they propose a one-size-fits-all training with no domain-specific training on data analysis methods for specific areas. In our design, students will be trained on the fundamentals of Data Science, which are generally applicable to all areas, as part of the core, and then they can choose to go in more depth on Data Science methods specific to certain disciplines such as biology, public health, economics, or business information technology.

Similarly, Vanderbilt University offers a 48-credit hour MS in DS program housed in the Data Science Institute launched in August 2018 (https://www.vanderbilt.edu/datascience/academics/msprogram/admissions/). As with Lipscomb University's offering, the MS in DS at Vanderbilt does not offer domain-specific Data Science tracks. To our knowledge, we will be the only University in the state of Tennessee with an MS-DS degree that will offer a curriculum that trains students in both the fundamental aspects of Data Science as well as giving students the possibility of specializing in domain-specific Data Science methods. This design will offer students who want to pursue a Data Science career in a particular domain a competitive advantage as they will graduate with domain specific Data Science skills, which programs that follow a one-size-fits all approach cannot offer their graduates at the level that the University of Memphis program will. Our university has strong expertise in the major areas involved in the MS-DS program including Computer Science, Statistics, Public Health, Biology and other socio-behavioral areas, Economics, and Business Information Technology. This provides our The University of Memphis a unique opportunity to offer formalized training in order to meet local and regional needs of Data Scientists with strong analytical skills, establish a solid foundation for new career options in various areas, and prepare graduate students to pursue subsequent Ph.D. studies in Data Science.

The courses are carefully selected to cover computer science topics such as machine learning and databases, statistics topics such as statistical theory, classical statistical analytical methods, statistical learning, Bayesian methodologies that are specifically tailored and applicable to analysis of big data, and provide a thorough training in domain specific data analysis methods and their applications. Students completing this MS program will be competitive for a wide number of positions in government and the private sector.

Future sustainable need/demand

The job market for Data Scientists and related professions is growing fast. We report on job outlook of related professions due to the lack of information from the Bureau of Labor Statistics (BLS) on the new profession of Data Scientists, as already noted. Nevertheless, organizations such as Glassdoor (glassdoor.com), the McKinsey Institute, and other organizations provide continuing analysis of labor market trends.

According to the Bureau of Labor Statistics (BLS) the Data Science related professions like statisticians and computer scientists are among the ones with the highest growth outlook for the period 2016-2026 (https://www.bls.gov/ooh/fastest-growing.htm).

Indeed, the BLS predicts much faster than average growth for statisticians and computer scientists for the period 2016-2026. There will be a 33 percent growth from 2016 to 2026 for biostatisticians and a 19% growth for Computer Scientists. The number of statisticians at the Master level was 37,200 in the year of 2016, and by 2026, an increase of 12,600 is expected. BLS notes that "Job opportunities are expected to be favorable for those with very strong quantitative and data analysis skills. Computer programming skills will remain important to many employers, as will be keeping up with new statistical methods and programming languages." Our MS-DS program will offer both strong programming and statistical methods training thus giving our graduates a competitive advantage. Furthermore, BLS notes that "in addition to technical skills, applicants with strong communication skills and the ability to interpret and present their data and findings will have stronger job prospects." Accordingly, our MS-DS program will emphasize data interpretation and communication skills.

Similarly, the number of Computer Scientists in 2016 was 27,900, and by 2026 it is expected an increase of 19% or 5,400. Interestingly, BLS notes that Computer Scientists "seeking employment in a specialized field, such as finance or biology, knowledge of that field, along with a computer science degree, may be helpful in getting a job." Our MS in DS program design addresses precisely this domain knowledge need beyond core Data Science skills applicable to all domains.

It is important to mention that there are other Data Science related jobs that BLS reports on such as Database Administrators. While it is beyond the scope of this degree proposal to provide an exhaustive account of related jobs, BLS reports that employment for Database Administrators are growing at comparable rates.

More up-to-date analyses and estimates for the labor market like the recent study by Mckinsey Institute states that "a shortage of the analytical and managerial talent necessary to make the most of Big Data is a significant and pressing challenge (for the U.S.)." There is a significant demand for experts in industry, government, education, healthcare, etc., that have requisite skills to collect, process, and analyze data. Further, the report also states that there would be four to five million jobs in the U.S. requiring data analysis skills by 2018.

The McKinsey Institute states that "significant constraint on realizing value from Big Data will be a shortage of talent, particularly of people with deep expertise in statistics and machine learning," and warned of a shortage of more than 1.5 million managers and analysts who can use the analytical output of Big Data for Decision-making (http://www.mckinsey.com/business-functions/digitalmckinsey/our-insights/big-datathe-next-frontier-for-innovation).

According to Glassdoor.com, "data scientist" was the number 1 job in America in 2016, 2017, and 2018. However, filling these new jobs requires re-training personnel whose primary expertise may be in varied domains such as hard sciences, business, social sciences, etc., to be ever more data-savvy.
A Garner study recently reported that "The global population of chief data officers (CDOs) has grown 100-fold, to 10,000 over the past decade as enterprises around the world race to exploit their data reserves."

There is clearly a human expertise bottleneck when it comes to Data Science and in particular when it comes to processing large datasets of varying types using massive computational resources. While we can scale data collection and processing, we cannot scale human expertise without a strategic, sustained, and concerted effort by all stakeholders. Universities in particular, through programs such as the one proposed here, could address this expertise bottleneck.

Figure 5, from the Institute for Advanced Analytics, suggests almost exponential growth of the cumulative number of Data Science master's degrees. Extrapolating into the foreseeable future, we anticipate this growth to continue for some time.

PROGRAM COSTS/REVENUES

The budget includes salary for the Program Director who will run the program. The director will be in charge and supervise all aspects of the new MS-DS program including advertising, recruitment, application, admission, and student advising processes, will work closely with other departments and faculty to schedule courses, update curricula, advise and mentor students, and further develop the program as needed. Furthermore, the director will supervise the half-time administrative assistant and half-time tech support hire.

No new courses or additional faculty are required. We do not expect any additional faculty costs in the short run. Potential revenues are clear (see proposed budget/financials attached).
Support (stipends and tuition) have been included in the budget for 6 graduate assistants (GAs). The GA support will help us attract high-quality talent to Memphis area. Furthermore, Gas will help run the program, e.g., some faculty, the program director, and the admin assistant will need extra help that a GA could offer on a limited basis.

We also budgeted for one-time new/renovated computer lab space and corresponding equipment.
The budget includes operating funds for travel (invited speakers, recruiting events, accreditation costs when needed), advertising, and software and cloud computing.

Revenue projections include tuition and fees, potential research and grant activity, expected gifts, and any other expected revenues.

THEC FINANCIAL PROJECTION FORM

See Appendix A for the completed THEC Financial Projection Form

NEW ACADEMIC PROGRAM PROPOSAL

IMPLEMENTATION TIMELINE

The following timelines is being proposed to implement the MS-DS program:

Accreditation considerations for professional disciplinary accreditation organizations and/or SACSCOC, if applicable: Data Science is an emerging area as there are no established professional disciplinary accreditation organizations as of this writing. Since there is no accrediting body for Data Science programs, the program will follow the periodic peer evaluation of programs recommended by the UofM Graduate School. There are no SACSCOC implications of the proposal.

Proposed dates for the external judgment site visit: August 1, 2019

Estimated date of submission of the external review report to THEC and the institution (within 30 days after the site visit): September 1, 2019

Estimated date of institution's response to external review (within 30 days upon receipt of external reviewer report): October 1, 2019

Proposed date of the institutional governing board meeting the new academic program would be considered for approval: The Master of Science in Data Science program was approved by the University of Memphis Board of Trustees on June 5, 2019. The Provost will submit a final letter of approval following the report and updates from the external reviewers.

Proposed date of the THEC meeting for the academic program to be considered for Commission approval. (THEC Meeting Calendar): November 7, 2019

CURRICULUM

Program Learning Outcomes

The major learning outcomes of the proposed MS-DS program are the following:

1. students will be able to demonstrate core Data Science competencies in basic programming and computing skills necessary to use and manipulate large, distributed, and diverse data (big data);
2. students will be able to demonstrate data analysis skills necessary to analyze and understand the nature of the data, in particular in relation to a particular biomedical problem;
3. students will be able to demonstrate advanced skills in formal modelling of a domain problem and model fitting and evaluation using Statistical and Machine Learning methods;
4. students will be able to demonstrate ethical and reproducibility/provenance aspects of Data Science
5. students will be able to demonstrate awareness and understanding of key components of the Data Science conceptual framework and process (meta-competencies).

A major detailed description of the above major learning outcomes is provided next that includes specific knowledge and skills students will acquire and be able to demonstrate after successfully graduating with the proposed MS-DS degree.

Basic system administration, programming, and computational data processing competencies. This group of competencies includes platform understanding and being able to perform basic administration tasks such as installing packages, setting up the environment, and basic file operations. For instance, students must have a good conceptual understanding of the computing platform they use, e.g. single core computer vs. multi-core computer vs. local cluster vs. cloud computing. Most importantly, students must master core programming concepts (variables, control structures, input/output operations) and be able to write and test small computer programs that can run on the target computing platform, e.g. single computer/laptop or cloud. In terms of data processing, students must be able to process large, diverse, and distributed data. They need to become familiar with basic database models, database connectivity and querying using both traditional relational database systems versus modern database systems such as NoSQL databases, which are better suited for big, distributed-data processing. Students should also be able to perform basic Extract-Transform-Load (ETL) operations on large, distributed data.

Basic mathematical and statistical concepts and data analysis competencies. Students should master basic concepts such as random variables, probabilities, distributions, mean, and variance. In addition, they should become familiar with basic linear algebra concepts such as vectors, dot products, and matrix operations. Basic data analysis competencies are necessary in order to understand the nature of the data and in particular its relation to a particular biomedical problem. Understanding the nature of data with respect to the target problem is even more critical for observational studies where the data was not purposely collected to serve researchers' goal as is the case in designed experiments. For instance, if the problem to be solved is a classification problem and the available data is skewed a certain type of formal model must be chosen and evaluation should follow a special approach. Basic data analysis competencies include exploratory data analysis competencies such as being able to classify the type of data (nominal, ordinal, or numeric), calculating appropriate measures of central tendency and dispersion for the type of data, identifying potential outliers and other problems in the data, using visualization to assess patterns in the data and appropriate underlying distributions (scatter plots, 2D and 3D charts, heatmaps). Like with the computing skills, our modules will illustrate those concepts in a more selective, goal-driven manner.

Advanced skills in data analysis and formal modelling competencies. Students need competencies in formal modelling, model fitting and evaluation using advanced Statistical and Machine Learning methods. Students should be able to understand and perform basic experiment design and hypothesis testing, analysis of variance methods (ANOVA, MANOVA), variable/feature selection and extraction (e.g., PCA), time series analysis, generalized linear models, and statistical power analysis. For Machine Learning, students must be cognizant of unsupervised vs. supervised classification, one-class cs. binary vs. multi-class classifiers, training-test and k-fold validation methodologies of fitting and evaluating

classifier models, evaluation/performance metrics, supervised classifiers (logistic regression, SVM, k-nearest neighbors), and some clustering methods (hierarchical, k-means).

Ethical aspects, security, reproducibility /provenance aspects of Data Science. Students will develop knowledge and appreciation for ethical and privacy concerns that come up in the course of conducting research and analyzing data. Many students go through ethical training in behavioral programs. However, some of the topics directly related to working with big data that are not usually covered, that will be developed here will include de-identifying data, securely store and share data, and augment the data with meta-data to enable reproducibility of analysis and derived data. Also, basics of different regulations will be covered so students become familiar with common frameworks and guidelines that are used by different organizations, such as HIPAA and HITECH.

Data Science conceptual model and process competencies (meta-competencies). This group addresses a key outcome of the proposed curriculum, which is to make students aware of what it takes to tackle a problem using a Data Science approach. To this end, students must be aware of the need for domain expertise, data, mathematical and computational expertise, visualization, ethics, and communication. These components will be highlighted in our modules such that students become aware of all these needed parts. This is part of what we are calling meta-competencies as they teach students how to approach a new problem in the future, e.g. a problem that does not fit any of the generic problems we will cover in our modules. To handle this scenario, they need to know that they need to reach out to a mathematician or computer scientist to help them formalize their problem and then fit and evaluate the solution. This meta-level competency of understanding the cross-disciplinary nature of Data Science is as important as the computing and statistical competencies.

Academic Program Requirements

The Master of Science degree in Data Science requires completion of 33 semester credit hours as follows: 15 credits from the core courses (see below), 15 credits from the list of electives (with the recommendation that 9 credits must be from a cluster or concentration area – see below), and 3 credits for a master's project. A Master's Thesis option (6 credits) is also available in which case only 12 credits are needed from the list of electives.

Core Courses

COMP 7/8150 - Fundamentals of Data Science (Computational aspects of Data Science)
COMP 7115 - Database Systems
COMP 7/8745 - Machine Learning
MATH 7/8785 – Advanced Statistical Learning I
MATH 7/8786 – Advanced Statistical Learning II

NOTES:

1. COMP 6001 - Computer Programming or equivalent may be taken as a bridge course for those with no or minimal programming background. [intro to programming is also covered in Fundamentals of Data Science course].

2. Math 6635 and 6636 or equivalent may be taken as bridge courses for those with little or no statistics background.

List of Electives (students are encouraged to pick at least 3 electives from a cluster or concentration area)

Core Data Science Cluster (Cluster 1)
COMP 7/8116 - Advanced Database Systems
COMP 7/8118 - Data Mining
COMP 7/8130 - Information Retrieval/Web Search
COMP 7/8740 - Neural Networks
COMP 7/8747 - Advanced Topics in Machine Learning
COMP 7/8780 - Natural Language Processing
MATH 7/8670 - Applied Stochastic Models
MATH 7/8680 - Bayesian Inference
MATH 7/8657 Multivariate Statistics
MATH 7647 Nonparametric Statistics
MATH 7/8660 Applied Time Series Analysis
MATH 7/8685 - Simulation & Computing
MATH 7/8695 - Bootstrap/Other Methods
MATH 7/8759 - Categorical Analysis
ESCI 6515 Geographic Information Science

Biomedical Cluster (Cluster 2)
BIOL 6490: Introduction to Genomics and Bioinformatics
BIOL 7/8708: Data Science for Biologists
COMP 7/8295: Algorithms in Computational Biology and Bioinformatics
PUBH 7/8104 Large Data Sets
PUBH 7/8205: Special Topics, Mining Data
PUBH 7/8153: Biostatistics in Bioinformatics
PSYCH 7302/8302: Advanced Statistics for Psychology I

Economics Cluster (Cluster 3)
ECON 7810/8810: Econometrics I (Fundamentals of Econometrics)
ECON 7811/8811: Econometrics II (Panel and dependent variable methods, inter alia)
ECON 8812: Econometrics III (Times Series Analysis)

Business Information Technology Cluster (Cluster 4)
MIS 7660 Advanced Data Management
MIS 7621 Business Machine Learning II
MIS 7720 Business Artificial Intelligence

MIS 7710 Web Analytics

All the above courses are existing courses and no new courses are needed. Some of the courses are available online, including COMP 7115, COMP 7/8745, COMP 7/8780, PUBH 7150, PUBH 7152, PUBH 7170, and PUBH 7180. The University of Memphis has been strongly supportive to distance learning. There is a strong potential for all the courses in this program to be available online, but more importantly we will ensure effective learning and high quality of education, regardless of in class or distance learning. In addition, we will also consider the balance of various department resources.

The specific course syllabi are located in Appendix C.

ACADEMIC STANDARDS

Admission Requirements: A baccalaureate degree is required for admission. It is required that an applicant have the necessary mathematical, computational, and statistics background (e.g., calculus and linear algebra, programming, and introduction to statistics). Applicants for this MS program must show a potential for further study by having maintained a GPA of at least a 3.0 average in their bachelor's-level coursework. An acceptable score on the Graduate Record Examination (GRE) general test (verbal and quantitative) is required from within the past five years. Verbal and quantitative GRE scores at 70% or above are preferred in each area. Applicants already holding an appropriate master's degree, or its professional equivalent may be exempted from the GRE requirement. Other professional school standardized test scores (MCAT, DAT, GMAT, or LSAT) may be substituted for the GRE by applicants who are working toward or who have already earned post-baccalaureate degrees for example, in medicine, dentistry, management, or law. Test scores must be sent directly to Graduate Admissions by the testing agency. The University of Memphis institution code number for reporting ETS scores is R-1459.
All applicants who will be attending the University on a visa and who are not native speakers of English and are not graduates of the University of Memphis must supply a minimum score of 79 on the internet-based Test of English as a Foreign Language (TOEFL/iBT), 220 on the computer-based test, and 550 on the paper-based test (TOEFL/PBT). International English Language Testing System (IELTS) will also be acceptable in lieu of the TOEFL with a minimum acceptable score of 6.0.

Letters of recommendation from three individuals (at least one letter from a former professor or instructor) familiar with the applicant's academic background or experience in Computer Science, Statistics, Mathematics and related issues, specifying in detail the applicant's capabilities for graduate study and for future performance as a data scientist, are required. Applicants must also submit a personal statement of approximately 750 to 1000 words indicating his/her present interests and career goals, including how the MS-DS will prepare the candidate to achieve these goals.
Materials submitted will be reviewed by the faculty admissions committee. Admissions decisions are made on the overall quality of the applicant's scholarship and academic ability (based on GPAs, GRE scores, undergraduate coursework completed, relevant experience, and recommendations) as well as the applicant's "fit" for the program in terms of research interests and career goals.

Retention Requirements: Students must earn a grade of B (3. 0) or higher in all required courses. The MS program will adhere to Graduate School policy regarding course grades and repetition of courses. All courses applied toward MS degree program requirements must have the advisor's written approval.

Graduation Requirements: To qualify for graduation, students need to meet the following requirements: Complete a minimum of 33 semester hours of graduate course work beyond the bachelor's degree including a 3-hour project (students have a master's Thesis option).

EQUITY

Based on the composition of student body in the past years at the University of Memphis, we are confident that the MS in Data Science program will serve a diverse population of students, as well as underserved and historically underrepresented population of students or international students. The University of Memphis has a large body of adult learners and part-time students, minority students, and international students. One of the strengths is the diversity of its student body, with 46% of the student population representing U.S. minority communities and international students. Among all the students, about 15-20% students are adult part-time students.

PROGRAM ENROLLMENT AND GRADUATES

Please see the table below for projected enrollment and graduations. We expect relatively healthy enrollment in the first year. The enrollment is expected to gradually grow with an average enrollment of 80 from years 3 to 5 since the first launch of the program. Based on our existing enrollment in the Data Science graduate certificate and in the Fundamentals of Data Science course, we anticipate approximately 50% will be part-time students, and the majority of the students (about 70%) will be in-state students.

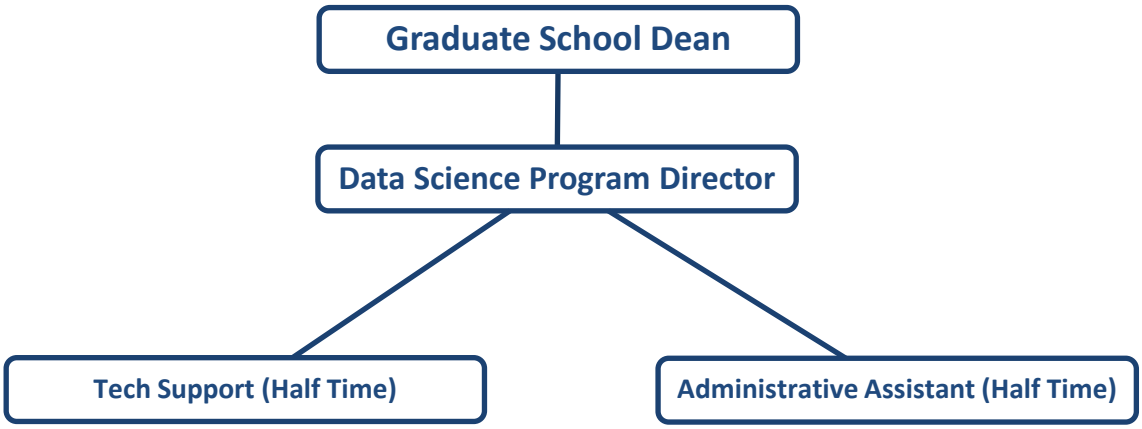
Academic Year	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Projected Number of Declared New Majors	40	60	80	80	80
Projected Cumulative Number of Declared Majors	40	100	180	260	340
Projected Number of Graduates*	-	32	54	74	74

NOTE: *The number of graduates is projected based on the consideration of 20% part time students, who may take longer to graduate. From 2022/2023 onwards, we are assuming that two students will drop out or stop out for diverse reasons

ADMINISTRATIVE STRUCTURE

The MS-DS program will be incubated in the Graduate School. Dr. Vasile Rus, a Professor in Computer Science and the Institute for Intelligent Systems will supervise the MS-DS program. The primary role of Dr. Rus is to support the administrative, research, and training programs in the program.
Dr. Vasile Rus will work collaboratively with faculty, other academic units, and community partners to launch and administer the master's program. Dr. Rus is also responsible for master student recruitment, matriculation, and degree completion. It is anticipated that Dr. Rus will receive two course releases per year for his role as Director.

ORGANIZATION CHART



FACULTY RESOURCES

The MS in Data Science program is a multidisciplinary program involving faculty and faculty affiliates holding academic degrees in several disciplines including computer science, statistics, biostatistics, and business and economics. The various units involved in the program have all the needed faculty resources. We do not plan to recruit new faculty members in relevant areas. However, if the number of students increases beyond expectations, then we may need to recruit new faculty to share the advising load and offer a more diverse set of courses to support a more diverse set of interests students may have.

However, faculty involved will need to dedicate part of their effort to the Data Science program (student advising for projects/theses/etc.). Their home department will need to release this corresponding effort to the Data Science program and the faculty be given credit by the home department accordingly. Information about core and affiliate faculty members is provided below. The specific curriculum vitas for each faculty member can be found in Appendix D.

Dale Bowman, Ph.D., is an Associate Professor in statistics. She will be teaching the core and elective statistics courses.

Su Chen, Ph.D., is an Assistant Professor in statistics. She will be teaching the core and elective statistics courses.

Bernie J. Daigle, Jr., Ph.D., is an Assistant Professor in Biological Sciences and Computer Science. He will be teaching bioinformatics and biological data science courses.

Lih-Yuan Deng, Ph.D., is a Professor in statistics and Graduate Coordinator of Statistics. He will be teaching the core and elective statistics courses.

E. Olusegun George, Ph.D., is a Professor in statistics and has been teaching statistics at the University for more than 30 years. He will be teaching core and elective statistics courses.

Andrew J. Hussey, Ph.D., is a George Johnson Associate Professor in Economics. His current research interests include labor economics, income inequality, gender gaps, and program evaluation. He will be teaching Econometrics II (Applied Econometrics) as a part of the Economics cluster.

Mark L. Gillenson, Ph.D., CCP, is a Professor of Business Information and Technology in the Fogelman College of Business and Economics at the University of Memphis. His teaching and research interests are in data and database management, data analytics, agile software development, and software testing. His industrial background includes 15 years with the IBM Corp. Dr. Gillenson is a Senior Editor of ACM's The Data Base for Advances in Information Systems and is an Associate Editor of the Journal of Database Management. His latest book is Fundamentals of Database Management Systems 2nd edition, 2012, John Wiley & Sons.

David Kemme, Ph.D., is a Professor and William N. Morris Chair of Excellence in the Department of Economics. His current research interests are macroeconometric modelling, forecasting, and applications of time series analysis in financial markets. He will be teaching Econometrics III (Times Series Analysis) as part of the Economics cluster.

Joonhyung Lee, Ph.D., is an Associate Professor in Economics. His current research interests are international trade, multinational corporations, and trade policy. He will be teaching Econometrics 1.

Phillip Pavlik, Ph.D., is an Associate Professor in the department of Psychology at the Institute for Intelligent Systems at The University of Memphis. His interests are in the area of data-driven cognitive modelling. He will be teaching the Advanced Statistics for Psychology I course.

Vinhthuy Phan, P.D., is an Associate Professor in Computer Science at The University of Memphis. His recent work focuses on the analysis of microarray data, the design of synthetic genes, and the construction of large DNA sets suitable for large-scale DNA-based computing. At the University of Memphis, Dr. Phan has taught a variety of courses focusing on the design and analysis of algorithms and their applications to the fields of bioinformatics and bio-computing. He will be teaching the Algorithms in Computational Biology and Bioinformatics course.

George Relyea, MS, is an Associate Research Professor in Public Health. He has taught statistics/biostatistics courses at the University for more than 20 years and has rich experience in teaching. Professor Relyea will be teaching biostatistics core courses. He is a full graduate faculty and is qualified to advise MS biostatistics students. He has developed many applied statistics courses and teaches advanced statistical modeling.

Vasile Rus, Ph.D.: Dr. Rus is a Professor in Computer Science with a joint appointment in the Institute for Intelligent Systems at The University of Memphis. He has introduced the Machine Learning course at The University of Memphis and is teaching related courses such as Artificial Intelligence and Information Retrieval. His strength in extraction from unstructured data sources and developing machine learning models based on such data will benefit the new MS in DS program greatly. He has been PI, co-PI, and Senior Researchers on federally funded grants worth more than $20 million.

Fatih Sen, Ph.D., is an instructor in the department of Computer Science at The University of Memphis where he teaches courses on databases and data mining primarily. His research interests are on data management and maintenance, data mining, big data, and machine learning

Deepak Venugopal, Ph.D., is an Assistant Professor in the Department of Computer Science. He is usually teaching the Machine Learning course, which is one the core courses in Data Science.

Srikar Velichety Ph.D., is an Assistant Professor of Business Information and Technology at the Fogelman College of Business and Economics at the University of Memphis. He has taught several graduate and under graduate courses in Business Analytics, Business Intelligence, Statistics and Machine Learning at the University of Memphis. His strength is in combining multiple types of datasets including text, imaging, temporal and numeric data to build high accuracy prediction models and hence will directly benefit the new MS in DS program. He has also published related work in top journals including JMIS.

Hongmei Zhang, Ph.D., is a Professor in Biostatistics and is the Division Director. She is also the Program Coordinator of Biostatistics. Dr. Zhang is a full graduate faculty member and is qualified to advise graduate students. She is the recipient of several NIH research grants for her collaborative work in

cancer and allergic disease studies, and for her statistical methodology development in variable selection, joint clustering, and Bayesian network.

Xiaofei Zhang, Ph.D., is an Assistant Professor in Computer Science at The University of Memphis. He is interested in developing new algorithms and toolkits for time efficient and scalable data management. He will be teaching courses related to databases and big data computing.

LIBRARY AND INFORMATION TECHNOLOGY RESOURCES

The University libraries are significant resources for both The University of Memphis and the Mid-South region. While the primary mission of the University libraries is to serve the University community, library services are extended to students and faculty in other colleges and universities in the Memphis area, local and regional corporations, governmental agencies, and adult citizens of the community. The Ned R. McWherter Library was designed to provide state-of-the-art access to information technology and to be fully accessible to the disabled. It has 725 network connections throughout the building, including those in study carrels, group study rooms, and the 24-hour TigerLan Lab. The University of Memphis library system partners with other libraries across the state, affording researchers the opportunity to access electronic journals. The library has added $15,000 from their budget to support national and international journals, books, and databases focusing on public health.

For the commonly used statistical computing software such as SAS and SPSS, the University offered students for free online access. The software can be used at any time and on any computer. This is a tremendous help to students financially, in addition to easy access.

SUPPORT RESOURCES

Evidence of willingness to partner – There is no need to partner explicitly with any external entities in order to establish the proposed MS in DS program. However, the numerous letters of support we received from various entities illustrate the need for such a program and we do plan to involve some of those entities in shaping the program by providing input with respect to Data Science skills graduates should have.

Other Support Currently Available – The MS in DS will use the half-time support staff members that include an Administrative Associate (level II) and Local Service Provider (LSP; tech support). Resources from other departments and colleges are also sought in terms of faculty service in the form of advising and curriculum development.

Other Support Needed – When enrollment is larger than the projection plan, additional support will be needed. This can be achieved by sharing the loading with other staff members or recruiting additional staff.

FACILITIES AND EQUIPMENT

The MS program will utilize existing facilities currently applied to the related programs, e.g., in Computer Science and Statistics, including classrooms and graduate assistants' offices. We do anticipate the need for a dedicated lab for Data Science related projects and activities and corresponding additional facilities and equipment are needed.

MARKETING AND RECRUITMENT PLAN

The University of Memphis routinely recruits graduate students nationally, regionally, and locally at professional/academic conferences and university recruitment fairs. We also attend recruitment events and visit local and regional colleges/universities to recruit students. Additionally, faculty members send out program announcements to their professional listservs to recruit graduate students. We will let math and science faculty at the local and regional colleges be aware of this degree and encourage them to recommend the program to their students.

Facebook, Instagram, and LinkedIn targeted ad campaigns will raise the awareness of in-state, out-of-state, and international students regarding their access and opportunity for joining the MS in Data Science program. There are funds in the proposed budget devoted specifically to marketing in the first year.

ASSESSMENT/EVALUATION

Assessment plans for this program will be based on the standards of the Tennessee Higher Education Commission and accreditation criteria from various disciplines. Due to the interdisciplinary and emerging nature of Data Science, there are no widely accepted, formal assessment standards. We plan to follow a set of assessment guidelines from various disciplines. For instance, for the Machine Learning topics we will follow guidelines from the Association of Computing Machinery's curriculum recommendations and standards from various accreditation bodies such as ABET – Accreditation Board for Engineering and Technology. The Tennessee Higher Education Commission assesses productivity primarily through graduation rates.

ACCREDITATION

Where appropriate, professional disciplinary accreditation organizations should be identified. The proposed accreditation timeline must be submitted. Any substantive change that may requires a SACS-COC review should be indicated.

As with assessment, due to the interdisciplinary and emerging nature of Data Science, there are no accreditation bodies for Data Science yet.

Each field will follow the guidelines set by their accreditation body where applicable.

FUNDING

All the courses in the curriculum are existing courses and no new courses are needed for the proposed MS in Data Science program. We requested funding for the director of the program, administrative assistant (1/2 time), and tech support (1/2 time). In addition, we have budgeted 6 graduate assistantships to attract high-quality students who cannot afford to pay for their studies on their own. Additionally, faculty members with research funds will have a potential to support graduate students. We have also requested funding for a Data Science lab and the necessary equipment (computers). Funds for cloud computing and storage services were also requested in order to expose students to big data management and processing using cloud computing techniques. Travel support was also budgeted to attend meetings to advertise the program and recruit students, travel expenses for invited speakers as part of a Data Science colloquium, and student conference travel support.

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APPENDIX A: THEC Financial Projections Form

	Year 1	Year 2	Year 3	Year 4	Year 5
I. Expenditures					
A. One-time Expenditures					
New/Renovated Space - Lab	$140,000	$ -	$ -	$ -	$ -
Equipment - Computers	40,000	-		40,000	-
Library	-		-	-	-
Consultants	-	-	-	-	-
Travel					
Other -					
Sub-Total One-time	$180,000	$ -	$ -	$ 40,000	$ -
B. Recurring Expenditures					
Personnel					
Administration					
Salary - Faculty Program Director	$ 35,000	$ 36,500	$ 37,132	$ 38,245	$ 39,393
Benefits - Faculty Program Director	12,000	12,360	12,731	13,113	13,506
Sub-Total Administration	$ 47,000.00	$48,860.00	$ 49,862.30	$ 51,358.18	$ 52,898.92
Faculty					
Salary	-	-	-	-	-
Benefits	-	-	-	-	-

Sub-Total Faculty	$ -	$ -	$ -	$ -	$ -
Support Staff, admin					
Salary - 1/2 time	$ 25,000	$ 25,570	$ 26,523	$ 27,318	$ 28,138
Benefits - 1/2 time	10,000	10,300	10,609	10,927	11,255
Support staff, tech					
Salary - 1/2 time	25,000	25,570	26,523	27,318	28,138
Benefits - 1/2 time	10,000	10,300	10,609	10,927	11,255
Sub-Total Support Staff	$ 70,000	$ 71,740	$ 74,264	$ 76,490	$ 78,786
Graduate Assistants (research assistants)					
Salary - 6 students	$ 81,000	$ 83,430	$ 85,933	$ 88,511	$ 91,166
Benefits - 6 students	1,539.00	1,585.17	1,632.73	1,681.71	1,732.16
Tuition and Fees* (See Below)	44,040	44,040	44,040	44,040	44,040
Sub-Total Graduate Assistants	$157,440	$ 160,842	$ 164,346	$167,955	$171,673
Operating					
Travel	$ 7,500	$ 7,725	$ 7,957	$ 8,195	$ 8,441
Software and cloud computing	25,000	25,000	25,000	25,000	25,000
Equipment	-	-	-	-	-

Marketing Flyers, Brochures, Ads	20,000	10,000	10,000	5,000	5,000
Sub-Total Operating	$ 52,500	$ 42,725	$ 42,957	$ 38,195	$ 38,441
Total Recurring	$296,079	$292,380	$298,688	$300,276	$307,064
TOTAL EXPENDITURES (A + B)	$476,079	$292,380	$298,688	$340,276	$307,064
*If tuition and fees for Graduate Assistants are included, please provide the following information.					
Base Tuition and Fees Rate	$ 7,340.00	$ 7,340.00	$ 7,340.00	$ 7,340.00	$ 7,340.00
Number of Graduate Assistants	6	6	6	6	6
	Year 1	Year 2	Year 3	Year 4	Year 5
II. Revenue					
Tuition and Fees1	440,400	660,600	880,800	880,800	880,800
Institutional Reallocations2	11,540	(351,433)	(564,371)	(561,801)	(554,002)
Federal Grants3	-	-	-	-	-
Private Grants or Gifts4	55,000	15,000	15,000	55,000	15,000
Other5	-	-	-	-	-

BALANCED BUDGET LINE	$476,079	$292,380	$298,688	$340,276	$307,064
Notes:					
(1) In what year is tuition and fee revenue expected to be generated and explain any differential fees. Tuition and fees include maintenance fees, out-of-state tuition, and any applicable earmarked fees for the program.					
Tuition will be generated by 20 full-time and 20 part-time students in the first year, 30 full-time and 30 part-time in the second year, and 40 full-time					
and 40 part-time in the remaining years.					
(2) Please identify the source(s) of the institutional reallocations and grant matching requirements if applicable.					
Paying extra compensation to a faculty for program director services, marketing flyer production and distribution.					

(3) Please provide the source(s) of the Federal Grant including the granting department and CFDA (Catalog of Federal Domestic Assistance) number.					
None involved.					
(4) Please provide the name of the organization(s) or individual(s) providing grant(s) or gift(s).					
Requesting donated computers and software.					
(5) Please provide information regarding other sources of the funding.					
None involved.					

APPENDIX B: Letters of Support

Vasile Rus (vrus)

From: Banjade, Rajendra <rbanjade@audible.com>
Sent: Thursday, January 31, 2019 1:35 PM
To: Vasile Rus (vrus)
Subject: Letter of support - Masters degree in Data Science

Dear Dr. Rus,

I am excited to hear about The University of Memphis plans to offer a Masters degree in Data Science.

Data is being generated and can be stored in an unprecedented scale. For example, 90% of the unstructured data (e.g., text) in the world was added within last two years - Forbes. Exploiting such large scale data to improve products, processes, services, and customer satisfaction has tremendous potential in both private and government organizations. In fact, the increased computing power and the development of advanced data driven tools and technologies are already changing our daily lives and the way organizations operate. And as said by prominent Artificial Intelligence (AI) researcher and founder of online learning platform called Coursera Andrew Ng, *"AI is the next electricity"* (Stanford News) and data science in general is the integral part of an organization.

As a graduate of The University of Memphis I can testify that courses such as Machine Learning, Natural Language Processing, and Statistics that I took as a graduate student helped me secure a Data Science job. I am part of the Data Science group and I know that many companies across multiple domains (e.g., e-commerce, media, logistics, healthcare, pharma, banking and finance, manufacturing, etc.) including ours are eagerly seeking new hires with Data Science background.

Furthermore, based on my professional experience, strong academic or foundational knowledge of data science including some hands-on experience is very important to get a job and succeed in the field of data science. But it is often difficult to find candidates with such background. Therefore, I would suggest including courses such as Exploratory Data Analysis, Machine Learning, Natural Language Processing, Computer vision, Statistics, Visualization, A/B testing and Capstone projects.

I am pleased to hear about your plans which I support entirely and enthusiastically.

Sincerely Yours,

Rajendra Banjade, PhD
Manager, Data Science
rbanjade@audible.com
audible, an Amazon company
Newark, New Jersey

Where inspiring voices bring stories, ideas, and characters to life.

From: Archana Bhattarai [mailto:archana.bhattarai@gmail.com]
Sent: Wednesday, January 30, 2019 11:38 PM
To: Vasile Rus (vrus) <vrus@memphis.edu>
Subject: Masters Degree in Data Science at The University of Memphis

Dear Dr. Rus,

I am excited to hear about The University of Memphis plans to offer a Masters degree in Data Science.

As a graduate of The University of Memphis I can testify that course such as Machine Learning that I took as a graduate student helped me secure a Data Science job. I know that many companies across many domains (e.g., logistics, healthcare, pharma, banking, manufacturing, etc.) including ours are eagerly seeking new hires with Data Science background and it has been projected that in coming 5 years, we will run short in data science resources in the United States. I am pleased to hear about your plans which I support entirely and enthusiastically.

Sincerely Yours,

Dr. Archana Bhattarai
Sr. Relevance Engineer
Apple Inc.
Cupertino CA

INTERNATIONAL PAPER

6400 POPLAR AVE
MEMPHIS, TN 38197

T 1 (901) 419-4202
F 1 (901) 214-1901

December 14, 2018

Dr. Deepak Venugopal
University of Memphis
Department of Computer Science
Dunn Hall 317
Memphis, TN 38152

Dear Dr. Venugopal,

I would like to express strong support for University of Memphis' plans to create a Master's degree program focused on Data Science.

As our organization matures to use advanced techniques to create predictive analytical methods, tools and models, it is important that students enhance their skills with the latest advancements in computer science, artificial intelligence, machine learning and data management.

Being a manufacturing company, we expect that as we expand our application of Industry 4.0 methods there will be an increasing use of data and analytics to improve our products, and optimize our supply chain services to best serve customers. Therefore, the demand for data science related skills is increasing.

I fully support the plans to begin an interdisciplinary degree in Data Science at the University of Memphis, and expect that our organization will benefit from future graduates.

Sincerely,

James Dutkosky
Senior Manager of Information Technology

Bala Vaidyanathan
Staff Director
Advanced Analytics and Industry Research

1000 Ridgeway Loop Road
Fifth Floor
Memphis, TN 38120

Telephone 901.820.5890
Fax 901.818.7081
Bala.vaidyanathan@fedex.com

FedEx Corporation

March 22, 2019

Re: University of Memphis' Masters in Data Science Proposal

TO WHOM IT MAY CONCERN:

I write this letter in enthusiastic support for University of Memphis' proposal for a Master's degree in Data Science. Data Science is fast growing area and will continue to drive significant annual business benefits. Due to the benefits, demand for the skill set is very high. Jobs in this area are hard to fill and the demand is growing. Creating a MS in Data Science program addresses the demand and is beneficial to the community, academia, and industry.

I lead the Advanced Analytics & Industry Research team at FedEx Corporation. Our mission is to deliver breakthroughs in business performance through the application of Advanced Analytics, Artificial Intelligence, and Technology. To achieve these goals, my team is in need of team members with advanced analytics skills, the kind of skills that the MS in Data Science program will create. These skills include computational modeling and statistical foundations of data science, and the application in a business environment to drive improved decision making.

Data scientists are employed over the entire range of functions at FedEx and the need for highly qualified well trained scientists continues to grow. Applications are wide ranging, from logistics and supply chain management, forecasting product and services demand, simulating networks, optimizing transportation, improving revenue quality, and improving the customer experience. FedEx expects to continue to hire professionals with data science skills every year.

In conclusion, I want to reiterate my support for the development of the new Master's program at the University of Memphis due to the myriad of reasons outlined above.

With regards,

Bala Vaidyanathan

Bala Vaidyanathan
Director – Advanced Analytics and Industry Research
FedEx Corporation

Dear Dr. Venugopal,

I am Parya Zareie an alumna from Computer Science department graduated in Dec 2016. I am currently working as a Data Analyst/Data Manager at LeBonheur Children's Hospital employed by the University of Tennessee. I am writing to show my support for the interdisciplinary MS in the data science program.

My tasks at workplace mainly include providing active data management and support for research projects which substantial part of my time is dealing with conducting data analysis using linear regression and other various methods, creating analytical dashboards and building statistical models. With this being said, I believe that the Machine Learning course I had in my third semester and especially doing my master project in data science area which was "Text Analytics For Detecting User Spam" gave me a firm foundation in this field, familiarized me with the right tools and paved the way for me to better step into this domain and be more productive at work.

In my point of view, in the data science world, learning how to access data, clean data, analyze data, build statistical models and making inferences from results are the key skills needed. Also learning about at least one statistical programming language is necessary. In my routine work, I find working and managing with extremely big datasets the most challenging task, so I believe including a course in a program that teaches students how to work with large datasets is a very good idea.

I fully believe that data science program would be a great addition to the computer science department. The number of positions and employers who seek skilled workers in data science is increasing. With this program added, I would be willing to enroll for the course and add to my knowledge. This program will attract not only students but also employees like me who want to dig more into this area and update skills.

Should you require any more information, please do not hesitate to contact me at fzareie@uthsc.edu or by phone at 901-287-5856.

Sincerely,

Parya Zareie

Data Manager

The University of Tennessee Health Science Center

Department of Biometrics
Eli Lilly and Company
Lilly Corporate Center
Indianapolis, IN 46285
Phone: (317)850-4348
Email: qu_yongming@lilly.com

Hongmei Zhang, PhD
Division of Epidemiology, Biostatistics, and
Environmental Health
School of Public Health, University of Memphis
Memphis, TN 38152

September 13, 2018

Re: Feedback of Master program in Data Sciences

Dear Dr. Zhang,

A pharmaceutical company needs expertise in data sciences who can apply mathematical concepts, statistical methods, and computing capability to plan, design and interpret experiments and clinical trials of new medicines discovery, development, and commercialization. In this field, there is high demand for higher degree data sciences to fulfil the jobs of programmers or data analysts that can shed insight into massive data generated continuously in the new era.

As the process of drug development become more complicated, especially when data become more complex with high dimensions, pharmaceutical analysts with expertise in large data analyses become important for drug companies to conduct research that aids the development of new types of drug treatment and therapies. While the traditional statistical major focuses on the statistical considerations in study design and data analyses, and the traditional computer science focuses more on computing and programing, neither major can meet the tremendous need for strong skills in design, computing, optimizing, and drawing causal inference. MS in Data Sciences that offers trainings in all these aspects, will provide valuable talents to pharmaceutical companies.

The demand for trained expertise in data sciences continue to increase as the world become more dependent on large and predictive data and numerical reasoning. As one of the global pharmaceutical company, Eli Lilly recently formed the Department of Advanced Analytics & Data Sciences (AASD) and continues hiring more and more data scientists. As a scientist at Eli Lilly, I project the short of data scientists will exist for the next decade.

Sincerely,

Yongming Qu, PhD
Sr. Research Advisor

St. Jude Children's Research Hospital
ALSAC • Danny Thomas, Founder

Hui Zhang, Ph.D.
Associate Member
Department of Biostatistics
t 901.595.6736 f 901.595.8843
hui.zhang@stjude.org

October 3rd, 2018

To whom it may concern,

I am writing this letter to provide my strong support for the proposed master degree program in data science at the University of Memphis.

The great progresses in computer science, statistics and data generations during past decades have resulted in a great era of data science. For example, St. Jude Children's Research Hospital is investing $50 millions to build a data center for the 2016-2021 strategy. The new data center, as well as many other St. Jude units, such as Department of Biostatistics and Department of Computational Biology, are being in and also going to be in great needs of data scientists, who should have received extensive trainings in both computer science and mathematics/statistics. However, the greater Memphis area are in a huge deficit of highly educated experts in data science.

In addition, as the president of West Tennessee Chapter of American Statistical Associate, I have extensive interactions with the data analysis groups in local industries, such as FedEx, AutoZone, International Paper Inc., Medtronic, etc. I noticed they are facing similar situation as St. Jude and are competing with us to recruit qualified data scientists, especially those who received trainings in database system, machine learning and statistical learning simultaneously.

Therefore, I am very glad to know that the University of Memphis, as the only local institute with such eligibility, is planning to open an interdisciplinary master degree program in data science. In case of needs, I would like to provide supports as much as I could.

Sincerely,



Hui Zhang, PhD
Associate Member, Department of Biostatistics
St. Jude Children's Research Hospital
262 Danny Thomas Places, M.S. 768
Memphis, TN 38105
Email: hui.zhang@stjude.org
Phone: (901) 595-6736
Fax: (901) 595-8843



10/24/2018

To Whom It May Concern,

It is my great pleasure of writing to you to support the newly proposed interdisciplinary Master's Degree in Data Science at the University of Memphis.

The emergence of novel "big" data has presented numerous novel challenges to the scientific community. Its interdisciplinary nature suggests a potential for innovations and productivity, and further calls for a high demand of graduates with a multidisciplinary background in computer science, statistics and bioinformatics. Taking St. Jude Children's Research Hospital as an example in the neighborhood, the world-renowned research institution is proposing a new "big" data center in its publicly announced strategic plan for 2016-2021, with foreseen growth of job opportunities in data science. This trend has been commonly noted nationally and internationally, in both academia and industry, from personalized medicine to high-tech portable device data mining. I have no doubt that the rapid expansion of data science will lead to ground-breaking discoveries and innovations in the next few decades, and successfully establishing a Master's program in data science will definitely place the institution at the wave front.

I was invited to teach Statistical Learning I in Fall, 2017 at the University of Memphis. The topic covered a wide range of statistical methods commonly applied in data science, and hands-on R sample programs were provided at the class for students to play with. The course was very popular among undergraduate seniors and graduate students, and enrolled students came from a wide range of disciplines. In addition, I noticed that many advanced scholars came to my lectures from nearby institutions, including the University of Tennessee and St. Jude Children's. Students were enthusiastic and passionate about such a new course, and many came to ask what follow-up courses they could take after that semester. Apparently, from the students' perspective, there is an urgent need for initiating such a program to accommodate their academic interests. I believe the initiation of the Data Science program will fill in the gap in the area and benefit many young scholars.

In the past years, the University of Memphis has dedicated to the academic and research success in the Greater Memphis area and nationally. I am very happy to learn that the University of Memphis is now planning to start a Data Science graduate program and is proactively taking a leading academic role in the area. My colleagues and I are more than happy to assist. Should you have any questions, please feel free to contact me.

With best regards,



Li Tang
Associate Member
Department of Biostatistics
St. Jude Children's Research Hospital

262 Danny Thomas Place MS 768
Memphis, TN 38105
Email: li.tang@stjude.org
Phone: 901-595-2374
Fax: 901-595-8483

123 S. Front Street, Memphis, TN 38103 Phone (901) 495-6500

January 22, 2019

Dr. Vasile Rus
Department of Computer Science
323 Dunn Hall
The University of Memphis
Memphis, TN 38138

Dear Dr. Rus,

I would like to express my great satisfaction and support for your plans to create a Master's degree in Data Science at The University of Memphis.

Using data to improve processes, products, and services has become a key strategy at AutoZone. Some of the many ways AutoZone is expanding the use of data range from Store Construction, Pricing Optimization, Merchandise/Inventory placement, and Supply Chain Optimization. With the newer technologies available to companies now, the need for knowledgeable resources to analyze, mine, extrapolate, and predict outcomes has never been greater. We're expecting to see this area continue to grow, not just at AutoZone, but throughout the retail industry. With our AutoZone headquarters in Memphis, Tennessee we expect to hire a significant number of qualified data scientists to help with these activities. Furthermore, we expect to see this need continue to expand in the future as more and more data and information is collected across a variety of different software-intensive systems. We expect the demand for workforce skills in the data science space to remain strong for many years to come.

In sum, Our AutoZone team is very excited and fully supportive of your plans to start an interdisciplinary degree in Data Science and am looking forward to benefit from and support the program once started.

Sincerely,

Ron Griffin
SVP/CIO
Customer Satisfaction

THE UNIVERSITY OF TENNESSEE
Health Science Center

Office of Research
Molecular Bioinformatics Core
Translational Science Research Building
71 S. Manassas, Suite 110
Memphis, Tennessee 38163
Tel: (901) 448-3743

September 19, 2018

Bernie J. Daigle, Jr., Ph.D.
Assistant Professor
Departments of Biological Sciences and Computer Science
The University of Memphis
3744 Walker Avenue, 402C Smith Hall
Memphis, TN 38152
Phone: (901) 678-2727

Dear Dr. Daigle:

I strongly support your goal of creating a Masters in Data Science with emphasis in Bioinformatics / Biostatistics at the University of Memphis. I believe that the key to success in the field of bioinformatics is understanding and mastering both the biological information as well as the technological skill sets. In my experience both professionally and as a mentor, I find that the technical skills seem to be much more difficult for most people to grasp both theory and practical aspects. I am very pleased to hear that the new program will drill down on practical skills such as advance programing, data mining, biostatistical modeling, and databases. I find that these skill sets are critical in performing our daily tasks in this field. I also feel that this new program will be unique from other M.S. in Computer Science degrees. This program will expose the students to the biological information that is key to understanding why we perform the tasks as well as how to select the tools and technology needed for each experiment to succeed.

Sincerely,

Daniel L Johnson PhD

Daniel L. Johnson, Ph. D.
Molecular Bioinformatics Core Director

APPENDIX C: Course Syllabi

COMP 7116 Advanced Database Systems – Spring 2010

Dr. King-Ip Lin

Contact Information:

Office: 355 Dunn Hall	**Department Office:** 209 Dunn Hall
Phone: 678-3135	**Department Phone:** 678-5465
E-mail: davidlin@memphis.edu	

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
5:00 – 6:00pm			2:30 – 3:30pm	
Also by Appointment				

Course Description:

COMP 7116 - Adv Database Systems (3)
Advanced data modeling; object-oriented and object-relational databases; indexing of complex data; advanced transaction processing; on-line analytical processing and data warehousing; distributed database processing. PREREQUISITE: COMP 7115 or permission of instructor.

Why this course?

This course is a continuation of COMP 7115. It will introduce the student to more advanced issues in database systems design and implementation. Students will gain knowledge of the internal working of a database system, which will be helpful in both database maintainance and implementation. Also the class will introduce the students to emerging trends in databases.

Topics to be covered include:

1. Basic requirements for database systems : buffering, operating system support.
2. Concurrency control : Ensuring consistency; transaction; serializability ; locking; timestamp ordering
3. Recovery: Recovering techniques; ARIES.
4. Query optimization: Standard Techniques.
5. Physical database tuning.
6. Advanced indexing and database algorithms

Resources:

Required Text

Silberschatz, Korth & Sudarshan, "Database Management Systems", 5th edition, McGraw-Hill (ISBN: 0-07-295886-3)

Other Resources:

Evaluation:

Evaluation is based on the following 5 components, details to be provided:

	Weight	Date
Mid-term	20%	3/4 (Thu) During class
Final Exam	20%	4/27 (Tue) During class
Database programming project	15%	Due 3/18 (Thu) 12:00 noon
Project	30%	Presentation: 5/6 (Thu) 10:30 – 12:30
Presentation	15%	4/13 – 4/22 During class

+/- grades will be used. If a student failed to obtain 70% of the full mark in at least two of the categories, the best he/she can hope for is an A-. If a student failed to obtain 60% of the full mark in at least three of the categories, the best he/she can hope for is a B-.

Course Policies:

Attendance: Students are expected to attend every class.

Testing Policy: No early or late exams are allowed unless under extreme situations. For students who wish to travel back home during Christmas, do not expect exam to be taken earlier than Dec 12th (Mon).

Plagiarism/Cheating Policy:

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated*****.** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted***, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to:
http://www.people.memphis.edu/~jaffairs/

Course Syllabus

Lecture	Date	Lecture Topics	Textbook
1	1/14	Introduction	
2	1/19	Transaction Processing Concepts	15.1 – 15.4
3	1/21	Serializability	15.5 – 15.8
4	1/26	Lock based protocols (1)	16.1
5	1/28	Lock based protocols (2)	16.6 – 16.7
6	2/2	Lock based protocols (3)	16.4, 16.8
7	2/4	Non-lock based protocols	16.2-16.3, 16.5
8	2/9	Recovery overview	17.1 – 17.5
9	2/11	ARIES	17.8
10	2/16	Indexing: Bitmap index	12.9
11	2/18	Indexing: Spatial index (1)	24.3
12	2/23	Indexing: Spatial index (2)	24.3, notes
13	2/25	Indexing: Spatial index (3)	Notes
14	3/2	**Mid-term**	
15	3/4	RAID/Buffering	11.3, 11.5
	3/9	*Spring Break – no class*	
	3/11	*Spring Break – no class*	
16	3/16	Query optimization (1)	13, 14.1 – 14.3
17	3/18	Query optimization (2)	14.4 – 14.5
18	3/23	Physical database tuning/benchmarks	23.1 – 23.2
19	3/25	Data Engineering Issues	Notes
20	3/30	OLAP/Data Warehousing (1)	18.1 – 18.2
21	4/1	OLAP/Data Warehousing (2)	18.3, Notes
22	4/6	Distributed Databases (1)	22.1 – 22.4
23	4/8	Distributed Databases (2)	22.5 – 22.8
24	4/13	Presentation (1)	13.6
25	4/15	Presentation (2)	
26	4/20	Presentation (3)	
27	4/22	Presentation (4)	
28	4/27	**Final exam**	

COMP7/8118: Advanced Topics in Data Mining

Xiaofei Zhang

Spring, 2019

E-mail: xiaofei.zhang@memphis.edu
Office Hours: 14:30–15:30 M
Office: DH318

Web: eCourseware
Class Hours: 12:40–14:05 MW
Class Room: DH107

Course Description

Data mining has emerged as a major frontier field of study in recent years. Aimed at extracting useful and interesting patterns and knowledge from large data repositories such as databases and the Web, the field of data mining integrates techniques from database, statistics and artificial intelligence. This course will provide a broad overview of the field and focus on a series of advanced topics. The following topics will be covered:

- Knowledge discovery in databases (association rule, clustering, classification, data warehouses)
- Text mining (topic modeling, word embedding, computing journalism)
- Graph mining (frequent graph patterns, summarization, linkage predication)
- Heterogeneous data mining (information network)
- Mining over data streams

Required Materials

Data Mining: Concepts and Techniques. Jiawei Han, Micheline Kamber and Jian Pei : Morgan Kaufmann Publishers (3rd edition)

Data Mining: The Textbook. Charu C. Aggarwal. Springer.

Prerequisites

The official pre-requisite of the course is COMP 3160. However, as Data Mining is a diverse field, it draws on different aspects of the knowledge in fields such as Databases, Artificial Intelligence,

Statistics and Management. The following is a checklist of material that will be used in the course. If you do not know all of them, don't worry, but do try to read up on your own.

- Basic computer algorithms (COMP 4030)
- Undergraduate level statistics/probability (ISDS 2710/MATH 4611)
- Database systems (COMP 7115/ISDS 7605)

Programming skills

- Basic knowledge of HTML (COMP 6005)
- UNIX skills will be helpful (but not necessary)

Assessments & Grading

For COMP7118 enrollment:

- 3 assignments: weight 30%
- Project: weight 30%
- Presentation: weight 15%
- Final: weight 25%

For COMP8118 enrollment:

- 4 assignments: weight 20%
- Project: weight 40%
- Presentation: weight 15%
- Final: weight 25%

Note: 8000-enrollments are expected to work on more challenging projects. The exam and assignment questions would be different for COMP711 and 8118 students.

Grading Scale

We will calculate final letter grades in two different ways; then each student will receive the higher of the two letter grades. One way is a fixed grading scale, with the following cutoffs:

$A \geq 90\%$ $A- \geq 82\%$ $B+ \geq 74\%$ $B \geq 66\%$ $B- \geq 58\%$ $C+ \geq 50\%$ $C \geq 42\%$

The other way is a curve, with the following percentages of students receiving each grade:

$A : 18\%$ $A- : 18\%$ $B+ : 18\%$ $B : 18\%$ $B- : 18\%$ $C+ : 5\%$ $C : 5\%$

However, we will feel free to give an F to any student who clearly did not put effort into the course (or an A+ to any student with truly exceptional performance).

Course Policies

Testing Policy

No early or late exams are allowed unless under extreme situations.

Plagiarism/Cheating Policy

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and will not be tolerated. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature, but appropriate references must be included for the materials consulted, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the Office of Student Conduct for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: http://www.memphis.edu/studentconduct/misconduct.htm

Lecture Schedule

* This is tentative.

Week	Topic	Highlights
1	Introduction	Course overview Math review
2	Association	Apriori Enumeration Tree FP-growth Pattern evaluation
3	Clustering	Representative approach Hierarchical approach Probabilistic model-based approach High-dimensional clustering
4	Outlier	Statistical model Distance model Density model
5	Classification	Support Vector Machine Neural network Recurrent neural network
6	Text Mining	Topic modeling Word embedding Computing journalism
7	Graph Mining	Frequent graph pattern graph summarization linkage predication
8,9	Mining Heterogeneous Data	Cube Information network Knowledge graph Natural language Q & A
10	Mining Data Streams	Sketch Time series analysis
11, 12	Student Presentation	

Information Retrieval and Web Search – Fall 2017
COMP 7/8130
Vasile Rus

Contact Information:

Office: 323 Dunn Hall	**Department Office:** 375 Dunn Hall
Phone: 678-5259	**Department Phone:** 678-5465
E-mail: vrus@memphis.edu	

Office Hours (in DH323):

Monday	Tuesday	Wednesday	Thursday	Friday
	10:00AM-11:00AM		10:00AM-11:00AM	
Also by Appointment				

Course Description:

COMP 7130-8130. (from the University catalog).

Advanced current research topics in database and information management, with emphasis on nontraditional data and applications. PREREQUISITE: COMP 7116 or permission of instructor.

Why this course?

Today, one of the major problems is not lack of information but too much information. We need intelligent ways to organize the vast amount of information available at our fingertips and to effectively search for what we want. We are faced with an Information Overload problem. The Information Retrieval and Web Search class presents the major challenges posed by this problem and solutions to these challenges.

The course introduces computational techniques to search for information in static collections of documents and in dynamic collections, e.g. the web. Students will be exposed to text processing algorithms, classical information retrieval models (e.g., Boolean and Vectorial models), and web search techniques. The course is closely related to the Natural Language Processing course.

Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/ir-websearch/**

Required Text

R. Baeza-Yates and Berthier Ribeiro-Neto: *Modern Information Retrieval*

Recommended Texts

B. Frakes and R. Baeza-Yates *Information Retrieval: Data Structures and Algorithms*
C. Manning, P. Raghavan, and H. Schutze: *Introduction to Information Retrieval*

Other Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/ir-websearch/**

Evaluation:

The University policy requires to email a grade to a student's U of M email address ***only***.

Final Grades:
Homework 35%, Project 30%, Midterm 15%, Final 15%, Participation&Presentations 5%
PhD Students are required to make a presentation as part of the Homework grade. The presentation consists of power point slides presented in front of the class for 20-30 minutes and an accompanied report of 3-5 pages (single spaced).

Grading Scale:

Grade	*Letter Grade*
90-100+	*A*
80-89	*B*
70-79	*C*
60-69	*D*
0-59	*F*

2.5 above or below the cut-off will earn you a + or – in front of your grade.
For example: 89 has a letter equivalent of B+
Exception: A- is for 90-91, A for scores ranging from 92 to 97, anything above 98 leads to A+

Course Policies:

Attendance
Students are strongly encouraged to attend all lectures. **Active participation** to class discussions counts toward your final grade.

Late Policy

Students will have on average one-two weeks from the date the work is assigned**.** Late submissions are not accepted**.** In exceptional cases you may have a 48-hour grace period at the cost of 50% of the grade (Students **must** ask for it before the due date).

Testing Policy

Usually exams are closed books. There are no make-up exams. Any code developed as part of the class work must follow the **coding-style** guidelines described on the web site. The coding-style will be strictly enforced.

Final Exam University General Rules and Guidelines

- Attendance is compulsory.
- No exam period may be changed without the written permission of the department chair and the college dean.

Plagiarism/Cheating Policy:

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated*****.** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted***, and appropriate citations made when the material is taken verbatim.

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http://www.people.memphis.edu/~jaffairs/

Course Syllabus (tentative)

Week 1: Introduction to IR and Web Search

Week 2: Introduction to Perl

Week 3: Classic IR: Boolean and Vectorial Models

Week 4: More on IR Models

Week 5: Evaluation of IR

Week 6: Query Operations and Languages

Week 7: Text Properties, Text Operations

Week 8: FALL BREAK, Indexing, and Searching

Week 9: MIDTERM, Web Search

Week 10: Web Search

Week 11: Text Categorization

Week 12: Text Clustering

Week 13: Question Answering

Week 14: Advanced IR Models, THANKSGIVING

Week 15: Project Presentations

Week 16: Final Exam

THE UNIVERSITY OF MEMPHIS
COMPUTER SCIENCE
COMP 7/8150: Fundamentals of Data Science

Course Description
The data life cycle; data collection, cleansing, visualization and storage; methods and models for data analysis and management; analysis tools, including statistical packages, experimental design software tools and computer simulations; evaluation and deployment of results; ethical and societal factors. PREREQUISITES: Knowledge of a programming language and descriptive statistics, or equivalent, or permission of instructor.

Why this course
Computer and information technology daily generate enormous amounts of data. The exercise is only useful if it can be turned into information and knowledge in the form of applications, models and theories. This course will provide a broad introduction to key state-of-the-art concepts and methods for testing, evaluation, validation, and/or societal acceptance of data analyses using current state-of-the-art tools.

Syllabus

Date[Week(s)]	Topic
Module 1 [1]	The Big Picture: What is Data Science? The data life cycle: pre-processing, analysis, post-processing
Module 2 [2]	Pre-processing: Data gathering, cleansing, visualization, and understanding (Mean, Variance, Standard Deviation. Percentiles.) Data Storage (Relational and nonrelational databases, e.g. HADOOP).
Module 3 [3]	A Review of current major Tools for Data Analysis [Case Study 1: Language R (or another major tool like Hadoop/Mapreduce)]
Module 4 [4/5]	Probability Models for Statistical Methods: Discrete and continuous probability distributions, density functions. Random variables, expected values, variance, correlation. Data Normalization (z-values, transforms). Central Limit Theorem. [Case Study 2]
Module 5 [6]	Statistical Inference-Estimation: Sampling: point and interval estimation, confidence levels. Estimation from large and small samples. Normal and student-t distributions. [Case Study 3]
Module 6 [7/8]	Statistical Inference-Hypothesis Testing: Decision making: null and alternative hypotheses, critical regions, p-values. Testing from large and small samples. Chi-squared and F-distributions. Contingency tables. [Case Study 4]
Module 7 [9/10]	Regression with a single and multiple predictors: Data fitting, residual plots, ANOVA tables, standard error and confidence intervals. Assessment of predictive accuracy. [Case Study 5]
Module 8 [11/12]	An Overview of Other Major Techniques in Data Science: Data Mining, Machine Learning, and their relationship [Case Study 6]
Module 9 [13]	Closing the data life cycle: Visualization/Summarization and Deployment of Results. Ethical and societal factors. [Case Study 7]
Week 14	Term Projects/More Case Studies

Textbook

[H] M. Haider (2015).
Getting Started with Data Science: Making Sense of Data with Analytics, 1st ed (paperback), IBM Press. ISBN-13 978-0133991024 (due out November 2015.)

Supplementary References

John Maindonald and W. John Braun, Third edition (2010).
(Cambridge Series in Statistical and Probabilistic Mathematics).
ISBN-10:0521762936 ISBN-13: 978-0521762939

In addition, a number of up-to-date readings will be provide in each version of the class with new developments and case studies in data science, such as
D.A. Reed and J. Dongarra. Exascale Computing and Big Data, Comm. of the ACM 58:7 (2015), 56-68. [Gist in a video.]

Other Resources

The use of R is required for this course. R is a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques. R can be downloaded from http://CRAN.R-project.org

Evaluation

Final grades will be assigned based primarily on a term project that requires application to a well-defined problem of the full data life cycle on a corpus of data procured by the student(s). Homeworks (including programming assignments) and presentation of results will also be required. Plus/minus grading will be used. A typical grading rubric will be

- 10% Class Participation
- 30% Homeworks
- 30% Term Project (Proposal and Final Report)
- 30% Reports (Progress Reports and Final Presentation)

Students taking the 8150 version of the class will be expected to carry out term projects requiring deeper and/or more advanced analyses with higher quality outcomes and/or a research component.

Plagiarism/Cheating Policy

P***lagiarism or cheating*** behavior in any form is unethical and detrimental to proper education and ***will not be tolerated.*** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. Plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted,*** and appropriate citations made when the material is taken verbatim.

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COMP 7740/8740 Neural Networks : Fall 2016

Instructor Name: Marko Puljic

Contact Information:

Office: Dunn Hall 305	Department Office: Dunn Hall 375
Phone: 901.678.3139	Department Phone: 901.678.5465
Email: mpuljic@memphis.edu In email communications please always specify '8/7740' in the subject field	

The best way to get in touch with me is through email – I will almost always respond within 24 hours.

Lecture times and place :

5:30 pm - 6:55 pm MW Dunn Hall 109 Aug 22, 2016 - Dec 08, 2016

Office Hours: TR from 2:30pm till 4pm and after lectures.

Course Description:

COMP 7740/8740 EECE 7740/8740.

Learning algorithms for multilayer perceptrons, least-mean squares, backpropagation and its variants, cascade-correlation, other supervised learning algorithms; unsupervised methods, including Hebbian, competitive, and reinforcement learning; applications to associative memories, combinatorial optimization, component analysis, function approximation, pattern classification; theory of neurodynamics, including equilibrium, stability, and computational power. PREREQUISITE: COMP 6030, or permission of instructor.

Why this course?

After completing this course, students are expected to be familiar with the main principles of neural computing and they should be able to use these principles in solving practical problems in their relevant area of interest and specialization.

Resources:

Textbooks:

- Introduction To The Theory Of Neural Computation (Santa Fe Institute Series) Revised ed. Edition by John A. Hertz, Anders S. Krogh, Richard G. Palmer (https://www.amazon.com/Introduction-Theory-Neural-Computation-Institute/dp/0201515601/ref=mt_paperback?_encoding=UTF8&me=)

- MATLAB Student version Release, User's Guide, the Math Works, INC., Prentice Hall.

Evaluation:

Evaluation will be viewed as a continuous two-sided feedback process, which (a) allows students to assess themselves about their progress in learning the material/understanding the issues; and (b) allows the instructor to assess how well he is fostering the communication process with and among students. Students are expected to automatically read relevant chapters in the textbook and the supplementary references, actively participate in class discussions and perform assignments and practical lab work. After completing this course, students are expected to be familiar with the main principles of neural computing and they should be able to use these principles in solving practical problems.

Class Participation 20%: Problem set 30%: Midterm and Final tests 20% and 30%.

Students at the 8xxx level are expected to complete their project by demonstrating the correct operation of the developed software and comparison with alternative tools.

Course Policies: Attendance:

Students are expected to attend the lectures, and actively participate in class activities.

Late Policy:

Assignments are expected at the start of the class on the deadline, handed to the lecturer in printed form. Every day late decreases the max value by 20%, so no credit beyond 5 days of being late.

Plagiarism/Cheating Policy: (These paragraphs are mandatory by CS.)

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated.*** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted,*** and appropriate citations made when the material is taken verbatim.

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http://www.people.memphis.edu/~jaffairs/

Tentative Course Schedule:

Lecture	TOPICS	KEY DATES
1	From Spikes to Rates	
2	Perceptrons: Simple and Multilayer	
3	Perceptrons as Models of Vision	
4	Linear Networks	Problem set 1
5	Retina	
6	Lateral Inhibition and Feature Selectivity	Problem set 2
7	Objectives and Optimization	Problem set 3
8	Hybrid Analog-Digital Computation and Ring Network	
9	Constraint Satisfaction and Stereopsis	Problem set 4
10	Bidirectional Perception	
11	Signal Reconstruction	Problem set 5
12	Hamiltonian Dynamics	
	Midterm	
13	Antisymmetric Networks	
14	Excitatory-Inhibitory Networks and Learning	
15	Associative Memory	
16	Models of Delay Activity and Integrators	Problem set 6
17	Multistability and Clustering	
18	Vector Quantization (VQ), Principal Component Analysis (PCA)	Problem set 7
19	More PCA Delta Rule	Problem set 8
20	Conditioning and Backpropagation	
21	More Backpropagation	Problem set 9
22	Stochastic Gradient Descent	
23	Reinforcement Learning	Problem set 10
24	More Reinforcement Learning	
25	Final Review	
	Final Exam	

COMP 7745/8745
Machine Learning
Spring 2016

Instructor: Deepak Venugopal

Time and Location: T, Th 2:30-3:55pm, Dunn Hall 107

Email: dvngopal@memphis.edu

Office Hours: T, Th 1:30-2:30 PM, Dunn Hall 317

TA: Kyle Cherry (kcherry2@memphis.edu)

TA Office Hours: TBA

Course Textbook: Machine Learning, *Tom Mitchell*, McGraw Hill, 1997

References:

- Pattern Classification, David G. Stork, Peter E. Hart, and Richard O. Duda, Wiley, 2000
- Pattern Recognition and Machine Learning, Chris Bishop, Springer-Verlag, 2006
- Elements of Statistical Learning, Trevor Hastie, Robert Tibshirani and Jerome Friedman, Springer, 2009
- Machine Learning: A Probabilistic Perspective, Kevin Murphy, MIT press

Pre-Requisites

Discrete Mathematics, Probability Theory, Algorithm Analysis and Data Structures.

Learning Objectives

The aim of this course is to study, analyze and apply fundamental techniques in Machine Learning. Both theoretical and empirical aspects of Machine learning will be emphasized. At the end of this course, students should have the necessary background to build practical machine learning systems and also be able to apply machine learning in their own research.

Topics

1. Concept Learning
2. Basic Supervised Learning Techniques
    - Decision Trees

- Linear classifiers: Logistic Regression, Perceptrons
- Neural Networks and Backpropagation
- Naive Bayes

3. Evaluation
    - Statistical Bounds
    - Bias vs Variance tradeoff
    - Cross-Validation
4. Computational Learning Theory
    - PAC Learning
    - VC-Dimension
5. Instance based learning: K-nearest neighbors
6. Advanced Supervised Learning Techniques
    - Support Vector Machines and kernels
    - Boosting Weak Learners (AdaBoost)
7. Unsupervised Learning
    - K-Means clustering
    - The EM algorithm
8. Reinforcement Learning: Q Learning
9. Advanced Topics (depending on remaining time)
    - Introduction to Probabilistic Graphical Models
    - Introduction to Deep Learning

Evaluation

1. Midterm (closed books with cheat-sheet): 30% (March 1)
2. Final (closed books with cheat-sheet): 30% (last day of class)
3. 4 Homeworks (Each homework will also have a practical component): 40%
4. For 8000-level Ph.D. students: Research paper presentation (10%)

- Select a paper from one of the following conferences (preferably published within the last 5 years): NIPS, ICML, KDD, UAI, AISTATS
- Send me the paper that you wish to present by Feb 18. I will break ties if there are any and try to make sure we have a good overall schedule
- Presentations in the last two weeks of class. Schedule will be announced later.
- Note: If you want to present your own work related to machine learning by tying it to your research, it is highly encouraged. However, it should be current, i.e., you should perform the research during this semester and not previous work. In this case, by Feb 18th, please send me a proposal of your intended research.

Grading

Grading: $A+ \geq 95\%$, $A \geq 90\%$, $A- \geq 85\%$, $B+ \geq 80\%$, $B \geq 75\%$, $B- \geq 65\%$, $C \geq 50\%$
Note: A modified curve may be used for determining the grades at the discretion of the instructor.

Policies

1. Both midterm and final exams are closed book and closed notes. One double-sided cheat sheet will be allowed.
2. No late homeworks will be accepted unless well-documented reasons are presented
3. All homeworks must be individual work. Plagiarizing assignments or code sharing is not permitted. If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructors discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: http://www.people.memphis.edu/ jaffairs/
4. Regular class attendance is mandatory. There is a strong correlation between regular attendance and obtaining a good grade. Instructor reserves the right to lower grades for lack of attendance. Students are responsible for any material and contents of missed lectures.
5. No early or late exams will be given unless under extreme situations
6. Any grading errors in assignments should be notified within a week to the TA

Natural Language Processing – Spring 2016
COMP 7/8780-PSYC 7780/8780

Vasile Rus

Contact Information:

Office: 323 Dunn Hall	**Department Office:** 375 Dunn Hall
Phone: 901-678-5259	**Department Phone:** 901-678-5465
E-mail: vrus@memphis.edu	

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	10:00-11:00AM		10:00-11:00AM	
Also by Appointment				

Course Description:

COMP 7780-8780. (from the University catalog).

(Same as PSYC 7221-8221). Computational aspects, algorithms, and techniques for human language processing including lexical analysis, syntactic parsing, semantics, word sense disambiguation, logic forms, dialogue, and pragmatics; applications include question answering and information extraction among others. PREREQUISITE: COMP 6040 or 6041 or permission of instructor.

Why this course?

Since the advent of the Internet we are faced with an Information Overload problem. Most of the electronic information is in textual form or text combined with other media (tables, sounds, images, videos, etc.). There is a growing need for language processing tools. The Natural Language Processing class offers an overview of the techniques and tools available for language processing.

The class introduces computational techniques for understanding, learning and generating Natural Language with an emphasis on algorithms and software tools. It will cover tokenization - the separation of words from other items in written text such as commas, lexical semantics - the study of individual words, syntax - how words group together in more complex language structures, semantics - what the meaning of a sentence is, and pragmatics - what the meaning of a sentence is given the surrounding discourse context. The course will introduce both relational and statistical approaches to NLP, expose students to state-of-the-art tools and technologies and their impact on a variety of applications. It will also provide insights to open problems in the field.

Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/nlp/**

Required Text

D. Jurafsky and J. Martin: *Speech and Language Processing, 2nd Edition, Prentice Hall*

Recommended Texts

C. Manning and H. Schutze: *Foundations of Statistical Natural Language Processing*

Other Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/nlp/**

Evaluation:

The University policy requires to email a grade to a student's U of M email address ***only***.

Final Grades:
Homework 30%, Project 35%, Midterm 15%, Final 15%, Class Participation 5%
PhD Students are required to make an extra paper presentation as part of the Homework grade. The presentation consists of power point slides presented in front of the class for 15 minutes and an accompanied report of 3-5 pages (single spaced).

Grading Scale:

Grade	***Letter Grade***
90-100+	***A***
80-89	***B***
70-79	***C***
60-69	***D***
0-59	***F***

2.5 above or below the cut-off will earn you a + or – in front of your grade.
For example: 89 has a letter equivalent of B+
Exception: A- is for 90-91, A for scores ranging from 92 to 97, anything above 98 leads to A+

Course Policies:

Attendance

Students are strongly encouraged to attend all lectures. **Active participation** to class discussions counts toward your final grade.

Late Policy

Students will have on average one-two weeks from the date the work is assigned**.** Late submissions are not accepted**.** In exceptional cases you may have a 48-hour grace period at the cost of 50% of the grade (Students **must** ask for it before the due date).

Testing Policy

Usually exams are closed books. There are no make-up exams. Any code developed as part of the class work must follow the **coding-style** guidelines described on the web site. The coding-style will be strictly enforced.

Plagiarism/Cheating Policy:

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Course Syllabus (tentative)

Week 1: Introduction, Words, Morphology, Stemming

Week 2: Stemming, Part-of-Speech Tagging

Week 3: Introduction to Perl

Week 4: Corpus-based Methods, Language Modeling, N-grams

Week 5: HMM tagging

Week 6: Syntax and Grammar, CFG and Parsing Algorithms

Week 7: Probabilistic CFG and parsing

Week 8: NO-CLASS – Spring Break!

Week 9: MIDTERM, Unification Grammar, Lexical Semantics

Week 10: Lexical Semantics, LSA

Week 11: Logic Form

Week 12: Discourse Processing

Week 13: Applications: Information Extraction, Question Answering, Summarization, Information Retrieval and Web Search

Week 14: Applications: Information Extraction, Question Answering, Summarization, Information Retrieval and Web Search

Week 15: Review, Discussions

Week 16: Final Exam

Advanced Statistics for Psychology I (7302/8302)

Valid from 8/29/18

	Professor	**Teaching Assistant**
	Dr. Philip I Pavlik Jr. (Phil)	Keith Shubeck
Office	434 Psychology	312 Psychology
Phone	901-678-2326 (chat client is much better)	
Office hours:	Thursday 11:15am – 12:15pm, and by appointment, email, and through chat clients	Tuesday 1-2pm – or email for appointment
E-mail:	ppavlik@memphis.edu	kshubeck@memphis.edu
Chat client:	imrryr@gmail.com (for chatting using google hangouts only, not for emails)	keithshubeck@gmail.com
Classroom:	Psychology Bldg 103	
Time:	Tuesday and Thursday August 28, 2018 – December 4, 2018 9:40m –11:05am	

Objectives of the Course

The overall goal is to build a firm conceptual understanding of basic statistics that will ground students' future research and evaluation of research by allowing students to understand why statistical procedures work. The first half of the course focuses on probability and reviews the content of undergraduate statistics. The second half will involve an introduction to regression, some other more advanced topics, and a statistical project. The statistical project will help students use their understanding of SPSS to create a near-publication quality analysis report on a dataset.

Typical Week

- Sunday work on new material for week (e.g. OLI)
- Monday by Noon, take online checkpoints for new material
- Tuesday in class, quiz on material from previous week, lecture for new material
- Thursday in class finish lecture, review OLI, and do Q&A

Required Texts and Materials

1. Open Learning Initiative (OLI) Probability and Statistics Course - The Probability and Statistics course is comparable to the full semester undergraduate course on Statistics taught at Carnegie Mellon University. Your access includes the complete online course including all expository text, simulations, case studies, comprehension tests, interactive learning exercises, and StatTutor. The course covers the topics of Exploratory Data Analysis, Producing Data, Probability, and Statistical Inference. The course

costs $25 payable upon registration online at the OLI site. You will get a code by email from the instructor with instructions for registering online on the first day of class or before.

2. SPSS Survival Manual: A step by step guide to data analysis using SPSS [Spiral-Bound]
Edition: 6th
Author: Pallant
ISBN: 978-0335261543
Copyright Year: 2016
Publisher: Open University Press

The SPSS software is available online from UofM here https://citrix.memphis.edu/Citrix/UOMWeb/. You may also be able to use it in a computer lab or obtain a copy from your advisor.

Grading

25 % – Awarded for Midterm
50 % – Awarded for final statistics project paper
25 % – Awarded for Quizzes

Grading of the final total will be based on fixed score cutoff table below:

Grade	Percent points
A+	95-100
A	90-95
A-	85-90
B+	80-85
B	75-80
B-	70-75
C+	65-70
C	60-65
C-	55-60
lower	Pattern continues

To encourage excellence, there will be a bonus system that adjusts the final grade based on the final paper. Final papers that include more complex analyses and are technically correct may earn up to 5 percent increase to the final grade.

For practice there will be 1 percent bonus each for completing the four labs that occur in Modules 15 (cell phones), 16 (analyzing course grades) and 17 (2, low birth weights and monthly auto premiums). These labs will be checked. Similarly, there will be a 2 percent bonus if you use the MoFaCTS practice software up to a score of 100 for 5 of the MoFaCTS units labeled for 7302. MoFaCTS is here https://mofacts.optimallearning.org

Late Work

Since tardiness is annoying:

- All late assignments (checkpoints after Monday at noon, and other deadlines) will result in a .25 percent penalty to your final grade. In other words, 10 late assignments mean a 2.5 percent grade penalty (see scale above) to your final grade.

- Missed Q&A days will not hurt your grade… directly.
- Quizzes may not be late, but if you have a valid excuse, you can schedule a future quiz to count double and replace the missing score.
- The midterm cannot be late, but extenuated circumstances may allow it to be rescheduled if necessary with written proof of need. Contact Phil.

Quizzing and Midterm

A 10-item quiz will begin Tuesday's class. These quizzes will serve as a review and grading mechanism for the material in OLI or Pallant. Two of the quizzes (the lowest scoring) will not count towards your grade.

The midterm exam will be cumulative from a biased subset of the most difficult quiz questions on prior quizzes. Only item types appearing on quizzes will be eligible for examination. The exam will be 3 times the length of the quizzes (30 items).

Bad questions: if you think a quiz or exam question is unfair or incorrect (e.g. the correct answer is not a listed option) please bring it up immediately when you notice the problem and we will clarify the question as a group or discard it as an error.

OLI assignments:

The OLI assignments up to and including the assigned checkpoint(s) need to be completed by noon the day before the class, e.g. by noon Monday. Do all the other exercises interspersed throughout the OLI sections as you see usefulness for your learning, such as the "Learning by Doing", "About", or "My Response" sections, and "Did I get this". **Please note any issues that you could not figure out and email me before class if you want them discussed**. Alternatively, bring them up during class, but this means my answer may not be as complete.

"Q&A" Days

We will complete a 10-item problem set as a group. The goal is to make sure each student is able to understand every problem, but occasionally we may need to move forward and take problems outside class or into office hours. Students will input problem solutions into their computer or smartphone where they are automatically tabulated and tracked, but remain anonymous to the other students. Based on incorrect answer frequencies more time may be taken to explain why wrong answers are incorrect before moving to a new problem.

Project

Students will produce a statistical analysis project. *Part of the point of this is that you spend some time independently learning/practicing **how to teach yourself a statistical method** (with my assistance when you are stuck, but don't wait until the last minute to ask for help, ask for help early).* You may use simulated data, and this will not hurt your grade, but the data must be simulated from distributions that make sense given the domain (e.g. you couldn't simulate duration with a normal distribution, since the normal distribution extends from –infinity to +infinity, while duration is always positive). ***Data from your research or your advisor (given their permission) is preferable***, but make DOUBLE SURE that you

remove any identifiers such as emails, names, other identifiers. I may mark you down if any identifiers are in your project materials.

There are 5 dates associated with the project:

- By Sept 20 you will have selected a data set and sent it to me in email labeled “Adv Stat Data”.
- By October 25 you will have title and bibliography in APA format and sent it to me in email as “Adv Stat References”.
- By November 8 you will have sent me your preliminary output in email as “Adv Stat Prelim Output”.
- By November 20 send me a draft.
- By December 4 you will have sent me the final paper in email as “Adv Stat Final Paper”, also turning in your final paper in class.

The paper needs to be in APA 6th edition. It should have 8 citations minimum, including 1-3 citations from independent references about the statistical method, and 5-7 introducing the domain or explaining the results. The paper should be in APA submission format with cover page.
Grades will be assigned according to the following rubric:

- 10% for having received a draft
- 5% for providing a bibliography with 8 APA references relevant to your data
- 10% for 1 or 2 main analyses agreed upon with Pavlik
- 5% Appropriate length (8-12 pages of double spaced text, not including abstract, title page, references or figures)
- 30% statistical appropriateness, e.g. applicable tests, effect sizes given, figures/tables are informative and labeled correctly (at least 1 figure or table)
- 20% APA 6th edition correctness, e.g. references in correct format, statistical copy in correct format, figures/tables in correct format
- 20% will be assigned based on clarity of written English, and appropriate introduction, methods and discussion (interpretation) of results.

Calendar

08/28/18 Tue
Module 9 – Finding Probability of Events, checkpoints 1 and 2
Checkpoints due Wednesday by noon

08/30/18 Thu
Q&A
SPSS Pallant 5th Ed. pp. 1-24 (Part 1. 6th Ed . Getting Started pp 1-24)

09/04/18 Tue
Quiz for prior week
Module 10 – Conditional Probability and Independence, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 25-52 (Part 2. 6th Ed. pp 25 – 50)

09/06/18 Thu
Q&A

09/11/18 Tue
Quiz for prior week
Module 11 – Random variables, checkpoints 3 and 4

09/13/18 Thu
Q&A

09/18/18 Tue
Quiz for prior week
Module 12 – Sampling Distributions, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 87-124 (Chapters 8, 9, 10. 6th Ed. pp 85 – 124)

09/20/18 Thu
Data identification for project due
Q&A

09/25/18 Tue
Quiz for prior week
Module 14 – Estimation, 1 checkpoint and Module 15, checkpoint 1
SPSS Pallant 5th Ed. pp. 125-153 (Part 4, Chapters 11, 12. 6th Ed. pp. 125 – 148)

09/27/18 Thu
Q&A

10/02/18 Tue
Quiz for prior week
Module 15 – Hypothesis Testing, checkpoints 2, 3, 4 and 5
SPSS Pallant pp. 154-187 (Chapters 13, 14. 6th Ed. pp. 149 - 181)

10/04/18 Thu
Q&A

10/09/18 Tue
Quiz for prior week
Data Screening Homework
SPSS Pallant 5th Ed. pp. 53 – 86 (Part 3, Chapters 6, 7. 6th Ed. pp. 54 - 84)

10/11/18 Thu
Data Screening Homework & Project work day

10/18/18 Thu
Data Screening Homework Due (counts as quiz)

10/23/18 Tue
Module 16 – Inference for Relationships, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 211-220 (Part 5, Chapter 15. 6th Ed. pp. 205 - 213) & 247-257 (Chapter 17. 6th Ed. pp. 244 – 254)

10/25/18 Thu
Q&A
Reference list due

10/30/18 Tue
Quiz for prior week
Module 16 – Inference for Relationships, checkpoints 3 and 4
SPSS Pallant 5th Ed. pp.258-283 (Chapters 18, 19. 6th Ed. pp 255 – 279)

11/01/18 Thu
Q&A

11/06/18 Tue
Quiz for prior week
Module 17 – Inference for Relationships, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 284-292 (Chapter 20. 6th Ed. pp. 280 – 288)

11/08/18 Thu
Quiz review and Exam practice review
Preliminary output due

11/13/18 Tue
Midterm

11/15/18 Thu
Review Midterm
Correlation and Regression Lecture
SPSS Pallant 5th Ed. pp. 307-328 (Chapter 22. 6th Ed. pp 303 – 325).

11/20/18 Tue
Q&A
Paper drafts due

11/27/18 Tue
Quiz on Module 17 – Inference for Relationships, checkpoints 1 and 2 and
Correlation and Regression lecture
General linear model lecture

11/29/18 Thu
G-Power workshop – read Cohen (1992) prior to class – (counts as a quiz)

12/04/18 Tue
GLM lab exercise (counts as quiz)
Final paper delivered in person and emailed

Academic Integrity and Responsibility

Students are expected to observe the regulations and policies that govern the behavior of students as members of the academic community. These regulations and policies are published on the website of the Office of Student Judicial and Ethical Affairs (see http://saweb.memphis.edu/judicialaffairs also see http://www.memphis.edu/studentconduct/pdfs/csrr.pdf). In this course, students are encouraged to complete their assignments without the assistance of other students---under the assumption that they will learn the course material better if they do not rely on others---but collaboration is not expressly forbidden. While taking quizzes and examinations, however, students may not seek assistance from nor give assistance to other students. Violators of this prohibition will fail the course and will be referred to the university's Academic Discipline Committee with a recommendation that they be terminated from the university. At the instructor's discretion, a student might be penalized points equal to 1 (or more) letter grades on the particular exam if the cheating appears unpremeditated. Repeat violation and premeditated cheating will always reported to the chair of the department or the University's Office of Student Conduct and the Academic Integrity Committee. Consistent with these regulations and policies, students are expected to behave in accordance with the American Psychological Association Code of Ethical Conduct, found here: http://www.apa.org/ethics/code/principles.pdf.

Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all.

Disability

If you have a disability that interferes with completion of any coursework, please let the instructor know privately at the beginning of the course, and s/he will determine how best to adapt course materials or instruction. Students with disabilities should contact Disability Resources for Students (DRS), 110 Wilder Tower, 678-2880. DRS offers a comprehensive program of services and academic accommodations designed to provide access and opportunity to students with disabilities. The instructor will work with you and DRS to determine how best to adapt course materials or instruction.

Email

Course announcements as well as consultation with the instructor may occur via e-mail. You are required to activate your university e-mail account in order to be a student at the University. The University considers this account to be your official university e-mail address and will use it to disseminate information. You must either check your university e-mail account regularly or forward your university e-mail to a personal e-mail account that you will check regularly. After you have established your university e-mail account, you can use iAM, the University's identity management service, to forward your university e-mail to a personal e-mail account.

Conduct

Students are expected to behave in accordance with the university's Code of Student Rights and Responsibilities, found here: http://www.memphis.edu/saos/pdfs/csrr.pdf. Disruptive behavior, use of an electronic or other noise- or light-emitting device that disturbs others, and excessive use of electronic devices for text messaging, telephone, or video-based conversations during instructional time in the classroom will not be tolerated. Students engaging in disruptive behaviors or general conduct that violates the rules and regulations of the university may be removed or excluded from the classroom. The instructor may report classroom misconduct to the Department Chair or the University's Office of Student Accountability, Outreach, and Support.

Diversity

The University of Memphis Department of Psychology seeks to understand and address issues of culture, disability, ethnicity, gender, generation, sexual orientation, national origin, privilege, race, and different views on religion in education, policy, research, practice, recruitment, and retention of diverse populations. In this, it strives to offer resources that promote goals of cultural humility, mutual respect, and social justice at the level of the department, university, and broader community.

The Department of Psychology endorses the American Psychological Association's policies and recommendations regarding these diversity issues, as evident in the following sources:

- *Office of Ethnic Minority Affairs at http://www.apa.org/pi/oema/*
- *Ethical Principles of Psychologists and Code of Conduct at http://www.apa.org/ethics/code/index.aspx*
- *Publication Manual of the American Psychological Association, Sixth Edition at http://www.apastyle.org/*

If you feel that you have experienced discrimination based on culture, disability, ethnicity, gender, generation, sexual orientation, national origin, privilege, race, and different views on religion, please contact the Office for Institutional Equity at the Administration Building, Room 156 (901-678-2713). To make a report, you may fill out an online form at http://www.memphis.edu/report.

Misconduct Reporting

All faculty, administrators, and most University staff are mandatory reporters. According to the University's Title IX policy and federal law, I must to report potential incidents of sexual misconduct (harassment, assault, dating violence, domestic violence, and stalking) to the Office for Institutional Equity. If you tell me about (or if I become aware of) sexual misconduct, I will reach out to Office for Institutional Equity for assistance. For more information, contact the Office for Institutional Equity located in the Administration Building, Room 156 (901-678-2713). To make a report of sexual misconduct, you may fill out an online form at http://www.memphis.edu/report. To read the University's

Sexual Misconduct policy, follow this link:
https://memphis.policytech.com/dotNet/documents/?docid=465&public=true.

Mental and Physical Health

As a student, you may experience a range of issues that can cause barriers to learning, such as physical health problems, strained relationships, increased anxiety, alcohol and drug problems, feeling down, difficulty concentrating, and lack of motivation. These mental and physical health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. The University of Memphis has a range of confidential mental and physical health services available on campus to assist you, including the Psychological Services Center in the Psychology Building, Room 126 (901-678-2147); The University Counseling Center at 214 Wilder Tower (901-678-2068); and The University Student Health Center at 200 Hudson Health Center (901-678-2287).

Fall 2018

INTRODUCTION TO GENOMICS AND BIOINFORMATICS **bjdaigle@memphis.edu**
BIOL 4490/6490 **Phone: 901-678-2727**
Dr. Bernie Daigle, Jr. **daiglelab.org**
402C J. M. Smith Hall
Office hours by appointment

Time/Location: Tuesday, Thursday 1:00pm-2:25pm / Life Sciences Building 333
Prerequisites: BIOL 3130 (Cell Biology) and BIOL 3072 (Genetics) or permission of the instructor.

Course description: This introductory course will present a survey of modern genomics and bioinformatics approaches used to gain a deeper understanding of biological systems. The course will begin with a short review of basic chemistry and molecular and evolutionary biology. We will then explore experimental and bioinformatics methods for predicting RNA folding, generating and analyzing genome-scale DNA sequence data, and performing genomics analyses of gene expression, DNA methylation, and chromatin immunoprecipitation data. The course will conclude by considering real-world applications of genomics and bioinformatics in areas such as medicine and agriculture. Students will refine their understanding and gain hands-on experience through the completion of homework assignments, in-class exams, and a research paper (BIOL 6490) focusing on applications of genomics/bioinformatics to biology, medicine, or agriculture.

Objectives:

- Reinforce existing understanding of basic chemistry and molecular and evolutionary biology
- Develop an understanding of modern experimental genomics and bioinformatics techniques
- Gain experience in the use of freely available genomics and bioinformatics web tools
- Research and report on applications of genomics/bioinformatics to biology, medicine, or agriculture (BIOL 6490)

Course structure: The course will consist of in-class lectures and discussion of homework assignments and exams. Lecture slides will be posted to eCourseware shortly before they are presented. **Check eCourseware often for possible updates to the class schedule.**

Freely available texts:

1. "Molecular Cell Biology, 4th edition," Lodish, Berk, Zipursky, Matsudaira, Baltimore, Darnell, New York: W. H. Freeman, 2000. Electronic copy can be searched and read for free at: https://www.ncbi.nlm.nih.gov/books/NBK21475/
2. "Biochemistry, 5th edition," Berg, Tymoczko, Stryer, 2002. Electronic copy can be searched and read for free at: https://www.ncbi.nlm.nih.gov/books/NBK21154/

Required text:

1. "Bioinformatics and Functional Genomics, 3rd edition," Pevsner, Wiley-Blackwell, 2015. Book can be purchased at the bookstore or online: https://www.amazon.com/Bioinformatics-Functional-Genomics-Jonathan-Pevsner/dp/1118581784

Assessment: Grading will be on a standard scale:

A+: 97-100%	**B+: 87-89%**	**C+: 77-79%**	**D+: 67-69%**
A : 93-96%	**B : 83-86%**	**C : 73-76%**	**D : 60-66%**
A- : 90-92%	**B- : 80-82%**	**C- : 70-72%**	**F : < 60%**

Student performance will be evaluated based on the following requirements:

Assessment	**Percent (4490/6490)**
Exams (3)	60% / 45%
Homework Assignments (5)	30%
Attendance	10%
Research paper	0% / 15%

Exams: Three in-class exams will be given during the course of the semester. Each exam will be non-cumulative and typically include a combination of multiple choice, matching/short answer, and multi-part essay questions. The exams are closed-book—students are not permitted to use any reference material or notes when composing their answers.

Homework Assignments: Five take-home assignments will be given throughout the course to reinforce understanding of genomics and bioinformatics concepts as well as provide practice in using freely available web tools. For each assignment, students will be required to upload to the eCourseware dropbox a modified Microsoft Word document of the assignment containing complete answers to questions, relevant analysis results, and any required images or screenshots.

Research Paper: For this assignment, students enrolled in BIOL 6490 will research and write a 12-15-page review paper on a topic of their choosing, focusing on an application of genomics/bioinformatics techniques to biology, medicine, or agriculture. Students will first submit an idea for the topic of the paper to the instructor. As part of this process, students will select at least three journal articles from the primary scientific literature that are closely related to their proposed idea. Upon receiving approval, students will carefully read these articles and write and submit an outline roughly one month before the paper due date. Students will then write a "review paper" that thoroughly describes, in their own words, the major contributions of the journal articles, including ample background information drawn from the articles and other relevant sources. The paper should consist of a short abstract (200-300 words) summarizing the content, followed by a background section (4-5 pages), main body (6-7 pages), conclusion section (1-2 pages), and a formatted list of references (1 page). Informative figures should be included if appropriate. Papers should reference a minimum of three external sources from the literature (e.g., three primary articles). Students are not permitted to use Wikipedia as a reference. All reference citations should be clearly marked in the text using a standard format (e.g., [Author, Year] or [1]). Papers should be formatted to use double spacing with a 12-point font. NOTE: any information included from external sources must be completely rewritten in the student's own words and be properly cited. To do otherwise would

constitute plagiarism and result in a failing grade. When grading each paper, I will be using University-provided software that automatically detects any instances of plagiarism.

Note on independent work: All assignments are to be completed individually by each student. Discussion of homework solutions with other students is not permitted; however, students are encouraged to ask/answer general questions about assignments (no assignment answers may be posted) using the eCourseware discussion forum.

Late policy: An assignment submitted after the due date/time will automatically receive a deduction of 10% for each period of 24 hours (whole or in part) it is late. For example: the maximum possible score on an assignment turned in 1 minute late is 90%; the maximum score for an assignment turned in 24 hours and 1 minute late is 80%. Assignments submitted more than 96 hours (4 days) late without prior approval will not be accepted. Unless otherwise noted, assignments must be uploaded to the eCourseware dropbox by the beginning of the class period on the due date.

Attendance policy: On-time attendance is required; only two unexcused absences are allowed for full attendance credit. In cases of more than four unexcused absences, student will forfeit all credit for attendance.

Academic Integrity: Students are expected to practice academic integrity at all times. Academic misconduct will result in a recommendation for a failing grade in the course, not just the assignment(s) in question. Expectations for academic integrity and student conduct are described in detail on the Student Accountability website (http://www.memphis.edu/saos/sa/index.php). In particular, when referring to ideas from published literature (journal articles, books, or the web) in writing, students must explain in their own words and be sure to cite all sources.

Disability Resources for Students (DRS): The University of Memphis makes reasonable accommodations for persons with documented disabilities. A student who requests disability-related accommodations for this course should provide the instructor with a memo from Disability Resources for Students (DRS) (http://www.memphis.edu/drs/). The memo verifies that the student is registered with DRS, is qualified under the law as a person with a disability, and that the listed accommodations are considered appropriate and reasonable considering the functional limitations of the disability.

Common Courtesies: Turn sounds on cell phones and other electronic devices off before coming to class. Texting or browsing the web is not permitted during the class session. Laptops or tablets can be used for notetaking or following along with demonstrations only; students violating this policy will be prohibited from continued use of these devices.

Spring 2019

DATA SCIENCE FOR BIOLOGISTS **bjdaigle@memphis.edu**
BIOL 7708/8708 **Phone: 901-678-2727**
Dr. Bernie Daigle, Jr. **daiglelab.org**
402C J. M. Smith Hall
Office hours by appointment

Time/Location: Tuesday, Thursday 11:20am-12:45pm / Ellington Hall 105
Prerequisites: One elementary statistics course or permission of the instructor. Any experience with computer programming is useful but not required.

Course description: This course will present a hands-on survey of statistical and computational analyses commonly applied to biological data. It will review concepts in probability and statistics to provide a foundation for understanding a wide range of data analysis methods. The course will also provide a thorough introduction to computer programming in the R language and software environment. Equipped with these skills, we will explore statistical and machine learning approaches for biological data analysis using real-world datasets from disciplines such as physiology and genomics. Methods to be discussed include linear and logistic regression, K-nearest neighbors, linear discriminant analysis, principal components analysis, and K-means and hierarchical clustering. In addition, we will cover techniques for statistical model selection and high-dimensional data analysis. Discussion of each analysis method will be accompanied by practical demonstrations using packages and code from the R software environment. Students will refine their understanding and gain hands-on experience through the completion of problem sets, presentation of a published journal article, and execution of a self-designed data analysis project.

Objectives:

- Reinforce existing understanding of probability and statistics concepts
- Develop a proficiency for computer programming and data analysis in R
- Gain a working understanding of statistical and machine learning approaches and their application to biological data
- Improve critical reading skills through presentation of a published journal article
- Design, execute, and present data analysis project utilizing techniques discussed in the course

Required texts:

1. "An Introduction to Statistical Learning: with Applications in R," James, Witten, Hastie, Tibshirani, Springer Texts in Statistics, 2013. Electronic copy can be downloaded for free at: http://www-bcf.usc.edu/~gareth/ISL/
2. "R Programming for Data Science," Peng, Leanpub, 2016. Electronic copy can be purchased for $0 and up at: https://leanpub.com/rprogramming
3. "A Modern Introduction to Probability and Statistics," Dekking, Kraaikamp, Lopuhaä, Meester, Springer Texts in Statistics, 2005. Electronic copy can be downloaded on campus at: http://www.springer.com/us/book/9781852338961

Course structure: The course will consist of in-class lectures and programming demonstrations, discussion of problem sets and student projects, and student journal club and project presentations. Lecture slides will be posted to eCourseware before they are presented. **Check eCourseware often for possible updates to the class schedule.**

Course schedule: Lectures will tentatively cover the following topics during the weeks shown:

Week 1	**Introduction to Data Science and R; probability refresher**
Week 2	**R data types; statistical hypothesis testing**
Week 3	**Overview of statistical learning; K-nearest neighbors**
Week 4	**R graphics; linear regression**
Week 5	**Linear regression; R control structures and functions**
Week 6	**Overview of classification and logistic regression; LDA**
Week 7	**LDA; Overview of unsupervised learning and PCA**
Week 8	***SPRING BREAK***
Week 9	**Clustering methods**
Week 10	***Journal club presentations***
Week 11	***Journal club presentations*****; resampling methods**
Week 12	**Resampling methods**
Week 13	**R data input/output and debugging; statistical model selection**
Week 14	***Final project presentations***
Week 15	***Final project presentations***

Assessment: Grading will be on a standard scale:

A+: 97-100%	**B+: 87-89%**	**C+: 77-79%**	**D+: 67-69%**
A : 93-96%	**B : 83-86%**	**C : 73-76%**	**D : 60-66%**
A- : 90-92%	**B- : 80-82%**	**C- : 70-72%**	**F : < 60%**

Student performance will be evaluated based on the following requirements:

Assignment	**Percent of Final Grade**
Problem Sets (4)	40%
Journal Club presentation	15%
Final Project abstract	5%
Final Project write-up	20%
Final Project presentation	10%
Attendance and participation in discussions	10%

As discussed below, students enrolled in BIOL 7708 will be required to apply only one type of analysis method to a biological dataset for their Final Project. Students enrolled in BIOL 8708 will be required to apply two or more analysis methods to one or more related datasets.

Problem Sets: Four take-home problem sets will be assigned throughout the course to reinforce understanding of data analysis methods as well as provide practice in writing and executing R code

on biological datasets. For each assignment, students will be required to upload to eCourseware both *documented* R source code as well as a write-up containing analysis results and answers to questions.

Journal Club presentation: For this assignment, students will form pairs and together select a published journal article describing the application of one or more previously discussed analysis techniques to biological data. Students will first submit the article for instructor approval. Upon receiving approval, students will read the article thoroughly along with any necessary background material needed for understanding. They will then create and give a joint PowerPoint presentation (20-25 minutes + 5-10 minutes for questions/discussion) that provides background on the research area, clearly describes the biological data and analysis technique(s) used, and critically assesses the research methodology and conclusions drawn by the authors. Each group of students is free to decide how best to divide the presentation between them, provided that they speak for roughly the same amount of time. More information about this assignment will be provided several weeks into the class.

Final Project: For the final assignment, students will design, execute, and present the results of a data analysis project applying techniques discussed in the class to biological data of their choosing. Students will first submit an abstract (~300-400 words) describing the background of the study, the hypothesis or hypotheses being tested, details of the biological data and proposed analysis techniques, and the anticipated nature of the results and conclusions. Upon receiving instructor approval, students will conduct their study, including obtaining the necessary data, writing and running R analysis code, and tabulating and plotting results. Students will be required to summarize their study in the form of a short paper (~2000-2500 words, including figures, tables, and references). The submission of all *documented* R source code will also be required. In addition, students will present their study to the class as a short PowerPoint presentation (10-15 minutes + 5 minutes for questions/discussion). For this project, **BIOL 7708 students may apply one or more types of analysis methods (regression, supervised classification, or unsupervised learning) to a biological dataset of their choice. BIOL 8708 students must apply at least two types of methods to one or more related datasets**. More information about this assignment will be provided approximately halfway through the class.

Note on independent work: Except for the journal club presentation, all assignments are to be completed individually by each student. This means that, while you may discuss assignments with other students, all work handed in must be entirely your own, including programming code. Students should document on each assignment the names of any other students with whom they had discussions.

Late policy: Late assignments will not be accepted without prior approval, with the exception of three late (calendar) days total per student across all written assignments. No more than two late days can be used for any one assignment. This means that students can hand in one problem set two days late and one problem set one day late, three problems sets one day late each, one problem set one day late and the project abstract two days late, etc. Unforeseen obligations and circumstances often arise as the semester goes on, so use these days wisely! Unless otherwise noted, assignments must be uploaded to eCourseware by the beginning of the class period on the due date.

Attendance policy: On-time attendance is required; only two unexcused absences are allowed for full attendance credit. In cases of more than four unexcused absences, student will forfeit all credit for attendance and discussion participation. In order to receive full participation credit, students should ask questions/make comments regularly during lecture demonstrations, discussions of problems sets, and student presentations.

Academic Integrity: Students are expected to practice academic integrity at all times. Academic misconduct will result in a recommendation for a failing grade in the course, not just the assignment(s) in question. Expectations for academic integrity and student conduct are described in detail on the Student Accountability website (http://www.memphis.edu/saos/sa/index.php). In particular, when referring to ideas from published literature (journal articles, books, or the web) in writing, students must explain in their own words and be sure to cite all sources.

Disability Resources for Students (DRS): The University of Memphis makes reasonable accommodations for persons with documented disabilities. A student who requests disability-related accommodations for this course should provide the instructor with a memo from Disability Resources for Students (DRS) (http://www.memphis.edu/drs/). The memo verifies that the student is registered with DRS, is qualified under the law as a person with a disability, and that the listed accommodations are considered appropriate and reasonable considering the functional limitations of the disability.

Common Courtesies: Turn sounds on cell phones and other electronic devices off before coming to class. Texting or browsing the web is not permitted during the class session. Laptops or tablets can be used for notetaking or following along with programming demonstrations only; students violating this policy will be prohibited from continued use of these devices.

Course Syllabus
ECON 7810/8810 – Econometrics I
Spring Semester, 2018
3.0 Credit Hours
(Last updated: 1/12/2018)

Instructor: Joonhyung Lee, PhD
Phone1: 901.678.1659
E-mail: jlee17@memphis.edu
Office: FCBE #411
Office Hours: Th12:30-2:30 and by appointment

Course Overview:

This course provides an overview of elementary econometric theory and methods with applications. The 'application' aspect implies becoming familiar with Stata.

Pre-Requisites/Co-Requisites:

Econ 7125/8125

Required Texts:

Jeffrey Wooldridge, Introductory Econometrics, 5/6th edition.

Recommended Texts (Not required):

Stock and Watson, Introduction to Econometrics, 3rd edition
Angrist and Pischke, Mostly Harmless Econometrics
Cameron and Trivedi, Microeconometrics Using Stata
Greene, Econometric Analysis, 6th edition
Wooldridge, Econometric Analysis of Cross Section and Panel Data, 2nd edition

Location of Course Materials:

All course materials (lectures, discussion topics, news, etc.) are located on the eCourseware website.

Stata:

Stata can be accessed https://citrix.memphis.edu/vpn/index.html
To load a dataset, click the followings: open→local disk(C: …)→users→your id→location of your dataset

Course Objectives:

By successfully completing this course, students will be able to:

1. Students will understand the importance of the assumptions underlying the Classical Linear Regression Model (CLRM)
2. Students will demonstrate an understanding of how OLS works
3. Students will conduct proper inference after using OLS to test single and multiple linear and non-linear hypotheses
4. Students will understand the consequences for OLS when assumptions of the CLRM are violated, including when the data are measured with error
5. Students will demonstrate knowledge of how panel and instrumental variables estimation works
6. Students will develop and prove competency in Stata in order to apply the techniques learned

Fogelman College: Learning Outcomes for Your Degree

The Fogelman College has established the following learning goals for all students successfully completing the degree:

MA

- Graduates will acquire a strong base in theoretical economic analysis.
- Graduates will acquire discipline specific knowledge.
- Graduates will acquire high-level empirical skills.
- Graduates will be able to communicate economic concepts effectively.

PhD

- Graduates will demonstrate a detailed knowledge of their areas of specialization.
- Graduates will master the analytical/methodological skills needed to evaluate and conduct research in their areas of specialization.
- Graduates will demonstrate their ability to design and conduct original research in their chosen fields of specialization.
- Graduates will be able to teach college-level courses in their areas of specialization.
- Graduates will be able to communicate the results of their research in a clear and effective manner.

Grading and Evaluation Criteria

- There will be two exams (one midterm and one final). The final will not be explicitly cumulative. – each worth 40 %

- Homework will be assigned four times, twice in the first half and twice in the second half. Assigned problems may be mostly empirical, but some are theoretical. The homeworks will be graded on a "check-/check/check+" basis, which roughly corresponds to 60/80/100 points. Homework may be done in groups, but each student must submit their own answers. – 20%

Final Course Grades

Final course grades are earned according to the following table:

Point Range	Assigned Grade
90-100 Points	A
80-90 Points	B
70-80 Points	C
Under 70 Points	D/F

Final Exam Schedule

The final exam for this class will be scheduled according to the Registrar's academic calendar website (opens in new window).

Course Policies

E-MAIL:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

You are expected to stay active and engaged throughout the academic term and keep up with the schedule of activities. Your full engagement in the class begins on the first day of the semester and should be maintained until the last assignment is submitted.

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window).

If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Extra Credit:

There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. Please do not wait until the last day to submit assignments or to take quizzes and exams. If an emergency should arise, it is the student's responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Course Outline

1st week: Introduction (ch. 1)

2nd week: Regression with single regressor (ch. 2)

3rd week: continue (ch. 2)

4th week: multiple regressors (ch. 3-5)

5th week: continue (ch. 3-5), HW#1

6th week: Nonlinear regression functions (ch.6-7), HW#2

7th week: further discussion (ch.8), cover HWs

8th week: spring break

9th week: Exam I

10th week: Limits of linear regression (ch.9)

11th week: Panel Data (ch.13-14), HW#3

12th week: Instrumental Variables (ch.15), HW#4

13th week: further discussion (ch.15)

14th week: Binary Dependent Variables (ch.16)

15th week: further discussion (ch.16)



Course Syllabus
ECON 7811/8811: Econometrics II
Fall Semester, 2018
3.0 Credit Hours

Instructor: **Dr. Andrew Hussey**
Phone: 901.678.1487
E-mail: ajhussey@memphis.edu
Office: FAB 423

Class meeting time: Th 5:30 – 8:30 p.m.
Office Hours: Tu 1:30 – 2:30, Th 4:05 – 5:00 p.m.

Course Overview:

This is an empirical class with concentration in applied microeconometrics. (We will not cover any Time Series topics, which are reserved for ECON 8812.) Its goal is to give you knowledge (in various econometrics methods and theory) and the tools (in particular, Stata) to solve real-life problems. Focus will be on techniques used within the economics discipline, but these approaches will also apply to other social sciences and business fields. Topics will include: panel data; instrumental variables and simultaneous equations models; estimation of treatment effects; binomial and multinomial choice models; censored data and sample selectivity; regression discontinuity design; quantile regression.

Pre-Requisites/Co-Requisites: ECON 7810/8810 or similar background with permission of instructor.

Recommended Text:

Besides the class notes (posted online), the recommended textbooks are Mostly Harmless Econometrics by Angrist and Pischke, and Microeconometrics Using Stata, by Cameron & Trivedi (applied micro problems solved in Stata step-by-step with detailed explanations). In addition, I find the following textbooks very useful for anyone doing empirical econometrics: Stock and Watson, Introduction to Econometrics (simple explanations, advanced undergraduate level); Berndt, The Practice of Econometrics: Classic and Contemporary (many real-life case studies); Wooldridge, Econometric Analysis of Cross Section and Panel Data (the best book on panel data analysis); Long and Freese, Regression Models for Categorical Dependent Variables Using Stata (very thorough and approachable for the topics described by the title).

Location of Course Materials:

All homework assignments (and other course documents) will be found on the eCourseware website once they are assigned.

Course Objectives:

By successfully completing this course, students will be able to:

1. Understand the theoretical underpinnings of several empirical microeconomic techniques
2. Distinguish between alternative techniques in terms of their pros and cons and appropriateness of use.
3. Critically read peer reviewed articles that employ a variety of econometric approaches.
4. Proficiently use Stata for data manipulation and analysis.

Fogelman College: Learning Outcomes for Your Degree

MA ECON	http://fcbeassessment.net/LearningOutcomes/MAEconDegreeLearningOutcomes.pdf
MSBA	http://fcbeassessment.net/LearningOutcomes/MSBADegreeLearningOutcomes.pdf
Ph.D.	http://fcbeassessment.net/LearningOutcomes/PhDDegreeLearningOutcomes.pdf

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Grading and Evaluation Criteria

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Summary of Graded Activities

	Percentage of grade
Midterm Exam 1	28
Midterm Exam 2	28
Short Paper	12
Homework Assignments	28
Participation	4
Total	**100**

Homework Assignments

There will be several (9 or 10) homework assignments, usually due weekly, which make up 28% of your grade. They will consist of several parts. Often, you will have to carefully read an assigned paper and then replicate its results in Stata. The homeworks will be graded on the "check-/check/check+" basis, which roughly correspond to 60/80/100 points. It's difficult to complete a homework assignment in one day, so I strongly recommend starting early. You may (and are encouraged to) work on these assignments in groups, but each student must write and turn in their own assignments.

Class Participation

As this is an advanced graduate class, its format would be the "professor/students conversation" rather than "lectures," which are more common in undergraduate studies. While formal attendance will not be taken, I expect all students to take active part in the in-class discussion. To further encourage student's participation, students or pairs of students will be assigned to give brief presentations of journal articles in order to initiate classroom discussion (4% of grade). Presentation assignments will be made in part based on student preferences and academic discipline.

Final Course Grade:

Final course grades are earned according to the following table. I reserve the right to lower, but not raise, these cutoffs).

Range	Assigned Grade
90-100	A
87-90	A-
85-87	B+
77-85	B
75-77	B-
73-75	C+
62-73	C
60-62	C-
55-60	D
<55	F

Course Policies:

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website.

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website. If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity.

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services:

Please access the FCBE Student Services page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Course Topics and Tentative Schedule:

1. Introduction; OLS review: The OLS estimator; Violations of the OLS assumptions; Testing single and multiple restrictions, etc. (8/30 – 9/6)

   HW#1: Getting started with Stata: simple OLS regressions. (Due 9/13)
   HW#2: Handling data in Stata, use of codebooks. (Due 9/20)

2. Panel Estimation: Fixed effects: demeaning, fixed effects dummies, first differencing; The between estimator; The pooled estimator; The random effects estimator; If time, introduction to systems of equations (9/6 – 9/13)

   HW#3: Estimating panel regressions in Stata: The Effect of Beer Tax on the Traffic Fatality Rate. (Due 9/27)

3. Qualitative and Limited dependent variables: MLE; LPM, Logit, Probit, Tobit, etc. (9/20 – 9/27)

   HW#4: Replicate Munnell, Alicia H. & Geoffrey M.B. Tootell & Lynn E. Browne & James McEneaney, 1996. "Mortgage Lending in Boston:

Interpreting HMDA Data," American Economic Review, vol. 86(1), pp. 25-53 (Due 10/4)

4. The evaluation problem:
    a. Randomized experiments (10/4)

        HW#5: Replicate Edward Miguel & Michael Kremer, 2004. "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities," Econometrica, 72(1): 159-217. (Due 10/18)

    Midterm I: (10/11)

    b. Controlling for confounding variables: Regression approach, Matching pairs, Propensity score, synthetic control (10/18)

        HW#6: Replicate Dehejia, Rajeev H. and Sadek Wahba (1999), "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs," Journal of the American Statistical Association, 94: 1053-1062. (Due 10/25)

    c. Difference-in-Differences (DID) (10/25)

        HW#7: Replicate Card, David & Kreger, Alan B, 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania," American Economic Review, 84(4): 772-93. (Due 11/2)
        HW#8: Gruber, J. & Hanratty, M., 1994. "The Labor Market Effects of Introducing National health Insurance: Evidence from Canada," JBES, 13(2): 163-173. (Due 11/8)

    d. Instrumental Variables (IV) and Systems of Equations (11/1)

        HW#9: Angrist, Joshua D. & Evans, William N., 1998. "Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size," American Economic Review 88(3): 450-77. (Due 11/15)

    e. Regression-discontinuity design (RDD) (11/8)

        HW#10: To Be Determined (Due 11/29)

    f. Introduction to machine learning techniques (11/15)

    Midterm II: (11/29)

    Short Paper (Due 12/13)

Course Syllabus
Economics 8812: Econometrics III
Spring 2018

Instructor:
David M. Kemme, Ph.D.
405 Fogelman College
Office hours: 1:30-3:00pm TR & by appointment
678-5408
dmkemme@memphis.edu
GA: Dariya Ainekova
117 Fogelman Executive Center
Office hours by appointment
dinekova@memphis.edu

5:30-8:30pm T
365 Fogelman

Course Overview:

This course provides an overview of time series econometrics theory and methods with applications. A firm understanding of basic econometrics, statistical inference, calculus and linear algebra is assumed.

Pre-Requisites/Co-Requisites:

Economics 7810/8810 or permission of instructor.

Required Texts, recommended and related materials:

There are several excellent textbooks that you may find useful depending on your background and preparation. The most comprehensive is Hamilton, James, *Time Series Analysis*, (Princeton, NJ: Princeton University Press, 1994) and is an excellent reference. We will use Asteriou, Dimitrous and Stephen G. Hall, *Applied Econometrics*, 2nd Ed. (New York: Palgrave McMillan, 2011), hereinafter A&H, and Enders, Walter, *Applied Econometric Time Series*, 4th Ed. (Hoboken, NJ: John Wiley & Sons, 2015), hereinafter E. Many of the topics we will discuss are also considered in more general econometrics texts such as Johnston, Jack and John Di Nardo, *Econometric Methods*, 4th Ed. (New York: McGraw Hill, 1997) hereinafter J& D, Greene, William H., *Econometric Analysis*, 6th Ed. (Upper Saddle River, NJ: Pearson/Prentice Hall, 2008), hereinafter G, and Brooks, Chris *Introductory Econometrics for Finance*, 3nd Ed. (Cambridge: Cambridge University Press), hereinafter B.

Most lecture topics follow Enders, while Johnston and DiNardo may serve as an alternative explanation for some topics. Asteriou and Hall has excellent EViews examples. Brooks is the most elementary of the three and focuses on finance topics. Readings from these three texts will be noted on the course outline below. There are many interesting applications and

all of the estimation and testing is done using EViews, which we will use in this class. There are numerous other text books and reference books that may also be of interest.

A useful basic text that covers solving difference equations is Chiang, Alpha and Kevin Wainwright, *Fundamental Methods of Mathematical Economics*, 4th Edition (New York: McGraw Hill, 2005).

We will use EViews for all exercises and applications. All data sets and programs mentioned in Enders are available in both Excel and EViews workfiles. Eviews is available on the TigerLan network. The student edition may be purchased directly from Quantitative Micro Software. This is recommended.

Location of Course Materials:

This is a face to face in classroom course. eCourseware will be used minimally. It may be used for distribution of data sets and problem sets. eCourseware website (opens in new window).

Course Objectives:

- Identify, estimate and test basic time series models mainly for forecasting purposes.
- Model volatility
- Identify, estimate and test models with trend
- Identify, estimate and model multi –equation time series
- Identify, estimate and model cointegrated and error correction models

Fogelman College: Learning Outcomes for Your Degree

This course is one of many courses designed to assist you in meeting the learning goals of the Ph.D. program. They may be found here:
http://www.fcbeassessment.net/LearningOutcomes/PhDDegreeLearningOutcomes.pdf

Examinations, Evaluation and Grading

There will be four graded problem sets, or take home exams, and a research paper. Each component is of equal weight (20%). Late assignments will not be accepted. Guidelines for the research paper will be provided in class. Final project/paper must demonstrate knowledge of the econometric methods discussed in this class and a project or paper from another class or anything co-authored may not be used for this class. Guidelines for the research paper will be provided in class. See also Chapter 13 of Brooks to start with. The plus and minus grading system will be used.

Course Outline and Topics:

I. Introduction to Difference Equations
   E: Chapter 1
   Chiang and Wainwright: Chapters 17 and 18.
II. Stationary Time Series Models: Identification, Estimation and Testing
   E: Chapter 2
   A&H: Chapter 13
   J&D: Chapter 7
   B: Chapter 6.

Problem Set 1

III. Modeling Volatility: ARCH, GARCH, EGARCH and others
E: Chapter 3
A&H: 14
B: Chapter 9

Problem Set 2

IV. Models with Trend; unit root tests, etc.
E: Chapter 4
A&H: Chapter 16
J&D: Chapter 7.3
B: Chapter 8.1-8.3

V. Multi-equation Time Series Models: VAR, SVAR, Impulse Response Functions
E: Chapter 5
A&H: Chapter 15
J&D: Chapter 9.1-9.2
B: Chapters 7.11-7.17

Problem Set 3

VI. Cointegration and Error Correction Models
E: Chapter 6
A&H: Chapter 17, 18
J&D: Chapter 9.3-9.6
B: Chapter 8.4-8.13

Problem Set 4 due April 27

*** **Project due Thursday May 3** **

Final Exam

The final exam for this class is the project paper due as noted above.

Course Policies

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

Attendance is essential and expected.

Academic Integrity:

Academic dishonesty of any sort will not be tolerated. The minimum punishment for academic dishonesty will be an F in the course. The University provides a software package, TurnItIn, which you may use to assess the originality of your work for the project paper. A high "similarity score" is considered plagiarism and will result in an F for the course. Further action

may be taken. Refer to the University of Memphis Code of Student Conduct at http://www.memphis.edu/studentconduct/code.phphttp://www.memphis.edu/fcbe/integrity/ .

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Student Services:

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- Technical Assistance

THE UNIVERSITY OF MEMPHIS



ONLINE GI-YES!

ESCI 4515-6515

Geographic Info Science - 83777 - ESCI 4515 - 410
Geographic Info Science - 83811 - ESCI 6515 - 410

Geographic Information Systems (GIS)

Fall 2018- Aug 27 – Dec 14

Class Schedule: Available 24 hrs/day

Class Location: **Online**

Professor	Esra Ozdenerol, PhD, MLA
Title	Professor of Geography and Director of Graduate Certificate in GIS
Email Address	eozdenrl@memphis.edu
Phone	901.678.2787
Office Location	Johnson Hall, 236
Office Hours	Appointment through email

Course Description

This is a required course for GIS Certificate students and Geography majors. It is the entry point to Graduate Certificate in GIS. The overall goal of this course is to provide students with the theoretical and practical knowledge necessary to understand the fundamental GIS concepts, capabilities, and applications, with emphasis on the nature of geographic data and on the issues of data input, data models, database design, spatial analysis, and data output.

Course Prerequisites

Students outside of the Earth Sciences and GIS certificate are welcome to take this course but must first obtain permission from the instructor of this course. Students from School of Public Health, Social Sciences, Biology, Anthropology, College of Engineering, College of Business, UT Health Science Center, and professionals in all sorts of disciplines are welcome to take this course to learn Arc GIS 10.6 GIS software applications and theoretical and practical knowledge of GIS.

The instructor of this course assumes that the student is comfortable using Windows™ to carry out basic tasks such as copying files, moving directories, opening documents, exploring folders, and editing text and word processing documents. Previous experience with maps and map data is also helpful. No previous GIS experience or training is necessary to take this course.

Be familiar with **ecourseware.** Ecourseware is the University of Memphis's online course management system. This web-based platform provides students the link to register to "Connect" an interactive tool built for the course. Registered students will also have digital access to eBook.

Login to eCourseware at http://elearn.memphis.edu or through the Spectrum portal using your UUID and password.

Student Learning Expectations/Outcomes for this Course

Upon completion of this course, students will be able to:

- Understand how real-world features are represented by GIS data
- Knowing the differences between the raster and vector data models
- Getting familiar with the basic elements of data quality and metadata
- Learning the different types of GIS files used by Arc GIS 10
- Using Arc Catalog and Arc Map to view GIS data
- Learning about layers and their properties
- Distinguish between nominal, categorical, ordinal and ratio/interval data
- Creating maps from attributes using different map types
- Selecting appropriate classification methods when displaying numeric attributes
- Displaying thematic and image rasters
- Understanding how map documents save and represent data
- Distinguishing between a feature class and a layer
- Learning basic elements of creating good maps
- Creating text and labels on maps
- Creating map layouts and printed maps
- Understanding how tabular data are stored and used
- Using queries to select records of interest
- Understanding joins
- Summarizing tables to get statistics on groups
- Defining appropriate field properties
- Editing and calculating fields in tables
- Generating point layers from x-y coordinates in tables
- Understanding queries and how they are used
- Selecting features based on their spatial location with respect to other features
- Selecting features based on attributes using SQL and Boolean operators
- Applying selection options, including the selectable layers and the selection method
- Learning the purpose and capabilities of spatial joins
- Correctly setting up spatial joins based on cardinality and feature type
- Learning to solve problems with spatial joins

Course Structure Approach

This is an online lab course. There will be a moderate amount of reading assigned every week from Mastering concepts section of each chapter and a lab assignment from Mastering skills section of each chapter. There will be a required final project. Final exam will be based off of chapter review questions and lab exercises.

GIS Software

Every assignment we have in this class requires you to use ESRI Arc GIS software. The instructor will contact students via email to send the Arc GIS 10.6. Desktop Software to install on their personal computers. This course will make use of PCs and may require extensive computer time. The hands-on work will need to be performed at home or TAF laboratories on campus including the GIS teaching lab (Johnson Hall TAF 219), or any other computer with an Arc GIS 10.x install. Tutorial data and exercises are compatible with both versions 10.3.1. and 10.6. student trial. University of Memphis has the Arc GIS 10.3.1 software available under UM software. TAF Lab located in Room 219- Johnson Hall has Arc GIS 10.3.1 locally installed on each computer. TAF 219 Lab in Johnson Hall has 22 computers and will be monitored during Fall semester.

Required materials
Internet access, access to a windows computer with Arc GIS, or with installation capabilities.

CPU Speed 1.6 GHz recommended or higher
Processor Intel Core Duo, Pentium 4 or Xeon Processors
Memory/RAM 1 GB minimum, 2 GB recommended or higher
Display Properties 24 bit color depth
Screen Resolution 1024 x 768 recommended or higher at Normal size (96dpi)

Required Text/Tutorial
We will use 8th Edition of Mastering Arc GIS tutorial for the course. Mastering Arc GIS (8th Edition) comes with the concepts and skills, with each step demonstrated in a video clip; a set of exercises per chapter, map documents, and tutorial data for practicing skills independently. Homework exercises and review questions follow the chapters in eBook and along with Tutorial data, accessed in "Connect", an interactive tool built for the course to the registered students.
Intro GIS course's Ecourseware web-based platform provides students the link to register to "Connect" an interactive tool/course management system built for the course. Registered students will also have digital access to eBook. **Connect Online Access for Mastering ArcGIS 8th (ed) ISBN10: 1260136442 | ISBN13: 9781260136449**
If Students purchase instant Connect through Ecourseware, during registration to Connect, They will have the option to purchase a loose-leaf version of the book for $25 from McGraw Hill. Students can purchase the eBook that comes with "Connect" for $85 for 6 months. Students can also start two weeks of courtesy access to Connect.
Below is a video of how a student can register to Connect, after they click the link on Ecourseware
https://www.youtube.com/watch?v=BJjYzOsSuYI
Tutorial data comes with Connect, also located in C: drive as Mastering ArcGIS data – "mgisdata" on TAF Lab computers.

Course Outline (The instructor reserves the right to alter this schedule at any time)
Every chapter has two sections, one (Mastering GIS concepts) covering general GIS concepts and theory, and another (Mastering GIS skills) covering the specific implementation of those concepts within ArcGIS Desktop. A set of review questions (10 questions) follow the concepts section. A set of exercises follow the skills section. Students are responsible of these sets every week per chapter. Schedule of assignments are provided on ecourseware.

Assessment of Student Learning Outcomes
Methods of Assessment

The student success will be assessed through their performance:
1. Performance on review questions
2. Performance on lab exercises
3. Execution of final exam – This will be based off of course readings and exercises
4. Execution of final project

1. A set of review questions (10 questions) follow the concepts section of each chapter.

2. A set of exercise questions (10 questions) follow the skills section. Students are only responsible of the 10 questions. They are not responsible of challenge problem. As part of some exercise questions, students need to capture a map or screen shot, you can do so by pressing the Alt-Prnt Screen keys on your computer, or using a program such as Jing, Snag it or Snipping tool. Then paste the capture in a word document. After you learn how to create map layouts, you can export your layout maps as jpgs in ArcMap and insert into a Word document.

3. Final exam will be based off of chapter review questions and lab exercises.

4. Execution of final project. Project syllabus is provided on ecourseware. Instructor provides final project ideas and data and instructions on ecourseware especially for undergraduates who have difficulty choosing a project. They are welcome to use those projects. Though instructor highly encourages students to do a project of their passion, collect their own project data or inquire about data on the internet or through connections and touch base with the instructor how to obtain data for their projects and how to execute their projects. They have to submit a proposal for their project idea. See schedule of assignments. Graduate students are encouraged to do a final project related to their Master's Thesis projects.

Grading System

Assignment	**#**	**Pts. Each**	**Total Points**
Review Questions	70 (10 per chapter)	40	2800
Lab Exercises	70 (10 per chapter)	60	4200
Exam	1	2000	2000
Final Project	1	1000	1000
Total Points			**10000**

Timing of Assessment

-Exercise due dates and all will be listed on the ecourseware class calendar and course schedule.
Let me know if you have any excuses for your assignments, I can work with you on that. Computers crash, systems go down, networks become disconnected, files get lost, printers often don't work, but these challenges are all part of the real-world experience of working with computers. Allow yourself enough time to complete assignments by their due date.
Email me if you think there is a problem beyond your control, and I will try to help come up with a solution. Also use the college systems administrative staff and the university IT help desk.

Technical Support

For technical support you may call ITD at 901.678.8888 or access their web site: https://umhelpdesk.memphis.edu. Please *do not* contact ITD help desk for questions related to course material. You are always welcome to e-mail me. We can set up face-to-face meeting in the lab.

Grading:

Grades will be based on the following scheme:
A: 90-100

B: 80-89

C: 70-79

D: 60-69

F: 59 and below

Course Policies

You are free to discuss and interact with other students on how to approach to the software problems and also help each other with tips if you run into a software *"how to"* problem. So I encourage a certain amount of collaboration among students. However, all students are required to perform their own work on homework exercises and submit their own work. Plagiarism will result in a failing grade.

This section is for students who do not have access to a personal computer and prefer to use the on campus lab resources. Arc GIS 10.3.1 software and Mastering Arc GIS exercise data are installed on computers of TAF Lab 219 Johnson Hall under C:drive "mgisdata". This lab is not monitored during summer. But you can

access through a punch code. I will send an email to you with the punch code to access the lab. Do NOT distribute the punch code!
You can log in through your UoM account to those computers in the TAF lab. Under H: drive, there is a folder named Online_Intro_GIS. You can create your own folder under the class folder. You can work and save your exercises to that folder. You won't be graded from this folder. This is a working folder for you to do your exercises and assignments in the lab environment if personal computer is not your preference. In any case, you are welcome to use lab resources and your folder.

THE UNIVERSITY OF MEMPHIS School of Public Health	**PUBH 7153/8153** **Biostatistics in Bioinformatics** **The University of Memphis** **Spring 2018** **Class Schedule: T 2-5pm** **Class Location: Robison Hall 217**

Hongmei Zhang, Ph.D.
Professor
hzhang6@memphis.edu
901-678-4707
224 Robison Hall
Office hours: by appointment

Course Description
This course focuses on statistical methods in application to bioinformatics data and other large data sets with similar features. Students will be introduced to R programming, a commonly used programming language implemented in bioinformatics data analyses. This will be an applied course with focus on learning the methods, applying the methods, and programming in R.

Course Prerequisites
PUBH 7150 (Biostatistical Methods I)

Learning Objectives
Student are expected to
(1) understand of a range of topics in bioinformatics and statistical methods used in this area.
(2) understand the computing algorithms of biostatistical methods.
(3) apply selected biostatistical methods to analyze bioinformatics data.
(4) be able to use R packages to perform quality control analyses of large data sets and analyze bioinformatics data.
(5) have the ability to interpret numerical results produced from the computing algorithms.

Competencies
Students with successful completion of this course will gain knowledge and skills of analyzing bioinformatics data and other large data sets using statistical package R. Competencies relevant to this course are being able: to demonstrate an understanding of a range of topics in statistical methods applied to bioinformatics research, to demonstrate a solid understanding of the computing algorithms of biostatistical methods, to demonstrate an understanding of the application of selected biostatistical methods in bioinformatics focused areas, to be able to use R packages to perform quality control analyses of large data sets and analyze bioinformatics data, and to have the ability to interpret numerical results produced from the computing algorithms.

Textbooks: given the rapid progress in this field, no specific textbooks are required. Following is a list of recommended books:

1) Bioinformatics and Computational Biology Solutions Using R and Bioconductor, R. Gentleman, V.J. Carey, W. Huber, R.A. Irizarry, S. Dudoit, 2005.
   This book covers many commonly used R packages for large data.

2) Statistical Computing with R, Maria Rizzo, Chapman & Hall/CRC Press, 2008.

3) RNA-seq Data Analyses, a Practical Approach. Eija Korpelainen, Jarno Tuimala, Panu Somervuo, Mikael Huss, Garry Wong. Chapman & Hall/CRC Press, 2014.

4) Bayesian Data Analysis, by A. Gelman, J. Carlin, H. Stern, DB Dunson, A Vehtari, and D. Rubin, CRC Press, 2013.
This book is for understanding Bayesian method and constructing Bayesian models.

5) Bayesian inference for gene expression and proteomics, edited by K. Do, P. Muller, and M. Vannucci, Cambridge Press, 2012

Course Requirements and Grading Criteria

Mid-term exam	20%
Final exam	25%
Project	15%
Homework	40%

Homework: In total six assignments. Each assignment is generally due in one week after assigned. All the homework will be graded and returned. Assignments turned in after 5pm on the due date but before the return date will have the grade reduced by 50%. No assignment will be accepted after the return date, unless arrangements have been made with the instructor prior to the due date. It is encouraged to work on homework together, but copying homework of another will not be tolerated. Students who copy others homework and students providing the copy will both receive zero points if identified.

Project: There will be one project besides homework assignments. At the end of the semester, each student is required to give a presentation (around 30 minutes).

Exam: There will be one midterm and one final exam, which are based entirely on each student's own work.

Software requirement: R statistical computing package. It is free and can be downloaded from www.r-project.org

Description of Requirements and their Evaluation

Class participation: Attendance and participation are critical parts of the learning process in this course. All students are expected to come to class and share their insights on the readings and projects on which they are working. Students are encouraged to discuss the relevant issues they find challenging or interesting while reading or exploring materials for this course.

Grading Scale
The letter grades for each requirement are assigned using the following grading scale:

Percentage Grade	*Letter Grade*	*GPA*	*Percentage Grade*	*Letter Grade*	*GPA*
≥96%	A+	4.00	76%	C+	2.33
93%	A	4.00	73%	C	2.00
90%	A–	3.84	70%	C–	1.67
86%	B+	3.33	66%	D+	1.33
83%	B	3.00	60%	D	1.00
80%	B–	2.67	<60%	F	0.00

Promoting a Positive Learning Environment
The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Course Requirements and Personal Conduct

Class readings and homework assignments are important components of the course. Biostatistics is *very* difficult and you may quickly run behind if you don't keep up with readings and homework. In the event of an unavoidable absence (ie. can't access course material for an extended period of time, illness or an extended period of time, etc), please notify the instructor beforehand if at all possible.

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Personal Conduct
As a community of scholars, it is expected that the instructor and students will work together at all times to create an atmosphere that fosters shared discovery and mutual respect. The instructor will be prepared for each class meeting, and likewise, students are expected to arrive prepared to ask questions, discuss, and learn. Students are expected to handle feedback from the instructor in a constructive manner. Students are expected to complete all assigned readings and writing assignments, and to participate in class discussions.

Class attendance is an important component of the course. In the event of an unavoidable absence, please notify the instructor beforehand if at all possible. Certain behaviors are disruptive and disrespectful to the instructor and other students and are not acceptable. These include tardiness, use of cell phones or PDAs, or engaging in side conversations while others are talking. If arriving late is unavoidable, notify the instructor in advance, if possible. Set your cell phone to silent if it must be available for an emergency. In addition, the students will not be allowed to use any electronic devices during the exam. Use of such devices during exam may result in a failing grade. Students who engage in these behaviors may be asked to leave and not allowed to return until a meeting with the instructor has occurred during which a plan to avoid future classroom disruptions has been worked out.

Make-Up and Absentee Policy
Students missing class are responsible for the content presented and are not excused from assignment due dates. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards
Effective managers, leaders, and teachers are also effective communicators. Written communication is an important element of the communication process. The School of Public Health graduate program recognizes and expects exemplary writing to be the norm for course work.

Academic Conduct

All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy (see http://www.memphis.edu/history/misconduct_policy.htm). Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions, such as reduction or zero grade in that assignment, suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Please refer to the link below for more information on what constitutes plagiarism:
http://isites.harvard.edu/icb/icb.do?keyword=k70847&pageid=icb.page342054

Cheating is also not acceptable at the University of Memphis. Cheating includes but is not limited to the following: using any unauthorized assistance in taking quizzes or tests; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

"Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

Awarding an Incomplete Grade
A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy
In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

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Special Needs
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http://hss.memphis.edu//SyllabusGuidelines.html - Top%20of%20Page

Schedule (tentative):

Abbreviations for textbook titles:
BCBS: Bioinformatics and Computational Biology Solutions Using R and Bioconductor
BDA: Bayesian Data Analysis

Week	**Topic**	
1	Introduction to high throughput data, R, and Bioconductor	Handout
2, 3 (Homework 1)	Quality checks, Distances	Handout and BCBS Ch.2, 3, 12
4 (Homework 2)	Clustering (parametric and non-parametric)	BCBS Ch. 13
5 (Homework 3)	Multiple testing, Filtering	BCBS Ch. 14, 15
6	Regression trees, (recursive) Random forests	Handout, BCBS Ch. 16
7 (Homework 4)	Regression trees, (recursive) Random forests (cont'd)	Handout, RNA-seq Data Analyses (Ch. 8)
8	**Spring break, NO CLASS**	
9 **midterm (take-home) Project distributed**	Parametric variable selections (frequentist approach)	Handout
10	Introduction to Bayesian data analysis	Handout, BDA Ch. 2
11	Guest Lecture (Dr. Bernie Daigle Jr, Dr. Yu [Joyce] Jiang)	
12	Bayesian parametric variable selection	Handout

13	Gene set testing, Differential gene expression analysis	Handout, RNA-seq Data Analyses (Ch. 8)
14	Gene enrichment analyses, Pathway analyses	Handout
15	Project presentations	
(Final take-home exam distributed)		
16	**Final exam due by May 2nd, 5pm**	

THE UNIVERSITY OF MEMPHIS School of Public Health	**PUBH 7104/8104** **Large Data Sets and** **Health Services Research** **The University of Memphis** **Fall 2017** Class Schedule: M, 5:30-8:30 Class Location: **Smith Hall 110**

Professor	Mr. George E Relyea, MA, MS
Title	Assoc. Research Professor
Email Address	GRelyea@memphis.edu
Phone	901.678.1716
Office Location	Robison Hall, 226
Office Hours	M-W(8:30am-3:00pm cst);

Course Description

Health quality and outcomes issues addressed through primary and secondary data analysis using large, public data sets will be examined. Issues related to secondary analysis and drawing items from multiple data sets will be discussed. Analytical techniques such as adjustments for missing data, transformations of data, and risk adjustment will be applied using public data sets. Course is designed mainly for students admitted to the Health Services Research PhD Program however students from other academic areas are welcome provided they obtain permission from the instructor.

Course Prerequisites

PUBH 7150/8150(Biostatistics Methods I, PUBH 7152/8152 (Biostatistics Methods II), and PUBH 7190/8190(Advanced SAS I). Students are strongly encouraged to have taken PUBH 7191/8191 (Advanced SAS II).

Required Text(s)/Readings

None. Lecture materials will be taken from the references below as well as other papers.

Other References used in this Course

The following texts are not required for this course. This is not a complete list that will be used in this course.

Jason Burke. (2013). Health Analytics: Gaining the Insights to Transform Health Care. Wiley, NY.

Kattamuri S. Sarma. 2013. Predictive Modeling with SAS Enterprise Miner: Practical Solutions for Business Applications, second edition, NC: SAS Institute Inc. ISBN: 978-1-60764-767-6

Paul D. Allison. 2002. Missing Data. Sage publications, Inc. Thousand Oaks, CA.

Paul S. Levey and Stanley Lemeshow. (1999). Sampling of Populations: Methods and Applications, 3rd Ed. Wiley< NY.

Robert Nisbet, John Elder, and Gary Miner. 2009. Handbook of Statistical Analysis & Data Mining Applications. Academic Press, Burlington, MA.

Online Resource

Most of the course reading material and SPSS and SAS programs will be posted on this course's web site.

http://umdrive.memphis.edu/grelyea/public

Then look for PUBH_7104_Large_Data_Sets

Please note that all programs were developed by the course instructor. If you use the programs, please acknowledge me in your work.

Course Goals

The objects of this course are four fold: (1) gain knowledge of more advanced analytical techniques in analyzing large data sets, (2) gain skills on how to reach decisions about factors that affect public health and decision making through advanced modeling techniques, (3) gain exposure to the most commonly used software in public health data research, and (4) gain skills in predictive modeling techniques.

Students successfully completing this course should be able to:

1. Evaluate appropriateness of a public data set to conduct an analytic approach for a specified question.
2. Discuss issues related to drawing items from multiple data sets, sensitivity of variables collected for different purposes than the current research, methods to transform data.
3. Assess threats to validity of analysis posed by missing data, model mis-specification, for various statistical models including correlated data structures.
4. Debate the issues related to the use of risk adjustment for public data sets.
5. Conduct complex data analysis using a public data set including the capability to specify estimation model, test model specification and assumptions, describe data integrity, and account for data structure.
6. Program analysis procedures in SAS and SAS Enterprise Miner
7. Report results of data analysis in published professional articles and executive summaries in technical reports.
8. Gain insights to performing predictive modeling and validation of the statistical models.

MPH Competencies

This course was designed to cover the specific CEPH MPH competencies as listed below.

D2. MPH Foundational Competencies (SPH and PHP)
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3 Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate

4. Interpret results of data analysis for public health research, policy or practice

Course Requirements and Grading Criteria

Lectures will be composed of three parts: introduction and motivation of the topic/model with some mathematics; presentation of an example data set and SAS or SAS/EM methods used analyzing the example data, and interpreting and writing results of analyses. All information (data sets, lecture notes, programs, and output) will be posted on this courses web access. Again, the emphasis is not on the mathematics but on understanding the statistical/analytical models and interpreting results.

Class Attendance and Online Participation

All students are expected to read the course material as assigned and work all homework assignments within the dates and times assigned. You may certainly e-mail me during office hours or post questions on the Discussion Board. If you want to call, it is better to set up an appointment so that I can be certain to schedule you the time you prefer.

All students are required to perform their own work on homework assignments and on examinations and submit their own work. You are, however, free to discuss and interact with other students on how to approach the problem.

Grading Scale

The letter grades for each requirement are assigned using the following grading scale. Your final grade is the percent grade across course assignments.

The letter grades for each requirement are assigned using the following grading scale:

Percentage Grade	*Letter Grade*	*GPA*	*Percentage Grade*	*Letter Grade*	*GPA*
≥96%	A+	4.00	76-79%	C+	2.33
93-95%	A	4.00	73-75%	C	2.00
90-92%	A–	3.84	70-72%	C–	1.67
86-89%	B+	3.33	66-69%	D+	1.33
83-85%	B	3.00	60-65%	D	1.00
80-82%	B–	2.67	<60%	F	0.00

Promoting a Positive Learning Environment

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provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Academic Conduct

Cheating is not unacceptable at the University of Memphis. Cheating includes but is not limited to the following: using any unauthorized assistance in taking quizzes or tests; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of the proctor concerning test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to extraordinary events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy

You may withdraw from this class as stipulated in the University of Memphis procedures and timelines.

Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs

Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

Inclement Weather Policy

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Advanced Students

All 7000/8000 level students are required to submit a final paper using methods learned in this course. Students enrolled at the 8000 are required to provide a more rigorous analysis of their data. Students are advised to consult with the instructor before they analyze their data set. Student's research hypothesis must be clearly stated and analyses must appropriately address their hypothesis. Furthermore, students are required to present appropriate statistical tables (not computer output) and discuss their findings.

Schedule of Topics and Readings

The following is an overview of the course material broken down into lecture modules. Lecture topics can extend across multiple class meetings. The following is a rough outline of course topics:

Course Outline

Sessions	**Topic/Reading Assignments**
Aug 28	Introduction • Housekeeping; ground rules, review of syllabus • Schedule for student papers • Overview of (Health) Analytics competencies • Examples of Public Data Sets and access
Sep 4	Labor Day-No class
Sep 11	Overview of Logistic Regression, Discriminant, and OLS Regression
Sep 18	Principal topic: Introduction to data analysis and problems of missing data Approaches—overview of : • Accessing MAR and MCAR missingness • Substitution, Single imputation Methods • Regression Methods • Markov-Chain (MCMC)
Sep 25 Oct 1, 8	Topic: Continue missing data: Nonignorable missing-data • Discuss issues of drawing data from multiple sources. • Continue discussion on data inspection, cleaning, and assessing missingness • Handout demonstrates some useful methods using procedures available in Stata and SAS/Stat: Assessing impact on model estimates: • Sensitivity assessment: MI analyze • Recommended solutions

Oct 15	Fall break-No class
Oct 22, 29	Propensity matching for clinical trials and observational studies: • General overview of data structures for analyses • 1:1 propensity matching • 1:N matching • Optimal Matching
Oct 29 Nov 5, 12	Cross-validation methods for Large Data • Bootstrap Cross Validation • K-Fold Cross Validation • Random Subsampling Cross Validation
Nov 19	Building Decision Tree Models to Predict Response and Risk outcomes
Nov 26	No class: Thanksgiving break
Nov27 Dec 3	High Performance Forest Analysis Last Day of class
Dec 11	Student Paper due for all students

THE UNIVERSITY OF MEMPHIS
School of Public Health

PUBH 7205/8205-001
Special Topics: Data Mining Techniques for Healthcare Analytics
The University of Memphis
Fall 2018
Class Schedule: M, Time: 5:30pm-8:30pm
Class Location: Smith Chemistry, 110

Professor	George E. Relyea, MA, MS
Title	Assoc. Research Professor
Email Address	GRelyea@memphis.edu
Phone	901.678.1716
Office Location	Robison Hall, 226
Office Hours	M-W (8:30am-3:00pm CST)

Course Description

This is a first course in applying data mining techniques and predictive modeling using SAS Enterprise Miner. Students will learn how to gain practical skills in employing the SEMMA model development process and testing their prediction model using various management and mathematical techniques.

Course Prerequisites

We require students to have taken Biostatistical Methods II (PUBH 7152/8152) and Advanced SAS Programming I for Healthcare Professionals, PUBH 7190/8190.

Learning Objectives

- Gain skills in programming with SAS Enterprise Miner
- Learn how to employ the SEMMA model development process: Sample, Explore, Modify, Model and Assess
- Build decision/classification tree models to predict response risk
- Understand and use Neural Network Models
- Understand the basics of prediction models with textual data
- Gain skills in applying various regression models
- Perform variable reduction methods
- Compare different prediction models

Competencies

This course is designed to cover specific MPH Core Competencies as listed below:

MPH Foundation Competencies

2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4. Interpret results of data analysis for public health research, policy or practice

Concentration Competencies

1. Interpret results of statistical analyses found in public health studies.
2. Apply descriptive techniques commonly used to summarize public health data.
3. Apply basic concepts of probability, random variation and commonly used statistical probability distributions.
4. Evaluate preferred methodological alternatives to commonly used statistical methods when assumptions are not met.
5. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.
6. Apply common statistical methods for inference

Required Text(s)

Kattamuri S. Sarma. PhD. 2013. *Predictive Modeling with SAS Enterprise Miner: Practical Solutions for Business Applications, Second Edition*, Cary, NC: SAS Institute Inc.

This text book is *required* for this course. All online course material follows the chapters in this book and homework assignments are from this book.

Online Resource

Most of the course material, lecture notes, and datasets will be posted on this course's web site:

http://umdrive.memphis.edu/grelyea/public

Then look for PUBH_7205_HC_Data_Mining .

Course Requirements and Grading Criteria

As this is a practical applications course and students will be required to submit homework problems as assigned. In addition, students must submit a final project paper using methods covered in this course.

You are also required to work all assigned homework problems *within* the week of assignment. Provided you have turned in your homework assignments on time, your graded homework will be returned back to you. You may *re-submit* the homework to be graded provided you have re-submitted the homework *within a week* of receiving the graded homework. I'll average the two homework assignments. Any homework assignment turned in after the due date and time will be downgraded 10% for the first day

and then 5% for each subsequent day of late submission. Late homework submissions *cannot* be re-submitted for grading again.

The following criteria will be used to evaluate your course grade

Homework problems (assignments, equally weighted)	100 pts
Final Paper	100 pts
TOTAL	200 pts

All 8000 (PhD) level students are required to demonstrate more in-depth, comprehensive and synthesis of knowledge.

Submitting Homework Assignments and Final Paper

You may submit homework and tests on paper at the end of class or submit using UoM online course portal at http://elearn.memphis.edu.

Use your UUID and password to log onto this site. (It is the same username and password as for your UoM email).

Please submit only one MS Word or PDF document.

Late Assignments: Generally you will have one week to submit your homework assignments from the date they were assigned.

Class Attendance and Participation

Attendance and participation are critical parts of the learning process in this course. All students are expected to come to class and share their insights on the readings and understanding of statistical methods. Students are encouraged to discuss the relevant issues they find challenging or interesting while reading or exploring materials for this course.

Grading Scale

The letter grades for each requirement are assigned using the following grading scale:

- 96-100% | A+ | 4.00
- 93-95.9% | A | 4.00
- 90-92.9% | A- | 3.84
- 86-89.9% | B+ | 3.33
- 83-85.9% | B | 3.00
- 80-82.9% | B- | 2.67
- 76-79.9% | C+ | 2.33
- 73-75.5% | C | 2.00
- 70-72.9% | C- | 1.67

- 66-69.9% | D+ | 1.33
- 60-65.9% | D | 1.00
- <60% | F | 0.00

Viewing Your Grades

You may view your homework and exam grades from UoM online course portal at elearn.memphis.edu. Use your UUID and password to log onto this site. (It is the same username and password as for your UoM email). Masters level students will need to look for course PUBH 7XXX; Doctorate level student should look in PUBH 8XXX.

Advanced Expectations for Doctoral Students

Doctoral students will assume greater responsibility for facilitating class discussions and are required to demonstrate in-depth and comprehensive synthesis of knowledge in their homework assignments and tests, in accordance with the doctoral competency listed in this syllabus.

Promoting a Positive Learning Environment

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Make-Up and Absentee Policy

Students missing class are responsible for the content presented and are not excused from assignment due dates. You may be asked to make up for the missed class in the form of written critical commentaries on the readings, additional assignments, or tests. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards

Effective managers, leaders, and teachers are also effective communicators. Written communication is an important element of the communication process. The School of Public Health graduate program recognizes and expects exemplary writing to be the norm for course work.

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All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy. Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions, such as reduction or zero grade in that assignment, suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Here is more information on what constitutes plagiarism.

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"Your written work may be submitted to Turnitin, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

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Special Needs

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Inclement Weather Policy

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Schedule of Topics and Readings

Homework assignments are generally due Tuesday one week after begin assigned. All exams are take home and you will generally have 3 weeks to complete the exams.

Note: The schedule and readings are not tentative and are subject to change.

Week	Topic
08/27/2018	Read Chapter 1 of text
09/03/2018	Labor Day: No Class
09/10/2018	Read Chapter 2-Getting started with Predictive Modeling
	EM windows and setting variable characteristics
	Input Data, Data Partition, File Import, Merge, Sample, Filter, and Time series
09/17/2018	Read Chapter 3: Variable Selection and Transformation of variables
09/24/2018	Chapter 3 continued
10/01/2018	Chapter 4: Building Decision Tree Models to Predict Response and Risk

10/08/2018	Chapter 4 continued
10/15-16/2018	Fall Break: No class
10/22/2018	Chapter 5: Neural Network Models to Predict Response and Risk
10/29/2018	Chapter 5 continued
11/05/2018	Chapter 6: Regression models
11/12/2018	Chapter 6 continued
11/19/2018	Chapter 7: Comparison and Combination of Different Models
11/26/2018	Chapter 9: introduction to Predictive Modeling with Textual Data
12/03/2018	Chapter 9 continued
Dec. 05, 2018	Last day of classes
Dec 14, 2018	Final Paper due

MATH 7685-8685: Simulation and Statistical Computing
Fall, 2018
MW 12:40pm-2:05pm (DH 203)
Lih-Yuan Deng (DH219, 678-3134)
Department of Mathematical Sciences
The University of Memphis

Office Hours:

MW 10am-11:30am or by appointment

Contact Information:

(O) 901-678-3134, email: `lihdeng@memphis.edu`.

Course Contents:

1. Introduction
2. R and High-Performance Computing
3. The Discrepancy between Pencil-Driven Theory and Data-Driven Computational Solutions
4. Simulation of Random Numbers
5. Monte Carlo Methods for Optimization Problems
6. Probability Theory Shown by Simulation
7. Resampling Methods
8. Applications of Resampling Methods and Monte Carlo Tests
9. The EM Algorithm
10. Simulation with Complex Data

Textbook Used:

Simulation for Data Science with R, by Matthias Templ, Publisher: Packt Publishing, ISBN-13: 978-1785881169, ISBN-10: 1785881167

Software Used:

R will be the major program used symbolic program such as MAPLE/Mathematica/Sage is recommended for this course.

Grading:

Midterm exam or Class Project	25%
Homework (program or written)	20%
Class Participation	15%
Final Exam (Project)	40%

MATH 7695-8695: Bootstrap and Other Resampling Methods
Spring, 2017
MW 4pm-5:25pm (DH 203)
Lih-Yuan Deng (DH 219, 678-3134)
email: lihdeng.memphis.edu

Course Contents:

1. Overview of Bootstrap Methods
2. Basic Bootstraps
3. Bootstrap methods for complicated models (censored, missing data, ...)
4. Hypothesis testing using Bootstrap methods
5. Confidence Intervals Construction using Bootstrap methods
6. Bootstrap methods for linear regression models
7. Semiparametric Likelihood Inference
8. Computer Implementation

Textbook Used:

"*Bootstrap Methods and Their Application*", by A. C. Davison and D. V. Hinkley, Publisher: Cambridge University Press, Hardback ISBN 0-521-57391-2, Paperback ISBN 0-521-57471-4.

Software Used:

The use of R is required for this course. Additional software recommended: MAPLE.

R is a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques: linear and nonlinear modeling, statistical tests, time series analysis, classification, clustering, (in this class, bootstrap method) etc. R can be downloaded at `http://CRAN.R-project.org`

For a list of available packages, please see `http://CRAN.R-project.org/web/packages/`

Office Hours:

10am-11:30pm Monday, Wednesday (DH 219) or by appointment.

Grading:

Assignments	30%
Midterm Project	20%
Class Participation	15%
Final Project	35%

MATH 7759-8759: Categorical Data Analysis
Spring, 2019
Tu, Th 2:40pm-4:05pm Rm: DH 231
Lih-Yuan Deng (DH219, 678-3134)

Course Contents:

MATH 7759-8759. Categorical Data Analysis. (3). Exponential family of distributions and generalized linear models; binary variables and logistic regression; contingency tables and log-linear models; quasi-likelihood functions; estimating functions. PREREQUISITES: MATH 7643 and MATH 7654.

1. Distributions and Inference for Categorical Data
2. Describing Contingency Tables
3. Inference Contingency Tables
4. Introduction to Generalized Linear Models
5. Logisitic Regression
6. Building and Applying Logisitic Regression Models
7. Logit Models for Multinomial Responses
8. Loglinear Models for Contingency Tables
9. Building and Extending Loglinear/Logit Models
10. Models for Matched Pairs
11. Analyzing Repeated Categorical Response Data

Textbook Used:

"*Categorical Data Analysis*, Third Edition ", by Alan Agressti, 2012, John Wiley, ISBN-10: 0470463635, ISBN-13: 978-0470463635 .

Software Used:

The use of R (or S-Plus) is required for this course. Other packages such as SAS or MAPLE could be useful. The followings are useful links over the internet:

1. `http://www.stat.ufl.edu/~aa/cda/cda.html` (textbook author's website)
2. `https://home.comcast.net/~lthompson221/#CDA` (Summary of each chapter in the textbook and discussion of R/S-Plus programs for the second edition of this textbook)

Office Hours:

10am-11:30am Tu, Th or by appointment.

Grading:

Midterm exam 1	30%
Midterm exam 2 or Class Project	30%
Class Participation	10%
Final Exam or Project	30%

2019SMIS7660001 2
2019SMIS7621001 8
2019SMIS7720001_BusAI 18
2019SMIS7710001 24

Course Syllabus

MIS 7660-001 – Advanced Data Management

Spring Semester, 2019

3.0 Credit Hours

(Last updated: 1/02/2019)

Instructor: Mark L. Gillenson, PhD

Phone: 901.678.5607

E-mail: Mark.Gillenson@memphis.edu

Office: FCBE #329

URL: http://www.memphis.edu/bitm/faculty/markgillenson.php

Office Hours: MW 3:30-5:00PM.

Course Overview:

This course will focus on the latest data management paradigms for both transactional and business intelligence applications. This includes NoSQL database, NewSQL database, blockchain technology, and data lakes.

Pre-Requisites/Co-Requisites:

MIS 7605, an equivalent introductory database course, equivalent knowledge of data modeling, logical and physical database design, and relational database management including the SQL language, or permission of the instructor.

Required Texts (and Related Materials):

- Sullivan, D. (2015). NoSQL for Mere Mortals. Addison-Wesley.
  ISBN: 978-0-13-402321-2
- Drescher, D. (2017). Blockchain Basics. Apress.
  ISBN: 978-1-4842-2603-2

Recommended Texts (and Related Materials):

- Robinson, Webber, and Eifrem. (2015). Graph Databases, 2ed. O'Reilly Media.
  ISBN: 978-1491930892 (note: this will be provided in a pdf)

Location of Course Materials:

elearn.memphis.edu.

Course Objectives:

By successfully completing this course, students will be able to:

- Analyze a data management situation and determine the applicability of the four NoSQL database paradigms: key-value database, document database, big table database, and graph database.
- Analyze a data management situation and determine the applicability of the NewSQL database paradigms.
- Design databases using the NoSQL and NewSQL paradigms.
- Discuss specific NoSQL and NewSQL products on the market.
- Discuss blockchain and other advanced data management technologies.

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the MS in BIT, MSBA/MIS, MS in Accounting, or MBA degree offered by the Fogelman College. You should take the time to become familiar with the overall learning objectives as a student in your degree program.

The Fogelman College has established the following learning goals for all students successfully completing the MSIS/MSBA degree:

- Graduates will be competent in the use of technology.
- Graduates will be effective communicators.
- Graduates will be knowledgeable about threats and opportunities in a global society.
- Graduates will be problem solvers.

Course Methodology

Lectures, guest lectures from the business community, case studies, homework, exams, and projects.

Professor's Expectations of Students:

In general, you should assist the instructor in creating a positive, supportive environment for learning by staying engaged in the course and actively participating in all classroom discussions.

Student's Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including: a well-organized and engaging learning experience, response to emails within two (2) business days, and feedback on all work submitted within two (2) weeks.

Grading and Evaluation Criteria

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Final Course Grades

Final course grades will be based on a curve to be determined at the end of the course. The following point ranges represent the grade basis prior to a curve being applied:

Point Range	Assigned Grade
90-100 Points	A
80-89 Points	B
70-79 Points	C
60-69 Points	D
Under 60 Points	F

Your overall grade for the semester is based on how well you perform on a mixture of activities including class participation, exams, homework, and projects. A detailed description of each of the assessed activities can be found after the scoring summary table below.

Summary of Graded Activities

Points earned on the assessed activities will be distributed as follows:

Deliverable	Total Points
Two Exams	40
Research Project	40
Homework	10
Class Participation	10
Total	100 pts

Course Topics:

Unit 1 Topics: Overview of the four NoSQL paradigms.
Readings: Chapters 1-14 in the Sullivan textbook.

Unit 2 Topics: Introduction to NoSQL database management. Readings: Chapters 1-2 in the Sullivan textbook.

Unit 3 Topics: Key-value database. Readings: Chapters 3-5 in the Sullivan textbook.

Unit 4: Document database. Readings: Chapters 6-8 in the Sullivan textbook.

Unit 5: Column family (or big table) database. Readings: Chapters 9-11 in the Sullivan textbook.

Unit 6: Graph database. Readings: Chapters 12-14 in the Sullivan textbook and the Graph Databases pdf.

Unit 7: Database selection guidelines. Readings: Chapter 15 in the Sullivan textbook.

Unit 8: NewSQL database. Readings: To be assigned.

Unit 9: Blockchain Technology. Readings: Drescher: Entire Book.

Unit 10: Data Lakes: Readings: To be assigned.

Additional topics and readings may be added as the course progresses.

Final Exam Schedule

There is no final exam in this course.

Course Policies

E-MAIL:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

Attendance is required in this course. If you have a reason for missing a class meeting, please email the instructor in advance.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website (opens in new window).

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a

discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Participation:

To be successful in this course as a student, you must stay active and involved throughout the entire semester. Students are expected to participate in all interactive aspects of the course.

Classroom Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Late Assignments:

Assignments and projects may be submitted anytime up to and including the date due. Please review all information in this syllabus and related "Course Activity Summary / Schedule" for all due dates for formally assessed work. If your work is not submitted on time, the instructor reserves the option to deduct up to 20% of the grade value for tardiness depending upon the circumstances and appropriate communication between the student and the instructor.

Extra Credit:

There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. If an emergency should arise, it is the student's responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.
All class absences must be reported to the instructor in advance.

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an

unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the online course management system.

Student Services

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

THE UNIVERSITY OF MEMPHIS
Fogelman College of Business & Economics

Course Syllabus

MIS 7621 – Business Machine Learning II

Spring Semester, 2019

3.0 Credit Hours

Instructor Information

Name: Srikar Velichety, Ph.D.

Email: svlchety@memphis.edu

Phone: 901-678.3609

Office Location: FCBE#309

Office Hours: MW 1:00-3:00 PM

Teaching Assistant : Prajakta Kolte

TA E-mail : pkolte@memphis.edu

Course Information

Section meeting times:

T 7:10-10:10 PM

Meeting location: FCB 377

Meeting dates: Jan 14th to May 02nd

Course Overview:

This is a general introduction to the methods used in Machine Learning. We focus on both supervised and un supervised learning techniques using open source software tools.

Pre-Requisites/Co-Requisites:

This is a graduate level foundational course for other courses advanced courses in Business Analytics. There are no pre-requisites for this one.

Course Objectives:

By the end of this course, you should be able to:

- Explain the differences between supervised and un supervised learning methods.
- Demonstrate your ability to pick the correct machine learning method and apply it using R.
- Execute a typical machine learning project end-to-end from problem definition to recommendations.
- Apply Text Mining to real-world problems.

Basis for course objectives:

The objectives for this course were formulated by a team of faculty in the BIT department and are based upon a significant amount of input from business executives, industry experts, other FCBE faculty, and business school accreditation guidelines (AACSB). The specific topics covered in this course are based upon the current and projected demand for job skills that employers will need to achieve the strategic goals of their organizations.

Fogelman College: Learning Outcomes for Your Degree

The Fogelman College has established the following learning goals for all students successfully completing the MSIS/MSBA degree:

- Graduates will be effective communicators.
- Graduates will problem solvers.
- Graduates will be leaders.
- Graduates will be knowledgeable about the global business environment.

Required Texts (and Related Materials):

COMPUTER & SOFTWARE:

This course requires the use of a computer and specific software programs. To complete some of the assignments, you will need access to a computer that can access specific software programs. Tutorials for downloading, installing and using these programs will be posted at the appropriate time during the semester.

- **Microsoft Excel** (a spreadsheet program) is part of the Microsoft Office software suite – for both the PC or MAC. U of M students may install Microsoft Office on a PC or MAC by following the instructions here: GetOffice

- **RStudio** is the interface for the opensource statistical software **R.** Throughout the semester, we will be using code samples from R. You will also need to use **R** for some of the class assignments. This software is installed on all the PCs in the class room. We will also provide step by step instructions on how to download the software.

READING ASSIGNMENTS:

All the outside reading material for this course is available online. The elearn [Content] page has links to all the weekly reading assignments. **There is no required text book for this course.** We will use learning material and readings from a variety of sources.

Course Methodology

The instructional methodology of this course will be a combination of PowerPoint presentations and in-class instructor-led lab assignments.

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the BBA degree offered by the Fogelman College. You should take the time to become familiar with the overall learning objectives as a student in the BBA degree program. The learning goals for the BBA degree are:

- Graduates will be effective communicators.
- Graduates will demonstrate critical thinking skills.
- Graduates will be knowledgeable about ethical factors in the business environment.
- Graduates will be knowledgeable about the global business environment.
- Graduates will be proficient users of business presentation and analysis technology.

Course Methodology

- The instructional methodology of this course will be a combination of PowerPoint presentations and in-class instructor-led lab assignments R Studio.

- Quizzes and in-class activities will be assigned DURING CLASS TIME. **To receive credit for quizzes and in-class activities, these assignments must be completed in the classroom on the day that they are assigned. No exceptions will be made unless the student has received PRIOR approval from the instructor to miss a class period.**

Suggestions for improving your success in your college studies:

- **Make a PLAN OF STUDY** for yourself. Decide upon a set time of day or week that you can devote to your schoolwork (such as "every Sunday evening" or "Fridays and Saturdays from 4pm to 6pm")
- The weekly schedule (below) includes the recommended number of hours you should devote to *this* course each week.
- It may be beneficial to you to post specific appointment times in your personal calendar. Try to schedule your study appointments during the time of day when you are likely to be rested, alert, and not hungry.
- If you get distracted easily, you may need to set up frequent-but-shorter study sessions such as one to two-hour study sessions several times throughout the week as opposed to one long study session on the weekend. Review the previous weeks' lesson before starting to learn the next lesson; it's a good way to review and to remind yourself where you left off.
- Ask friends and family members not to disturb you during your study time.
- Have a quiet place where you can go to study, where there won't be a lot of distractions. You may want to set your phone on "do not disturb" during your study time.
- Sit at a desk in a well-lit area (and grab a cup of coffee!) so that you don't get too sleepy!
- View reading content on a large screen device such as a desktop or laptop computer, not a cell phone. (Larger screens cause less eye strain.)

Grading and Evaluation Criteria:

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Final Course Grades:

Your final letter grade is based on your overall average. Your overall average is calculated as the sum of all the points you earned on graded assignments divided by the total number of points possible. The letter grade is based on the following schedule:

Above 90%	A
Above 80% but below 90%	B
Above 70% but below 80%	C
Above 60% but below 70%	D
Below 60%	F

Your overall grade for the semester is based on how well you perform on a mixture of formal activities including assignments, quizzes, exams and a project. A detailed description of each of the assessed activities can be found after the scoring summary table below.

Scoring Methodology Used to Determine Course Grade:

Points earned on the assessed activities will be distributed as follows:

5 Homework Project Assignments (5*10 – Best 5 out of 7) pts	50 points
Quizzes (5 * 10) pts	50 points
Mid Term Exam (1*50) pts	50 points
Final Exam (1 * 50) pts	50 points
Project (1*100) pts	100 points
Total Possible for Semester	**300 points**

Final Exam Schedule

The final exam for this class will be scheduled according to the Registrar's academic calendar website (opens in new window).

Course Schedule:

Week	Topic	Reading Material	Key Deliverables
1 January 15th	Course Introduction Project Introduction Introduction to Machine Learning Review of Basic Statistics	Predictive Analytics Terms Business People Need to know HBR – What Every Manager Should know about Machine Learning	Pretest Survey of Learning Habits
2 January 22nd	Review of Probability Concepts Introduction to R	What is conditional probability HBR – Analytics 3.0	Lab Session – Introduction to R *Project – List of Topics* (**Due Date 01/22/2019 7:10 PM**)
3 January 29th	Data Preprocessing, Exploration and Data Visualization	Data Visualization Wiki HBR – Data Visualizations that really work	Quiz-I (Probability, Statistics and Readings of the previous two weeks) Lab Session – Data Preprocessing, Exploration and Visualization *Project - Team Formation* (**Due Date 01/29/2019 7:10 PM**)
4 February 05th	Clustering – I	Case Study on Cluster Analysis Cluster Analysis for Segmentation	*Project – Title and Description* (**Due Date 02/05/2019 7:10 PM**) Home Work 1 – Data Preprocessing, Exploration and Visualization (**Due Date 02/12/2019 7:10 PM**)
5 February 12th	Clustering – II	How Machines Make Sense of Big Data – An Introduction to Clustering	Lab Session – Clustering Home Work 2 – Clustering (**Due Date 02/19/2019 7:10 PM**)

		10 Interesting Use Cases of K-Means Cluster Analysis	
6 February 19th	Association Rule Mining	Case Study on Association Analysis	Lab Session – Association Rule Mining *Project – Data Collection Report* (**Due Date 02/19/2019 7:10 PM**) Quiz-II (Data Preprocessing, Visualization, Clustering and Readings)
7 February 26th	Classification Methods -I	Visual Introduction to Machine Learning - I A Guide to Machine Learning using Decision Trees Confusion Matrix	Home Work 3- Association Rule Mining (**Due Date 03/12/2019 7:10 PM**) Quiz – III (Association Rule Mining and Readings) Team Lab – I
March 4-10 No Class – Spring Break			
8 March 12th	Mid Term Exam		*Project – Data Preprocessing, Exploration and Visualization* (**Due Date 03/12/2019 7:10 PM**)
9 March 19th	Mid Semester Presentations Classification Methods - II	HBR - Why many model-thinkers make better decisions An Executive's Guide to AI	
10 March 26th	Logistic Regression and Neural Networks	Customer Churn Prediction using Logistic Regression A Gentle Introduction to Neural Networks	Lab Session – Classification Methods Home Work 4 – Classification (**Due Date 04/02/2019 7:10 PM**)

		Interpretability in Machine Learning	
11 April 2nd	Dimension Reduction Techniques	Machine Learning Concepts – Dimensionality Reduction Bias Variance Tradeoff	Lab Session – Logistic Regression and Neural Networks Home Work 5 – Logistic Regression and Neural Networks (**Due Date 04/09/2019 7:10 PM**) *Project – Data Exploration Report* (**Due Date 04/02/2019 7:10 PM**) Quiz – IV (Classification Techniques, Logistic Regression, Neural Networks and Readings)
12 April 9th	Text Analytics – I	Tapping the Power of Text Mining HBR – Everything Alibaba does Differently	Lab Session – Text Analytics Home Work 6 – Dimension Reduction Techniques (**Due Date 04/16/2019 7:10 PM**) Team Lab – II
13 April 16th	Text Analytics – II	HBR – Make Fairness by Design a part of Machine Learning HBR – What Great Data Analysts do and why every organization needs them	Lab Session – Text Analytics Home Work 7 – Text Analytics (**Due Date 04/23/2019 7:10 PM**) *Project – Predictive Analytics* (**Due Date 04/16/2019 7:10 PM**) Quiz – V (Dimension Reduction Techniques, Text Analytics and Readings)

		Which Machine Learning Algorithm should I use?	
14 April 23rd	Final Presentations		*Project – Final Report* (**Due Date 04/22/2019 7:10 PM**)
15 April 30th	Final Exam		

*** All the key deliverables are due before the beginning of class on that day.**

***Quizzes are open-book, open notes**

Professor's Expectations of Students:

- **Texting and talking on cell phones is not permitted during class time.**
- Laptop computers are permitted in the classroom but should only be used for class-related purposes.
- All homework assignments are individual assignments and each person is expected to create their own files and do their own work. **Collaboration** on homework assignments is **cheating**. If you turn in another student's work as your own, you will receive a 0 on that assignment.
- You are expected to turn in your assignments on time. The due dates for assignments are provided on the weekly schedule (below). Five points will be deducted for each day that an assignment is late. Late assignments must be turned in to the *late assignment drop box* on elearn.

Student's Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including: well-organized and engaging learning experience, response to emails within two (2) business days, and feedback on all work submitted within 7-10 calendar days.

Course Policies

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. It is your responsibility to check your inbox frequently and read all email messages from the course instructor.

Attendance:

You are **required** to attend all class meetings and stay for the entire duration of the meeting time. All absences are considered unexcused unless you have PRIOR approval from the instructor and/or you are attending a university-sponsored event. It is your responsibility to make up any coursework that was missed because of an absence. **In-class activities and quizzes must be completed in the classroom during the designated class time. Only those students who have received permission to miss class IN ADVANCE will be permitted to make up an assignment.**

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Late Assignments:

Quizzes will be deactivated on the date and time they are due. Quizzes will not be re-opened for any student unless (1) the student has a valid reason why they could not submit their quiz on time and (2) the student makes a request **in person** to the instructor to re-open the quiz. (No requests will be approved via email.)

Assignments that are submitted to the dropbox (activities and homework projects) should be uploaded to the dropbox by the due date. The dropbox will accept late submissions for one week beyond the due date, however, the 5 points may be deducted for each day that the assignment is late.

Syllabus Changes:
The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services
Please access the FCBE Student Services (opens in browser window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Course Syllabus

MIS 7720 – Business Artificial Intelligence
Spring semester, 2019
3.0 Credit Hours

Instructor Information
Name: Ali Mahdavi Adeli, Ph.D.
Email: amadeli@memphis.edu
Phone: 901.678.3729
Office: FCBE #321
Office Hours: T 5:00 – 7:00 PM

Course Information
Meeting Times: Tue 7:10 – 10:10 PM
Meeting Location: FCB 121
Meeting Dates: Jan 14 – May 2, 2019

Course Overview

This course introduces you to the fundamentals of Artificial Intelligence (AI) and its various business applications; how AI impacts businesses and jobs, why to invest in AI, and the challenges and opportunities it provides.

Pre-Requisites/Co-Requisites

There are no formal pre-requisites for enrolling in this course. This course does not require programming experience but it could be helpful. High school level math is expected.

Course Objectives

By successfully completing this course, you should be able to:

- Understand basic AI techniques, their pros and cons, and possible applications.
- Identify possible AI solutions for business problems.
- Understand the challenges and opportunities of adopting AI solutions for business applications.
- Formulate business problems as AI problems to effectively collaborate with AI experts and AI technology providers.
- Understand the potential impacts of AI on businesses and jobs.

Required Texts (and Related Materials)

All reading materials and case studies for this course will be available on elearn.

This course requires permanent and unrestricted access to a computer. We will use the following software (instructions on how to install each will be provided on elearn):

- R Studio and R engine (version and installation guide will be posted on elearn)
- Python with Jupyter notebooks (it is recommended to install the Anaconda platform with Python 3.x).

Books (optional – *the following are not course textbooks*):

- Artificial Intelligence: A Modern Approach (3rd edition), by Stuart Russell & Peter Norvig

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the BBA degree offered by the Fogelman College. The Fogelman College has established the following learning goals for all students successfully completing the MSIS/MSBA degree:

- Graduates will be competent in the use of technology.
- Graduates will be effective communicators.
- Graduates will be knowledgeable about threats and opportunities in a global society.
- Graduates will be problem solvers.

Course Methodology

The instructional methodology of this course will be a combination of PowerPoint presentations, readings, in-class instructor-led activities, and assignments.

Grading and Evaluation Criteria

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed

Final Course Grades

Final course grades are earned according to the following table:

Point Range	Assigned Grade
Above 90%	A
Above 80% but below 90%	B
Above 70% but below 80%	C
Above 60% but below 70%	D
Below 60%	F

Your overall grade for the semester is based on how well you perform on a mixture of formal activities including discussions, quizzes and projects. A detailed description of each of the assessed activities can be found after the scoring summary table below.

Summary of Graded Activities

Points earned on the assessed activities will be distributed as follows:

Item	Percentage
Class Activities	20
Readings	15
Project	25
Quizzes	15
Exam	25

Readings (articles, papers, or book chapters) will be posted on elearn (a week in advance). Students are expected to read them and participate in class discussions. A brief summary has to be written for some of the assigned readings (as we will discuss in class), which will be shared on elearn with your classmates.

Project: individual (or group) project where you develop a plan for how AI could be used in your organization or business context of choice. Throughout the course we will become familiar with different tools and techniques in AI; you will propose ideas for the application of these techniques in a business context of your choice. You do not have to implement the proposed AI techniques (not required to deliver working code), however, working prototypes would be a bonus. All projects have to be presented at the end the course.

Quizzes are on elearn and open book, open notes.

Class Activities must be completed in class and include hands-on demos using Python and/or R and case studies.

Course Schedule (tentative*)

Week	Topic
1	What is AI? History of AI Applications of AI
2	Intelligent agents AI in business: examples from different industries What are the challenges and opportunities?
3	Available frameworks and technologies (Implementation) **Search and planning**
4	**Supervised/semi-supervised learning**
5	**Unsupervised learning**
6	**Artificial Neural Networks**
7	**Deep Learning** • Case Study*: Minimizing energy consumption costs
8	**Deep Learning (continued)** **Reinforcement learning**
9	**Reinforcement learning (continued)** • Case Study*: Optimizing Business processes using Q-learning

10	**Natural Language Processing** • Case Study*: building a chatbot
11	Making the business case for AI Social and Economic implication of AI
12	Future of AI
13	Review & Presentations
14	Final Exam during class
*Topics are subject to change	

Final Exam Schedule

The final exam for this course will be on the last day of class on **Tuesday, April 23, 2019** (Registrar's academic calendar website).

Professor's Expectations

In general, you should assist the instructor and your fellow classmates in creating a positive and supportive environment for learning by staying engaged in the course. You will learn as much from the collective contributions of your classmates as you will from the instructor. As a group, we will create a positive and collaborative environment and share each other's views, insights, and analysis of assigned scenarios and readings covered in the course.

Student's Expectations

In my role as your instructor, there are certain things you can expect from me including: well organized and engaging learning experience, response to emails within two business days, and feedback on all work submitted within 7-10 business days.

Course Policies

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

You are required to attend all class meetings and stay for the entire duration of the meeting time. All absences are considered unexcused unless you have prior approval form the instructor. It is your responsibility to make up any coursework that was missed because of an absence. In-class activities and quizzed should be completed in during the designated time in

the classroom. Only students who have received permission to miss class in advance will be allowed to make up these activities.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website.

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website. If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity.

Participation:

To be successful in this course as a participant, you must stay active and involved throughout the entire semester. Students are expected participate in all interactive aspects of the course. You should also regularly communicate with the instructor as part of your overall learning experience, check into the course frequently for announcements (usually on the course home page), and actively participate in discussion events (both formal and informal). You should plan on logging into the course at least three times each week.

It is important you actively participate in the classroom discussions as well. Classroom discussions help clarify the readings and lectures and provide additional insights. The quality, not quantity, of the discussion depends heavily on you and your preparation of the assigned problems and suggested readings. You are expected to respond or share information, when asked to do so, and ask intelligent questions to your fellow participants through classroom discussions.

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website.

Late Assignments:

Assignments that are submitted to the dropbox (activities, and homework projects) should be uploaded by the due date. Late submissions will be accepted only for one week beyond the due date if solutions are not discussed in class earlier, however, 1 point may be deducted for each day that the assignment is late.

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services

Please access the FCBE Student Services page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Course Syllabus

MIS 7710– Web Strategy and Analytics for Business

Spring Semester, 2019

3.0 Credit Hours

(Last updated: 1/10/2019)

Instructor: Avanti Pandit

Phone1: 508.423.6392 (personal) email preferred
Phone2:
E-mail: apandit1@memphis.edu
E-mail2: avanti.pandit105@gmail.com
Office: FCB 373

Office Hours: By appointment or during class breaks.

Course Overview: [REQUIRED]

This is a fast-paced introductory business course in which you will learn the basics of generating traffic for business through Search Engine optimization (SEO) and Search Engine Marketing (SEM) techniques and reviewing your results through various web analytics reports.

Pre-Requisites/Co-Requisites:

There are currently no course pre-requisites to enrolling in this course. However, this is a technical course and will require that the student should have a good grasp of basic computer and writing skills.

Required Texts (and Related Materials): [REQUIRED]

- The Art of SEO 3rd edition (2015), O'Reilly (bookstore)
- Applied Innovative Marketing with WordPress, Kanabar and Pandit (e-book purchased from http://www.appliedinnovativemarketing.com)
- Selected readings from web as outlined in Syllabus

Additional fees required for the course project (Note: This will be covered by the Department for Spring 2019 unless project selected is meant to be an on-going private business)

- $15 fee per team for registration and hosting of website URL (Professor's special price valid for course duration only, details in class)
- $30 Debit/credit card expense for paid ads campaign assignment.

Recommended Texts (and Related Materials):

Spreadsheet templates downloaded from http://www.yourseoplan.com/books/search-engine-optimization-hour-day/templates-worksheets/

Location of Course Materials:

All course materials located on the eCourseware website (opens in new window).

Course Objectives: [REQUIRED]

By successfully completing this course, participants will be able to:

- Understand and apply digital concepts to drive business strategy.
- Learn to build a website using WordPress and apply techniques such as search engine optimization and web traffic monitoring to align website with business objectives.
- Understand how to improve web ranking by applying research techniques using hands-on and relevant state of the art web technologies.
- Develop and build social media assets and mail campaigns to increase targeted traffic to website.
- Learn about paid campaigns and reputation management.
- Learn to monitor, measure and analyze traffic to website to facilitate improvements for better ROI.
- Work effectively as a member of a team, including demonstrating collaboration and problem-solving skills.

Fogelman College: Learning Outcomes for Your Degree [REQUIRED]

MIS 7710- This course is designed to help you to meet the overall learning objectives for understanding of business analytics offered by the Fogelman College.

Graduate level expectations

Graduate students must demonstrate a higher level of understanding, application and analysis of the course concepts. All assignment papers submitted must be of high quality and must include citations and references including references to course materials.

Course Methodology

- In-class interactive activities, discussions, reading assignments to practice the lecture material, hands-on project specific internet tools and techniques.
- Assigned exercises to practice the lecture material and further the project.

- Exams to test knowledge of the participants on the key concepts covered in the class.
- Hands-on Project to analyze a business problem and involve the detailed understanding of search engine optimization techniques and digital analytics concepts.

Professor's Expectations of Students:

In general, you should assist the instructor and your fellow classmates in creating a positive, supportive environment for learning by staying engaged in the course. You will learn as much from the collective contributions of your classmates as you will from the instructor. As a group, we will create a positive and collaborative environment and share each other's views, insights, and analysis of assigned scenarios and readings covered in the course.

Student's Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including: well-organized and engaging learning experience, response to emails within two (2) business days, and feedback on all work submitted within 7-10 calendar days.

Grading and Evaluation Criteria [REQUIRED]

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Final Course Grades [REQUIRED]

Final course grades in general are earned according to the following table:

Point Range	Assigned Grade
92-100 Points	A
82-91 Points	B
75-81 Points	C
65-74 Points	D
Under 65 Points	F

Your overall grade for the semester is based on how well you perform on a mixture of formal activities including discussions, quizzes and projects. It will also be impacted by peer evaluation and instructor assessment. A detailed description of each of the assessed activities can be found after the scoring summary table below. Final course grade will be significantly impacted based on your contribution and engagement during the various key assignments of the team project.

Summary of Graded Activities

Points earned on the assessed activities will be distributed as follows:

Deliverable	Total
Class participation and contribution	10%
Midterm	10%
Final Exam	20%
Project Assignments (5@5% each) Final term project Final presentation	 25% 25% 10%
Total	100 %

Project:

All students will be assigned teams. Assignments will be the building blocks towards a final report and a final project website. The entire project (individual project assignments, final term paper, presentation and final website) will be a team effort. Specific instructions on the project outlines and expectations will be provided in a separate document. The final project report should be at least 50—60 double spaced pages (You may go a little extra with title and reference pages, figures or tables, and appendices). You may use references, if any, from the library or online. There is no limit on the number of references used, however, make sure the sources are credible. Try and connect your paper to any learnings from readings assigned during course or covered in class.

You need to use in-text citations and a reference section (no footnotes or endnotes in this paper whatsoever; do not use the automated footnote or endnote function in Word). Full citations of all works should be included in the References section. Take care to properly attribute materials found in literature sources or on the Internet. Direct quotes from references should be kept to a minimum. Although your writing ability is not the primary focus of this course, your ability to communicate is essential to your future business success. Pay close attention to what you're writing. It may be wise to have another person read your work before submitting it for grading. For your website specifically, make sure your web content is grammatically correct as this really does matter in the real world.

Assignments will be graded according to the following criteria:

- Exhibits convincing range and quality of knowledge, having done appropriate research
- Identifies, thoughtfully analyzes and evaluates major points of view
- Convincing conclusions are drawn and demonstrate an understanding of investigative results as well as how to apply them
- Writing style is understandable and organized in explaining research investigation results and supporting conclusions
- Application of tools and techniques taught in class which produces the results expected.

Care should be given to submit work on time as this will impact grading. Teams will submit the same assignment report and website and additionally will provide a team peer evaluation/ participation form with every assignment. Project grades and class evaluations will be assigned based on peer evaluations and instructor evaluation. Team work contribution will impact individual grades significantly so be sure to engage. In this course, out of class work is necessary and team meetings are necessary to get the work done. Be sure to identify early on set times for getting together for collaboration and meet expectations to complete scheduled work.

Presentation:

Team members work collaboratively to create PowerPoint presentations to be shown during the team's presentations for the final project. Please plan on posting the team's PowerPoint presentation by the day listed on the schedule section. Project presentation should be given in 10-15 minutes. Every presentation will be followed by 5-10 minutes of a question/answer session. Include your team number and members' names in the file name of the PowerPoint. Team presentations will be preloaded on a computer to save class time. Each team member must participate in the oral presentation.

Team presentations will be graded according to the following criteria:

- Organization and flow
- Completeness
- Length of presentation falls within the specified time range
- Identification and thoughtful analysis of major points of view
- Convincing conclusions are drawn and an understanding of investigative results is demonstrated

Exams

The midterm (10%) and the cumulative final exam (20%) will both be in-class. The objective of exams is to test participants' grasp on the key concepts covered in the class; understanding of the digital web strategy concepts, search engine optimization concepts, the assignments, readings, and handouts. Absence from any scheduled exam will result in an exam grade of zero unless arrangements have been made with the instructor prior to the exam date.

Instructor and Peer Evaluations

Peer and instructor evaluations of participant participation will be conducted throughout the course. As part of the peer evaluation, each participant will rate the degree to which each member of the team fulfilled his/her responsibilities in completing the project and assignments. These ratings should reflect each individual's level of participation, effort and sense of responsibility, not his or her academic ability.

Instructor evaluation of participants will be conducted according to the following criteria:

- Is well prepared in advance
- Actively contributes to discussions and asks questions
- Volunteers willingly and carries own share of the group's responsibilities
- Adheres to the in-class computer/phone usage policy

- Actively participates in synthesizing and presenting the concepts covered in the class

Name Card

Please use your name card in every class. Not only does it help your instructor in identifying who you are but it also aids fellow participants and helps in making classroom discussions more interactive.

In-class Computer and Phone Usage

In-class computer usage should be related to the material being covered in class. The use of a computer or cell phone for general Internet browsing, text-messaging, Facebooking, Twittering, or other social networking during class is extremely distracting to both the instructor and nearby participants. Please be sensitive and respectful of your classmates and instructor. If you must use any of the above communication means during the class session, please feel free to momentarily step out of the room or wait until the next break to do so. In no case should internet access be used during mid-term and final exams.

List of Formal Assessed Activities

For a complete description of the assessed activities for the semester, please refer to the "List of Assessed Activities" page that can be found in the online course area under "Getting Started".

Schedule of Activities

For a complete semester schedule of readings, activities, and due dates for assignments, please refer to course on ecourseware.

Final Exam Schedule [REQUIRED]

The final exam for this class will be scheduled according to the Registrar's academic calendar website (opens in new window).

Course Policies [REQUIRED]

E-MAIL:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance: [REQUIRED]

All participants are expected to attend classes regularly and promptly. Attendance is key to this course as this is prime time for group work as well. When you miss classes, your grades will suffer because you will miss important information and classroom interaction/discussion. Participants who miss classes will be

held responsible for all in-class course content. Participants have the responsibility to take all scheduled exams and turn in all assignments by the announced date and time. The instructor reserves the right to deduct up to 50% for late assignments.

Participants who miss in-class sessions are responsible for completing all in-class course work with a 50 percent grade reduction.

An absence from an assignment/in-class/quiz coursework shall be considered "excused" if it occurs because of any of the following situations (valid documentation must be submitted for proof) and the instructor was contacted prior to the due date:

- Hospitalization of the participant or an immediate family member due to illness or accident.
- Death in the participant's immediate family (ex., spouse, parents, guardians, siblings, children).
- Summons of the participant to appear for Jury Duty or before a court.
- Any other excuse that has been approved by the course coordinator.

The absentee shall submit documents supporting the above claims (hospital admission form, death certificate, or court subpoena, etc.) to the course coordinator. Upon satisfactory verification, the participant shall be allowed to take a make-up assignment or paper/essay in lieu of missed classroom interaction/discussion.

For participants receiving federal participant loans, any lack of engagement in the course may be treated as non-attendance and potentially impact access to participant loans in the future.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website (opens in new window).

Academic Integrity: [REQUIRED]

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Participation:

To be successful in this course as a student, you must stay active and involved throughout the entire semester. Students are expected participate in all interactive aspects of the course. You should also regularly communicate with the instructor as part of your overall learning experience, check into the course frequently for announcements (usually on the course home page), and actively participate in

threaded discussion events (both formal and informal). You should plan on logging into the course at least three times each week.

It is important to actively participate in the classroom discussions as well. Classroom discussions help clarify the readings and lectures and provide additional insights. The quality, not quantity, of the discussion depends heavily on you and your preparation of the assigned problems and suggested readings. You are expected to respond or share information when asked to do so, and ask intelligent questions to your fellow participants during classroom discussions.

Communicating with your team is critical for the success of your group project and may require for you to make yourself available to meet with your team outside of class times.

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Late Assignments:

Assignments and projects may be submitted anytime up to and including the date due/time as posted in the ecourseware site. Please review all information in this syllabus and related Module due dates for formally assessed work. If your work is not submitted on time, the instructor reserves the option to deduct up to 50% of the grade value for tardiness depending upon the circumstances and appropriate communication between the student and the instructor.

Extra Credit:

There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. Please do not wait until the last minute to submit assignments or to take quizzes and exams. If an emergency should arise, it is the student's responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The

University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Key topics:

Week	Topics	ClassDate	Study Guide *Please refer to start and end sections for readings in e-copy of Art of SEO as page numberings are different for hardcopy and pdf versions. Please check section title names and read accordingly or bring to my attention if there are discrepancies.	Assignments/Project
Week 1 – Mon Strategy	Introduction and Syllabus Outline Introduction to Digital Strategy Project Overview Teams Project Selections Registration and Hosting Search Engines/ competitive research/	14-Jan-19	The Art of SEO: ○ Chapter 1,3 ○ Chapter 6 Pg 295-302 **e-book:** **Start section**: Chapter 6 - When to use TLD Other than .com **End before section**: Chapter 6 - Keyword Targeting ○ Chapter 11 Pg 715-720 **ebook:** **Start section**: Chapter 11-Tracking Results and Measuring Success (beg of Ch 11) **End before section**: Chapter 11-Using	Class – Introduction, Course Outline and Syllabus, Discussion, Teams, Project selections and approvals, domain name selections, hosting Project Goals Measurement of success SWOT

	Changing environment Payments Web Hosting /Registration setup Final Projects / URL search		Analytics as a Business case for SEO **Discussion**: https://digitalmarketinginstitute.com/blog/demand-digital-marketing-skills-2015 http://www.forbes.com/sites/kylewong/2015/03/18/digital-marketers-the-most-entrepreneurial-job-in-marketing/#bf193e7e5b60 http://fashionista.com/2016/10/oxosi-is-seeking-digital-marketing-interns-in-new-york-ny	
Monday Jan 21 HOLIDAY				
Week 2 Mon Strategy and Setup	Finalize Projects; Account and registration setup WordPress setup for all; WordPress Dashboard Introduction Identify two competitors Competitor Research Fill in competitor worksheet SWOT Introduction to Basic SEO Complete Strategy and Setup	28-Jan-19	The Art of SEO – Ch 6 Pg 275-289 **ebook:** **Start section**: Chapter 6 - Site Architecture Design Principles **End before section**: Chapter 6 - Root Domains, Subdomains, and Microsites WORKBOOK Chapters 1-3 (through page 24) * additional secure site hosting steps will be covered in class. This is not in workbook	**DUE Monday Feb 4 6pm CST (NEXT CLASS) Assignment 1: Website Digital Strategy Word doc**

Week 3 – Mon Design	Basic website: Plan website, Design structure Dashboard Pages, Posts, Blogs, Categories and Tags	4-Feb-19	The Art of SEO: ○ Chapter 2 (Search Engines) - - should be same in eBook ○ Chapter 4 (up to 166) **eBook:** **Start section**: Chapter 4 - SEO Implementation:First Stages (beg of Ch 4) **End before section**: Chapter 4 - Mobile Sites and Mobile Apps ○ Chapter 6 - Pg 415-423 **eBook:** **Start section**: Chapter 6 - Google's Knowledge Graph and the Knowledge Vault **End before section**: Chapter 6 - end of chapter HTML Tutorial CSS Tutorial WORKBOOK Chapters 3-7 Progress check Chapters 1-3 Progress check Chapters 4-7	**Assignment 1 due** Sandbox WordPress accounts WordPress Introduction/testing
Week 4 – Mon Design	Users, Plugins and Widgets Install 2-3 plugins and widgets Standard editor Akismet Contact Form All-in-one-Seo Wrap up WordPress Design A/B testing and design	11-Feb-19	• Getting Started with WordPress • Blogging Glossary • Top Ten Search Engine Optimization Lists • WORKBOOK Chapter 8, 9 (Optional Chapter 11) Progress check Chapters 8-9	**DUE Feb 18 Monday 6pm CST (NEXT CLASS)** **Assignment 2a: Website Design Word doc** **Assignment 2b: Basic WordPress website**

Week 5 – Mon SEO	Introduction to keyword research Top keywords list Semantic search Google Adwords Keyword Research Planner and Keyword Research	18-Feb-19	• The Art of SEO: ○ Chapter 5 (Keyword research/ co-occurrence analysis) ○ Chapter 6-Pages 302-345, Pages 387-389 **eBook:** **Start section**:Chapter 6 - Keyword Targeting **End before section**: Syntax of the robots.txt file **Start section**: Chapter 6 - Google's Hummingbird **End before section**: Chapter 6 - Structured Data ○ Chapter 12 Pages 818-830 **eBook:** **Start section**: Chapter 12 - Spam Filtering and Penalties **End before section**: Chapter 12- Changing SEO Vendors or Staff Members • SEO - Google Adwords Keyword Planner • Help video: How to use Google Adwords Planner • WORKBOOK Chapter 10	**Assignment 2 DUE**

Week 6-Mon SEO	WordPress SEO plugin Application of Keyword research Link Strategy Review for midterm	25-Feb-19	The Art of SEO: ○ Chapter 4 Pg 168 – 193 **eBook:** **Start section**:Chapter 4- Auditing an Existing Site to Identify SEO Problems **End before section**: Chapter 4 - end of Chapter ○ Chapter 7 Pg 425-460, 468-499 **eBook:** **Start section**:Chapter 7 - Content Marketing (beg of Chapter) **End before section**: Chapter 7 - Leveraging the power of memes **Start section**: Chapter 7 - Choosing the right Content Marketing Strategy **End before section**: Chapter 7 - Get Active in Social media ○ Chapter 10 – Pg 669-674 **Start section**: Chapter 10-Optimizing for Image Search **End before section**: Submitting a Product Feed • WORKBOOK Chapter 11	**DUE Mar 11 Monday 6pm CST (NEXT CLASS): Assignment 3a: Keyword research and SEO strategy Word doc Assignment 3b: Updated WordPress website**
Spring break Mar 4-8 NO CLASS				

Week 7 Mon Midterm Social Media	**Mid-term** Social Media and SEO: FaceBook and Twitter: Driving traffic through social media	11-Mar-19	The Art of SEO – Chapter 7 Page 499-544 (in syllabus) **Start section**:Chapter 7- Get Active in Social Media **End before section**: Chapter 7 - end of Chapter	**Assignment 3 DUE** **MIDTERM**
Week 8 – Mon Social Media	WordPress and Social Media plugins Social Media Wrap Up Social Media and Paid Campaigns Google Analytics Account setup	18-Mar-19	The Art of SEO Chapter 8 **eBook:** **Start section**: Chapter 8 - beginning of Chapter **End before Section**: Chapter 8 end of Chapter • Let's Talk, Jansch • WORKBOOK Chapter 12 Progress check Chapters 10-12	**DUE Mar 25 Monday 6pm CST (NEXT CLASS):** **Assignment 4a: Social Media Strategy** **Assignment 4b: Updated WordPress website and 2 social media pages**
Week 9 – Mon Emails	Driving Traffic through email and WordPress Designing with Mailchimp Email Analytics Google Analytics Goals and Conversions	25-Mar-19	• http://searchengineland.com/3-simple-ways-email-can-drive-seo-results-200346 • http://mailchimp.com/resources/guides/email-marketing-field-guide/ • http://mailchimp.com/resources/guides/getting-started-with-mailchimp/ • WORKBOOK Chapter 13	**Assignment 4 due**
Week 10 – Mon PPC	PPC Campaigns Adwords Campaigns - Text Ads	1-Apr-19	• http://digitalverge.net/sem/7-reasons-why-your-business-should-be-using-google-adwords/ • Google Adwords Help	**DUE Apr 8 Monday 6pm CST. (NEXT CLASS)** **Assignment 5a: Email Newsletter campaign and** **PPC Campaigns**

	Adwords Campaigns Continued Reputation Management			**Assignment 5b: Updated website**
Week 11 – Mon Analytics	Web Analytics & Reports	8-Apr-19	• The Art of SEO: Ch 11 Pg 721-730 and Pg 793 - 794 **eBook:** **Start section**: Chapter 11 - Basic Overview **End before Section**: Chapter 11 - Taking a Deeper look at Action Tracking **Start section**: Chapter 11 - Key Performance Indicators for Long-Tail SEO **End before Section**: Chapter 11 - Duplicate Content • Google Analytics website: http://www.google.com/analytics	**Assignment 5 due**
Week 12 Mon	Analytics Wrap up Google Search Console	15-Apr-19	Art of SEO Chapter 14, 15	**DUE Apr 22 Monday 6pm CST (NEXT CLASS)** **Final Project Report, Final Website and Final Presentation Due**
Week 13 Mon	Course Review & Presentations	22-Apr-19		**Final Projects due**
Final Exam (IN CLASS) 29-Apr-19				

COMP 7295/8295: Bioinformatics Algorithms – Fall 2017
Instructor: Dr. Vinhthuy Phan (vphan@memphis.edu, 901-678-1535)

Time & Location: TR 1PM – 2:25PM DH109

Office hours: Monday 10AM or by appointment

Prerequisites: There are no specific requirements; although it's recommended students possess basic problem solving skills such as those learned in COMP 7712 or COMP 6030.

Main Topics:

- Programming in Python (Python 3, Sublime Text 3).
- Fundamental concepts in molecular biology.
- BioPython
- Dynamic programming and pairwise alignment
- Iterative improvement: DNA regulatory motif finding (DNA Motif slides)
- Clustering, building phylogenetic tree
- Suffix array, string matching, BWT, FM index
- Pseudo alignment

Grading scheme:

	COMP 7295	**COMP 8295**
• In-class participation:	20%	20%
• Homework:	20%	20%
• Paper presentation	15%	10%
• Midterm	20%	20%
• Project	30%	30%

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated.*** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted,*** and appropriate citations made when the material is taken verbatim.

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7115. Database Systems – Fall 2016

Fatih Şen, PhD

Contact Information:

Office: 301 Dunn Hall	**Department Office:** 375 Dunn Hall
Phone: (901) 678-3463	**Department Phone:** (901) 678-5465
Email: fsen@memphis.edu	

Office Hours:

Monday 1:30pm – 3:00pm; or by appointment.

Course Description:

COMP 7115 – Database Systems

This course covers fundamentals of database systems and includes principles and methodologies of database design, and techniques for database application development.

Requirement

Students must bring their labtop to the class.

Required Textbook:

Fundamentals of Database Systems, R. Elmasri and S. Navathe, 7th edition, Addison-Wesley Inc.

Evaluation:

Grading Scale: A: 85 – 100, B: 75 – 84, C: 65 – 74, D: 55 – 64, F: 54 and below. **(**Plus/minus grading will be used).

A+	≥ 97%
A	91–96%
A−	89–90%
B+	87–88%
B	81–86%
B−	79–80%
C+	77–78%
C	71–76%
C−	69–70%
D+	67–68%
D	62–66%
D−	60–61%
F	≤ 59%

COMP7/8118: Advanced Topics in Data Mining

Xiaofei Zhang

Spring, 2019

E-mail: xiaofei.zhang@memphis.edu
Office Hours: 14:30–15:30 M
Office: DH318

Web: eCourseware
Class Hours: 12:40–14:05 MW
Class Room: DH107

Course Description

Data mining has emerged as a major frontier field of study in recent years. Aimed at extracting useful and interesting patterns and knowledge from large data repositories such as databases and the Web, the field of data mining integrates techniques from database, statistics and artificial intelligence. This course will provide a broad overview of the field and focus on a series of advanced topics. The following topics will be covered:

- Knowledge discovery in databases (association rule, clustering, classification, data warehouses)
- Text mining (topic modeling, word embedding, computing journalism)
- Graph mining (frequent graph patterns, summarization, linkage predication)
- Heterogeneous data mining (information network)
- Mining over data streams

Required Materials

Data Mining: Concepts and Techniques. Jiawei Han, Micheline Kamber and Jian Pei : Morgan Kaufmann Publishers (3rd edition)

Data Mining: The Textbook. Charu C. Aggarwal. Springer.

Prerequisites

The official pre-requisite of the course is COMP 3160. However, as Data Mining is a diverse field, it draws on different aspects of the knowledge in fields such as Databases, Artificial Intelligence,

Statistics and Management. The following is a checklist of material that will be used in the course. If you do not know all of them, don't worry, but do try to read up on your own.

- Basic computer algorithms (COMP 4030)
- Undergraduate level statistics/probability (ISDS 2710/MATH 4611)
- Database systems (COMP 7115/ISDS 7605)

Programming skills

- Basic knowledge of HTML (COMP 6005)
- UNIX skills will be helpful (but not necessary)

Assessments & Grading

For COMP7118 enrollment:

- 3 assignments: weight 30%
- Project: weight 30%
- Presentation: weight 15%
- Final: weight 25%

For COMP8118 enrollment:

- 4 assignments: weight 20%
- Project: weight 40%
- Presentation: weight 15%
- Final: weight 25%

Note: 8000-enrollments are expected to work on more challenging projects. The exam and assignment questions would be different for COMP711 and 8118 students.

Grading Scale

We will calculate final letter grades in two different ways; then each student will receive the higher of the two letter grades. One way is a fixed grading scale, with the following cutoffs:

$A \geq 90\%$ $A- \geq 82\%$ $B+ \geq 74\%$ $B \geq 66\%$ $B- \geq 58\%$ $C+ \geq 50\%$ $C \geq 42\%$

The other way is a curve, with the following percentages of students receiving each grade:

$A : 18\%$ $A- : 18\%$ $B+ : 18\%$ $B : 18\%$ $B- : 18\%$ $C+ : 5\%$ $C : 5\%$

However, we will feel free to give an F to any student who clearly did not put effort into the course (or an A+ to any student with truly exceptional performance).

Course Policies

Testing Policy

No early or late exams are allowed unless under extreme situations.

Plagiarism/Cheating Policy

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and will not be tolerated. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature, but appropriate references must be included for the materials consulted, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the Office of Student Conduct for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: http://www.memphis.edu/studentconduct/misconduct.htm

Lecture Schedule

* This is tentative.

Week	Topic	Highlights
1	Introduction	Course overview Math review
2	Association	Apriori Enumeration Tree FP-growth Pattern evaluation
3	Clustering	Representative approach Hierarchical approach Probabilistic model-based approach High-dimensional clustering
4	Outlier	Statistical model Distance model Density model
5	Classification	Support Vector Machine Neural network Recurrent neural network
6	Text Mining	Topic modeling Word embedding Computing journalism
7	Graph Mining	Frequent graph pattern graph summarization linkage predication
8,9	Mining Heterogeneous Data	Cube Information network Knowledge graph Natural language Q & A
10	Mining Data Streams	Sketch Time series analysis
11, 12	Student Presentation	

Information Retrieval and Web Search – Fall 2017
COMP 7/8130
Vasile Rus

Contact Information:

Office: 323 Dunn Hall	**Department Office:** 375 Dunn Hall
Phone: 678-5259	**Department Phone:** 678-5465
E-mail: vrus@memphis.edu	

Office Hours (in DH323):

Monday	Tuesday	Wednesday	Thursday	Friday
	10:00AM-11:00AM		10:00AM-11:00AM	
Also by Appointment				

Course Description:

COMP 7130-8130. (from the University catalog).

Advanced current research topics in database and information management, with emphasis on nontraditional data and applications. PREREQUISITE: COMP 7116 or permission of instructor.

Why this course?

Today, one of the major problems is not lack of information but too much information. We need intelligent ways to organize the vast amount of information available at our fingertips and to effectively search for what we want. We are faced with an Information Overload problem. The Information Retrieval and Web Search class presents the major challenges posed by this problem and solutions to these challenges.

The course introduces computational techniques to search for information in static collections of documents and in dynamic collections, e.g. the web. Students will be exposed to text processing algorithms, classical information retrieval models (e.g., Boolean and Vectorial models), and web search techniques. The course is closely related to the Natural Language Processing course.

Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/ir-websearch/**

Required Text

R. Baeza-Yates and Berthier Ribeiro-Neto: *Modern Information Retrieval*

Recommended Texts

B. Frakes and R. Baeza-Yates *Information Retrieval: Data Structures and Algorithms*
C. Manning, P. Raghavan, and H. Schutze: *Introduction to Information Retrieval*

Other Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/ir-websearch/**

Evaluation:

The University policy requires to email a grade to a student's U of M email address ***only***.

Final Grades:
Homework 35%, Project 30%, Midterm 15%, Final 15%, Participation&Presentations 5%
PhD Students are required to make a presentation as part of the Homework grade. The presentation consists of power point slides presented in front of the class for 20-30 minutes and an accompanied report of 3-5 pages (single spaced).

Grading Scale:

Grade	*Letter Grade*
90-100+	***A***
80-89	***B***
70-79	***C***
60-69	***D***
0-59	***F***

2.5 above or below the cut-off will earn you a + or – in front of your grade.
For example: 89 has a letter equivalent of B+
Exception: A- is for 90-91, A for scores ranging from 92 to 97, anything above 98 leads to A+

Course Policies:

Attendance
Students are strongly encouraged to attend all lectures. **Active participation** to class discussions counts toward your final grade.

Late Policy

Students will have on average one-two weeks from the date the work is assigned**.** Late submissions are not accepted**.** In exceptional cases you may have a 48-hour grace period at the cost of 50% of the grade (Students **must** ask for it before the due date).

Testing Policy

Usually exams are closed books. There are no make-up exams. Any code developed as part of the class work must follow the **coding-style** guidelines described on the web site. The coding-style will be strictly enforced.

Final Exam University General Rules and Guidelines

- Attendance is compulsory.
- No exam period may be changed without the written permission of the department chair and the college dean.

Plagiarism/Cheating Policy:

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated*****.** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted***, and appropriate citations made when the material is taken verbatim.

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http://www.people.memphis.edu/~jaffairs/

Course Syllabus (tentative)

Week 1: Introduction to IR and Web Search

Week 2: Introduction to Perl

Week 3: Classic IR: Boolean and Vectorial Models

Week 4: More on IR Models

Week 5: Evaluation of IR

Week 6: Query Operations and Languages

Week 7: Text Properties, Text Operations

Week 8: FALL BREAK, Indexing, and Searching

Week 9: MIDTERM, Web Search

Week 10: Web Search

Week 11: Text Categorization

Week 12: Text Clustering

Week 13: Question Answering

Week 14: Advanced IR Models, THANKSGIVING

Week 15: Project Presentations

Week 16: Final Exam

THE UNIVERSITY OF MEMPHIS
COMPUTER SCIENCE
COMP 7/8150: Fundamentals of Data Science

Course Description
The data life cycle; data collection, cleansing, visualization and storage; methods and models for data analysis and management; analysis tools, including statistical packages, experimental design software tools and computer simulations; evaluation and deployment of results; ethical and societal factors. PREREQUISITES: Knowledge of a programming language and descriptive statistics, or equivalent, or permission of instructor.

Why this course
Computer and information technology daily generate enormous amounts of data. The exercise is only useful if it can be turned into information and knowledge in the form of applications, models and theories. This course will provide a broad introduction to key state-of-the-art concepts and methods for testing, evaluation, validation, and/or societal acceptance of data analyses using current state-of-the-art tools.

Syllabus

Date[Week(s)]	Topic
Module 1 [1]	The Big Picture: What is Data Science? The data life cycle: pre-processing, analysis, post-processing
Module 2 [2]	Pre-processing: Data gathering, cleansing, visualization, and understanding (Mean, Variance, Standard Deviation. Percentiles.) Data Storage (Relational and nonrelational databases, e.g. HADOOP).
Module 3 [3]	A Review of current major Tools for Data Analysis [Case Study 1: Language R (or another major tool like Hadoop/Mapreduce)]
Module 4 [4/5]	Probability Models for Statistical Methods: Discrete and continuous probability distributions, density functions. Random variables, expected values, variance, correlation. Data Normalization (z-values, transforms). Central Limit Theorem. [Case Study 2]
Module 5 [6]	Statistical Inference-Estimation: Sampling: point and interval estimation, confidence levels. Estimation from large and small samples. Normal and student-t distributions. [Case Study 3]
Module 6 [7/8]	Statistical Inference-Hypothesis Testing: Decision making: null and alternative hypotheses, critical regions, p-values. Testing from large and small samples. Chi-squared and F-distributions. Contingency tables. [Case Study 4]
Module 7 [9/10]	Regression with a single and multiple predictors: Data fitting, residual plots, ANOVA tables, standard error and confidence intervals. Assessment of predictive accuracy. [Case Study 5]
Module 8 [11/12]	An Overview of Other Major Techniques in Data Science: Data Mining, Machine Learning, and their relationship [Case Study 6]
Module 9 [13]	Closing the data life cycle: Visualization/Summarization and Deployment of Results. Ethical and societal factors. [Case Study 7]
Week 14	Term Projects/More Case Studies

Textbook

[H] M. Haider (2015).
Getting Started with Data Science: Making Sense of Data with Analytics, 1st ed (paperback), IBM Press. ISBN-13 978-0133991024 (due out November 2015.)

Supplementary References

John Maindonald and W. John Braun, Third edition (2010).
(Cambridge Series in Statistical and Probabilistic Mathematics).
ISBN-10:0521762936 ISBN-13: 978-0521762939

In addition, a number of up-to-date readings will be provide in each version of the class with new developments and case studies in data science, such as
D.A. Reed and J. Dongarra. Exascale Computing and Big Data, Comm. of the ACM 58:7 (2015), 56-68. [Gist in a video.]

Other Resources

The use of R is required for this course. R is a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques. R can be downloaded from http://CRAN.R-project.org

Evaluation

Final grades will be assigned based primarily on a term project that requires application to a well-defined problem of the full data life cycle on a corpus of data procured by the student(s). Homeworks (including programming assignments) and presentation of results will also be required. Plus/minus grading will be used. A typical grading rubric will be

- 10% Class Participation
- 30% Homeworks
- 30% Term Project (Proposal and Final Report)
- 30% Reports (Progress Reports and Final Presentation)

Students taking the 8150 version of the class will be expected to carry out term projects requiring deeper and/or more advanced analyses with higher quality outcomes and/or a research component.

Plagiarism/Cheating Policy

P***lagiarism or cheating*** behavior in any form is unethical and detrimental to proper education and ***will not be tolerated.*** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. Plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted,*** and appropriate citations made when the material is taken verbatim.

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COMP 7740/8740 Neural Networks : Fall 2016

Instructor Name: Marko Puljic

Contact Information:

Office: Dunn Hall 305	Department Office: Dunn Hall 375
Phone: 901.678.3139	Department Phone: 901.678.5465
Email: mpuljic@memphis.edu In email communications please always specify '8/7740' in the subject field	

The best way to get in touch with me is through email – I will almost always respond within 24 hours.

Lecture times and place :

5:30 pm - 6:55 pm MW Dunn Hall 109 Aug 22, 2016 - Dec 08, 2016

Office Hours: TR from 2:30pm till 4pm and after lectures.

Course Description:

COMP 7740/8740 EECE 7740/8740.

Learning algorithms for multilayer perceptrons, least-mean squares, backpropagation and its variants, cascade-correlation, other supervised learning algorithms; unsupervised methods, including Hebbian, competitive, and reinforcement learning; applications to associative memories, combinatorial optimization, component analysis, function approximation, pattern classification; theory of neurodynamics, including equilibrium, stability, and computational power. PREREQUISITE: COMP 6030, or permission of instructor.

Why this course?

After completing this course, students are expected to be familiar with the main principles of neural computing and they should be able to use these principles in solving practical problems in their relevant area of interest and specialization.

Resources:

Textbooks:

- Introduction To The Theory Of Neural Computation (Santa Fe Institute Series) Revised ed. Edition by John A. Hertz, Anders S. Krogh, Richard G. Palmer (https://www.amazon.com/Introduction-Theory-Neural-Computation-Institute/dp/0201515601/ref=mt_paperback?_encoding=UTF8&me=)

- MATLAB Student version Release, User's Guide, the Math Works, INC., Prentice Hall.

Evaluation:

Evaluation will be viewed as a continuous two-sided feedback process, which (a) allows students to assess themselves about their progress in learning the material/understanding the issues; and (b) allows the instructor to assess how well he is fostering the communication process with and among students. Students are expected to automatically read relevant chapters in the textbook and the supplementary references, actively participate in class discussions and perform assignments and practical lab work. After completing this course, students are expected to be familiar with the main principles of neural computing and they should be able to use these principles in solving practical problems.

Class Participation 20%: Problem set 30%: Midterm and Final tests 20% and 30%.

Students at the 8xxx level are expected to complete their project by demonstrating the correct operation of the developed software and comparison with alternative tools.

Course Policies: Attendance:

Students are expected to attend the lectures, and actively participate in class activities.

Late Policy:

Assignments are expected at the start of the class on the deadline, handed to the lecturer in printed form. Every day late decreases the max value by 20%, so no credit beyond 5 days of being late.

Plagiarism/Cheating Policy: (These paragraphs are mandatory by CS.)

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated.*** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted,*** and appropriate citations made when the material is taken verbatim.

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http://www.people.memphis.edu/~jaffairs/

Tentative Course Schedule:

Lecture	TOPICS	KEY DATES
1	From Spikes to Rates	
2	Perceptrons: Simple and Multilayer	
3	Perceptrons as Models of Vision	
4	Linear Networks	Problem set 1
5	Retina	
6	Lateral Inhibition and Feature Selectivity	Problem set 2
7	Objectives and Optimization	Problem set 3
8	Hybrid Analog-Digital Computation and Ring Network	
9	Constraint Satisfaction and Stereopsis	Problem set 4
10	Bidirectional Perception	
11	Signal Reconstruction	Problem set 5
12	Hamiltonian Dynamics	
	Midterm	
13	Antisymmetric Networks	
14	Excitatory-Inhibitory Networks and Learning	
15	Associative Memory	
16	Models of Delay Activity and Integrators	Problem set 6
17	Multistability and Clustering	
18	Vector Quantization (VQ), Principal Component Analysis (PCA)	Problem set 7
19	More PCA Delta Rule	Problem set 8
20	Conditioning and Backpropagation	
21	More Backpropagation	Problem set 9
22	Stochastic Gradient Descent	
23	Reinforcement Learning	Problem set 10
24	More Reinforcement Learning	
25	Final Review	
	Final Exam	

COMP 7745/8745
Machine Learning
Spring 2016

Instructor: Deepak Venugopal

Time and Location: T, Th 2:30-3:55pm, Dunn Hall 107

Email: dvngopal@memphis.edu

Office Hours: T, Th 1:30-2:30 PM, Dunn Hall 317

TA: Kyle Cherry (kcherry2@memphis.edu)

TA Office Hours: TBA

Course Textbook: Machine Learning, *Tom Mitchell*, McGraw Hill, 1997

References:

- Pattern Classification, David G. Stork, Peter E. Hart, and Richard O. Duda, Wiley, 2000
- Pattern Recognition and Machine Learning, Chris Bishop, Springer-Verlag, 2006
- Elements of Statistical Learning, Trevor Hastie, Robert Tibshirani and Jerome Friedman, Springer, 2009
- Machine Learning: A Probabilistic Perspective, Kevin Murphy, MIT press

Pre-Requisites

Discrete Mathematics, Probability Theory, Algorithm Analysis and Data Structures.

Learning Objectives

The aim of this course is to study, analyze and apply fundamental techniques in Machine Learning. Both theoretical and empirical aspects of Machine learning will be emphasized. At the end of this course, students should have the necessary background to build practical machine learning systems and also be able to apply machine learning in their own research.

Topics

1. Concept Learning
2. Basic Supervised Learning Techniques
    - Decision Trees

- Linear classifiers: Logistic Regression, Perceptrons
- Neural Networks and Backpropagation
- Naive Bayes

3. Evaluation
    - Statistical Bounds
    - Bias vs Variance tradeoff
    - Cross-Validation
4. Computational Learning Theory
    - PAC Learning
    - VC-Dimension
5. Instance based learning: K-nearest neighbors
6. Advanced Supervised Learning Techniques
    - Support Vector Machines and kernels
    - Boosting Weak Learners (AdaBoost)
7. Unsupervised Learning
    - K-Means clustering
    - The EM algorithm
8. Reinforcement Learning: Q Learning
9. Advanced Topics (depending on remaining time)
    - Introduction to Probabilistic Graphical Models
    - Introduction to Deep Learning

Evaluation

1. Midterm (closed books with cheat-sheet): 30% (March 1)
2. Final (closed books with cheat-sheet): 30% (last day of class)
3. 4 Homeworks (Each homework will also have a practical component): 40%
4. For 8000-level Ph.D. students: Research paper presentation (10%)

- Select a paper from one of the following conferences (preferably published within the last 5 years): NIPS, ICML, KDD, UAI, AISTATS
- Send me the paper that you wish to present by Feb 18. I will break ties if there are any and try to make sure we have a good overall schedule
- Presentations in the last two weeks of class. Schedule will be announced later.
- Note: If you want to present your own work related to machine learning by tying it to your research, it is highly encouraged. However, it should be current, i.e., you should perform the research during this semester and not previous work. In this case, by Feb 18th, please send me a proposal of your intended research.

Grading

Grading: $A+ \geq 95\%$, $A \geq 90\%$, $A- \geq 85\%$, $B+ \geq 80\%$, $B \geq 75\%$, $B- \geq 65\%$, $C \geq 50\%$
Note: A modified curve may be used for determining the grades at the discretion of the instructor.

Policies

1. Both midterm and final exams are closed book and closed notes. One double-sided cheat sheet will be allowed.
2. No late homeworks will be accepted unless well-documented reasons are presented
3. All homeworks must be individual work. Plagiarizing assignments or code sharing is not permitted. If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructors discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: http://www.people.memphis.edu/ jaffairs/
4. Regular class attendance is mandatory. There is a strong correlation between regular attendance and obtaining a good grade. Instructor reserves the right to lower grades for lack of attendance. Students are responsible for any material and contents of missed lectures.
5. No early or late exams will be given unless under extreme situations
6. Any grading errors in assignments should be notified within a week to the TA

Natural Language Processing – Spring 2016
COMP 7/8780-PSYC 7780/8780

Vasile Rus

Contact Information:

Office: 323 Dunn Hall	**Department Office:** 375 Dunn Hall
Phone: 901-678-5259	**Department Phone:** 901-678-5465
E-mail: vrus@memphis.edu	

Office Hours:

Monday	Tuesday	Wednesday	Thursday	Friday
	10:00-11:00AM		10:00-11:00AM	
Also by Appointment				

Course Description:

COMP 7780-8780. (from the University catalog).

(Same as PSYC 7221-8221). Computational aspects, algorithms, and techniques for human language processing including lexical analysis, syntactic parsing, semantics, word sense disambiguation, logic forms, dialogue, and pragmatics; applications include question answering and information extraction among others. PREREQUISITE: COMP 6040 or 6041 or permission of instructor.

Why this course?

Since the advent of the Internet we are faced with an Information Overload problem. Most of the electronic information is in textual form or text combined with other media (tables, sounds, images, videos, etc.). There is a growing need for language processing tools. The Natural Language Processing class offers an overview of the techniques and tools available for language processing.

The class introduces computational techniques for understanding, learning and generating Natural Language with an emphasis on algorithms and software tools. It will cover tokenization - the separation of words from other items in written text such as commas, lexical semantics - the study of individual words, syntax - how words group together in more complex language structures, semantics - what the meaning of a sentence is, and pragmatics - what the meaning of a sentence is given the surrounding discourse context. The course will introduce both relational and statistical approaches to NLP, expose students to state-of-the-art tools and technologies and their impact on a variety of applications. It will also provide insights to open problems in the field.

Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/nlp/**

Required Text

D. Jurafsky and J. Martin: *Speech and Language Processing, 2nd Edition, Prentice Hall*

Recommended Texts

C. Manning and H. Schutze: *Foundations of Statistical Natural Language Processing*

Other Resources:

See the class website: **http://www.cs.memphis.edu/~vrus/teaching/nlp/**

Evaluation:

The University policy requires to email a grade to a student's U of M email address ***only***.

Final Grades:
Homework 30%, Project 35%, Midterm 15%, Final 15%, Class Participation 5%
PhD Students are required to make an extra paper presentation as part of the Homework grade. The presentation consists of power point slides presented in front of the class for 15 minutes and an accompanied report of 3-5 pages (single spaced).

Grading Scale:

Grade	***Letter Grade***
90-100+	***A***
80-89	***B***
70-79	***C***
60-69	***D***
0-59	***F***

2.5 above or below the cut-off will earn you a + or – in front of your grade.
For example: 89 has a letter equivalent of B+
Exception: A- is for 90-91, A for scores ranging from 92 to 97, anything above 98 leads to A+

Course Policies:

Attendance

Students are strongly encouraged to attend all lectures. **Active participation** to class discussions counts toward your final grade.

Late Policy

Students will have on average one-two weeks from the date the work is assigned**.** Late submissions are not accepted**.** In exceptional cases you may have a 48-hour grace period at the cost of 50% of the grade (Students **must** ask for it before the due date).

Testing Policy

Usually exams are closed books. There are no make-up exams. Any code developed as part of the class work must follow the **coding-style** guidelines described on the web site. The coding-style will be strictly enforced.

Plagiarism/Cheating Policy:

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http://www.people.memphis.edu/~jaffairs/

Course Syllabus (tentative)

Week 1: Introduction, Words, Morphology, Stemming

Week 2: Stemming, Part-of-Speech Tagging

Week 3: Introduction to Perl

Week 4: Corpus-based Methods, Language Modeling, N-grams

Week 5: HMM tagging

Week 6: Syntax and Grammar, CFG and Parsing Algorithms

Week 7: Probabilistic CFG and parsing

Week 8: NO-CLASS – Spring Break!

Week 9: MIDTERM, Unification Grammar, Lexical Semantics

Week 10: Lexical Semantics, LSA

Week 11: Logic Form

Week 12: Discourse Processing

Week 13: Applications: Information Extraction, Question Answering, Summarization, Information Retrieval and Web Search

Week 14: Applications: Information Extraction, Question Answering, Summarization, Information Retrieval and Web Search

Week 15: Review, Discussions

Week 16: Final Exam

Advanced Statistics for Psychology I (7302/8302)

Valid from 8/29/18

	Professor	**Teaching Assistant**
	Dr. Philip I Pavlik Jr. (Phil)	Keith Shubeck
Office	434 Psychology	312 Psychology
Phone	901-678-2326 (chat client is much better)	
Office hours:	Thursday 11:15am – 12:15pm, and by appointment, email, and through chat clients	Tuesday 1-2pm – or email for appointment
E-mail:	ppavlik@memphis.edu	kshubeck@memphis.edu
Chat client:	imrryr@gmail.com (for chatting using google hangouts only, not for emails)	keithshubeck@gmail.com
Classroom:	Psychology Bldg 103	
Time:	Tuesday and Thursday August 28, 2018 – December 4, 2018 9:40m –11:05am	

Objectives of the Course

The overall goal is to build a firm conceptual understanding of basic statistics that will ground students' future research and evaluation of research by allowing students to understand why statistical procedures work. The first half of the course focuses on probability and reviews the content of undergraduate statistics. The second half will involve an introduction to regression, some other more advanced topics, and a statistical project. The statistical project will help students use their understanding of SPSS to create a near-publication quality analysis report on a dataset.

Typical Week

- Sunday work on new material for week (e.g. OLI)
- Monday by Noon, take online checkpoints for new material
- Tuesday in class, quiz on material from previous week, lecture for new material
- Thursday in class finish lecture, review OLI, and do Q&A

Required Texts and Materials

1. Open Learning Initiative (OLI) Probability and Statistics Course - The Probability and Statistics course is comparable to the full semester undergraduate course on Statistics taught at Carnegie Mellon University. Your access includes the complete online course including all expository text, simulations, case studies, comprehension tests, interactive learning exercises, and StatTutor. The course covers the topics of Exploratory Data Analysis, Producing Data, Probability, and Statistical Inference. The course

costs $25 payable upon registration online at the OLI site. You will get a code by email from the instructor with instructions for registering online on the first day of class or before.

2. SPSS Survival Manual: A step by step guide to data analysis using SPSS [Spiral-Bound]
Edition: 6th
Author: Pallant
ISBN: 978-0335261543
Copyright Year: 2016
Publisher: Open University Press

The SPSS software is available online from UofM here https://citrix.memphis.edu/Citrix/UOMWeb/. You may also be able to use it in a computer lab or obtain a copy from your advisor.

Grading

25 % – Awarded for Midterm
50 % – Awarded for final statistics project paper
25 % – Awarded for Quizzes

Grading of the final total will be based on fixed score cutoff table below:

Grade	Percent points
A+	95-100
A	90-95
A-	85-90
B+	80-85
B	75-80
B-	70-75
C+	65-70
C	60-65
C-	55-60
lower	Pattern continues

To encourage excellence, there will be a bonus system that adjusts the final grade based on the final paper. Final papers that include more complex analyses and are technically correct may earn up to 5 percent increase to the final grade.

For practice there will be 1 percent bonus each for completing the four labs that occur in Modules 15 (cell phones), 16 (analyzing course grades) and 17 (2, low birth weights and monthly auto premiums). These labs will be checked. Similarly, there will be a 2 percent bonus if you use the MoFaCTS practice software up to a score of 100 for 5 of the MoFaCTS units labeled for 7302. MoFaCTS is here https://mofacts.optimallearning.org

Late Work

Since tardiness is annoying:

- All late assignments (checkpoints after Monday at noon, and other deadlines) will result in a .25 percent penalty to your final grade. In other words, 10 late assignments mean a 2.5 percent grade penalty (see scale above) to your final grade.

- Missed Q&A days will not hurt your grade… directly.
- Quizzes may not be late, but if you have a valid excuse, you can schedule a future quiz to count double and replace the missing score.
- The midterm cannot be late, but extenuated circumstances may allow it to be rescheduled if necessary with written proof of need. Contact Phil.

Quizzing and Midterm

A 10-item quiz will begin Tuesday's class. These quizzes will serve as a review and grading mechanism for the material in OLI or Pallant. Two of the quizzes (the lowest scoring) will not count towards your grade.

The midterm exam will be cumulative from a biased subset of the most difficult quiz questions on prior quizzes. Only item types appearing on quizzes will be eligible for examination. The exam will be 3 times the length of the quizzes (30 items).

Bad questions: if you think a quiz or exam question is unfair or incorrect (e.g. the correct answer is not a listed option) please bring it up immediately when you notice the problem and we will clarify the question as a group or discard it as an error.

OLI assignments:

The OLI assignments up to and including the assigned checkpoint(s) need to be completed by noon the day before the class, e.g. by noon Monday. Do all the other exercises interspersed throughout the OLI sections as you see usefulness for your learning, such as the "Learning by Doing", "About", or "My Response" sections, and "Did I get this". **Please note any issues that you could not figure out and email me before class if you want them discussed**. Alternatively, bring them up during class, but this means my answer may not be as complete.

"Q&A" Days

We will complete a 10-item problem set as a group. The goal is to make sure each student is able to understand every problem, but occasionally we may need to move forward and take problems outside class or into office hours. Students will input problem solutions into their computer or smartphone where they are automatically tabulated and tracked, but remain anonymous to the other students. Based on incorrect answer frequencies more time may be taken to explain why wrong answers are incorrect before moving to a new problem.

Project

Students will produce a statistical analysis project. *Part of the point of this is that you spend some time independently learning/practicing **how to teach yourself a statistical method** (with my assistance when you are stuck, but don't wait until the last minute to ask for help, ask for help early).* You may use simulated data, and this will not hurt your grade, but the data must be simulated from distributions that make sense given the domain (e.g. you couldn't simulate duration with a normal distribution, since the normal distribution extends from –infinity to +infinity, while duration is always positive). ***Data from your research or your advisor (given their permission) is preferable***, but make DOUBLE SURE that you

remove any identifiers such as emails, names, other identifiers. I may mark you down if any identifiers are in your project materials.

There are 5 dates associated with the project:

- By Sept 20 you will have selected a data set and sent it to me in email labeled “Adv Stat Data”.
- By October 25 you will have title and bibliography in APA format and sent it to me in email as “Adv Stat References”.
- By November 8 you will have sent me your preliminary output in email as “Adv Stat Prelim Output”.
- By November 20 send me a draft.
- By December 4 you will have sent me the final paper in email as “Adv Stat Final Paper”, also turning in your final paper in class.

The paper needs to be in APA 6th edition. It should have 8 citations minimum, including 1-3 citations from independent references about the statistical method, and 5-7 introducing the domain or explaining the results. The paper should be in APA submission format with cover page.
Grades will be assigned according to the following rubric:

- 10% for having received a draft
- 5% for providing a bibliography with 8 APA references relevant to your data
- 10% for 1 or 2 main analyses agreed upon with Pavlik
- 5% Appropriate length (8-12 pages of double spaced text, not including abstract, title page, references or figures)
- 30% statistical appropriateness, e.g. applicable tests, effect sizes given, figures/tables are informative and labeled correctly (at least 1 figure or table)
- 20% APA 6th edition correctness, e.g. references in correct format, statistical copy in correct format, figures/tables in correct format
- 20% will be assigned based on clarity of written English, and appropriate introduction, methods and discussion (interpretation) of results.

Calendar

08/28/18 Tue
Module 9 – Finding Probability of Events, checkpoints 1 and 2
Checkpoints due Wednesday by noon

08/30/18 Thu
Q&A
SPSS Pallant 5th Ed. pp. 1-24 (Part 1. 6th Ed . Getting Started pp 1-24)

09/04/18 Tue
Quiz for prior week
Module 10 – Conditional Probability and Independence, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 25-52 (Part 2. 6th Ed. pp 25 – 50)

09/06/18 Thu
Q&A

09/11/18 Tue
Quiz for prior week
Module 11 – Random variables, checkpoints 3 and 4

09/13/18 Thu
Q&A

09/18/18 Tue
Quiz for prior week
Module 12 – Sampling Distributions, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 87-124 (Chapters 8, 9, 10. 6th Ed. pp 85 – 124)

09/20/18 Thu
Data identification for project due
Q&A

09/25/18 Tue
Quiz for prior week
Module 14 – Estimation, 1 checkpoint and Module 15, checkpoint 1
SPSS Pallant 5th Ed. pp. 125-153 (Part 4, Chapters 11, 12. 6th Ed. pp. 125 – 148)

09/27/18 Thu
Q&A

10/02/18 Tue
Quiz for prior week
Module 15 – Hypothesis Testing, checkpoints 2, 3, 4 and 5
SPSS Pallant pp. 154-187 (Chapters 13, 14. 6th Ed. pp. 149 - 181)

10/04/18 Thu
Q&A

10/09/18 Tue
Quiz for prior week
Data Screening Homework
SPSS Pallant 5th Ed. pp. 53 – 86 (Part 3, Chapters 6, 7. 6th Ed. pp. 54 - 84)

10/11/18 Thu
Data Screening Homework & Project work day

10/18/18 Thu
Data Screening Homework Due (counts as quiz)

10/23/18 Tue
Module 16 – Inference for Relationships, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 211-220 (Part 5, Chapter 15. 6th Ed. pp. 205 - 213) & 247-257 (Chapter 17. 6th Ed. pp. 244 – 254)

10/25/18 Thu
Q&A
Reference list due

10/30/18 Tue
Quiz for prior week
Module 16 – Inference for Relationships, checkpoints 3 and 4
SPSS Pallant 5th Ed. pp.258-283 (Chapters 18, 19. 6th Ed. pp 255 – 279)

11/01/18 Thu
Q&A

11/06/18 Tue
Quiz for prior week
Module 17 – Inference for Relationships, checkpoints 1 and 2
SPSS Pallant 5th Ed. pp. 284-292 (Chapter 20. 6th Ed. pp. 280 – 288)

11/08/18 Thu
Quiz review and Exam practice review
Preliminary output due

11/13/18 Tue
Midterm

11/15/18 Thu
Review Midterm
Correlation and Regression Lecture
SPSS Pallant 5th Ed. pp. 307-328 (Chapter 22. 6th Ed. pp 303 – 325).

11/20/18 Tue
Q&A
Paper drafts due

11/27/18 Tue
Quiz on Module 17 – Inference for Relationships, checkpoints 1 and 2 and
Correlation and Regression lecture
General linear model lecture

11/29/18 Thu
G-Power workshop – read Cohen (1992) prior to class – (counts as a quiz)

12/04/18 Tue
GLM lab exercise (counts as quiz)
Final paper delivered in person and emailed

Academic Integrity and Responsibility

Students are expected to observe the regulations and policies that govern the behavior of students as members of the academic community. These regulations and policies are published on the website of the Office of Student Judicial and Ethical Affairs (see http://saweb.memphis.edu/judicialaffairs also see http://www.memphis.edu/studentconduct/pdfs/csrr.pdf). In this course, students are encouraged to complete their assignments without the assistance of other students---under the assumption that they will learn the course material better if they do not rely on others---but collaboration is not expressly forbidden. While taking quizzes and examinations, however, students may not seek assistance from nor give assistance to other students. Violators of this prohibition will fail the course and will be referred to the university's Academic Discipline Committee with a recommendation that they be terminated from the university. At the instructor's discretion, a student might be penalized points equal to 1 (or more) letter grades on the particular exam if the cheating appears unpremeditated. Repeat violation and premeditated cheating will always reported to the chair of the department or the University's Office of Student Conduct and the Academic Integrity Committee. Consistent with these regulations and policies, students are expected to behave in accordance with the American Psychological Association Code of Ethical Conduct, found here: http://www.apa.org/ethics/code/principles.pdf.

Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all.

Disability

If you have a disability that interferes with completion of any coursework, please let the instructor know privately at the beginning of the course, and s/he will determine how best to adapt course materials or instruction. Students with disabilities should contact Disability Resources for Students (DRS), 110 Wilder Tower, 678-2880. DRS offers a comprehensive program of services and academic accommodations designed to provide access and opportunity to students with disabilities. The instructor will work with you and DRS to determine how best to adapt course materials or instruction.

Email

Course announcements as well as consultation with the instructor may occur via e-mail. You are required to activate your university e-mail account in order to be a student at the University. The University considers this account to be your official university e-mail address and will use it to disseminate information. You must either check your university e-mail account regularly or forward your university e-mail to a personal e-mail account that you will check regularly. After you have established your university e-mail account, you can use iAM, the University's identity management service, to forward your university e-mail to a personal e-mail account.

Conduct

Students are expected to behave in accordance with the university's Code of Student Rights and Responsibilities, found here: http://www.memphis.edu/saos/pdfs/csrr.pdf. Disruptive behavior, use of an electronic or other noise- or light-emitting device that disturbs others, and excessive use of electronic devices for text messaging, telephone, or video-based conversations during instructional time in the classroom will not be tolerated. Students engaging in disruptive behaviors or general conduct that violates the rules and regulations of the university may be removed or excluded from the classroom. The instructor may report classroom misconduct to the Department Chair or the University's Office of Student Accountability, Outreach, and Support.

Diversity

The University of Memphis Department of Psychology seeks to understand and address issues of culture, disability, ethnicity, gender, generation, sexual orientation, national origin, privilege, race, and different views on religion in education, policy, research, practice, recruitment, and retention of diverse populations. In this, it strives to offer resources that promote goals of cultural humility, mutual respect, and social justice at the level of the department, university, and broader community.

The Department of Psychology endorses the American Psychological Association's policies and recommendations regarding these diversity issues, as evident in the following sources:

- *Office of Ethnic Minority Affairs at http://www.apa.org/pi/oema/*
- *Ethical Principles of Psychologists and Code of Conduct at http://www.apa.org/ethics/code/index.aspx*
- *Publication Manual of the American Psychological Association, Sixth Edition at http://www.apastyle.org/*

If you feel that you have experienced discrimination based on culture, disability, ethnicity, gender, generation, sexual orientation, national origin, privilege, race, and different views on religion, please contact the Office for Institutional Equity at the Administration Building, Room 156 (901-678-2713). To make a report, you may fill out an online form at http://www.memphis.edu/report.

Misconduct Reporting

All faculty, administrators, and most University staff are mandatory reporters. According to the University's Title IX policy and federal law, I must to report potential incidents of sexual misconduct (harassment, assault, dating violence, domestic violence, and stalking) to the Office for Institutional Equity. If you tell me about (or if I become aware of) sexual misconduct, I will reach out to Office for Institutional Equity for assistance. For more information, contact the Office for Institutional Equity located in the Administration Building, Room 156 (901-678-2713). To make a report of sexual misconduct, you may fill out an online form at http://www.memphis.edu/report. To read the University's

Sexual Misconduct policy, follow this link:
https://memphis.policytech.com/dotNet/documents/?docid=465&public=true.

Mental and Physical Health

As a student, you may experience a range of issues that can cause barriers to learning, such as physical health problems, strained relationships, increased anxiety, alcohol and drug problems, feeling down, difficulty concentrating, and lack of motivation. These mental and physical health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. The University of Memphis has a range of confidential mental and physical health services available on campus to assist you, including the Psychological Services Center in the Psychology Building, Room 126 (901-678-2147); The University Counseling Center at 214 Wilder Tower (901-678-2068); and The University Student Health Center at 200 Hudson Health Center (901-678-2287).

Fall 2018

INTRODUCTION TO GENOMICS AND BIOINFORMATICS **bjdaigle@memphis.edu**
BIOL 4490/6490 **Phone: 901-678-2727**
Dr. Bernie Daigle, Jr. **daiglelab.org**
402C J. M. Smith Hall
Office hours by appointment

Time/Location: Tuesday, Thursday 1:00pm-2:25pm / Life Sciences Building 333
Prerequisites: BIOL 3130 (Cell Biology) and BIOL 3072 (Genetics) or permission of the instructor.

Course description: This introductory course will present a survey of modern genomics and bioinformatics approaches used to gain a deeper understanding of biological systems. The course will begin with a short review of basic chemistry and molecular and evolutionary biology. We will then explore experimental and bioinformatics methods for predicting RNA folding, generating and analyzing genome-scale DNA sequence data, and performing genomics analyses of gene expression, DNA methylation, and chromatin immunoprecipitation data. The course will conclude by considering real-world applications of genomics and bioinformatics in areas such as medicine and agriculture. Students will refine their understanding and gain hands-on experience through the completion of homework assignments, in-class exams, and a research paper (BIOL 6490) focusing on applications of genomics/bioinformatics to biology, medicine, or agriculture.

Objectives:

- Reinforce existing understanding of basic chemistry and molecular and evolutionary biology
- Develop an understanding of modern experimental genomics and bioinformatics techniques
- Gain experience in the use of freely available genomics and bioinformatics web tools
- Research and report on applications of genomics/bioinformatics to biology, medicine, or agriculture (BIOL 6490)

Course structure: The course will consist of in-class lectures and discussion of homework assignments and exams. Lecture slides will be posted to eCourseware shortly before they are presented. **Check eCourseware often for possible updates to the class schedule.**

Freely available texts:

1. "Molecular Cell Biology, 4th edition," Lodish, Berk, Zipursky, Matsudaira, Baltimore, Darnell, New York: W. H. Freeman, 2000. Electronic copy can be searched and read for free at: https://www.ncbi.nlm.nih.gov/books/NBK21475/
2. "Biochemistry, 5th edition," Berg, Tymoczko, Stryer, 2002. Electronic copy can be searched and read for free at: https://www.ncbi.nlm.nih.gov/books/NBK21154/

Required text:

1. "Bioinformatics and Functional Genomics, 3rd edition," Pevsner, Wiley-Blackwell, 2015. Book can be purchased at the bookstore or online: https://www.amazon.com/Bioinformatics-Functional-Genomics-Jonathan-Pevsner/dp/1118581784

Assessment: Grading will be on a standard scale:

A+: 97-100%	**B+: 87-89%**	**C+: 77-79%**	**D+: 67-69%**
A : 93-96%	**B : 83-86%**	**C : 73-76%**	**D : 60-66%**
A- : 90-92%	**B- : 80-82%**	**C- : 70-72%**	**F : < 60%**

Student performance will be evaluated based on the following requirements:

Assessment	**Percent (4490/6490)**
Exams (3)	60% / 45%
Homework Assignments (5)	30%
Attendance	10%
Research paper	0% / 15%

Exams: Three in-class exams will be given during the course of the semester. Each exam will be non-cumulative and typically include a combination of multiple choice, matching/short answer, and multi-part essay questions. The exams are closed-book—students are not permitted to use any reference material or notes when composing their answers.

Homework Assignments: Five take-home assignments will be given throughout the course to reinforce understanding of genomics and bioinformatics concepts as well as provide practice in using freely available web tools. For each assignment, students will be required to upload to the eCourseware dropbox a modified Microsoft Word document of the assignment containing complete answers to questions, relevant analysis results, and any required images or screenshots.

Research Paper: For this assignment, students enrolled in BIOL 6490 will research and write a 12-15-page review paper on a topic of their choosing, focusing on an application of genomics/bioinformatics techniques to biology, medicine, or agriculture. Students will first submit an idea for the topic of the paper to the instructor. As part of this process, students will select at least three journal articles from the primary scientific literature that are closely related to their proposed idea. Upon receiving approval, students will carefully read these articles and write and submit an outline roughly one month before the paper due date. Students will then write a "review paper" that thoroughly describes, in their own words, the major contributions of the journal articles, including ample background information drawn from the articles and other relevant sources. The paper should consist of a short abstract (200-300 words) summarizing the content, followed by a background section (4-5 pages), main body (6-7 pages), conclusion section (1-2 pages), and a formatted list of references (1 page). Informative figures should be included if appropriate. Papers should reference a minimum of three external sources from the literature (e.g., three primary articles). Students are not permitted to use Wikipedia as a reference. All reference citations should be clearly marked in the text using a standard format (e.g., [Author, Year] or [1]). Papers should be formatted to use double spacing with a 12-point font. NOTE: any information included from external sources must be completely rewritten in the student's own words and be properly cited. To do otherwise would

constitute plagiarism and result in a failing grade. When grading each paper, I will be using University-provided software that automatically detects any instances of plagiarism.

Note on independent work: All assignments are to be completed individually by each student. Discussion of homework solutions with other students is not permitted; however, students are encouraged to ask/answer general questions about assignments (no assignment answers may be posted) using the eCourseware discussion forum.

Late policy: An assignment submitted after the due date/time will automatically receive a deduction of 10% for each period of 24 hours (whole or in part) it is late. For example: the maximum possible score on an assignment turned in 1 minute late is 90%; the maximum score for an assignment turned in 24 hours and 1 minute late is 80%. Assignments submitted more than 96 hours (4 days) late without prior approval will not be accepted. Unless otherwise noted, assignments must be uploaded to the eCourseware dropbox by the beginning of the class period on the due date.

Attendance policy: On-time attendance is required; only two unexcused absences are allowed for full attendance credit. In cases of more than four unexcused absences, student will forfeit all credit for attendance.

Academic Integrity: Students are expected to practice academic integrity at all times. Academic misconduct will result in a recommendation for a failing grade in the course, not just the assignment(s) in question. Expectations for academic integrity and student conduct are described in detail on the Student Accountability website (http://www.memphis.edu/saos/sa/index.php). In particular, when referring to ideas from published literature (journal articles, books, or the web) in writing, students must explain in their own words and be sure to cite all sources.

Disability Resources for Students (DRS): The University of Memphis makes reasonable accommodations for persons with documented disabilities. A student who requests disability-related accommodations for this course should provide the instructor with a memo from Disability Resources for Students (DRS) (http://www.memphis.edu/drs/). The memo verifies that the student is registered with DRS, is qualified under the law as a person with a disability, and that the listed accommodations are considered appropriate and reasonable considering the functional limitations of the disability.

Common Courtesies: Turn sounds on cell phones and other electronic devices off before coming to class. Texting or browsing the web is not permitted during the class session. Laptops or tablets can be used for notetaking or following along with demonstrations only; students violating this policy will be prohibited from continued use of these devices.

Spring 2019

DATA SCIENCE FOR BIOLOGISTS
BIOL 7708/8708

Dr. Bernie Daigle, Jr.
402C J. M. Smith Hall
Office hours by appointment

bjdaigle@memphis.edu
Phone: 901-678-2727
daiglelab.org

Time/Location: Tuesday, Thursday 11:20am-12:45pm / Ellington Hall 105
Prerequisites: One elementary statistics course or permission of the instructor. Any experience with computer programming is useful but not required.

Course description: This course will present a hands-on survey of statistical and computational analyses commonly applied to biological data. It will review concepts in probability and statistics to provide a foundation for understanding a wide range of data analysis methods. The course will also provide a thorough introduction to computer programming in the R language and software environment. Equipped with these skills, we will explore statistical and machine learning approaches for biological data analysis using real-world datasets from disciplines such as physiology and genomics. Methods to be discussed include linear and logistic regression, K-nearest neighbors, linear discriminant analysis, principal components analysis, and K-means and hierarchical clustering. In addition, we will cover techniques for statistical model selection and high-dimensional data analysis. Discussion of each analysis method will be accompanied by practical demonstrations using packages and code from the R software environment. Students will refine their understanding and gain hands-on experience through the completion of problem sets, presentation of a published journal article, and execution of a self-designed data analysis project.

Objectives:

- Reinforce existing understanding of probability and statistics concepts
- Develop a proficiency for computer programming and data analysis in R
- Gain a working understanding of statistical and machine learning approaches and their application to biological data
- Improve critical reading skills through presentation of a published journal article
- Design, execute, and present data analysis project utilizing techniques discussed in the course

Required texts:

1. "An Introduction to Statistical Learning: with Applications in R," James, Witten, Hastie, Tibshirani, Springer Texts in Statistics, 2013. Electronic copy can be downloaded for free at: http://www-bcf.usc.edu/~gareth/ISL/
2. "R Programming for Data Science," Peng, Leanpub, 2016. Electronic copy can be purchased for $0 and up at: https://leanpub.com/rprogramming
3. "A Modern Introduction to Probability and Statistics," Dekking, Kraaikamp, Lopuhaä, Meester, Springer Texts in Statistics, 2005. Electronic copy can be downloaded on campus at: http://www.springer.com/us/book/9781852338961

Course structure: The course will consist of in-class lectures and programming demonstrations, discussion of problem sets and student projects, and student journal club and project presentations. Lecture slides will be posted to eCourseware before they are presented. **Check eCourseware often for possible updates to the class schedule.**

Course schedule: Lectures will tentatively cover the following topics during the weeks shown:

Week 1	**Introduction to Data Science and R; probability refresher**
Week 2	**R data types; statistical hypothesis testing**
Week 3	**Overview of statistical learning; K-nearest neighbors**
Week 4	**R graphics; linear regression**
Week 5	**Linear regression; R control structures and functions**
Week 6	**Overview of classification and logistic regression; LDA**
Week 7	**LDA; Overview of unsupervised learning and PCA**
Week 8	***SPRING BREAK***
Week 9	**Clustering methods**
Week 10	***Journal club presentations***
Week 11	***Journal club presentations*****; resampling methods**
Week 12	**Resampling methods**
Week 13	**R data input/output and debugging; statistical model selection**
Week 14	***Final project presentations***
Week 15	***Final project presentations***

Assessment: Grading will be on a standard scale:

A+: 97-100%	**B+: 87-89%**	**C+: 77-79%**	**D+: 67-69%**
A : 93-96%	**B : 83-86%**	**C : 73-76%**	**D : 60-66%**
A- : 90-92%	**B- : 80-82%**	**C- : 70-72%**	**F : < 60%**

Student performance will be evaluated based on the following requirements:

Assignment	**Percent of Final Grade**
Problem Sets (4)	40%
Journal Club presentation	15%
Final Project abstract	5%
Final Project write-up	20%
Final Project presentation	10%
Attendance and participation in discussions	10%

As discussed below, students enrolled in BIOL 7708 will be required to apply only one type of analysis method to a biological dataset for their Final Project. Students enrolled in BIOL 8708 will be required to apply two or more analysis methods to one or more related datasets.

Problem Sets: Four take-home problem sets will be assigned throughout the course to reinforce understanding of data analysis methods as well as provide practice in writing and executing R code

on biological datasets. For each assignment, students will be required to upload to eCourseware both *documented* R source code as well as a write-up containing analysis results and answers to questions.

Journal Club presentation: For this assignment, students will form pairs and together select a published journal article describing the application of one or more previously discussed analysis techniques to biological data. Students will first submit the article for instructor approval. Upon receiving approval, students will read the article thoroughly along with any necessary background material needed for understanding. They will then create and give a joint PowerPoint presentation (20-25 minutes + 5-10 minutes for questions/discussion) that provides background on the research area, clearly describes the biological data and analysis technique(s) used, and critically assesses the research methodology and conclusions drawn by the authors. Each group of students is free to decide how best to divide the presentation between them, provided that they speak for roughly the same amount of time. More information about this assignment will be provided several weeks into the class.

Final Project: For the final assignment, students will design, execute, and present the results of a data analysis project applying techniques discussed in the class to biological data of their choosing. Students will first submit an abstract (~300-400 words) describing the background of the study, the hypothesis or hypotheses being tested, details of the biological data and proposed analysis techniques, and the anticipated nature of the results and conclusions. Upon receiving instructor approval, students will conduct their study, including obtaining the necessary data, writing and running R analysis code, and tabulating and plotting results. Students will be required to summarize their study in the form of a short paper (~2000-2500 words, including figures, tables, and references). The submission of all *documented* R source code will also be required. In addition, students will present their study to the class as a short PowerPoint presentation (10-15 minutes + 5 minutes for questions/discussion). For this project, **BIOL 7708 students may apply one or more types of analysis methods (regression, supervised classification, or unsupervised learning) to a biological dataset of their choice. BIOL 8708 students must apply at least two types of methods to one or more related datasets**. More information about this assignment will be provided approximately halfway through the class.

Note on independent work: Except for the journal club presentation, all assignments are to be completed individually by each student. This means that, while you may discuss assignments with other students, all work handed in must be entirely your own, including programming code. Students should document on each assignment the names of any other students with whom they had discussions.

Late policy: Late assignments will not be accepted without prior approval, with the exception of three late (calendar) days total per student across all written assignments. No more than two late days can be used for any one assignment. This means that students can hand in one problem set two days late and one problem set one day late, three problems sets one day late each, one problem set one day late and the project abstract two days late, etc. Unforeseen obligations and circumstances often arise as the semester goes on, so use these days wisely! Unless otherwise noted, assignments must be uploaded to eCourseware by the beginning of the class period on the due date.

Attendance policy: On-time attendance is required; only two unexcused absences are allowed for full attendance credit. In cases of more than four unexcused absences, student will forfeit all credit for attendance and discussion participation. In order to receive full participation credit, students should ask questions/make comments regularly during lecture demonstrations, discussions of problems sets, and student presentations.

Academic Integrity: Students are expected to practice academic integrity at all times. Academic misconduct will result in a recommendation for a failing grade in the course, not just the assignment(s) in question. Expectations for academic integrity and student conduct are described in detail on the Student Accountability website (http://www.memphis.edu/saos/sa/index.php). In particular, when referring to ideas from published literature (journal articles, books, or the web) in writing, students must explain in their own words and be sure to cite all sources.

Disability Resources for Students (DRS): The University of Memphis makes reasonable accommodations for persons with documented disabilities. A student who requests disability-related accommodations for this course should provide the instructor with a memo from Disability Resources for Students (DRS) (http://www.memphis.edu/drs/). The memo verifies that the student is registered with DRS, is qualified under the law as a person with a disability, and that the listed accommodations are considered appropriate and reasonable considering the functional limitations of the disability.

Common Courtesies: Turn sounds on cell phones and other electronic devices off before coming to class. Texting or browsing the web is not permitted during the class session. Laptops or tablets can be used for notetaking or following along with programming demonstrations only; students violating this policy will be prohibited from continued use of these devices.

Course Syllabus
ECON 7810/8810 – Econometrics I
Spring Semester, 2018
3.0 Credit Hours
(Last updated: 1/12/2018)

Instructor: Joonhyung Lee, PhD
Phone1: 901.678.1659
E-mail: jlee17@memphis.edu
Office: FCBE #411
Office Hours: Th12:30-2:30 and by appointment

Course Overview:

This course provides an overview of elementary econometric theory and methods with applications. The 'application' aspect implies becoming familiar with Stata.

Pre-Requisites/Co-Requisites:

Econ 7125/8125

Required Texts:

Jeffrey Wooldridge, Introductory Econometrics, 5/6th edition.

Recommended Texts (Not required):

Stock and Watson, Introduction to Econometrics, 3rd edition
Angrist and Pischke, Mostly Harmless Econometrics
Cameron and Trivedi, Microeconometrics Using Stata
Greene, Econometric Analysis, 6th edition
Wooldridge, Econometric Analysis of Cross Section and Panel Data, 2nd edition

Location of Course Materials:

All course materials (lectures, discussion topics, news, etc.) are located on the eCourseware website.

Stata:

Stata can be accessed https://citrix.memphis.edu/vpn/index.html
To load a dataset, click the followings: open→local disk(C: …)→users→your id→location of your dataset

Course Objectives:

By successfully completing this course, students will be able to:

1. Students will understand the importance of the assumptions underlying the Classical Linear Regression Model (CLRM)
2. Students will demonstrate an understanding of how OLS works
3. Students will conduct proper inference after using OLS to test single and multiple linear and non-linear hypotheses
4. Students will understand the consequences for OLS when assumptions of the CLRM are violated, including when the data are measured with error
5. Students will demonstrate knowledge of how panel and instrumental variables estimation works
6. Students will develop and prove competency in Stata in order to apply the techniques learned

Fogelman College: Learning Outcomes for Your Degree

The Fogelman College has established the following learning goals for all students successfully completing the degree:

MA

- Graduates will acquire a strong base in theoretical economic analysis.
- Graduates will acquire discipline specific knowledge.
- Graduates will acquire high-level empirical skills.
- Graduates will be able to communicate economic concepts effectively.

PhD

- Graduates will demonstrate a detailed knowledge of their areas of specialization.
- Graduates will master the analytical/methodological skills needed to evaluate and conduct research in their areas of specialization.
- Graduates will demonstrate their ability to design and conduct original research in their chosen fields of specialization.
- Graduates will be able to teach college-level courses in their areas of specialization.
- Graduates will be able to communicate the results of their research in a clear and effective manner.

Grading and Evaluation Criteria

- There will be two exams (one midterm and one final). The final will not be explicitly cumulative. – each worth 40 %

- Homework will be assigned four times, twice in the first half and twice in the second half. Assigned problems may be mostly empirical, but some are theoretical. The homeworks will be graded on a "check-/check/check+" basis, which roughly corresponds to 60/80/100 points. Homework may be done in groups, but each student must submit their own answers. – 20%

Final Course Grades

Final course grades are earned according to the following table:

Point Range	Assigned Grade
90-100 Points	A
80-90 Points	B
70-80 Points	C
Under 70 Points	D/F

Final Exam Schedule

The final exam for this class will be scheduled according to the Registrar's academic calendar website (opens in new window).

Course Policies

E-MAIL:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

You are expected to stay active and engaged throughout the academic term and keep up with the schedule of activities. Your full engagement in the class begins on the first day of the semester and should be maintained until the last assignment is submitted.

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window).

If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Extra Credit:

There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. Please do not wait until the last day to submit assignments or to take quizzes and exams. If an emergency should arise, it is the student's responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Course Outline

1st week: Introduction (ch. 1)

2nd week: Regression with single regressor (ch. 2)

3rd week: continue (ch. 2)

4th week: multiple regressors (ch. 3-5)

5th week: continue (ch. 3-5), HW#1

6th week: Nonlinear regression functions (ch.6-7), HW#2

7th week: further discussion (ch.8), cover HWs

8th week: spring break

9th week: Exam I

10th week: Limits of linear regression (ch.9)

11th week: Panel Data (ch.13-14), HW#3

12th week: Instrumental Variables (ch.15), HW#4

13th week: further discussion (ch.15)

14th week: Binary Dependent Variables (ch.16)

15th week: further discussion (ch.16)

Course Syllabus
ECON 7811/8811: Econometrics II
Fall Semester, 2018
3.0 Credit Hours

Instructor: **Dr. Andrew Hussey**
Phone: 901.678.1487
E-mail: ajhussey@memphis.edu
Office: FAB 423

Class meeting time: Th 5:30 – 8:30 p.m.
Office Hours: Tu 1:30 – 2:30, Th 4:05 – 5:00 p.m.

Course Overview:

This is an empirical class with concentration in applied microeconometrics. (We will not cover any Time Series topics, which are reserved for ECON 8812.) Its goal is to give you knowledge (in various econometrics methods and theory) and the tools (in particular, Stata) to solve real-life problems. Focus will be on techniques used within the economics discipline, but these approaches will also apply to other social sciences and business fields. Topics will include: panel data; instrumental variables and simultaneous equations models; estimation of treatment effects; binomial and multinomial choice models; censored data and sample selectivity; regression discontinuity design; quantile regression.

Pre-Requisites/Co-Requisites: ECON 7810/8810 or similar background with permission of instructor.

Recommended Text:

Besides the class notes (posted online), the recommended textbooks are Mostly Harmless Econometrics by Angrist and Pischke, and Microeconometrics Using Stata, by Cameron & Trivedi (applied micro problems solved in Stata step-by-step with detailed explanations). In addition, I find the following textbooks very useful for anyone doing empirical econometrics: Stock and Watson, Introduction to Econometrics (simple explanations, advanced undergraduate level); Berndt, The Practice of Econometrics: Classic and Contemporary (many real-life case studies); Wooldridge, Econometric Analysis of Cross Section and Panel Data (the best book on panel data analysis); Long and Freese, Regression Models for Categorical Dependent Variables Using Stata (very thorough and approachable for the topics described by the title).

Location of Course Materials:

All homework assignments (and other course documents) will be found on the eCourseware website once they are assigned.

Course Objectives:

By successfully completing this course, students will be able to:

1. Understand the theoretical underpinnings of several empirical microeconomic techniques
2. Distinguish between alternative techniques in terms of their pros and cons and appropriateness of use.
3. Critically read peer reviewed articles that employ a variety of econometric approaches.
4. Proficiently use Stata for data manipulation and analysis.

Fogelman College: Learning Outcomes for Your Degree

MA ECON	http://fcbeassessment.net/LearningOutcomes/MAEconDegreeLearningOutcomes.pdf
MSBA	http://fcbeassessment.net/LearningOutcomes/MSBADegreeLearningOutcomes.pdf
Ph.D.	http://fcbeassessment.net/LearningOutcomes/PhDDegreeLearningOutcomes.pdf

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Grading and Evaluation Criteria

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Summary of Graded Activities

	Percentage of grade
Midterm Exam 1	28
Midterm Exam 2	28
Short Paper	12
Homework Assignments	28
Participation	4
Total	**100**

Homework Assignments

There will be several (9 or 10) homework assignments, usually due weekly, which make up 28% of your grade. They will consist of several parts. Often, you will have to carefully read an assigned paper and then replicate its results in Stata. The homeworks will be graded on the "check-/check/check+" basis, which roughly correspond to 60/80/100 points. It's difficult to complete a homework assignment in one day, so I strongly recommend starting early. You may (and are encouraged to) work on these assignments in groups, but each student must write and turn in their own assignments.

Class Participation

As this is an advanced graduate class, its format would be the "professor/students conversation" rather than "lectures," which are more common in undergraduate studies. While formal attendance will not be taken, I expect all students to take active part in the in-class discussion. To further encourage student's participation, students or pairs of students will be assigned to give brief presentations of journal articles in order to initiate classroom discussion (4% of grade). Presentation assignments will be made in part based on student preferences and academic discipline.

Final Course Grade:

Final course grades are earned according to the following table. I reserve the right to lower, but not raise, these cutoffs).

Range	Assigned Grade
90-100	A
87-90	A-
85-87	B+
77-85	B
75-77	B-
73-75	C+
62-73	C
60-62	C-
55-60	D
<55	F

Course Policies:

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website.

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website. If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity.

Syllabus Changes:

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Student Services:

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Course Topics and Tentative Schedule:

1. Introduction; OLS review: The OLS estimator; Violations of the OLS assumptions; Testing single and multiple restrictions, etc. (8/30 – 9/6)

   HW#1: Getting started with Stata: simple OLS regressions. (Due 9/13)
   HW#2: Handling data in Stata, use of codebooks. (Due 9/20)

2. Panel Estimation: Fixed effects: demeaning, fixed effects dummies, first differencing; The between estimator; The pooled estimator; The random effects estimator; If time, introduction to systems of equations (9/6 – 9/13)

   HW#3: Estimating panel regressions in Stata: The Effect of Beer Tax on the Traffic Fatality Rate. (Due 9/27)

3. Qualitative and Limited dependent variables: MLE; LPM, Logit, Probit, Tobit, etc. (9/20 – 9/27)

   HW#4: Replicate Munnell, Alicia H. & Geoffrey M.B. Tootell & Lynn E. Browne & James McEneaney, 1996. "Mortgage Lending in Boston:

Interpreting HMDA Data," American Economic Review, vol. 86(1), pp. 25-53 (Due 10/4)

4. The evaluation problem:
    a. Randomized experiments (10/4)

        HW#5: Replicate Edward Miguel & Michael Kremer, 2004. "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities," Econometrica, 72(1): 159-217. (Due 10/18)

    Midterm I: (10/11)

    b. Controlling for confounding variables: Regression approach, Matching pairs, Propensity score, synthetic control (10/18)

        HW#6: Replicate Dehejia, Rajeev H. and Sadek Wahba (1999), "Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs," Journal of the American Statistical Association, 94: 1053-1062. (Due 10/25)

    c. Difference-in-Differences (DID) (10/25)

        HW#7: Replicate Card, David & Kreger, Alan B, 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania," American Economic Review, 84(4): 772-93. (Due 11/2)
        HW#8: Gruber, J. & Hanratty, M., 1994. "The Labor Market Effects of Introducing National health Insurance: Evidence from Canada," JBES, 13(2): 163-173. (Due 11/8)

    d. Instrumental Variables (IV) and Systems of Equations (11/1)

        HW#9: Angrist, Joshua D. & Evans, William N., 1998. "Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size," American Economic Review 88(3): 450-77. (Due 11/15)

    e. Regression-discontinuity design (RDD) (11/8)

        HW#10: To Be Determined (Due 11/29)

    f. Introduction to machine learning techniques (11/15)

    Midterm II: (11/29)

    Short Paper (Due 12/13)

Course Syllabus
Economics 8812: Econometrics III
Spring 2018

Instructor:
David M. Kemme, Ph.D.
405 Fogelman College
Office hours: 1:30-3:00pm TR & by appointment
678-5408
dmkemme@memphis.edu
GA: Dariya Ainekova
117 Fogelman Executive Center
Office hours by appointment
dinekova@memphis.edu

5:30-8:30pm T
365 Fogelman

Course Overview:

This course provides an overview of time series econometrics theory and methods with applications. A firm understanding of basic econometrics, statistical inference, calculus and linear algebra is assumed.

Pre-Requisites/Co-Requisites:

Economics 7810/8810 or permission of instructor.

Required Texts, recommended and related materials:

There are several excellent textbooks that you may find useful depending on your background and preparation. The most comprehensive is Hamilton, James, *Time Series Analysis*, (Princeton, NJ: Princeton University Press, 1994) and is an excellent reference. We will use Asteriou, Dimitrous and Stephen G. Hall, *Applied Econometrics*, 2nd Ed. (New York: Palgrave McMillan, 2011), hereinafter A&H, and Enders, Walter, *Applied Econometric Time Series*, 4th Ed. (Hoboken, NJ: John Wiley & Sons, 2015), hereinafter E. Many of the topics we will discuss are also considered in more general econometrics texts such as Johnston, Jack and John Di Nardo, *Econometric Methods*, 4th Ed. (New York: McGraw Hill, 1997) hereinafter J& D, Greene, William H., *Econometric Analysis*, 6th Ed. (Upper Saddle River, NJ: Pearson/Prentice Hall, 2008), hereinafter G, and Brooks, Chris *Introductory Econometrics for Finance*, 3nd Ed. (Cambridge: Cambridge University Press), hereinafter B.

Most lecture topics follow Enders, while Johnston and DiNardo may serve as an alternative explanation for some topics. Asteriou and Hall has excellent EViews examples. Brooks is the most elementary of the three and focuses on finance topics. Readings from these three texts will be noted on the course outline below. There are many interesting applications and

all of the estimation and testing is done using EViews, which we will use in this class. There are numerous other text books and reference books that may also be of interest.

A useful basic text that covers solving difference equations is Chiang, Alpha and Kevin Wainwright, *Fundamental Methods of Mathematical Economics*, 4th Edition (New York: McGraw Hill, 2005).

We will use EViews for all exercises and applications. All data sets and programs mentioned in Enders are available in both Excel and EViews workfiles. Eviews is available on the TigerLan network. The student edition may be purchased directly from Quantitative Micro Software. This is recommended.

Location of Course Materials:

This is a face to face in classroom course. eCourseware will be used minimally. It may be used for distribution of data sets and problem sets. eCourseware website (opens in new window).

Course Objectives:

- Identify, estimate and test basic time series models mainly for forecasting purposes.
- Model volatility
- Identify, estimate and test models with trend
- Identify, estimate and model multi –equation time series
- Identify, estimate and model cointegrated and error correction models

Fogelman College: Learning Outcomes for Your Degree

This course is one of many courses designed to assist you in meeting the learning goals of the Ph.D. program. They may be found here:
http://www.fcbeassessment.net/LearningOutcomes/PhDDegreeLearningOutcomes.pdf

Examinations, Evaluation and Grading

There will be four graded problem sets, or take home exams, and a research paper. Each component is of equal weight (20%). Late assignments will not be accepted. Guidelines for the research paper will be provided in class. Final project/paper must demonstrate knowledge of the econometric methods discussed in this class and a project or paper from another class or anything co-authored may not be used for this class. Guidelines for the research paper will be provided in class. See also Chapter 13 of Brooks to start with. The plus and minus grading system will be used.

Course Outline and Topics:

I. Introduction to Difference Equations
   E: Chapter 1
   Chiang and Wainwright: Chapters 17 and 18.
II. Stationary Time Series Models: Identification, Estimation and Testing
   E: Chapter 2
   A&H: Chapter 13
   J&D: Chapter 7
   B: Chapter 6.

Problem Set 1

III. Modeling Volatility: ARCH, GARCH, EGARCH and others
E: Chapter 3
A&H: 14
B: Chapter 9

Problem Set 2

IV. Models with Trend; unit root tests, etc.
E: Chapter 4
A&H: Chapter 16
J&D: Chapter 7.3
B: Chapter 8.1-8.3

V. Multi-equation Time Series Models: VAR, SVAR, Impulse Response Functions
E: Chapter 5
A&H: Chapter 15
J&D: Chapter 9.1-9.2
B: Chapters 7.11-7.17

Problem Set 3

VI. Cointegration and Error Correction Models
E: Chapter 6
A&H: Chapter 17, 18
J&D: Chapter 9.3-9.6
B: Chapter 8.4-8.13

Problem Set 4 due April 27

*** **Project due Thursday May 3** **

Final Exam

The final exam for this class is the project paper due as noted above.

Course Policies

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

Attendance is essential and expected.

Academic Integrity:

Academic dishonesty of any sort will not be tolerated. The minimum punishment for academic dishonesty will be an F in the course. The University provides a software package, TurnItIn, which you may use to assess the originality of your work for the project paper. A high "similarity score" is considered plagiarism and will result in an F for the course. Further action

may be taken. Refer to the University of Memphis Code of Student Conduct at http://www.memphis.edu/studentconduct/code.phphttp://www.memphis.edu/fcbe/integrity/ .

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Student Services:

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- Technical Assistance

THE UNIVERSITY OF MEMPHIS



ONLINE *GI-YES!*

ESCI 4515-6515

Geographic Info Science - 83777 - ESCI 4515 - 410
Geographic Info Science - 83811 - ESCI 6515 - 410

Geographic Information Systems (GIS)

Fall 2018- Aug 27 – Dec 14

Class Schedule: Available 24 hrs/day

Class Location: **Online**

Professor	Esra Ozdenerol, PhD, MLA
Title	Professor of Geography and Director of Graduate Certificate in GIS
Email Address	eozdenrl@memphis.edu
Phone	901.678.2787
Office Location	Johnson Hall, 236
Office Hours	Appointment through email

Course Description

This is a required course for GIS Certificate students and Geography majors. It is the entry point to Graduate Certificate in GIS. The overall goal of this course is to provide students with the theoretical and practical knowledge necessary to understand the fundamental GIS concepts, capabilities, and applications, with emphasis on the nature of geographic data and on the issues of data input, data models, database design, spatial analysis, and data output.

Course Prerequisites

Students outside of the Earth Sciences and GIS certificate are welcome to take this course but must first obtain permission from the instructor of this course. Students from School of Public Health, Social Sciences, Biology, Anthropology, College of Engineering, College of Business, UT Health Science Center, and professionals in all sorts of disciplines are welcome to take this course to learn Arc GIS 10.6 GIS software applications and theoretical and practical knowledge of GIS.

The instructor of this course assumes that the student is comfortable using Windows™ to carry out basic tasks such as copying files, moving directories, opening documents, exploring folders, and editing text and word processing documents. Previous experience with maps and map data is also helpful. No previous GIS experience or training is necessary to take this course.

Be familiar with **ecourseware.** Ecourseware is the University of Memphis's online course management system. This web-based platform provides students the link to register to "Connect" an interactive tool built for the course. Registered students will also have digital access to eBook.

Login to eCourseware at http://elearn.memphis.edu or through the Spectrum portal using your UUID and password.

Student Learning Expectations/Outcomes for this Course

Upon completion of this course, students will be able to:

- Understand how real-world features are represented by GIS data
- Knowing the differences between the raster and vector data models
- Getting familiar with the basic elements of data quality and metadata
- Learning the different types of GIS files used by Arc GIS 10
- Using Arc Catalog and Arc Map to view GIS data
- Learning about layers and their properties
- Distinguish between nominal, categorical, ordinal and ratio/interval data
- Creating maps from attributes using different map types
- Selecting appropriate classification methods when displaying numeric attributes
- Displaying thematic and image rasters
- Understanding how map documents save and represent data
- Distinguishing between a feature class and a layer
- Learning basic elements of creating good maps
- Creating text and labels on maps
- Creating map layouts and printed maps
- Understanding how tabular data are stored and used
- Using queries to select records of interest
- Understanding joins
- Summarizing tables to get statistics on groups
- Defining appropriate field properties
- Editing and calculating fields in tables
- Generating point layers from x-y coordinates in tables
- Understanding queries and how they are used
- Selecting features based on their spatial location with respect to other features
- Selecting features based on attributes using SQL and Boolean operators
- Applying selection options, including the selectable layers and the selection method
- Learning the purpose and capabilities of spatial joins
- Correctly setting up spatial joins based on cardinality and feature type
- Learning to solve problems with spatial joins

Course Structure Approach

This is an online lab course. There will be a moderate amount of reading assigned every week from Mastering concepts section of each chapter and a lab assignment from Mastering skills section of each chapter. There will be a required final project. Final exam will be based off of chapter review questions and lab exercises.

GIS Software

Every assignment we have in this class requires you to use ESRI Arc GIS software. The instructor will contact students via email to send the Arc GIS 10.6. Desktop Software to install on their personal computers. This course will make use of PCs and may require extensive computer time. The hands-on work will need to be performed at home or TAF laboratories on campus including the GIS teaching lab (Johnson Hall TAF 219), or any other computer with an Arc GIS 10.x install. Tutorial data and exercises are compatible with both versions 10.3.1. and 10.6. student trial. University of Memphis has the Arc GIS 10.3.1 software available under UM software. TAF Lab located in Room 219- Johnson Hall has Arc GIS 10.3.1 locally installed on each computer. TAF 219 Lab in Johnson Hall has 22 computers and will be monitored during Fall semester.

Required materials
Internet access, access to a windows computer with Arc GIS, or with installation capabilities.

CPU Speed 1.6 GHz recommended or higher
Processor Intel Core Duo, Pentium 4 or Xeon Processors
Memory/RAM 1 GB minimum, 2 GB recommended or higher
Display Properties 24 bit color depth
Screen Resolution 1024 x 768 recommended or higher at Normal size (96dpi)

Required Text/Tutorial
We will use 8th Edition of Mastering Arc GIS tutorial for the course. Mastering Arc GIS (8th Edition) comes with the concepts and skills, with each step demonstrated in a video clip; a set of exercises per chapter, map documents, and tutorial data for practicing skills independently. Homework exercises and review questions follow the chapters in eBook and along with Tutorial data, accessed in "Connect", an interactive tool built for the course to the registered students.
Intro GIS course's Ecourseware web-based platform provides students the link to register to "Connect" an interactive tool/course management system built for the course. Registered students will also have digital access to eBook. **Connect Online Access for Mastering ArcGIS 8th (ed) ISBN10: 1260136442 | ISBN13: 9781260136449**
If Students purchase instant Connect through Ecourseware, during registration to Connect, They will have the option to purchase a loose-leaf version of the book for $25 from McGraw Hill. Students can purchase the eBook that comes with "Connect" for $85 for 6 months. Students can also start two weeks of courtesy access to Connect. Below is a video of how a student can register to Connect, after they click the link on Ecourseware
https://www.youtube.com/watch?v=BJjYzOsSuYI
Tutorial data comes with Connect, also located in C: drive as Mastering ArcGIS data – "mgisdata" on TAF Lab computers.

Course Outline (The instructor reserves the right to alter this schedule at any time)
Every chapter has two sections, one (Mastering GIS concepts) covering general GIS concepts and theory, and another (Mastering GIS skills) covering the specific implementation of those concepts within ArcGIS Desktop. A set of review questions (10 questions) follow the concepts section. A set of exercises follow the skills section. Students are responsible of these sets every week per chapter. Schedule of assignments are provided on ecourseware.

Assessment of Student Learning Outcomes
Methods of Assessment

The student success will be assessed through their performance:

1. Performance on review questions
2. Performance on lab exercises
3. Execution of final exam – This will be based off of course readings and exercises
4. Execution of final project

1. A set of review questions (10 questions) follow the concepts section of each chapter.

2. A set of exercise questions (10 questions) follow the skills section. Students are only responsible of the 10 questions. They are not responsible of challenge problem. As part of some exercise questions, students need to capture a map or screen shot, you can do so by pressing the Alt-Prnt Screen keys on your computer, or using a program such as Jing, Snag it or Snipping tool. Then paste the capture in a word document. After you learn how to create map layouts, you can export your layout maps as jpgs in ArcMap and insert into a Word document.

3. Final exam will be based off of chapter review questions and lab exercises.

4. Execution of final project. Project syllabus is provided on ecourseware. Instructor provides final project ideas and data and instructions on ecourseware especially for undergraduates who have difficulty choosing a project. They are welcome to use those projects. Though instructor highly encourages students to do a project of their passion, collect their own project data or inquire about data on the internet or through connections and touch base with the instructor how to obtain data for their projects and how to execute their projects. They have to submit a proposal for their project idea. See schedule of assignments. Graduate students are encouraged to do a final project related to their Master's Thesis projects.

Grading System

Assignment	**#**	**Pts. Each**	**Total Points**
Review Questions	70 (10 per chapter)	40	2800
Lab Exercises	70 (10 per chapter)	60	4200
Exam	1	2000	2000
Final Project	1	1000	1000
Total Points			**10000**

Timing of Assessment

-Exercise due dates and all will be listed on the ecourseware class calendar and course schedule.
Let me know if you have any excuses for your assignments, I can work with you on that. Computers crash, systems go down, networks become disconnected, files get lost, printers often don't work, but these challenges are all part of the real-world experience of working with computers. Allow yourself enough time to complete assignments by their due date.
Email me if you think there is a problem beyond your control, and I will try to help come up with a solution. Also use the college systems administrative staff and the university IT help desk.

Technical Support

For technical support you may call ITD at 901.678.8888 or access their web site: https://umhelpdesk.memphis.edu. Please *do not* contact ITD help desk for questions related to course material. You are always welcome to e-mail me. We can set up face-to-face meeting in the lab.

Grading:

Grades will be based on the following scheme:
A: 90-100

B: 80-89

C: 70-79

D: 60-69

F: 59 and below

Course Policies

You are free to discuss and interact with other students on how to approach to the software problems and also help each other with tips if you run into a software *"how to"* problem. So I encourage a certain amount of collaboration among students. However, all students are required to perform their own work on homework exercises and submit their own work. Plagiarism will result in a failing grade.

This section is for students who do not have access to a personal computer and prefer to use the on campus lab resources. Arc GIS 10.3.1 software and Mastering Arc GIS exercise data are installed on computers of TAF Lab 219 Johnson Hall under C:drive "mgisdata". This lab is not monitored during summer. But you can

access through a punch code. I will send an email to you with the punch code to access the lab. Do NOT distribute the punch code!
You can log in through your UoM account to those computers in the TAF lab. Under H: drive, there is a folder named Online_Intro_GIS. You can create your own folder under the class folder. You can work and save your exercises to that folder. You won't be graded from this folder. This is a working folder for you to do your exercises and assignments in the lab environment if personal computer is not your preference. In any case, you are welcome to use lab resources and your folder.

THE UNIVERSITY OF MEMPHIS School of Public Health	**PUBH 7153/8153** **Biostatistics in Bioinformatics** **The University of Memphis** **Spring 2018** **Class Schedule: T 2-5pm** **Class Location: Robison Hall 217**

Hongmei Zhang, Ph.D.
Professor
hzhang6@memphis.edu
901-678-4707
224 Robison Hall
Office hours: by appointment

Course Description
This course focuses on statistical methods in application to bioinformatics data and other large data sets with similar features. Students will be introduced to R programming, a commonly used programming language implemented in bioinformatics data analyses. This will be an applied course with focus on learning the methods, applying the methods, and programming in R.

Course Prerequisites
PUBH 7150 (Biostatistical Methods I)

Learning Objectives
Student are expected to
(1) understand of a range of topics in bioinformatics and statistical methods used in this area.
(2) understand the computing algorithms of biostatistical methods.
(3) apply selected biostatistical methods to analyze bioinformatics data.
(4) be able to use R packages to perform quality control analyses of large data sets and analyze bioinformatics data.
(5) have the ability to interpret numerical results produced from the computing algorithms.

Competencies
Students with successful completion of this course will gain knowledge and skills of analyzing bioinformatics data and other large data sets using statistical package R. Competencies relevant to this course are being able: to demonstrate an understanding of a range of topics in statistical methods applied to bioinformatics research, to demonstrate a solid understanding of the computing algorithms of biostatistical methods, to demonstrate an understanding of the application of selected biostatistical methods in bioinformatics focused areas, to be able to use R packages to perform quality control analyses of large data sets and analyze bioinformatics data, and to have the ability to interpret numerical results produced from the computing algorithms.

Textbooks: given the rapid progress in this field, no specific textbooks are required. Following is a list of recommended books:

1) Bioinformatics and Computational Biology Solutions Using R and Bioconductor, R. Gentleman, V.J. Carey, W. Huber, R.A. Irizarry, S. Dudoit, 2005.
   This book covers many commonly used R packages for large data.

2) Statistical Computing with R, Maria Rizzo, Chapman & Hall/CRC Press, 2008.

3) RNA-seq Data Analyses, a Practical Approach. Eija Korpelainen, Jarno Tuimala, Panu Somervuo, Mikael Huss, Garry Wong. Chapman & Hall/CRC Press, 2014.

4) Bayesian Data Analysis, by A. Gelman, J. Carlin, H. Stern, DB Dunson, A Vehtari, and D. Rubin, CRC Press, 2013.
This book is for understanding Bayesian method and constructing Bayesian models.

5) Bayesian inference for gene expression and proteomics, edited by K. Do, P. Muller, and M. Vannucci, Cambridge Press, 2012

Course Requirements and Grading Criteria

Mid-term exam	20%
Final exam	25%
Project	15%
Homework	40%

Homework: In total six assignments. Each assignment is generally due in one week after assigned. All the homework will be graded and returned. Assignments turned in after 5pm on the due date but before the return date will have the grade reduced by 50%. No assignment will be accepted after the return date, unless arrangements have been made with the instructor prior to the due date. It is encouraged to work on homework together, but copying homework of another will not be tolerated. Students who copy others homework and students providing the copy will both receive zero points if identified.

Project: There will be one project besides homework assignments. At the end of the semester, each student is required to give a presentation (around 30 minutes).

Exam: There will be one midterm and one final exam, which are based entirely on each student's own work.

Software requirement: R statistical computing package. It is free and can be downloaded from www.r-project.org

Description of Requirements and their Evaluation

Class participation: Attendance and participation are critical parts of the learning process in this course. All students are expected to come to class and share their insights on the readings and projects on which they are working. Students are encouraged to discuss the relevant issues they find challenging or interesting while reading or exploring materials for this course.

Grading Scale
The letter grades for each requirement are assigned using the following grading scale:

Percentage Grade	*Letter Grade*	*GPA*	*Percentage Grade*	*Letter Grade*	*GPA*
≥96%	A+	4.00	76%	C+	2.33
93%	A	4.00	73%	C	2.00
90%	A–	3.84	70%	C–	1.67
86%	B+	3.33	66%	D+	1.33
83%	B	3.00	60%	D	1.00
80%	B–	2.67	<60%	F	0.00

Promoting a Positive Learning Environment
The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Course Requirements and Personal Conduct

Class readings and homework assignments are important components of the course. Biostatistics is *very* difficult and you may quickly run behind if you don't keep up with readings and homework. In the event of an unavoidable absence (ie. can't access course material for an extended period of time, illness or an extended period of time, etc), please notify the instructor beforehand if at all possible.

Promoting a Positive Learning Environment
The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Personal Conduct
As a community of scholars, it is expected that the instructor and students will work together at all times to create an atmosphere that fosters shared discovery and mutual respect. The instructor will be prepared for each class meeting, and likewise, students are expected to arrive prepared to ask questions, discuss, and learn. Students are expected to handle feedback from the instructor in a constructive manner. Students are expected to complete all assigned readings and writing assignments, and to participate in class discussions.

Class attendance is an important component of the course. In the event of an unavoidable absence, please notify the instructor beforehand if at all possible. Certain behaviors are disruptive and disrespectful to the instructor and other students and are not acceptable. These include tardiness, use of cell phones or PDAs, or engaging in side conversations while others are talking. If arriving late is unavoidable, notify the instructor in advance, if possible. Set your cell phone to silent if it must be available for an emergency. In addition, the students will not be allowed to use any electronic devices during the exam. Use of such devices during exam may result in a failing grade. Students who engage in these behaviors may be asked to leave and not allowed to return until a meeting with the instructor has occurred during which a plan to avoid future classroom disruptions has been worked out.

Make-Up and Absentee Policy
Students missing class are responsible for the content presented and are not excused from assignment due dates. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards
Effective managers, leaders, and teachers are also effective communicators. Written communication is an important element of the communication process. The School of Public Health graduate program recognizes and expects exemplary writing to be the norm for course work.

Academic Conduct

All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy (see http://www.memphis.edu/history/misconduct_policy.htm). Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions, such as reduction or zero grade in that assignment, suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Please refer to the link below for more information on what constitutes plagiarism:
http://isites.harvard.edu/icb/icb.do?keyword=k70847&pageid=icb.page342054

Cheating is also not acceptable at the University of Memphis. Cheating includes but is not limited to the following: using any unauthorized assistance in taking quizzes or tests; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

"Your written work may be submitted to Turnitin.com, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin.com's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

Awarding an Incomplete Grade
A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy
In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

Americans with Disabilities Act
The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination. Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs
Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

Inclement Weather Policy
In the event that inclement weather requires the cancellation of classes at the University of Memphis, local radio and television media will be notified. Additionally, the University of Memphis has established an inclement weather hotline 901-678-0888.
http://hss.memphis.edu//SyllabusGuidelines.html - Top%20of%20Page

Schedule (tentative):

Abbreviations for textbook titles:
BCBS: Bioinformatics and Computational Biology Solutions Using R and Bioconductor
BDA: Bayesian Data Analysis

Week	**Topic**	
1	Introduction to high throughput data, R, and Bioconductor	Handout
2, 3 (Homework 1)	Quality checks, Distances	Handout and BCBS Ch.2, 3, 12
4 (Homework 2)	Clustering (parametric and non-parametric)	BCBS Ch. 13
5 (Homework 3)	Multiple testing, Filtering	BCBS Ch. 14, 15
6	Regression trees, (recursive) Random forests	Handout, BCBS Ch. 16
7 (Homework 4)	Regression trees, (recursive) Random forests (cont'd)	Handout, RNA-seq Data Analyses (Ch. 8)
8	**Spring break, NO CLASS**	
9 **midterm (take-home) Project distributed**	Parametric variable selections (frequentist approach)	Handout
10	Introduction to Bayesian data analysis	Handout, BDA Ch. 2
11	Guest Lecture (Dr. Bernie Daigle Jr, Dr. Yu [Joyce] Jiang)	
12	Bayesian parametric variable selection	Handout

13	Gene set testing, Differential gene expression analysis	Handout, RNA-seq Data Analyses (Ch. 8)
14	Gene enrichment analyses, Pathway analyses	Handout
15	Project presentations	
(Final take-home exam distributed)		
16	**Final exam due by May 2nd, 5pm**	

THE UNIVERSITY OF MEMPHIS School of Public Health	**PUBH 7104/8104** **Large Data Sets and** **Health Services Research** **The University of Memphis** **Fall 2017** Class Schedule: M, 5:30-8:30 Class Location: **Smith Hall 110**

Professor	Mr. George E Relyea, MA, MS
Title	Assoc. Research Professor
Email Address	GRelyea@memphis.edu
Phone	901.678.1716
Office Location	Robison Hall, 226
Office Hours	M-W(8:30am-3:00pm cst);

Course Description

Health quality and outcomes issues addressed through primary and secondary data analysis using large, public data sets will be examined. Issues related to secondary analysis and drawing items from multiple data sets will be discussed. Analytical techniques such as adjustments for missing data, transformations of data, and risk adjustment will be applied using public data sets. Course is designed mainly for students admitted to the Health Services Research PhD Program however students from other academic areas are welcome provided they obtain permission from the instructor.

Course Prerequisites

PUBH 7150/8150(Biostatistics Methods I, PUBH 7152/8152 (Biostatistics Methods II), and PUBH 7190/8190(Advanced SAS I). Students are strongly encouraged to have taken PUBH 7191/8191 (Advanced SAS II).

Required Text(s)/Readings

None. Lecture materials will be taken from the references below as well as other papers.

Other References used in this Course

The following texts are not required for this course. This is not a complete list that will be used in this course.

Jason Burke. (2013). Health Analytics: Gaining the Insights to Transform Health Care. Wiley, NY.

Kattamuri S. Sarma. 2013. Predictive Modeling with SAS Enterprise Miner: Practical Solutions for Business Applications, second edition, NC: SAS Institute Inc. ISBN: 978-1-60764-767-6

Paul D. Allison. 2002. Missing Data. Sage publications, Inc. Thousand Oaks, CA.

Paul S. Levey and Stanley Lemeshow. (1999). Sampling of Populations: Methods and Applications, 3rd Ed. Wiley< NY.

Robert Nisbet, John Elder, and Gary Miner. 2009. Handbook of Statistical Analysis & Data Mining Applications. Academic Press, Burlington, MA.

Online Resource

Most of the course reading material and SPSS and SAS programs will be posted on this course's web site.

http://umdrive.memphis.edu/grelyea/public

Then look for PUBH_7104_Large_Data_Sets

Please note that all programs were developed by the course instructor. If you use the programs, please acknowledge me in your work.

Course Goals

The objects of this course are four fold: (1) gain knowledge of more advanced analytical techniques in analyzing large data sets, (2) gain skills on how to reach decisions about factors that affect public health and decision making through advanced modeling techniques, (3) gain exposure to the most commonly used software in public health data research, and (4) gain skills in predictive modeling techniques.

Students successfully completing this course should be able to:

1. Evaluate appropriateness of a public data set to conduct an analytic approach for a specified question.
2. Discuss issues related to drawing items from multiple data sets, sensitivity of variables collected for different purposes than the current research, methods to transform data.
3. Assess threats to validity of analysis posed by missing data, model mis-specification, for various statistical models including correlated data structures.
4. Debate the issues related to the use of risk adjustment for public data sets.
5. Conduct complex data analysis using a public data set including the capability to specify estimation model, test model specification and assumptions, describe data integrity, and account for data structure.
6. Program analysis procedures in SAS and SAS Enterprise Miner
7. Report results of data analysis in published professional articles and executive summaries in technical reports.
8. Gain insights to performing predictive modeling and validation of the statistical models.

MPH Competencies

This course was designed to cover the specific CEPH MPH competencies as listed below.

D2. MPH Foundational Competencies (SPH and PHP)
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3 Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate

4. Interpret results of data analysis for public health research, policy or practice

Course Requirements and Grading Criteria

Lectures will be composed of three parts: introduction and motivation of the topic/model with some mathematics; presentation of an example data set and SAS or SAS/EM methods used analyzing the example data, and interpreting and writing results of analyses. All information (data sets, lecture notes, programs, and output) will be posted on this courses web access. Again, the emphasis is not on the mathematics but on understanding the statistical/analytical models and interpreting results.

Class Attendance and Online Participation

All students are expected to read the course material as assigned and work all homework assignments within the dates and times assigned. You may certainly e-mail me during office hours or post questions on the Discussion Board. If you want to call, it is better to set up an appointment so that I can be certain to schedule you the time you prefer.

All students are required to perform their own work on homework assignments and on examinations and submit their own work. You are, however, free to discuss and interact with other students on how to approach the problem.

Grading Scale

The letter grades for each requirement are assigned using the following grading scale. Your final grade is the percent grade across course assignments.

The letter grades for each requirement are assigned using the following grading scale:

Percentage Grade	*Letter Grade*	*GPA*	*Percentage Grade*	*Letter Grade*	*GPA*
≥96%	A+	4.00	76-79%	C+	2.33
93-95%	A	4.00	73-75%	C	2.00
90-92%	A–	3.84	70-72%	C–	1.67
86-89%	B+	3.33	66-69%	D+	1.33
83-85%	B	3.00	60-65%	D	1.00
80-82%	B–	2.67	<60%	F	0.00

Promoting a Positive Learning Environment

The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to

provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Academic Conduct

Cheating is not unacceptable at the University of Memphis. Cheating includes but is not limited to the following: using any unauthorized assistance in taking quizzes or tests; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of the proctor concerning test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to extraordinary events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy

You may withdraw from this class as stipulated in the University of Memphis procedures and timelines.

Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination*. Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs

Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

Inclement Weather Policy

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Advanced Students

All 7000/8000 level students are required to submit a final paper using methods learned in this course. Students enrolled at the 8000 are required to provide a more rigorous analysis of their data. Students are advised to consult with the instructor before they analyze their data set. Student's research hypothesis must be clearly stated and analyses must appropriately address their hypothesis. Furthermore, students are required to present appropriate statistical tables (not computer output) and discuss their findings.

Schedule of Topics and Readings

The following is an overview of the course material broken down into lecture modules. Lecture topics can extend across multiple class meetings. The following is a rough outline of course topics:

Course Outline

Sessions	**Topic/Reading Assignments**
Aug 28	Introduction • Housekeeping; ground rules, review of syllabus • Schedule for student papers • Overview of (Health) Analytics competencies • Examples of Public Data Sets and access
Sep 4	Labor Day-No class
Sep 11	Overview of Logistic Regression, Discriminant, and OLS Regression
Sep 18	Principal topic: Introduction to data analysis and problems of missing data Approaches—overview of : • Accessing MAR and MCAR missingness • Substitution, Single imputation Methods • Regression Methods • Markov-Chain (MCMC)
Sep 25 Oct 1, 8	Topic: Continue missing data: Nonignorable missing-data • Discuss issues of drawing data from multiple sources. • Continue discussion on data inspection, cleaning, and assessing missingness • Handout demonstrates some useful methods using procedures available in Stata and SAS/Stat: Assessing impact on model estimates: • Sensitivity assessment: MI analyze • Recommended solutions

Oct 15	Fall break-No class
Oct 22, 29	Propensity matching for clinical trials and observational studies: • General overview of data structures for analyses • 1:1 propensity matching • 1:N matching • Optimal Matching
Oct 29 Nov 5, 12	Cross-validation methods for Large Data • Bootstrap Cross Validation • K-Fold Cross Validation • Random Subsampling Cross Validation
Nov 19	Building Decision Tree Models to Predict Response and Risk outcomes
Nov 26	No class: Thanksgiving break
Nov27 Dec 3	High Performance Forest Analysis Last Day of class
Dec 11	Student Paper due for all students

THE UNIVERSITY OF MEMPHIS
School of Public Health

PUBH 7205/8205-001
Special Topics: Data Mining Techniques for Healthcare Analytics
The University of Memphis
Fall 2018
Class Schedule: M, Time: 5:30pm-8:30pm
Class Location: Smith Chemistry, 110

Professor	George E. Relyea, MA, MS
Title	Assoc. Research Professor
Email Address	GRelyea@memphis.edu
Phone	901.678.1716
Office Location	Robison Hall, 226
Office Hours	M-W (8:30am-3:00pm CST)

Course Description

This is a first course in applying data mining techniques and predictive modeling using SAS Enterprise Miner. Students will learn how to gain practical skills in employing the SEMMA model development process and testing their prediction model using various management and mathematical techniques.

Course Prerequisites

We require students to have taken Biostatistical Methods II (PUBH 7152/8152) and Advanced SAS Programming I for Healthcare Professionals, PUBH 7190/8190.

Learning Objectives

- Gain skills in programming with SAS Enterprise Miner
- Learn how to employ the SEMMA model development process: Sample, Explore, Modify, Model and Assess
- Build decision/classification tree models to predict response risk
- Understand and use Neural Network Models
- Understand the basics of prediction models with textual data
- Gain skills in applying various regression models
- Perform variable reduction methods
- Compare different prediction models

Competencies

This course is designed to cover specific MPH Core Competencies as listed below:

MPH Foundation Competencies

2. Select quantitative and qualitative data collection methods appropriate for a given public health context
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate
4. Interpret results of data analysis for public health research, policy or practice

Concentration Competencies

1. Interpret results of statistical analyses found in public health studies.
2. Apply descriptive techniques commonly used to summarize public health data.
3. Apply basic concepts of probability, random variation and commonly used statistical probability distributions.
4. Evaluate preferred methodological alternatives to commonly used statistical methods when assumptions are not met.
5. Distinguish among the different measurement scales and the implications for selection of statistical methods to be used based on these distinctions.
6. Apply common statistical methods for inference

Required Text(s)

Kattamuri S. Sarma. PhD. 2013. *Predictive Modeling with SAS Enterprise Miner: Practical Solutions for Business Applications, Second Edition*, Cary, NC: SAS Institute Inc.

This text book is *required* for this course. All online course material follows the chapters in this book and homework assignments are from this book.

Online Resource

Most of the course material, lecture notes, and datasets will be posted on this course's web site:

http://umdrive.memphis.edu/grelyea/public

Then look for PUBH_7205_HC_Data_Mining .

Course Requirements and Grading Criteria

As this is a practical applications course and students will be required to submit homework problems as assigned. In addition, students must submit a final project paper using methods covered in this course.

You are also required to work all assigned homework problems *within* the week of assignment. Provided you have turned in your homework assignments on time, your graded homework will be returned back to you. You may *re-submit* the homework to be graded provided you have re-submitted the homework *within a week* of receiving the graded homework. I'll average the two homework assignments. Any homework assignment turned in after the due date and time will be downgraded 10% for the first day

and then 5% for each subsequent day of late submission. Late homework submissions *cannot* be re-submitted for grading again.

The following criteria will be used to evaluate your course grade

Homework problems (assignments, equally weighted)	100 pts
Final Paper	100 pts
TOTAL	200 pts

All 8000 (PhD) level students are required to demonstrate more in-depth, comprehensive and synthesis of knowledge.

Submitting Homework Assignments and Final Paper

You may submit homework and tests on paper at the end of class or submit using UoM online course portal at http://elearn.memphis.edu.

Use your UUID and password to log onto this site. (It is the same username and password as for your UoM email).

Please submit only one MS Word or PDF document.

Late Assignments: Generally you will have one week to submit your homework assignments from the date they were assigned.

Class Attendance and Participation

Attendance and participation are critical parts of the learning process in this course. All students are expected to come to class and share their insights on the readings and understanding of statistical methods. Students are encouraged to discuss the relevant issues they find challenging or interesting while reading or exploring materials for this course.

Grading Scale

The letter grades for each requirement are assigned using the following grading scale:

- 96-100% | A+ | 4.00
- 93-95.9% | A | 4.00
- 90-92.9% | A- | 3.84
- 86-89.9% | B+ | 3.33
- 83-85.9% | B | 3.00
- 80-82.9% | B- | 2.67
- 76-79.9% | C+ | 2.33
- 73-75.5% | C | 2.00
- 70-72.9% | C- | 1.67

- 66-69.9% | D+ | 1.33
- 60-65.9% | D | 1.00
- <60% | F | 0.00

Viewing Your Grades

You may view your homework and exam grades from UoM online course portal at elearn.memphis.edu. Use your UUID and password to log onto this site. (It is the same username and password as for your UoM email). Masters level students will need to look for course PUBH 7XXX; Doctorate level student should look in PUBH 8XXX.

Advanced Expectations for Doctoral Students

Doctoral students will assume greater responsibility for facilitating class discussions and are required to demonstrate in-depth and comprehensive synthesis of knowledge in their homework assignments and tests, in accordance with the doctoral competency listed in this syllabus.

Promoting a Positive Learning Environment

The School of Public Health recognizes its responsibility to promote a safe and diversity-sensitive learning environment that respects the rights, dignity, and well-being of all students, faculty, and staff. Diversity means the fair representation of all groups of individuals, the inclusion of contrasting perspectives and voices, together with the appreciation and valuing of different cultural and socioeconomic group practices. Moreover, we aspire to foster a climate of mutual respect and empathy, among and between students, faculty, and staff, by nurturing an atmosphere that is free from discrimination, harassment, exploitation, or intimidation. Courses will strive to provide an opportunity for all students to openly discuss issues of diversity including, but not limited to, age, disability, ethnicity, gender, race, religious beliefs, and sexual orientation.

Personal Conduct

As a community of scholars, it is expected that the instructor and students will work together at all times to create an atmosphere that fosters shared discovery and mutual respect. The instructor will be prepared for each class meeting, and likewise, students are expected to arrive prepared to ask questions, discuss, and learn. Students are expected to handle feedback from the instructor in a constructive manner. Students are expected to complete all assigned readings and writing assignments, and to participate in class discussions.

Class attendance is an important component of the course. In the event of an unavoidable absence, please notify the instructor beforehand if at all possible. Certain behaviors are disruptive and disrespectful to the instructor and other students and are not acceptable. These include tardiness, use of cell phones or PDAs, or engaging in side conversations while others are talking. If arriving late is unavoidable, notify the instructor in advance, if possible. Set your cell phone to silent if it must be available for an emergency. In addition, the students will not be allowed to use any electronic devices during the exam. Use of such devices during exam may result in a failing grade. Students who engage in these behaviors may be asked to leave and not allowed to return until a meeting with the instructor has occurred during which a plan to avoid future classroom disruptions has been worked out.

Make-Up and Absentee Policy

Students missing class are responsible for the content presented and are not excused from assignment due dates. You may be asked to make up for the missed class in the form of written critical commentaries on the readings, additional assignments, or tests. Please let the instructor know in advance if you will be absent on a given class day.

Writing Standards

Effective managers, leaders, and teachers are also effective communicators. Written communication is an important element of the communication process. The School of Public Health graduate program recognizes and expects exemplary writing to be the norm for course work.

Academic Conduct

All written work submitted must be the student's original work and conform to the guidelines of the American Psychological Association (APA) which are available online and via their publications. This means that any substantive ideas, phrases, sentences, and/or any published ideas must be properly referenced to avoid even the appearance of plagiarism. This also applies to oral sources, such as material taken from lectures or interviews. Plagiarism is a serious violation of University policy. Examples of plagiarism include, but are not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full or clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency in the selling of term papers or other academic materials.

It is the student's responsibility to know all relevant university policies concerning plagiarism. Any documented cases of plagiarism can and will result in dismissal from the course with a failing grade, and may result in other more serious sanctions, such as reduction or zero grade in that assignment, suspension or expulsion, by the School of Public Health and The University of Memphis. If there is evidence of plagiarism in work that is published, the student could face legal and/or financial consequences. If the student has any doubt about acknowledgment of appropriate sources, they are encouraged to speak with their instructor or advisor. Here is more information on what constitutes plagiarism.

Cheating is also not acceptable at the University of Memphis. Cheating includes but is not limited to the following: using any unauthorized assistance in taking quizzes or tests; acquiring tests or other academic material before such material is revealed or distributed by the instructor; failing to abide by the instructions of test taking procedures; influencing, or attempting to influence, any university employee in order to affect a student's grade or evaluations; any forgery, alteration, unauthorized possession, or misuse of University documents.

"Your written work may be submitted to Turnitin, or a similar electronic detection method, for an evaluation of the originality of your ideas and proper use and attribution of sources. As part of this process, you may be required to submit electronic as well as hard copies of your written work, or be given other instructions to follow. By taking this course, you agree that all assignments may undergo this review process and that the assignment may be included as a source document in Turnitin's restricted access database solely for the purpose of detecting plagiarism in such documents. Any assignment not submitted according to the procedures given by the instructor may be penalized or may not be accepted at all." (Office of Legal Counsel, October 17, 2005)

Awarding an Incomplete Grade

A grade of "I" (Incomplete) may be assigned by the Instructor of any course in which the student is unable to complete the work due to EXTRAORDINARY events beyond the individual's control. The "I" may not be used to extend the term for students who complete the course with an unsatisfactory grade. Unless the student completes the requirements for removal of the "I" within 45 days (for undergraduate courses, or 90 days for graduate courses) from the end of the semester or Summer term in which it was received, the "I" will be changed to an "F," regardless of whether or not the student is enrolled.

Withdrawal Policy

In accordance with University policy, withdrawal is not permitted after the date specified in the University Calendar for that term. Exceptions are made to the policy only in case of such extreme circumstances as serious illness, relocation because of employment, etc.

Americans with Disabilities Act

The University of Memphis does not discriminate on the basis of disability in the recruitment and admission of students, the recruitment and employment of faculty and staff, and the operation of any of its programs and activities, as specified by federal laws and regulations. *The student has the responsibility of informing the course instructor (at the beginning of the course) of any disabling condition, which will require modification to avoid discrimination.* Faculty are required to provide "reasonable accommodation" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.

Special Needs

Any student who has special needs for assistance and/or accommodation, and who is registered with the Office of Student Disability Services should meet with the instructor during the first week of classes.

Inclement Weather Policy

In the event that inclement weather requires the cancellation of classes at the University of Memphis, local radio and television media will be notified, according to the Emergency Closing Policy. Additionally, the University of Memphis has established an inclement weather hotline 901-678-0888.

Schedule of Topics and Readings

Homework assignments are generally due Tuesday one week after begin assigned. All exams are take home and you will generally have 3 weeks to complete the exams.

Note: The schedule and readings are not tentative and are subject to change.

Week	Topic
08/27/2018	Read Chapter 1 of text
09/03/2018	Labor Day: No Class
09/10/2018	Read Chapter 2-Getting started with Predictive Modeling
	EM windows and setting variable characteristics
	Input Data, Data Partition, File Import, Merge, Sample, Filter, and Time series
09/17/2018	Read Chapter 3: Variable Selection and Transformation of variables
09/24/2018	Chapter 3 continued
10/01/2018	Chapter 4: Building Decision Tree Models to Predict Response and Risk

10/08/2018	Chapter 4 continued
10/15-16/2018	Fall Break: No class
10/22/2018	Chapter 5: Neural Network Models to Predict Response and Risk
10/29/2018	Chapter 5 continued
11/05/2018	Chapter 6: Regression models
11/12/2018	Chapter 6 continued
11/19/2018	Chapter 7: Comparison and Combination of Different Models
11/26/2018	Chapter 9: introduction to Predictive Modeling with Textual Data
12/03/2018	Chapter 9 continued
Dec. 05, 2018	Last day of classes
Dec 14, 2018	Final Paper due

MATH 7685-8685: Simulation and Statistical Computing
Fall, 2018
MW 12:40pm-2:05pm (DH 203)
Lih-Yuan Deng (DH219, 678-3134)
Department of Mathematical Sciences
The University of Memphis

Office Hours:

MW 10am-11:30am or by appointment

Contact Information:

(O) 901-678-3134, email: `lihdeng@memphis.edu`.

Course Contents:

1. Introduction
2. R and High-Performance Computing
3. The Discrepancy between Pencil-Driven Theory and Data-Driven Computational Solutions
4. Simulation of Random Numbers
5. Monte Carlo Methods for Optimization Problems
6. Probability Theory Shown by Simulation
7. Resampling Methods
8. Applications of Resampling Methods and Monte Carlo Tests
9. The EM Algorithm
10. Simulation with Complex Data

Textbook Used:

Simulation for Data Science with R, by Matthias Templ, Publisher: Packt Publishing, ISBN-13: 978-1785881169, ISBN-10: 1785881167

Software Used:

R will be the major program used symbolic program such as MAPLE/Mathematica/Sage is recommended for this course.

Grading:

Midterm exam or Class Project	25%
Homework (program or written)	20%
Class Participation	15%
Final Exam (Project)	40%

MATH 7695-8695: Bootstrap and Other Resampling Methods
Spring, 2017
MW 4pm-5:25pm (DH 203)
Lih-Yuan Deng (DH 219, 678-3134)
email: lihdeng.memphis.edu

Course Contents:

1. Overview of Bootstrap Methods
2. Basic Bootstraps
3. Bootstrap methods for complicated models (censored, missing data, ...)
4. Hypothesis testing using Bootstrap methods
5. Confidence Intervals Construction using Bootstrap methods
6. Bootstrap methods for linear regression models
7. Semiparametric Likelihood Inference
8. Computer Implementation

Textbook Used:

"*Bootstrap Methods and Their Application*", by A. C. Davison and D. V. Hinkley, Publisher: Cambridge University Press, Hardback ISBN 0-521-57391-2, Paperback ISBN 0-521-57471-4.

Software Used:

The use of R is required for this course. Additional software recommended: MAPLE.

R is a freely available language and environment for statistical computing and graphics which provides a wide variety of statistical and graphical techniques: linear and nonlinear modeling, statistical tests, time series analysis, classification, clustering, (in this class, bootstrap method) etc. R can be downloaded at http://CRAN.R-project.org

For a list of available packages, please see http://CRAN.R-project.org/web/packages/

Office Hours:

10am-11:30pm Monday, Wednesday (DH 219) or by appointment.

Grading:

Assignments	30%
Midterm Project	20%
Class Participation	15%
Final Project	35%

MATH 7759-8759: Categorical Data Analysis
Spring, 2019
Tu, Th 2:40pm-4:05pm Rm: DH 231
Lih-Yuan Deng (DH219, 678-3134)

Course Contents:

MATH 7759-8759. Categorical Data Analysis. (3). Exponential family of distributions and generalized linear models; binary variables and logistic regression; contingency tables and log-linear models; quasi-likelihood functions; estimating functions. PREREQUISITES: MATH 7643 and MATH 7654.

1. Distributions and Inference for Categorical Data
2. Describing Contingency Tables
3. Inference Contingency Tables
4. Introduction to Generalized Linear Models
5. Logisitic Regression
6. Building and Applying Logisitic Regression Models
7. Logit Models for Multinomial Responses
8. Loglinear Models for Contingency Tables
9. Building and Extending Loglinear/Logit Models
10. Models for Matched Pairs
11. Analyzing Repeated Categorical Response Data

Textbook Used:

"*Categorical Data Analysis*, Third Edition ", by Alan Agressti, 2012, John Wiley, ISBN-10: 0470463635, ISBN-13: 978-0470463635 .

Software Used:

The use of R (or S-Plus) is required for this course. Other packages such as SAS or MAPLE could be useful. The followings are useful links over the internet:

1. `http://www.stat.ufl.edu/~aa/cda/cda.html` (textbook author's website)
2. `https://home.comcast.net/~lthompson221/#CDA` (Summary of each chapter in the textbook and discussion of R/S-Plus programs for the second edition of this textbook)

Office Hours:

10am-11:30am Tu, Th or by appointment.

Grading:

Midterm exam 1	30%
Midterm exam 2 or Class Project	30%
Class Participation	10%
Final Exam or Project	30%

2019SMIS7660001 2
2019SMIS7621001 8
2019SMIS7720001_BusAI 18
2019SMIS7710001 24

Course Syllabus

MIS 7660-001 – Advanced Data Management

Spring Semester, 2019

3.0 Credit Hours

(Last updated: 1/02/2019)

Instructor: Mark L. Gillenson, PhD

Phone: 901.678.5607

E-mail: Mark.Gillenson@memphis.edu

Office: FCBE #329

URL: http://www.memphis.edu/bitm/faculty/markgillenson.php

Office Hours: MW 3:30-5:00PM.

Course Overview:

This course will focus on the latest data management paradigms for both transactional and business intelligence applications. This includes NoSQL database, NewSQL database, blockchain technology, and data lakes.

Pre-Requisites/Co-Requisites:

MIS 7605, an equivalent introductory database course, equivalent knowledge of data modeling, logical and physical database design, and relational database management including the SQL language, or permission of the instructor.

Required Texts (and Related Materials):

- Sullivan, D. (2015). NoSQL for Mere Mortals. Addison-Wesley.
  ISBN: 978-0-13-402321-2
- Drescher, D. (2017). Blockchain Basics. Apress.
  ISBN: 978-1-4842-2603-2

Recommended Texts (and Related Materials):

- Robinson, Webber, and Eifrem. (2015). Graph Databases, 2ed. O'Reilly Media.
  ISBN: 978-1491930892 (note: this will be provided in a pdf)

Location of Course Materials:

elearn.memphis.edu.

Course Objectives:

By successfully completing this course, students will be able to:

- Analyze a data management situation and determine the applicability of the four NoSQL database paradigms: key-value database, document database, big table database, and graph database.
- Analyze a data management situation and determine the applicability of the NewSQL database paradigms.
- Design databases using the NoSQL and NewSQL paradigms.
- Discuss specific NoSQL and NewSQL products on the market.
- Discuss blockchain and other advanced data management technologies.

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the MS in BIT, MSBA/MIS, MS in Accounting, or MBA degree offered by the Fogelman College. You should take the time to become familiar with the overall learning objectives as a student in your degree program.

The Fogelman College has established the following learning goals for all students successfully completing the MSIS/MSBA degree:

- Graduates will be competent in the use of technology.
- Graduates will be effective communicators.
- Graduates will be knowledgeable about threats and opportunities in a global society.
- Graduates will be problem solvers.

Course Methodology

Lectures, guest lectures from the business community, case studies, homework, exams, and projects.

Professor's Expectations of Students:

In general, you should assist the instructor in creating a positive, supportive environment for learning by staying engaged in the course and actively participating in all classroom discussions.

Student's Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including: a well-organized and engaging learning experience, response to emails within two (2) business days, and feedback on all work submitted within two (2) weeks.

Grading and Evaluation Criteria

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Final Course Grades

Final course grades will be based on a curve to be determined at the end of the course. The following point ranges represent the grade basis prior to a curve being applied:

Point Range	Assigned Grade
90-100 Points	A
80-89 Points	B
70-79 Points	C
60-69 Points	D
Under 60 Points	F

Your overall grade for the semester is based on how well you perform on a mixture of activities including class participation, exams, homework, and projects. A detailed description of each of the assessed activities can be found after the scoring summary table below.

Summary of Graded Activities

Points earned on the assessed activities will be distributed as follows:

Deliverable	Total Points
Two Exams	40
Research Project	40
Homework	10
Class Participation	10
Total	100 pts

Course Topics:

Unit 1 Topics: Overview of the four NoSQL paradigms.
Readings: Chapters 1-14 in the Sullivan textbook.

Unit 2 Topics: Introduction to NoSQL database management. Readings: Chapters 1-2 in the Sullivan textbook.

Unit 3 Topics: Key-value database. Readings: Chapters 3-5 in the Sullivan textbook.

Unit 4: Document database. Readings: Chapters 6-8 in the Sullivan textbook.

Unit 5: Column family (or big table) database. Readings: Chapters 9-11 in the Sullivan textbook.

Unit 6: Graph database. Readings: Chapters 12-14 in the Sullivan textbook and the Graph Databases pdf.

Unit 7: Database selection guidelines. Readings: Chapter 15 in the Sullivan textbook.

Unit 8: NewSQL database. Readings: To be assigned.

Unit 9: Blockchain Technology. Readings: Drescher: Entire Book.

Unit 10: Data Lakes: Readings: To be assigned.

Additional topics and readings may be added as the course progresses.

Final Exam Schedule

There is no final exam in this course.

Course Policies

E-MAIL:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

Attendance is required in this course. If you have a reason for missing a class meeting, please email the instructor in advance.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website (opens in new window).

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a

discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Participation:

To be successful in this course as a student, you must stay active and involved throughout the entire semester. Students are expected to participate in all interactive aspects of the course.

Classroom Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Late Assignments:

Assignments and projects may be submitted anytime up to and including the date due. Please review all information in this syllabus and related "Course Activity Summary / Schedule" for all due dates for formally assessed work. If your work is not submitted on time, the instructor reserves the option to deduct up to 20% of the grade value for tardiness depending upon the circumstances and appropriate communication between the student and the instructor.

Extra Credit:

There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. If an emergency should arise, it is the student's responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.
All class absences must be reported to the instructor in advance.

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an

unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the online course management system.

Student Services

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

THE UNIVERSITY OF MEMPHIS
Fogelman College of Business & Economics

Course Syllabus

MIS 7621 – Business Machine Learning II

Spring Semester, 2019

3.0 Credit Hours

Instructor Information

Name: Srikar Velichety, Ph.D.

Email: svlchety@memphis.edu

Phone: 901-678.3609

Office Location: FCBE#309

Office Hours: MW 1:00-3:00 PM

Teaching Assistant : Prajakta Kolte

TA E-mail : pkolte@memphis.edu

Course Information

Section meeting times:

T 7:10-10:10 PM

Meeting location: FCB 377

Meeting dates: Jan 14th to May 02nd

Course Overview:

This is a general introduction to the methods used in Machine Learning. We focus on both supervised and un supervised learning techniques using open source software tools.

Pre-Requisites/Co-Requisites:

This is a graduate level foundational course for other courses advanced courses in Business Analytics. There are no pre-requisites for this one.

Course Objectives:

By the end of this course, you should be able to:

- Explain the differences between supervised and un supervised learning methods.
- Demonstrate your ability to pick the correct machine learning method and apply it using R.
- Execute a typical machine learning project end-to-end from problem definition to recommendations.
- Apply Text Mining to real-world problems.

Basis for course objectives:

The objectives for this course were formulated by a team of faculty in the BIT department and are based upon a significant amount of input from business executives, industry experts, other FCBE faculty, and business school accreditation guidelines (AACSB). The specific topics covered in this course are based upon the current and projected demand for job skills that employers will need to achieve the strategic goals of their organizations.

Fogelman College: Learning Outcomes for Your Degree

The Fogelman College has established the following learning goals for all students successfully completing the MSIS/MSBA degree:

- Graduates will be effective communicators.
- Graduates will problem solvers.
- Graduates will be leaders.
- Graduates will be knowledgeable about the global business environment.

Required Texts (and Related Materials):

COMPUTER & SOFTWARE:

This course requires the use of a computer and specific software programs. To complete some of the assignments, you will need access to a computer that can access specific software programs. Tutorials for downloading, installing and using these programs will be posted at the appropriate time during the semester.

- **Microsoft Excel** (a spreadsheet program) is part of the Microsoft Office software suite – for both the PC or MAC. U of M students may install Microsoft Office on a PC or MAC by following the instructions here: GetOffice

- **RStudio** is the interface for the opensource statistical software **R.** Throughout the semester, we will be using code samples from R. You will also need to use **R** for some of the class assignments. This software is installed on all the PCs in the class room. We will also provide step by step instructions on how to download the software.

READING ASSIGNMENTS:

All the outside reading material for this course is available online. The elearn [Content] page has links to all the weekly reading assignments. **There is no required text book for this course.** We will use learning material and readings from a variety of sources.

Course Methodology

The instructional methodology of this course will be a combination of PowerPoint presentations and in-class instructor-led lab assignments.

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the BBA degree offered by the Fogelman College. You should take the time to become familiar with the overall learning objectives as a student in the BBA degree program. The learning goals for the BBA degree are:

- Graduates will be effective communicators.
- Graduates will demonstrate critical thinking skills.
- Graduates will be knowledgeable about ethical factors in the business environment.
- Graduates will be knowledgeable about the global business environment.
- Graduates will be proficient users of business presentation and analysis technology.

Course Methodology

- The instructional methodology of this course will be a combination of PowerPoint presentations and in-class instructor-led lab assignments R Studio.

- Quizzes and in-class activities will be assigned DURING CLASS TIME. **To receive credit for quizzes and in-class activities, these assignments must be completed in the classroom on the day that they are assigned. No exceptions will be made unless the student has received PRIOR approval from the instructor to miss a class period.**

Suggestions for improving your success in your college studies:

- **Make a PLAN OF STUDY** for yourself. Decide upon a set time of day or week that you can devote to your schoolwork (such as "every Sunday evening" or "Fridays and Saturdays from 4pm to 6pm")
- The weekly schedule (below) includes the recommended number of hours you should devote to *this* course each week.
- It may be beneficial to you to post specific appointment times in your personal calendar. Try to schedule your study appointments during the time of day when you are likely to be rested, alert, and not hungry.
- If you get distracted easily, you may need to set up frequent-but-shorter study sessions such as one to two-hour study sessions several times throughout the week as opposed to one long study session on the weekend. Review the previous weeks' lesson before starting to learn the next lesson; it's a good way to review and to remind yourself where you left off.
- Ask friends and family members not to disturb you during your study time.
- Have a quiet place where you can go to study, where there won't be a lot of distractions. You may want to set your phone on "do not disturb" during your study time.
- Sit at a desk in a well-lit area (and grab a cup of coffee!) so that you don't get too sleepy!
- View reading content on a large screen device such as a desktop or laptop computer, not a cell phone. (Larger screens cause less eye strain.)

Grading and Evaluation Criteria:

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Final Course Grades:

Your final letter grade is based on your overall average. Your overall average is calculated as the sum of all the points you earned on graded assignments divided by the total number of points possible. The letter grade is based on the following schedule:

Above 90%	A
Above 80% but below 90%	B
Above 70% but below 80%	C
Above 60% but below 70%	D
Below 60%	F

Your overall grade for the semester is based on how well you perform on a mixture of formal activities including assignments, quizzes, exams and a project. A detailed description of each of the assessed activities can be found after the scoring summary table below.

Scoring Methodology Used to Determine Course Grade:

Points earned on the assessed activities will be distributed as follows:

5 Homework Project Assignments (5*10 – Best 5 out of 7) pts	50 points
Quizzes (5 * 10) pts	50 points
Mid Term Exam (1*50) pts	50 points
Final Exam (1 * 50) pts	50 points
Project (1*100) pts	100 points
Total Possible for Semester	**300 points**

Final Exam Schedule

The final exam for this class will be scheduled according to the Registrar's academic calendar website (opens in new window).

Course Schedule:

Week	Topic	Reading Material	Key Deliverables
1 January 15th	Course Introduction Project Introduction Introduction to Machine Learning Review of Basic Statistics	Predictive Analytics Terms Business People Need to know HBR – What Every Manager Should know about Machine Learning	Pretest Survey of Learning Habits
2 January 22nd	Review of Probability Concepts Introduction to R	What is conditional probability HBR – Analytics 3.0	Lab Session – Introduction to R *Project – List of Topics* (**Due Date 01/22/2019 7:10 PM**)
3 January 29th	Data Preprocessing, Exploration and Data Visualization	Data Visualization Wiki HBR – Data Visualizations that really work	Quiz-I (Probability, Statistics and Readings of the previous two weeks) Lab Session – Data Preprocessing, Exploration and Visualization *Project - Team Formation* (**Due Date 01/29/2019 7:10 PM**)
4 February 05th	Clustering – I	Case Study on Cluster Analysis Cluster Analysis for Segmentation	*Project – Title and Description* (**Due Date 02/05/2019 7:10 PM**) Home Work 1 – Data Preprocessing, Exploration and Visualization (**Due Date 02/12/2019 7:10 PM**)
5 February 12th	Clustering – II	How Machines Make Sense of Big Data – An Introduction to Clustering	Lab Session – Clustering Home Work 2 – Clustering (**Due Date 02/19/2019 7:10 PM**)

		10 Interesting Use Cases of K-Means Cluster Analysis	
6 February 19th	Association Rule Mining	Case Study on Association Analysis	Lab Session – Association Rule Mining *Project – Data Collection Report* (**Due Date 02/19/2019 7:10 PM**) Quiz-II (Data Preprocessing, Visualization, Clustering and Readings)
7 February 26th	Classification Methods -I	Visual Introduction to Machine Learning - I A Guide to Machine Learning using Decision Trees Confusion Matrix	Home Work 3- Association Rule Mining (**Due Date 03/12/2019 7:10 PM**) Quiz – III (Association Rule Mining and Readings) Team Lab – I
March 4-10 No Class – Spring Break			
8 March 12th	Mid Term Exam		*Project – Data Preprocessing, Exploration and Visualization* (**Due Date 03/12/2019 7:10 PM**)
9 March 19th	Mid Semester Presentations Classification Methods - II	HBR - Why many model-thinkers make better decisions An Executive's Guide to AI	
10 March 26th	Logistic Regression and Neural Networks	Customer Churn Prediction using Logistic Regression A Gentle Introduction to Neural Networks	Lab Session – Classification Methods Home Work 4 – Classification (**Due Date 04/02/2019 7:10 PM**)

		Interpretability in Machine Learning	
11 April 2nd	Dimension Reduction Techniques	Machine Learning Concepts – Dimensionality Reduction Bias Variance Tradeoff	Lab Session – Logistic Regression and Neural Networks Home Work 5 – Logistic Regression and Neural Networks (**Due Date 04/09/2019 7:10 PM**) *Project – Data Exploration Report* (**Due Date 04/02/2019 7:10 PM**) Quiz – IV (Classification Techniques, Logistic Regression, Neural Networks and Readings)
12 April 9th	Text Analytics – I	Tapping the Power of Text Mining HBR – Everything Alibaba does Differently	Lab Session – Text Analytics Home Work 6 – Dimension Reduction Techniques (**Due Date 04/16/2019 7:10 PM**) Team Lab – II
13 April 16th	Text Analytics – II	HBR – Make Fairness by Design a part of Machine Learning HBR – What Great Data Analysts do and why every organization needs them	Lab Session – Text Analytics Home Work 7 – Text Analytics (**Due Date 04/23/2019 7:10 PM**) *Project – Predictive Analytics* (**Due Date 04/16/2019 7:10 PM**) Quiz – V (Dimension Reduction Techniques, Text Analytics and Readings)

		Which Machine Learning Algorithm should I use?	
14 April 23rd	Final Presentations		*Project – Final Report* (**Due Date 04/22/2019 7:10 PM**)
15 April 30th	Final Exam		

*** All the key deliverables are due before the beginning of class on that day.**

***Quizzes are open-book, open notes**

Professor's Expectations of Students:

- **Texting and talking on cell phones is not permitted during class time.**
- Laptop computers are permitted in the classroom but should only be used for class-related purposes.
- All homework assignments are individual assignments and each person is expected to create their own files and do their own work. **Collaboration** on homework assignments is **cheating**. If you turn in another student's work as your own, you will receive a 0 on that assignment.
- You are expected to turn in your assignments on time. The due dates for assignments are provided on the weekly schedule (below). Five points will be deducted for each day that an assignment is late. Late assignments must be turned in to the *late assignment drop box* on elearn.

Student's Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including: well-organized and engaging learning experience, response to emails within two (2) business days, and feedback on all work submitted within 7-10 calendar days.

Course Policies

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. It is your responsibility to check your inbox frequently and read all email messages from the course instructor.

Attendance:

You are **required** to attend all class meetings and stay for the entire duration of the meeting time. All absences are considered unexcused unless you have PRIOR approval from the instructor and/or you are attending a university-sponsored event. It is your responsibility to make up any coursework that was missed because of an absence. **In-class activities and quizzes must be completed in the classroom during the designated class time. Only those students who have received permission to miss class IN ADVANCE will be permitted to make up an assignment.**

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Late Assignments:

Quizzes will be deactivated on the date and time they are due. Quizzes will not be re-opened for any student unless (1) the student has a valid reason why they could not submit their quiz on time and (2) the student makes a request **in person** to the instructor to re-open the quiz. (No requests will be approved via email.)

Assignments that are submitted to the dropbox (activities and homework projects) should be uploaded to the dropbox by the due date. The dropbox will accept late submissions for one week beyond the due date, however, the 5 points may be deducted for each day that the assignment is late.

Syllabus Changes:
The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services
Please access the FCBE Student Services (opens in browser window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Course Syllabus

MIS 7720 – Business Artificial Intelligence
Spring semester, 2019
3.0 Credit Hours

Instructor Information
Name: Ali Mahdavi Adeli, Ph.D.
Email: amadeli@memphis.edu
Phone: 901.678.3729
Office: FCBE #321
Office Hours: T 5:00 – 7:00 PM

Course Information
Meeting Times: Tue 7:10 – 10:10 PM
Meeting Location: FCB 121
Meeting Dates: Jan 14 – May 2, 2019

Course Overview

This course introduces you to the fundamentals of Artificial Intelligence (AI) and its various business applications; how AI impacts businesses and jobs, why to invest in AI, and the challenges and opportunities it provides.

Pre-Requisites/Co-Requisites

There are no formal pre-requisites for enrolling in this course. This course does not require programming experience but it could be helpful. High school level math is expected.

Course Objectives

By successfully completing this course, you should be able to:

- Understand basic AI techniques, their pros and cons, and possible applications.
- Identify possible AI solutions for business problems.
- Understand the challenges and opportunities of adopting AI solutions for business applications.
- Formulate business problems as AI problems to effectively collaborate with AI experts and AI technology providers.
- Understand the potential impacts of AI on businesses and jobs.

Required Texts (and Related Materials)

All reading materials and case studies for this course will be available on elearn.

This course requires permanent and unrestricted access to a computer. We will use the following software (instructions on how to install each will be provided on elearn):

- R Studio and R engine (version and installation guide will be posted on elearn)
- Python with Jupyter notebooks (it is recommended to install the Anaconda platform with Python 3.x).

Books (optional – *the following are not course textbooks*):

- Artificial Intelligence: A Modern Approach (3rd edition), by Stuart Russell & Peter Norvig

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the BBA degree offered by the Fogelman College. The Fogelman College has established the following learning goals for all students successfully completing the MSIS/MSBA degree:

- Graduates will be competent in the use of technology.
- Graduates will be effective communicators.
- Graduates will be knowledgeable about threats and opportunities in a global society.
- Graduates will be problem solvers.

Course Methodology

The instructional methodology of this course will be a combination of PowerPoint presentations, readings, in-class instructor-led activities, and assignments.

Grading and Evaluation Criteria

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed

Final Course Grades

Final course grades are earned according to the following table:

Point Range	Assigned Grade
Above 90%	A
Above 80% but below 90%	B
Above 70% but below 80%	C
Above 60% but below 70%	D
Below 60%	F

Your overall grade for the semester is based on how well you perform on a mixture of formal activities including discussions, quizzes and projects. A detailed description of each of the assessed activities can be found after the scoring summary table below.

Summary of Graded Activities

Points earned on the assessed activities will be distributed as follows:

Item	Percentage
Class Activities	20
Readings	15
Project	25
Quizzes	15
Exam	25

Readings (articles, papers, or book chapters) will be posted on elearn (a week in advance). Students are expected to read them and participate in class discussions. A brief summary has to be written for some of the assigned readings (as we will discuss in class), which will be shared on elearn with your classmates.

Project: individual (or group) project where you develop a plan for how AI could be used in your organization or business context of choice. Throughout the course we will become familiar with different tools and techniques in AI; you will propose ideas for the application of these techniques in a business context of your choice. You do not have to implement the proposed AI techniques (not required to deliver working code), however, working prototypes would be a bonus. All projects have to be presented at the end the course.

Quizzes are on elearn and open book, open notes.

Class Activities must be completed in class and include hands-on demos using Python and/or R and case studies.

Course Schedule (tentative*)

Week	Topic
1	What is AI? History of AI Applications of AI
2	Intelligent agents AI in business: examples from different industries What are the challenges and opportunities?
3	Available frameworks and technologies (Implementation) **Search and planning**
4	**Supervised/semi-supervised learning**
5	**Unsupervised learning**
6	**Artificial Neural Networks**
7	**Deep Learning** • Case Study*: Minimizing energy consumption costs
8	**Deep Learning (continued)** **Reinforcement learning**
9	**Reinforcement learning (continued)** • Case Study*: Optimizing Business processes using Q-learning

10	**Natural Language Processing** • Case Study*: building a chatbot
11	Making the business case for AI Social and Economic implication of AI
12	Future of AI
13	Review & Presentations
14	Final Exam during class
*Topics are subject to change	

Final Exam Schedule

The final exam for this course will be on the last day of class on **Tuesday, April 23, 2019** (Registrar's academic calendar website).

Professor's Expectations

In general, you should assist the instructor and your fellow classmates in creating a positive and supportive environment for learning by staying engaged in the course. You will learn as much from the collective contributions of your classmates as you will from the instructor. As a group, we will create a positive and collaborative environment and share each other's views, insights, and analysis of assigned scenarios and readings covered in the course.

Student's Expectations

In my role as your instructor, there are certain things you can expect from me including: well organized and engaging learning experience, response to emails within two business days, and feedback on all work submitted within 7-10 business days.

Course Policies

E-mail:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance:

You are required to attend all class meetings and stay for the entire duration of the meeting time. All absences are considered unexcused unless you have prior approval form the instructor. It is your responsibility to make up any coursework that was missed because of an absence. In-class activities and quizzed should be completed in during the designated time in

the classroom. Only students who have received permission to miss class in advance will be allowed to make up these activities.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website.

Academic Integrity:

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website. If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity.

Participation:

To be successful in this course as a participant, you must stay active and involved throughout the entire semester. Students are expected participate in all interactive aspects of the course. You should also regularly communicate with the instructor as part of your overall learning experience, check into the course frequently for announcements (usually on the course home page), and actively participate in discussion events (both formal and informal). You should plan on logging into the course at least three times each week.

It is important you actively participate in the classroom discussions as well. Classroom discussions help clarify the readings and lectures and provide additional insights. The quality, not quantity, of the discussion depends heavily on you and your preparation of the assigned problems and suggested readings. You are expected to respond or share information, when asked to do so, and ask intelligent questions to your fellow participants through classroom discussions.

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website.

Late Assignments:

Assignments that are submitted to the dropbox (activities, and homework projects) should be uploaded by the due date. Late submissions will be accepted only for one week beyond the due date if solutions are not discussed in class earlier, however, 1 point may be deducted for each day that the assignment is late.

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services

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- Technical Assistance

Course Syllabus

MIS 7710– Web Strategy and Analytics for Business

Spring Semester, 2019

3.0 Credit Hours

(Last updated: 1/10/2019)

Instructor: Avanti Pandit

Phone1: 508.423.6392 (personal) email preferred
Phone2:
E-mail: apandit1@memphis.edu
E-mail2: avanti.pandit105@gmail.com
Office: FCB 373

Office Hours: By appointment or during class breaks.

Course Overview: [REQUIRED]

This is a fast-paced introductory business course in which you will learn the basics of generating traffic for business through Search Engine optimization (SEO) and Search Engine Marketing (SEM) techniques and reviewing your results through various web analytics reports.

Pre-Requisites/Co-Requisites:

There are currently no course pre-requisites to enrolling in this course. However, this is a technical course and will require that the student should have a good grasp of basic computer and writing skills.

Required Texts (and Related Materials): [REQUIRED]

- The Art of SEO 3rd edition (2015), O'Reilly (bookstore)
- Applied Innovative Marketing with WordPress, Kanabar and Pandit (e-book purchased from http://www.appliedinnovativemarketing.com)
- Selected readings from web as outlined in Syllabus

Additional fees required for the course project (Note: This will be covered by the Department for Spring 2019 unless project selected is meant to be an on-going private business)

- $15 fee per team for registration and hosting of website URL (Professor's special price valid for course duration only, details in class)
- $30 Debit/credit card expense for paid ads campaign assignment.

Recommended Texts (and Related Materials):

Spreadsheet templates downloaded from http://www.yourseoplan.com/books/search-engine-optimization-hour-day/templates-worksheets/

Location of Course Materials:

All course materials located on the eCourseware website (opens in new window).

Course Objectives: [REQUIRED]

By successfully completing this course, participants will be able to:

- Understand and apply digital concepts to drive business strategy.
- Learn to build a website using WordPress and apply techniques such as search engine optimization and web traffic monitoring to align website with business objectives.
- Understand how to improve web ranking by applying research techniques using hands-on and relevant state of the art web technologies.
- Develop and build social media assets and mail campaigns to increase targeted traffic to website.
- Learn about paid campaigns and reputation management.
- Learn to monitor, measure and analyze traffic to website to facilitate improvements for better ROI.
- Work effectively as a member of a team, including demonstrating collaboration and problem-solving skills.

Fogelman College: Learning Outcomes for Your Degree [REQUIRED]

MIS 7710- This course is designed to help you to meet the overall learning objectives for understanding of business analytics offered by the Fogelman College.

Graduate level expectations

Graduate students must demonstrate a higher level of understanding, application and analysis of the course concepts. All assignment papers submitted must be of high quality and must include citations and references including references to course materials.

Course Methodology

- In-class interactive activities, discussions, reading assignments to practice the lecture material, hands-on project specific internet tools and techniques.
- Assigned exercises to practice the lecture material and further the project.

- Exams to test knowledge of the participants on the key concepts covered in the class.
- Hands-on Project to analyze a business problem and involve the detailed understanding of search engine optimization techniques and digital analytics concepts.

Professor's Expectations of Students:

In general, you should assist the instructor and your fellow classmates in creating a positive, supportive environment for learning by staying engaged in the course. You will learn as much from the collective contributions of your classmates as you will from the instructor. As a group, we will create a positive and collaborative environment and share each other's views, insights, and analysis of assigned scenarios and readings covered in the course.

Student's Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including: well-organized and engaging learning experience, response to emails within two (2) business days, and feedback on all work submitted within 7-10 calendar days.

Grading and Evaluation Criteria [REQUIRED]

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Final Course Grades [REQUIRED]

Final course grades in general are earned according to the following table:

Point Range	Assigned Grade
92-100 Points	A
82-91 Points	B
75-81 Points	C
65-74 Points	D
Under 65 Points	F

Your overall grade for the semester is based on how well you perform on a mixture of formal activities including discussions, quizzes and projects. It will also be impacted by peer evaluation and instructor assessment. A detailed description of each of the assessed activities can be found after the scoring summary table below. Final course grade will be significantly impacted based on your contribution and engagement during the various key assignments of the team project.

Summary of Graded Activities

Points earned on the assessed activities will be distributed as follows:

Deliverable	Total
Class participation and contribution	10%
Midterm	10%
Final Exam	20%
Project Assignments (5@5% each) Final term project Final presentation	 25% 25% 10%
Total	100 %

Project:

All students will be assigned teams. Assignments will be the building blocks towards a final report and a final project website. The entire project (individual project assignments, final term paper, presentation and final website) will be a team effort. Specific instructions on the project outlines and expectations will be provided in a separate document. The final project report should be at least 50—60 double spaced pages (You may go a little extra with title and reference pages, figures or tables, and appendices). You may use references, if any, from the library or online. There is no limit on the number of references used, however, make sure the sources are credible. Try and connect your paper to any learnings from readings assigned during course or covered in class.

You need to use in-text citations and a reference section (no footnotes or endnotes in this paper whatsoever; do not use the automated footnote or endnote function in Word). Full citations of all works should be included in the References section. Take care to properly attribute materials found in literature sources or on the Internet. Direct quotes from references should be kept to a minimum. Although your writing ability is not the primary focus of this course, your ability to communicate is essential to your future business success. Pay close attention to what you're writing. It may be wise to have another person read your work before submitting it for grading. For your website specifically, make sure your web content is grammatically correct as this really does matter in the real world.

Assignments will be graded according to the following criteria:

- Exhibits convincing range and quality of knowledge, having done appropriate research
- Identifies, thoughtfully analyzes and evaluates major points of view
- Convincing conclusions are drawn and demonstrate an understanding of investigative results as well as how to apply them
- Writing style is understandable and organized in explaining research investigation results and supporting conclusions
- Application of tools and techniques taught in class which produces the results expected.

Care should be given to submit work on time as this will impact grading. Teams will submit the same assignment report and website and additionally will provide a team peer evaluation/ participation form with every assignment. Project grades and class evaluations will be assigned based on peer evaluations and instructor evaluation. Team work contribution will impact individual grades significantly so be sure to engage. In this course, out of class work is necessary and team meetings are necessary to get the work done. Be sure to identify early on set times for getting together for collaboration and meet expectations to complete scheduled work.

Presentation:

Team members work collaboratively to create PowerPoint presentations to be shown during the team's presentations for the final project. Please plan on posting the team's PowerPoint presentation by the day listed on the schedule section. Project presentation should be given in 10-15 minutes. Every presentation will be followed by 5-10 minutes of a question/answer session. Include your team number and members' names in the file name of the PowerPoint. Team presentations will be preloaded on a computer to save class time. Each team member must participate in the oral presentation.

Team presentations will be graded according to the following criteria:

- Organization and flow
- Completeness
- Length of presentation falls within the specified time range
- Identification and thoughtful analysis of major points of view
- Convincing conclusions are drawn and an understanding of investigative results is demonstrated

Exams

The midterm (10%) and the cumulative final exam (20%) will both be in-class. The objective of exams is to test participants' grasp on the key concepts covered in the class; understanding of the digital web strategy concepts, search engine optimization concepts, the assignments, readings, and handouts. Absence from any scheduled exam will result in an exam grade of zero unless arrangements have been made with the instructor prior to the exam date.

Instructor and Peer Evaluations

Peer and instructor evaluations of participant participation will be conducted throughout the course. As part of the peer evaluation, each participant will rate the degree to which each member of the team fulfilled his/her responsibilities in completing the project and assignments. These ratings should reflect each individual's level of participation, effort and sense of responsibility, not his or her academic ability.

Instructor evaluation of participants will be conducted according to the following criteria:

- Is well prepared in advance
- Actively contributes to discussions and asks questions
- Volunteers willingly and carries own share of the group's responsibilities
- Adheres to the in-class computer/phone usage policy

- Actively participates in synthesizing and presenting the concepts covered in the class

Name Card

Please use your name card in every class. Not only does it help your instructor in identifying who you are but it also aids fellow participants and helps in making classroom discussions more interactive.

In-class Computer and Phone Usage

In-class computer usage should be related to the material being covered in class. The use of a computer or cell phone for general Internet browsing, text-messaging, Facebooking, Twittering, or other social networking during class is extremely distracting to both the instructor and nearby participants. Please be sensitive and respectful of your classmates and instructor. If you must use any of the above communication means during the class session, please feel free to momentarily step out of the room or wait until the next break to do so. In no case should internet access be used during mid-term and final exams.

List of Formal Assessed Activities

For a complete description of the assessed activities for the semester, please refer to the "List of Assessed Activities" page that can be found in the online course area under "Getting Started".

Schedule of Activities

For a complete semester schedule of readings, activities, and due dates for assignments, please refer to course on ecourseware.

Final Exam Schedule [REQUIRED]

The final exam for this class will be scheduled according to the Registrar's academic calendar website (opens in new window).

Course Policies [REQUIRED]

E-MAIL:

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a "full mailbox" condition, etc.) is the student's responsibility.

Attendance: [REQUIRED]

All participants are expected to attend classes regularly and promptly. Attendance is key to this course as this is prime time for group work as well. When you miss classes, your grades will suffer because you will miss important information and classroom interaction/discussion. Participants who miss classes will be

held responsible for all in-class course content. Participants have the responsibility to take all scheduled exams and turn in all assignments by the announced date and time. The instructor reserves the right to deduct up to 50% for late assignments.

Participants who miss in-class sessions are responsible for completing all in-class course work with a 50 percent grade reduction.

An absence from an assignment/in-class/quiz coursework shall be considered "excused" if it occurs because of any of the following situations (valid documentation must be submitted for proof) and the instructor was contacted prior to the due date:

- Hospitalization of the participant or an immediate family member due to illness or accident.
- Death in the participant's immediate family (ex., spouse, parents, guardians, siblings, children).
- Summons of the participant to appear for Jury Duty or before a court.
- Any other excuse that has been approved by the course coordinator.

The absentee shall submit documents supporting the above claims (hospital admission form, death certificate, or court subpoena, etc.) to the course coordinator. Upon satisfactory verification, the participant shall be allowed to take a make-up assignment or paper/essay in lieu of missed classroom interaction/discussion.

For participants receiving federal participant loans, any lack of engagement in the course may be treated as non-attendance and potentially impact access to participant loans in the future.

Adding / Dropping:

If you have questions about adding or dropping classes, please refer to this page on the Registrar's website (opens in new window).

Academic Integrity: [REQUIRED]

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a discussion of these codes. Note that using a "Solutions Manual" is considered cheating. Should your professor have evidence that using a "Solutions Manual" has occurred, he/she may take steps as described on the campus' Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College's Website on Academic Integrity (opens in new window).

Participation:

To be successful in this course as a student, you must stay active and involved throughout the entire semester. Students are expected participate in all interactive aspects of the course. You should also regularly communicate with the instructor as part of your overall learning experience, check into the course frequently for announcements (usually on the course home page), and actively participate in

threaded discussion events (both formal and informal). You should plan on logging into the course at least three times each week.

It is important to actively participate in the classroom discussions as well. Classroom discussions help clarify the readings and lectures and provide additional insights. The quality, not quantity, of the discussion depends heavily on you and your preparation of the assigned problems and suggested readings. You are expected to respond or share information when asked to do so, and ask intelligent questions to your fellow participants during classroom discussions.

Communicating with your team is critical for the success of your group project and may require for you to make yourself available to meet with your team outside of class times.

Classroom or Online Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College's Netiquette website (opens in new window).

Late Assignments:

Assignments and projects may be submitted anytime up to and including the date due/time as posted in the ecourseware site. Please review all information in this syllabus and related Module due dates for formally assessed work. If your work is not submitted on time, the instructor reserves the option to deduct up to 50% of the grade value for tardiness depending upon the circumstances and appropriate communication between the student and the instructor.

Extra Credit:

There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. Please do not wait until the last minute to submit assignments or to take quizzes and exams. If an emergency should arise, it is the student's responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The

University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the course bulletin board.

Student Services

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance

Key topics:

Week	Topics	ClassDate	Study Guide *Please refer to start and end sections for readings in e-copy of Art of SEO as page numberings are different for hardcopy and pdf versions. Please check section title names and read accordingly or bring to my attention if there are discrepancies.	Assignments/Project
Week 1 – Mon Strategy	Introduction and Syllabus Outline Introduction to Digital Strategy Project Overview Teams Project Selections Registration and Hosting Search Engines/ competitive research/	14-Jan-19	The Art of SEO: ○ Chapter 1,3 ○ Chapter 6 Pg 295-302 **e-book:** **Start section**: Chapter 6 - When to use TLD Other than .com **End before section**: Chapter 6 - Keyword Targeting ○ Chapter 11 Pg 715-720 **ebook:** **Start section**: Chapter 11-Tracking Results and Measuring Success (beg of Ch 11) **End before section**: Chapter 11-Using	Class – Introduction, Course Outline and Syllabus, Discussion, Teams, Project selections and approvals, domain name selections, hosting Project Goals Measurement of success SWOT

	Changing environment Payments Web Hosting /Registration setup Final Projects / URL search		Analytics as a Business case for SEO **Discussion**: https://digitalmarketinginstitute.com/blog/demand-digital-marketing-skills-2015 http://www.forbes.com/sites/kylewong/2015/03/18/digital-marketers-the-most-entrepreneurial-job-in-marketing/#bf193e7e5b60 http://fashionista.com/2016/10/oxosi-is-seeking-digital-marketing-interns-in-new-york-ny	
Monday Jan 21 HOLIDAY				
Week 2 Mon Strategy and Setup	Finalize Projects; Account and registration setup WordPress setup for all; WordPress Dashboard Introduction Identify two competitors Competitor Research Fill in competitor worksheet SWOT Introduction to Basic SEO Complete Strategy and Setup	28-Jan-19	The Art of SEO – Ch 6 Pg 275-289 **ebook:** **Start section**: Chapter 6 - Site Architecture Design Principles **End before section**: Chapter 6 - Root Domains, Subdomains, and Microsites WORKBOOK Chapters 1-3 (through page 24) * additional secure site hosting steps will be covered in class. This is not in workbook	**DUE Monday Feb 4 6pm CST (NEXT CLASS) Assignment 1: Website Digital Strategy Word doc**

Week 3 – Mon Design	Basic website: Plan website, Design structure Dashboard Pages, Posts, Blogs, Categories and Tags	4-Feb-19	The Art of SEO: ○ Chapter 2 (Search Engines) - - should be same in eBook ○ Chapter 4 (up to 166) **eBook:** **Start section**: Chapter 4 - SEO Implementation:First Stages (beg of Ch 4) **End before section**: Chapter 4 - Mobile Sites and Mobile Apps ○ Chapter 6 - Pg 415-423 **eBook:** **Start section**: Chapter 6 - Google's Knowledge Graph and the Knowledge Vault **End before section**: Chapter 6 - end of chapter HTML Tutorial CSS Tutorial WORKBOOK Chapters 3-7 Progress check Chapters 1-3 Progress check Chapters 4-7	**Assignment 1 due** Sandbox WordPress accounts WordPress Introduction/testing
Week 4 – Mon Design	Users, Plugins and Widgets Install 2-3 plugins and widgets Standard editor Akismet Contact Form All-in-one-Seo Wrap up WordPress Design A/B testing and design	11-Feb-19	• Getting Started with WordPress • Blogging Glossary • Top Ten Search Engine Optimization Lists • WORKBOOK Chapter 8, 9 (Optional Chapter 11) Progress check Chapters 8-9	**DUE Feb 18 Monday 6pm CST (NEXT CLASS)** **Assignment 2a: Website Design Word doc** **Assignment 2b: Basic WordPress website**

Week 5 – Mon SEO	Introduction to keyword research Top keywords list Semantic search Google Adwords Keyword Research Planner and Keyword Research	18-Feb-19	• The Art of SEO: ○ Chapter 5 (Keyword research/ co-occurrence analysis) ○ Chapter 6-Pages 302-345, Pages 387-389 **eBook:** **Start section**:Chapter 6 - Keyword Targeting **End before section**: Syntax of the robots.txt file **Start section**: Chapter 6 - Google's Hummingbird **End before section**: Chapter 6 - Structured Data ○ Chapter 12 Pages 818-830 **eBook:** **Start section**: Chapter 12 - Spam Filtering and Penalties **End before section**: Chapter 12- Changing SEO Vendors or Staff Members • SEO - Google Adwords Keyword Planner • Help video: How to use Google Adwords Planner • WORKBOOK Chapter 10	**Assignment 2 DUE**

Week 6- Mon SEO	WordPress SEO plugin Application of Keyword research Link Strategy Review for midterm	25-Feb-19	The Art of SEO: ○ Chapter 4 Pg 168 – 193 **eBook:** **Start section**:Chapter 4- Auditing an Existing Site to Identify SEO Problems **End before section**: Chapter 4 - end of Chapter ○ Chapter 7 Pg 425-460, 468-499 **eBook:** **Start section**:Chapter 7 - Content Marketing (beg of Chapter) **End before section**: Chapter 7 - Leveraging the power of memes **Start section**: Chapter 7 - Choosing the right Content Marketing Strategy **End before section**: Chapter 7 - Get Active in Social media ○ Chapter 10 – Pg 669-674 **Start section**: Chapter 10-Optimizing for Image Search **End before section**: Submitting a Product Feed • WORKBOOK Chapter 11	**DUE Mar 11 Monday 6pm CST (NEXT CLASS): Assignment 3a: Keyword research and SEO strategy Word doc Assignment 3b: Updated WordPress website**
Spring break Mar 4-8 NO CLASS				

Week 7 Mon Midterm Social Media	**Mid-term** Social Media and SEO: FaceBook and Twitter: Driving traffic through social media	11-Mar-19	The Art of SEO – Chapter 7 Page 499-544 (in syllabus) **Start section**:Chapter 7- Get Active in Social Media **End before section**: Chapter 7 - end of Chapter	**Assignment 3 DUE** **MIDTERM**
Week 8 – Mon Social Media	WordPress and Social Media plugins Social Media Wrap Up Social Media and Paid Campaigns Google Analytics Account setup	18-Mar-19	The Art of SEO Chapter 8 **eBook:** **Start section**: Chapter 8 - beginning of Chapter **End before Section**: Chapter 8 end of Chapter • Let's Talk, Jansch • WORKBOOK Chapter 12 Progress check Chapters 10-12	**DUE Mar 25 Monday 6pm CST (NEXT CLASS):** **Assignment 4a: Social Media Strategy** **Assignment 4b: Updated WordPress website and 2 social media pages**
Week 9 – Mon Emails	Driving Traffic through email and WordPress Designing with Mailchimp Email Analytics Google Analytics Goals and Conversions	25-Mar-19	• http://searchengineland.com/3-simple-ways-email-can-drive-seo-results-200346 • http://mailchimp.com/resources/guides/email-marketing-field-guide/ • http://mailchimp.com/resources/guides/getting-started-with-mailchimp/ • WORKBOOK Chapter 13	**Assignment 4 due**
Week 10 – Mon PPC	PPC Campaigns Adwords Campaigns - Text Ads	1-Apr-19	• http://digitalverge.net/sem/7-reasons-why-your-business-should-be-using-google-adwords/ • Google Adwords Help	**DUE Apr 8 Monday 6pm CST. (NEXT CLASS)** **Assignment 5a: Email Newsletter campaign and** **PPC Campaigns**

	Adwords Campaigns Continued Reputation Management			**Assignment 5b: Updated website**
Week 11 – Mon Analytics	Web Analytics & Reports	8-Apr-19	• The Art of SEO: Ch 11 Pg 721-730 and Pg 793 - 794 **eBook:** **Start section**: Chapter 11 - Basic Overview **End before Section**: Chapter 11 - Taking a Deeper look at Action Tracking **Start section**: Chapter 11 - Key Performance Indicators for Long-Tail SEO **End before Section**: Chapter 11 - Duplicate Content • Google Analytics website: http://www.google.com/analytics	**Assignment 5 due**
Week 12 Mon	Analytics Wrap up Google Search Console	15-Apr-19	Art of SEO Chapter 14, 15	**DUE Apr 22 Monday 6pm CST (NEXT CLASS)** **Final Project Report, Final Website and Final Presentation Due**
Week 13 Mon	Course Review & Presentations	22-Apr-19		**Final Projects due**
Final Exam (IN CLASS) 29-Apr-19				

COMP 7295/8295: Bioinformatics Algorithms – Fall 2017
Instructor: Dr. Vinhthuy Phan (vphan@memphis.edu, 901-678-1535)

Time & Location: TR 1PM – 2:25PM DH109

Office hours: Monday 10AM or by appointment

Prerequisites: There are no specific requirements; although it's recommended students possess basic problem solving skills such as those learned in COMP 7712 or COMP 6030.

Main Topics:

- Programming in Python (Python 3, Sublime Text 3).
- Fundamental concepts in molecular biology.
- BioPython
- Dynamic programming and pairwise alignment
- Iterative improvement: DNA regulatory motif finding (DNA Motif slides)
- Clustering, building phylogenetic tree
- Suffix array, string matching, BWT, FM index
- Pseudo alignment

Grading scheme:

	COMP 7295	**COMP 8295**
• In-class participation:	20%	20%
• Homework:	20%	20%
• Paper presentation	15%	10%
• Midterm	20%	20%
• Project	30%	30%

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and ***will not be tolerated.*** All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but ***appropriate references must be included for the materials consulted,*** and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor's discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: **http://www.people.memphis.edu/~jaffairs/**

7115. Database Systems – Fall 2016

Fatih Şen, PhD

Contact Information:

Office: 301 Dunn Hall	**Department Office:** 375 Dunn Hall
Phone: (901) 678-3463	**Department Phone:** (901) 678-5465
Email: fsen@memphis.edu	

Office Hours:

Monday 1:30pm – 3:00pm; or by appointment.

Course Description:

COMP 7115 – Database Systems

This course covers fundamentals of database systems and includes principles and methodologies of database design, and techniques for database application development.

Requirement

Students must bring their labtop to the class.

Required Textbook:

Fundamentals of Database Systems, R. Elmasri and S. Navathe, 7th edition, Addison-Wesley Inc.

Evaluation:

Grading Scale: A: 85 – 100, B: 75 – 84, C: 65 – 74, D: 55 – 64, F: 54 and below. **(**Plus/minus grading will be used).

A+	≥ 97%
A	91–96%
A−	89–90%
B+	87–88%
B	81–86%
B−	79–80%
C+	77–78%
C	71–76%
C−	69–70%
D+	67–68%
D	62–66%
D−	60–61%
F	≤ 59%

APPENDIX D: Faculty CVs

Vinhthuy Phan

Department of Computer Science
The University of Memphis
Memphis, Tennessee 38152

vphan@memphis.edu
http://www.cs.memphis.edu/∼vphan
901-678-1535

A. Professional Preparation

Brandeis University	Waltham, MA	Comp.Sci., Math	B.S., 1998
Stony Brook University	Stony Brook, NY	Computer Science	M.S., 2001
Stony Brook University	Stony Brook, NY	Computer Science	Ph.D., 2003

B. Appointments

The University of Memphis	Associate Professor	2009
The University of Memphis	Assistant Professor	2003
IBM	Research Assistant	2001

C. Products

Most closely related to the project

1. N. Vo, T. Sutter, V Phan, "mDAG: A web tool for analyzing, visualizing, and interpreting response patterns in gene expression data with multiple treatments", Advances in Bioscience and Biotechnology, 2013, 4(6): 706-709.
2. V. Phan, N. Furlotte, 2008. "Motif Tool Manager: a web-based framework for motif discovery", Bioinformatics 24(24):2930-2931.
3. N. Vo, V. Phan, 2012, "Pattern Analysis: a web-based tool for analyzing response patterns in low-replication, many-treatment gene expression data". ACM Conference on Bioinformatics, Computational Biology and Biomedicine, 539-541, 2012
4. Vinhthuy Phan, "Code4Brownies: a tool for collaborative coding during lectures", 2015. https://github.com/vtphan/Code4Brownies
5. Vinhthuy Phan, "Winner Finish Last: a man-versus-computer strategy game.", 2011. http://cetus.cs.memphis.edu/wfl

Others related to the project

1. Vinhthuy Phan, "Twist: a lightweight web framework in Python", 2014. https://github.com/vtphan/twist
2. V. Phan, S. Gao, Q. Tran and N. Vo, "How genome complexity can explain the hardness of aligning reads to genomes". BMC Bioinformatics 2015, 16(Suppl 17):S3.
3. N. Vo, Q. Tran, N. Niraula, V. Phan, "RandAL: a randomized approach to aligning DNA sequences to reference genomes", BMC Genomics 2014, 15(Suppl 5):S2.
4. Vo, N. and V. Phan, "Exploiting dependencies of pairwise comparison outcomes to predict patterns of gene response". BMC Bioinformatics 2014, 15(Suppl 11):S2.
5. N. Vo, V. Phan, T. Sutter, 2012, "Predicting possible directed-graph patterns of gene expressions in studies involving multiple treatments". ACM Conference on Bioinformatics, Computational Biology and Biomedicine, 579-581, 2012

D. Synergistic Activities

- Funded research projects: (1) PI: "Analysis of gene expression data using transitive directed graphs", funded by NSF-CCF 1320297, 2013-2016. (2) PI: A Microarray Analysis Software for Comparisons and Extrapolations Relevant to Toxicology, funded by the Center of Alternatives to Animal Testing (CAAT), John Hopkins University.

- Review Panelist: (1) CCF and interdisciplinary proposals come from several NSF programs, 2009 and 2015; (2) NAFOSTED (the main funding agency in sciences of the government of Vietnam), 2010, 2015.
- Program Committee Member and reviewer: BIBM 2008-2014, DNA 13th, ISBRA 2008, IEEE ICBB 2007, ISCML 2007, BMC Bioinformatics, Bioinformatics, PLoSOne, Natural Computing, J of Computational Biology, European Journal of Operational Research, and numerous conferences in Bioinformatics and Computational Biology.
- Outreach: (1) Co-coordinator of the University of Memphis Annual Programming Challenge for High School Students. Students work in teams for a period of two months to design and implement an adventure or educational game. (2) Coach of the student ACM programming team.
- Service: (1) Undergraduate coordinator of the department of Computer Science; (2) Admission committee member of the university Bioinformatics program; (3) External Tenure and Promotion Reviewer for New Jersey Institute of Technology (NJIT), 2010.

CURRICULUM VITAE

Name: Dale Bowman	**Department:**Mathematical Sciences

EDUCATION

DEGREES	DISCIPLINE	INSTITUTION	YEAR
BS	Computer Science	Middle Tennessee State University	1983
PhD	Mathematics	University of Memphis	1993

EXPERIENCE

RANK/POSITION	DEPARTMENT/DIVISION	INSTITUTION/COMPANY/ORGANIZATION	PERIOD
Actuary	Reserve Analysis	American General Life and Accident Insurance Company, Nashville TN	1984-1989
Graduate Teaching Assistant/Research Fellowship	Mathematical Sciences	University of Memphis	1989-1993
Assistant/Associate Professor	Mathematics	The University of Mississippi	1993-2004
Chief Financial Officer	owner	KDXpress LLC, Southaven MS	2004-2010
Visiting Professor	Mathematical Sciences	University of Memphis	2011-2012
Assistant Professor	Mathematical Sciences	University of Memphis	2012-present

HONORS/AWARDS

HONOR/AWARD	INSTITUTION/COMPANY/ORGANIZATION	YEAR
Associate	Society of Actuaries	1987
Van Vleet Doctoral Fellowship	University of Memphis	1991 1992
Female Faculty of the Year	Mortar Board Club/ University of Mississippi	1993
Faculty Research Participation Program	FDA-NCTR	2014-2015

TEACHING EXPERIENCE

SUBJECT	INSTITUTION
Mathematics	Middle Tennessee State University
Mathematics	University of Memphis
Mathematics/Statistics	The University of Mississippi
Statistics	University of Memphis

STUDENT ADVISING/MENTORING

CURRENT DEGREE	NAME	YEAR OF GRADUATION
PhD, expected	Camden Harrell	2018, expected
PhD, expected	Eugene Pearlman	2019, expected
MS	Patricia Goedecke, Advisor	2017
PhD, expected	Alemeyahu Wolde, Co-Advisor	2018, expected
PhD, expected	Peter Ngutu, Co-Advisor	2017, expected
PhD, expected	Mingjuan Wang, Co-Advisor	2018, expected

PhD	Tia Carraway, Co-Advisor	2017
PhD	Nana Boateng, Co-Advisor	2017
PhD	Demba Fofana, Co-Advisor	2016
PhD	Akwasi Kusi-Appiah, Co-Advisor	2016
MS	Katherine Coleman, Advisor	2015
PhD	Xueyuan Cao, Co-Advisor	2014
BS	Kimberly Bateman, honors thesis, Advisor	2013
BS	Marku Malmi, honors thesis, Advisor	2013
PhD	Stephine Keeton, Co-Advisor	2005
PhD	Jake Olivier, Co-Advisor	2005
PhD	Gibson Johnston, Co-Advisor	2005
PhD	Gwen Aldridge, Advisor	2000
PhD	Daniel Hunt, Advisor	1999

Books Published

Interactive workbook for Elementary Statistics Course at The University of Mississippi, 1995.

Book Reviews

Bennet/Briggs/Triola, Statistical Reasoning for Everyday Life, 5th Ediction, reviewed 2015.

Reviewer "Seeing Through Statistics", Jessica Utts, Duxbury Press, 2005.

Bowman, Dale and Deng, Lih-Yuan, 2018, *A Brief Review of R for Data Science: Import, Tidy, Transform, Visualize and Model Data* , accepted in **Biostatistics and Biometrics Open Access Journal BBOAJ** .

Refereed Journal Publications

Bowman, D., Chen, J.J., and George, E.O. 1995, *Estimating variance functions in developmental toxicity studies,* **Biometrics**, 51, 1523-1528.

Bowman, D. and George, E.O. 1995, *A saturated model for analyzing exchangeable binary data: Applications to clinical and developmental toxicity studies,* **Journal of the American Statistical Association,** 90, 871-879.

George, E.O. and Bowman, D. 1995, *A full likelihood procedure for analyzing exchangeable binary data,* **Biometrics**, 51, 512-523.

Bowman, D. 1998, *Bayesian bootstrap procedures in dose-response assessment,* **Journal of Agricultural, Biological, and Environmental Statistics**,3, 370-382

Bowman, D. 1998, *Random littersize procedures for developmental toxicity studies,* **Interstat**, 1.

Bowman, D. 1999, *An independence test for clustered binary data,* **Statistics and Probability Letters**, 41, 1-7.

Bowman, D. 1999, *Analysis of developmental toxicity data with litter size treated as random,* **Journal of the Mississippi Academy of Sciences**, 44, 197-205.

Bowman, D. 2001, *Effects of correlation in modeling clustered binary data,* **Journal of Statistical Computation and Simulation**, 69, 369-389.

Hunt, D. and Bowman, D. 2004, *A parametric model for detecting hormetic effects in developmental toxicity studies,* **Risk Analysis**, 24, 65-72.

Aldridge, G. and Bowman, D. 2005, *Bayesian bootstrap methods for developmental toxicity studies,* **Journal of Statistical Computation and Simulation**, 75, 81-91.

Hunt, D. and Bowman, D. 2006, *Modeling developmental data using U-shaped threshold dose-response curves,* **Journal of Applied Statistics,** 33, 35-47.

George, E.O., Bowman, D., Catalano, P. and Srivastava, D.K. 2007, *Regression models for analyzing clustered binary and continuous outcomes under an assumption of exchangeability,* **Journal of Statistical Planning and Inference,** 137, 3462-3474.

George, E.O., Bowman, D. and An, Q, 2013, *Regression models for analyzing clustered binary and continuous outcomes under the assumption of exchangeability*, Analysis of Mixed Data: Methods & Applications, CRC Press.

Madahian, B., Roy, S., Bowman, D., Deng, L.Y., and Homayouni, R., 2015, *A Bayesian approach for inducing sparsity in generalized linear models with multi-category response*, **BMC Bioinformatics**, 16(Suppl 13):S13.

Bowman, D. and George, E.O. 2016, *Weighted least squares estimation for exchangeable binary data*, **Computational Statistics**, DOI 10.1007/s00180-016-0695-x.

Bowman, D. 2016, *Statistical inference for familial disease models assuming exchangeability*, **Statistics and Probability Letters**, 119, 220-225.

Chen, S., Deng, L.Y., Bowman, D., Madahian, B., Lu, H.H.S., Wong, T.Y., 2016, *Phylogenetic tree construction using trinucleotide usage profile (TUP)*, **BMC Bioinformatics** , 17(suppl 13):381.

Bowman, D. and George E.O. 2018, *A Bayesian analysis of clustered discrete and continuous outcomes*,accepted, **Journal of Applied Statistics**,45, 438-449, DOI 10.1080/02664763.2017.1280003.

Bowman, D. and George E.0. 2017, *Likelihood estimation for exchangeable multinomial data*, **Communications in Statistics: Theory and Methods**, 46, 2882-2892, DOI: 10.1080/03610926.2015.1053934.

Deng, L.Y., Shiau, J.J., Lu, H.H.S. and Bowman, D. 2014, *Secure and Fast Encryption (SAFE) with classical random number generators*, **ACM Transactions on Mathematical Software**, **44** (4):45:1-45:17, July 2018.

Deng, L.Y., and Bowman, D. 2017, *Developments in random number generation*, **WIREs Computational Statistics**, e1404. doi: 10.1002/wics.1404.

Oller, D.K., Caskey, M., Vohr, B., Yoo, H., Franklin, B., Bene, E., Jhang, Y., Lee, C.C., Warlaumont, A., Dale, R., Bowman, D., and Buder, E., 2015, Robustness of spontaneous vocalization in the human infant: A critical foundation for spoken language, submitted.

Fofana, D., Bowman, D. and George, E.O., *Hybrid network: A Bayesian approach* , submitted to **Biomedical Journal**.

Denning, E., Williams-Hooker, R., Wallace, L. and Bowman, D., *Parental knowledge and practice of their child's treatment for branched-chain amino acids metabolic disorders*, submitted to **Journal of Nutrition and Metabolism**.

Bowman, D., Suzuki, A., Althal, G., Daly, A., Bona, J., Zhou, W. and George, E.O., 2017, *Applying topic modeling to identify the multifactorial attributes of dug-induced liver injury*, submitted to **Journal of the American Medical Informatics Association**.

Ray, M., Bowman, D., Van Arsdale, R. and Zhang, H., 2017, *An application of the Dirichlet process to model earthquake epicenter temporal patterns* , submitted to **Journal of the Royal Statistical Society, Series C (Applied Statistics)**.

Yoo, HyunJoo, Bowman, Dale and Oller, D. Kimbrough, 2018, *The origin of protoconversation: An examination of caregiver responses to cry and speech-like vocalizations,* accepted in **Frontiers in Psychology.**

Refereed Conference Publications

Rus, V., Bowman, D., Guatam, D., Graesser, A. and Shaeffer, D. 2017, *Markov analysis of students' professional skills in virtual internships*, accepted to **FLAIRS-30, 2017**.

Farran, L., Bowman D., Lee C-C., Yoo H., and Oller,D.K. 2017, *Vocal responsivity in English-learning and Arabic-learning infants: An unexpected cross-cultural/cross-linguistic difference in timing*, accepted **ASHA** 2017.

Cao, X., George, E.O., Wang, M., Bowman, D., Cheng, C., Raimonidi, S., Rubnitz, J., Downing, J.,Kundu, M. and Pounds, S., 2017, *POST: a framework for set-based association analysis in high-dimensional data* accepted in **IEEE BIBM 2017**.

Abel, J., Pearlman, E. and Bowman, D., 2017, *Reference Interval (RI) Validation for Urine Protein Concentration (UPC) Following a Vendor Notice*, abstract submitted to **USCAP 2018**.

Deng, Lih-Yuan, Bowman, Dale, Chen, Su and Lu, Henry Horn-Shing, 2018, *eCHaCha, a scheme to enhance ChaCha* , **submitted to FSE 2019** .

Non-Refereed Publications

Bowman, D. 2016, *Selecting the number of topics in a Latent Dirichlet Allocation model*, Statistical Learning and Data Science Section, Alexandria VA, American Statistical Association, 1849-1857.

Fofana, D., Bowman, D., and George, E.O. 2016, *Hybrid-network: A Bayesian approach*, Statistics in Genomics and Genetics Section, Alexandria, VA, American Statistical Association, 3788-3804.

Presentations - Conference (refereed *)

"A likelihood based procedure for analyzing exchangeable binary data", St Jude Children's Research Hospital, Memphis TN, invited speaker, 1998.

"Random Littersize Procedures for Developmental Toxicity Studies", MD Anderson Biometrics Department, invited speaker 1998.

Presentations - Universities/Industry (refereed *)

"Modeling Data Using Generalized Estimating Equations", invited speaker at School of Communication Science and Disorders, February 11, 2016

"Selecting the Optimum Number of Topics in an LDA Model", invited speaker, Mississippi State University, August 30, 2016.

"Measuring Goodness of Fit in Topic Modeling", May 2015, invited speaker at Bioinformatics and Biostatistics seminar at National Center for Toxicological Research, Jefferson, AR.

"Goodness of Fit for Topic Modeling", February 2015, Western Tennessee Chapter of the American Statistical Association at St. Jude Children's Research Hospital, invited speaker.

"Some Interesting Historical Problems in Statistics", invited speaker, Liberal Arts Faculty Forum, The University of Mississippi, 2001.

Other Presentations (refereed *)

"Estimating the Number of Topics to Use in an LDA Model", Joint Statistical Meetings, August 1, 2016

"Phylogenetic Tree Construction using Trinucleotide Usage Profile", presented at MCBios conference March 3, 2016.

"Random Littersize procedures for Developmental Toxicity Studies", Annual meeting of ASA, 1998.

"Bootstrap Estimates of Home Range Size Using minimum Convex Polygons", Mississippi Academy of Sciences, 2001.

"Random Littersize Procedures for Developmental Toxicity Studies", Mississippi Academy of Sciences, 2000.

SUPPORT

(External)

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
Workshop for topic modeling in R at ICOMAS Conference 2018, PI.	NSA	$13,968	May 7, 2018, submitted.
SaTC: Core: Small A General Scheme to Extend RC4, PI Lih-Yuan Deng, Co-PI Dale Bowman.	NSF, SaTC	$476,296	6/1/18 - 5/31/21, submitted
Evaluation of Current Random Number Generators used in R and Comparison with DX Generators	NSF	$328,691	5/1/18 - 4/30/20, submitted
A Model for a Student Engaged Learning in an Elementary Statistics (SELES) Classroom	NSF	$299,958	8/15/18 - 8/14/20, submitted
Using unstructured text in electronic medical records to predict risk of suicide, PI Ramin Homayouni, Co-PI Sujoy Roy and Dale Bowman	Department of Defense	$348,370	10/2/17 - 9/28/18, submitted 7/12/17
Electronic Medical Record (EMR) data-mining for identifying clinical risk modifiers of drug-induced liver injury, PI UofM Dale Bowman, Co-PI Segun George, PI CAVA Ayako Suzuki	Central Arkansas VA	$22,130	7/1/2016 - 6/30/2017, submitted
Course Revitalization Initiative Proposal, PI Dale Bowman, Co-PI	TBR	$17,550	6/1/2016 - 12/31/2016, funded

Course Revitalization Initiative, PI Dale Bowman, Co-PI Manohar Agarwal	TBR	$9,000	Fall 2014-Spring 2015, funded
Data Science Overview for Biomedical Scientists, Co-PI Statistics lead Dale Bowman, PI Vasile Rus, Co-PI E.O. George	NIH, BD2K Research Education Curriculum Development		submitted 2016

Internal Support

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
Design of Secure Random Number Generators for Cyber Security Applications, submitted	CAST: Cluster to Advance Cyber Security and Testing	$18,214	summer 2018-May 2019
A Bayesian Analysis to Idenfity Genomic Variables with Biologically Interesting Patterns of Association with Multiple Discrete and Continuous Endpoints	Faculty Research Grant	$6,000	7/2016 - 6/2017
Travel to National Center for Toxicological Research	Travel Enrichment Award	$500	7/18/16 - 7/22/16

OUTREACH

Project/s summary

PROJECT	PARTICIPANTS	PERIOD	SPONSORSHIP
Evaluation of recent projects to improve service delivery, efficiency, and long-term reduction of service cost for the Memphis Fire Department	E. Olusegun George, Lih-Yuan Deng, Dale Bowman and Su Chen	5/1/2017 - 4/30/2018	Innovate Memphis
Bring a Student to Work Day, funded	Dale Bowman, Hui Zhang, Yu Jiang, April Sykes	April 2017-Marh 2018	American Statistical Association
Quality Improvement: Feasibility of Including Taste and Smell Evaluations in the Nutrition Assessment of Children Diagnosed with Acute Lymphoblastic Leukemia, abstract submitted	Claussen, J., Edward, K., Ringwald-Smith, K., Williams-Hooker, R., Bowman, D., Mosby, T.T., Mandrell, B., Roach, R., Smith, T.	2015	
Evaluating Weight Status of Pediatric Oncology Patients	April Brock, St. Jude, Lawrence Weiss, University of Memphis, Ruth Williams-Hooker, University of Memphis, Dale Bowman, University of Memphis	2015	Division of Nursing Research, St. Jude Children's Research Hospital

SERVICE

UNIVERSITY	COMMITTEE/ACTIVITY	PERIOD
University of Memphis	Organized and chaired 3 sessions in ICOMAS 2018	Jan-May 2018
University of Memphis	Organizing committee ICOMAS 2018	2017-2018
University of Memphis	Proposed new graduate course in R programming	2014
University of Memphis	Statistical analysis of student success via ALEKS scores	2017
University of Memphis	Organizing committee ICOMAS 2016	2016

University of Memphis	Developed credit by exam for Math 1530	2016
University of Memphis	Co-developed with Nataliya Doroshenko online Math 1530 course	2016-2017
University of Memphis	Undergraduate advisor	2013 - present
University of Memphis	PhD committee member - Bryan Winters	2014
University of Memphis	Master's committee member Wen Feng	2014
University of Memphis	Master's committee member Li Chen	2014
University of Memphis	PhD committee member - Parsa Pezeshk in Environmental Engineering	2015
University of Memphis	Master's committee member for student in Electrical Engineering	2016
University of Memphis	Contracted courses for Honor's Credit	2012, 2015
University of Memphis	PhD Committee member - Behrouz Madahian	2015
University of Memphis	Advisor for statistics graduate students	2012-present
University of Memphis	Conducted summer workshop to prepare students for PhD qualifying exam	2013-2016
University of Memphis	Presenter at math bootcamp	Summer 2015 and 2016
University of Memphis	Faculty representative on St Jude tour at the MCBios conference	March 3, 2016
University of Memphis	Poster judge 2016 MCBIOS conference	March 4, 2016
University of Memphis	Chapter Representative for WTASA	2016-2018
University of Memphis	Prepared questions and graded Qualifying and Comprehensive Exams	2011-present
University of Memphis	Master committee member for students in Dietetic Nutrition	2012 - present
University of Memphis	Organized statistics seminars	2012-present
University of Memphis	Undergraduate committee	2013-present
University of Memphis	Proposed new data science undergraduate courses	Fall 2015
University of Memphis	Served on committee to develop new undergraduate data science program	Fall 2015
University of Memphis	Helped prepare documents for external review	Spring 2015
University of Memphis	Committee for GA course	Spring 2015
University of Memphis	Prepared questions for the high school math exam	Spring/summer 2015
University of Memphis	Instructors' hiring committee	Spring 2015
University of Memphis	Letters of recommendation for several undergraduate and graduate students	2011-present

University of Memphis	Program reviewer NSF: IUSE: EHR Design and Development	2015
University of Memphis	Cromium member	2014 - present
University of Memphis	Board member of Memphis Area SAS Users Group	2013-present
University of Memphis	Hiring committee joint math and IIS statistics position	2014 - 2015
University of Memphis	Graduate, Masters committee	2014-present
University of Memphis	Accelerated BS/MS program	2014
University of Memphis	Graduate Fair	2012
University of Memphis	Organized section for 2012 ICOMAS Conference	2011-2012
University of Memphis	Chaired section for 2012 ICOMAS Conference	2012
University of Memphis	Invited talk to Cantor Sect	2011
University of Memphis	Knowledge Bowl - prepared questions	2012
University of Memphis	Assessment Committee	2012-present
University of Memphis	Statistics Advising Committee	2012-present
University of Memphis	hiring committee for Senior Lecturer Lambuth campus	summer 2013
University of Memphis	Course Coordinator Math 1530	2013-2016

Appendix A

Academic Year (please indicate year)	**Course #**	**Course Name**	**Credit Hours**	**Percent Taught**	**Enroll**	**Labratory Supervised(S)/Instructed(I)**	**New Preparation (Y) /(N)**
Spring 2017	4640	Intro Prob Models	3	100	2		N
Spring 2017	7654	Inference Theory	3	100	6		N
Spring 2017	7657/8657	Multivar Stat Methods	3	100	10		N
Fall 2016	7608	Statistical Programming in R	3	100	16		N
Fall 2016	7642/8642	Experimental Design	3	100	7		N
Fall 2016	7660/8660	App Time Series Analysis	3	100	12		Y
Fall 2015	4635/6635	Intro to probability	3	100	12		N
Fall 2015	7762/8762	Survival Analysis	3	100	9		Y

Spring 2016	7759/8759	Categorical Data Analysis	3	100	5		Y
Spring 2016	7654	Inference Theory	3	100	13		N
Spring 2016	4614/6614	Intro to probability and statistics	3	100	55		Y
Summer 2015	1530	Prob/Statistics/Non Calculus	3	100	21		N
Summer 2015	7672	Ind Study Statistics	3	100	2		Y
spring 2015	4637	Intro/Stat models/Analysis	3	100	3		N
spring 2015	7641	Analysis of Variance	3	100	11		Y
Spring 2015	7654	Inference Theory	3	100	11		N
Fall 2015	4635/6635	Intro Probability Theory	3	100	14		N
Fall 2015	7645	Sampling Theory	3	100	2		N
fall 2015	7762/8762	Survival Analysis	3	100	5		Y
Fall 2015	7996	Thesis	3	100	1		Y

Appendix C

Deng, L.Y., Winters, B., and Bowman, D., Survey of current random number generators used in R and comparison with DX generators, in preparation for submission to R Journal.
Attended a workshop on Meta Analysis at the 2016 Conference on Statistical Practice, February 2016.
Attended a RNA-Seq workshop at the MCBIOS workshop, March 4, 2016.
Conducting statistical analysis for data on protophones (pre-speech sounds) in infants with Kim Oller- Holder of the Chair Excellence, School of Comm Sci and Disorders, 2014-present.
Member of Intershipinator collaborative grant project, ENA component with IIS, Fall 2015-present with Art Graesser, Vasile Rus, and graduate students.
Awarded a Faculty Research Participation Program, at National Center for toxicological Research of the FDA, sponsored by Oak Ridge Institute for Science and Education, spent three weeks working with Dr. James Chen, the director of the Biostatistics Division, summer 2014, 2015, visitor summer 2016.
Bowman, D., Variational EM Algorithm for Estimating the Number of Topics in an LDA Model, in preparation.
Bowman, D., Chen, J., George, E.O., Topic Modeling: An Alternative Approach Based on Exchangeability and Sufficient Statistics, in preparation.
Bowman, D., Chen, J., George, E.O., Goodness of Fit Measures for Topic Modeling, in preparation.
Fofana, D., Bowman, D., George, E.O., and Pounds, S., Multiple Testing with adjustments for model assumptions: An Empirical Bayes Approach (In Progress).

Bowman, D., George, E.O, Pounds, S., Cheng, C., "A Bayesian Analysis to Identify Genomic Variables with Biologically interesting Patterns of Association with Multiple Discrete and Continuous Endpoints", in preparation.
Bowman, D. and George, E.O., "On the Exact Correlation Structure of Exchangeable Multinomial Outcomes", in preparation
Submitted abstract to MCBios Conference 2015 - Goodness of Fit Measures in Topic Modeling

Appendix D

Central Arkansas Veterans Administration, DILI, Co-PI's Dale Bowman and E. Olusegun George, requested: $70,894 for period 1/1/2018 - 12/31/2021.
NIH, BD2K Research Education Curriculum Development: Data Science Overview for Biomedical Scientists, co-PI, statistics lead, PI Vasile Res, Co-PI E.O. George.
NSF, IUSE, A Model for Student Engaged Learning in an Elementary Statistics (SELES) Classroom, PI D. Bowman, Co-PI's Nataliya Doroshenko, Manohar Agarwal, and Alpha Ba requested : $295,698 for period 6/1/17 – 5/30/19, not funded.
NSF-Statistics, Efficient Large Order Matrix Congruential Generators, PI Lih-Yuan Deng, Co-PI Dale Bowman requested : $485,154 for period 6/1/17 – 5/30/20, not funded.
NSF-SaTC, SaTC: CORE: Small: Enhanced Secure And Fast Encryption (eSAFE) for Improving Classical Linear Generators, PI Lih-Yuan Deng, Co-PI Dale Bowman, requested $485,154 for 6/1/2017-5/30/2020, submitted.
NSF solicitation 16-512, On using Tensor Regression Procedures: Design of Efficient Algorithms and Scalable Parallel Random Number Generators for Simulation and Parameter Estimation, PI Dale Bowman, Co-PIs Lih-Yuan Deng, EO George and Su Chen, collaborators: George Ostrouchov from University of Tennessee and Khan Iftekharuddin from Old Dominion University,submitted January 2016, requesting $783,407 for U of M component, not funded.
NSF:SATC, TWC: Small: Security Enhancement on Linear Random Number Generators via Shuffling and Mixing, PI Lih-Yuan Deng, Co-PI Dale Bowman, submitted Oct. 2015, requested $482,080 for period 7/1/2016 - 6/30/2010, not funded.
NSF: Statistics, Development of New Spectral Tests for Multiple Recursive Generators, PI Lih-Yuan Deng, co-PI Dale Bowman, submitted Nov. 2015, requested $482,080 for period of 7/1/2016 - 6/30/2019. not funded
TBR Research Grant, A Bayesian Analysis to Identify Genomic Variables with Biologically Interesting Patterns of Association with Multiple Discrete and Continuous Endpoints with Application to Childhood Leukemia, PI Dale Bowman, Co-PI E.O. George, submitted 1/30/15, selected as one of five submissions from the University of Memphis, requested $39,120 for period 7/1/15 - 6/30/16, not funded.
NSF, TWC:Small: Security Enhancement on Linear Random Number Generators via Shuffling and Mixing, submitted 1/13/15, co-PI Dale Bowman, with PI Dr. Lih-Yuan Deng, requested $474,810 over period 9/1/15 - 8/31/18, not funded.
NSF, Design and Implementation of High Quality Random Number Generators for Large Scale Simulations, Co-PI Dale Bowman with PI Lih-Yuan Deng, and co-Pi Hongmei Zhang, submitted 11/3/14, requested $641,412 over period 9/1/15 - 8/31/18, not funded.

NSF, An Integrative Research Experience in Undergraduate Applied Statistics Education, PI Dale Bowman, with Co-PI's E.O. George and Alistair Windsor, submitted 10/22/14, requested $218,963 over the period 6/1/15 - 5/31/17, not funded.
NSF, TWC:Small program, 2014 Co-PI, Safe and Fast Encryption (SAFE) for Improving Classical Random Number Generators, PI Lih-Yuan Feng, Co-PI Dale Bowman requested $467,058, not funded
NSF: Improving Undergraduate STEM eucation, 2014 submitted grant PI E.O. George, Co-PI's Dale Bowman and Alistair Windsor, UMAS, An Integrative Research Experience in Undergraduate Applied statistics Education, requested amount $525,170, not funded
National Science Foundation Grant, Co PI, The University of Mississippi, to support the development of a web based tutorial for chemical engineering students to learn to design experiments.
National Science Foundation Grant, Co PI, The University of Mississippi to provide a summer workshop in mathematics for female high school students.

Appendix E

October 2016, together with Nataliya Doroshenko, visited Dr. Bill Rayens and his collegues at the University of Kentucky to learn about his innovations in the elementary statistics classroom. This meeting led to ideas that supported an NSF IUSE proposal.
2017 submitted proposal to the American Statistical Association's member initiative program. Requested $3,300 for a project intended to heighten the awareness of the practice and profession of statistics in local area high schools in conjunction with the WTASA (West Tennessee chapter of the American Statistical Association). This project would arrange visits from WTASA members to local area high schools, arrange for volunteer mentors for chosen students, set up an opportunity for the chosen local high school students to accompany a working statistician at his/her place of employment for a day, and sponsor a poster competition to encourage students to share what they have learned.

Curriculum Vitae

Fatih Şen

fsen@memphis.edu

Residency Status

Permanent resident (green card holder).

Education

Doctor of Philosophy (Ph.D.): 2009-2014, Little Rock/USA, Integrated Computing/Computer Science, University of Arkansas at Little Rock.
Master of Science (M.S.): 2006-2008, Hammond, LA, USA Integrated Science and Technology, Southeastern Louisiana University.
Bachelor of Science (B.S.): 1998-2003, Istanbul, Turkey, Computer Science, Yeditepe University.

Areas of Interests

Teaching computer science related courses, computer programming, entrepreneurship, database systems, data science, software engineering, data analytics, network analysis, data visualization, machine learning, biomedical informatics, clinical data analytics, clinical visual analytics, identifying focal structures in social and complex networks, diffusion in social networks, algorithms.

Teaching Experience

- Full-Time Instructor and Advisor at University of Memphis (UofM)
    - Taught computer science courses in both undergrad and grad levels in the Department of Computer Science. Courses taught include:
        - COMP 1800 - Solving Problems with Computers (only undergrad)
        - COMP 4040 - Programming Languages (only undergrad)
        - COMP 4272/6272 - Unix Admin and System Prog (both grad and undergrad)
        - COMP 3115 - Database Process and Design (only undergrad)
        - COMP 7115 - Database Systems (only grad)
        - COMP 4001/6001 - Computer Programming (both grad and undergrad)
    - Serving as a graduate committee member for curriculum revisions.
    - Advising graduate and undergraduate students.
    - Have maintained excellent student evaluations.
    - Instructor for Creative Game Design Camp at UofM campus in Summer 2017 (high school students)
- Pediatric Research Database (PRD) Training at Le Bonheur Children's Hospital- trained physicians and researchers how to obtain de-identified and aggregate patient information from the (PRD) at Le Bonheur Children's Hospital.
- REDCap Trainings- trained physicians and researchers how to manage their biomedical data using Research Electronic Data Capture (REDCap) at Le Bonheur Children's Hospital.
- Teaching Assistant- assisted students with their studies in Information Science and Computer Science departments at University of Arkansas at Little Rock.

- Instructor- taught the “Computer Literacy” class for two years as an instructor in the Department of Computer Science at University of Arkansas at Little Rock.
- Turkish Classes- Organized social events for the Turkish Club as a President at the campus and taught Turkish classes as a volunteer.

Employment - 10+ years Professional Experience

University of Memphis, 8/2016-Present, Full-Time Instructor/Lecturer in the Department of Computer Science, Memphis, TN, USA.

- Teaching three computer science courses per semester.
- Assisting and advising students with their courses and career developments.
- Managing scholarships for computer science students.
- Conducting biomedical informatics research studies.

Le Bonheur Children’s Hospital, 9/2014-7/2016, Biomedical Informatics Research Specialist, Memphis, TN, USA

- Facilitating data from existing data sources for research and assisting with data management and maintenance.
- Conducting research on data mining, big data and machine learning.
- Applying and supporting research grants.
- Training physicians how to utilize biomedical software packages for their research.

University of Arkansas at Little Rock (UALR), 01/2009-9/2013, Teaching Assistant and Instructor, Little Rock, Arkansas, USA

-Taught “Computer Literacy” class for two years as an instructor. –As a teaching assistant, assisted students with their studies in Information Science and Computer Science departments. -Organized social events for the Turkish Club as a President at the campus and taught Turkish classes as a volunteer -Worked on academic researches such as social networking analysis, data mining, and diffusion in social networks. Did some fun events, such as acting in a short video of a Gangnam Style Parody called “Ph.D. Style”: http://www.youtube.com/watch?v=v45oMhrrm6Y

University of Arkansas at Medical Sciences (UAMS), 06/2011-08/2012, Internship, Little Rock, Arkansas, USA.

-Implemented a social search engine, called SWiki to give the user the ability to search for medical research publications by a non-scientific and meaningful topic rather than by a keyword matching and link-analysis techniques.

GCR Associates Inc , 02/2008-10/2008, Software Developer, New Orleans, Louisiana, USA.

- **Aviation System Manager:** Implemented web forms, reports, web services and console application using VB.NET and C#. Used T-SQL scripts on Sql Server and PL/SQL scripts on Oracle database.
- **NCTCOG:** Designed and implemented web forms and reports for a flight tracking system using VB.NET and analytical services based on OLAP (Online Analytical Processing) concept.

Southeastern Louisiana University (SLU), 01/2006-01/2008, Graduate Assistant, Hammond, Louisiana, USA

-Worked on the Educational Leadership and Technology department's web site, and assisted students and professors in their work.- Gathered the required documents, analyzed the work-flow, designed and implemented them using Collage Web Tool software program. -Installed and configured Linux and windows servers, and helped the students in networking class.

Saint James Technology, Inc., 02/2007-01/2008, Internship, Software Engineer, Louisiana, USA.

- **Live Video Encoder Application:** -Developed the encoder server application by using C#, windows media encoder and DirectShow library.
- **Laser Drafting Tool:** -Modified the 'PHPReports' open source project and integrated it to the "Laser Drafting Tool" system for generating statistical reports using PHP, AJAX, MySQL database.
- **Formula Problem:** -Analyzed the formula problem for dynamically generated web reports and solved this problem using the "Evaluating Postfix-Notations for Arithmetic Expressions" algorithm.

Şentim Software A.S., 06/2004 – 05/2005, Software Engineer, Istanbul, Turkey

- **LIS (Laboratory Information Systems):** -Designed an interface for the laboratory module -Implemented the ASP.NET based project using Visual Basic.NET and Infragistics ASP.NET Components. -Designed and implemented statistical reports using Crystal Report Designer.
- **TQM (Total Quality Management):** -Analyzed and implemented the work-flow of the Document Management, Organization, and Customer Relationship Management (CRM) modules using C#. -Increased the team's performance by applying the Object Oriented Programming (OOP) design to the project.

4T Information Systems, A.S., 10/2003 – 04/2004, Software Developer, Istanbul, Turkey.

- **DSI (ERP Project):** -Implemented a stock and a human resources module using C# and PL/SQL scripts. -Designed statistical reports for the modules using Component One Web Report Designer.
- **MEDIN 2.0 (Health Care Project):** -Analyzed and gathered all requirements and developed the pharmacy and stock modules using C# and PL/SQL scripts.

Publications

- **Fatih Şen**, Teeradache Viangteeravat, Oluwaseun Ajayi. Modeling an Efficient Data Mart for High-Performance Clinical Data Analytics using Neo4j Graph Database. Short conf. paper accepted & to be presented. American Medical Informatics Association (AMIA) Joint Summits, San Francisco, March 2016.
- **Fatih Şen**, Naga Nagisetty, Teeradache Viangteeravat, Nitin Agarwal. An Online Platform for Focal Structures Analysis: Analyzing smaller and more pertinent groups using a web tool (Conf. paper-accepted & presented). Association for the Advancement of Artificial Intelligence (AAAI) Spring Symposium, Stanford University, May 2015.

- **Fatih Şen**, Rolf T. Wigand, Nitin Agarwal, Rafal Kasprzyk. Identifying Focal Structures in Complex Networks (Journal paper accepted), Social Network Analysis and Mining (SNAM) 2014.
- **Fatih Şen**, Rolf T. Wigand, Nitin Agarwal, Mutlu Mete, Rafal Kasprzyk. Focal Structure Analysis in Large Biological Networks (Conf. paper accepted & presented), ICBBT 2014, Gdansk, Poland.
- **Fatih Şen**, Rolf T. Wigand, Nitin Agarwal, Debanjan Mahata, Halil Bisgin. Identifying Focal Patterns in Social Networks (Short paper-accepted & presented). In Proc.of CASoN, 2012.
- Emre Ermisoglu, **Fatih Şen**, Sinan Kockara, Tansel Halic, Coskun Bayrak, Robert Rowe. A Scooping Simulation Framework for Artificial Cervical Disc Replacement Surgery (Conf. Paper-accepted & presented), 2009 IEEE International Conference on Systems, Man, and Cybernetics.
- Ghassan Alkadi, Theresa Beaubouef, **Fatih Şen**. Student Internship: Developing Real World Skills For Real World Problem Solutions (Conf. Paper-accepted & presented), CCSC: SC, 2008.

Presentations

- **F. Şen**, N. Nagisetty, T. Viangteeravat. How to become a biomedical informaticist. Guest speaker of colloquium series in the Department of Computer Science at University of Memphis. Fall 2015.
- T. Viangteeravat1. N. Nagisetty, O. Akbilgic, **F. Şen**, R Mudunuri, O. Ajayi, R. Davis. Predicting Risk of Respiratory Decompensation or Death for Hospitalized Children with Asthma or Related Conditions Using Machine Learning Techniques. Accepted & presented.Pediatric Academic Societies (PAS) 2016 Meeting, April 30-May 3, in Baltimore, MD. University of Health Science Center and Children's Foundation Research Institute/Le Bonheur Children's Hospital.
- **F. Şen**, R. Wigand, N. Agarwal, R. Kasprzyk. Modeling Diffusion and Network Robustness through Focal Structures in Social Networks. **Abstract accepted and presented**. Sunbelt Social Network Conference, Hamburg, May 2013.

Posters

- T. Viangteeravat, O. Ajayi, R. Mudunuri, E. Yuee-Dean Huang and **F. Şen**. Understanding the Association between Asthma and RSV Infection in Patients Using Visual Analytics of Electronic Medical Records. **Presented**. Children's Foundation Research Institute/Le Bonheur Children's Hospital.
- E. Völgyi, W. Smith1, R. Parvathareddy1, B. Tune, R. Mack, E. Gray, **F. Şen**, N. Nagisetty, J.C. Han. Association between Anthropometrics, Body Composition and Motor Proficiency in Pediatric Patients with Severe Obesity in an Urban Hospital Clinic. **Presented**. Pediatric Obesity Program in Department of Pediatrics/University of Tennessee Health Science Center, Children's Foundation Research Institute/Le Bonheur Children's Hospital.
- E. Völgyi, W.A. Smith, R. Parvathareddy, B. Tune, R. Mack, E. Gray, **F. Şen**, N. Nagisetty, O. Ajayi, J.C. Han. Motor Proficiency in Pediatric Patients with Obesity in a Multidisciplinary Weight Management Clinic. **Presented**. Pediatric Obesity Program in Department of

Pediatrics/University of Tennessee Health Science Center, Children's Foundation Research Institute/Le Bonheur Children's Hospital.

- W. Smith, E. Völgyi, B. Tune, R. Parvathareddy, R. Mack, E. Gray, **F. Şen**, N. Nagisetty, J.C. Han. Associations between physical activity, television watching, and physical fitness in children with severe obesity. **Presented**. Pediatric Obesity Program in Department of Pediatrics/University of Tennessee Health Science Center, Le Bonheur Children's Hospital, Research Building.
- J. Armbruster-Lee, E. Völgyi, Tamekia L. Jones, **F. Şen**, N. Nagisetty, T. Viangteeravat, J.C. Han. Does obesity status affect length of hospital stay for asthma or appendicitis? **Presented.** Pediatric Obesity Program in Department of Pediatrics/University of Tennessee Health Science Center, Children's Foundation Research Institute/Le Bonheur Children's Hospital.

Technical Skills

Python, PyCharm, Django, Object Oriented Programming, C#.NET, PHP, VB.NET, Java, Java Script, D3.js, R Statistics, Eclipse, Netbeans, MySql, Neo4j, MS SQL Server, Oracle, Cloud Server Management, Gephi, Pajek, Cystoscape, ASP.NET, Linux, ETL, CentOS, Mac OS X, Web Services, PL/SQL Script, PowerInsight, Business Intelligent Tools, Cerner, Electronic Medical Record (EMR), Research Electronic Data Capture (REDCap).

On News

- News of UALR, AGARWAL AND STUDENTS PRESENT RESEARCH AT STANFORD-HOSTED SYMPOSIA, http://ualr.edu/news/2015/04/20/agarwal-and-students-present-research-at-stanford-hosted-symposia/
- FORUM: The Newsletter of UALR, http://ualr.edu/forum/index.php/2011/01/28/funtle-com-the-next-big-thing/
- OISPOST: The Newsletter of the Office of International Services (no longer available online), Feature Student(s) in an OISPOST Interview.
- KATV, http://www.katv.com/story/14665651/funtel
- PHD STYLE VIDEO, https://www.youtube.com/watch?v=v45oMhrrm6Y

CURRICULUM VITAE

Name: Bernie J. Daigle, Jr.	**Department:**Biological Sciences

EDUCATION

DEGREES	DISCIPLINE	INSTITUTION	YEAR
B.S.	Biology	Cornell University	2002
Ph.D.	Genetics	Stanford University	2010

EXPERIENCE

RANK/POSITION	DEPARTMENT/DIVISION	INSTITUTION/COMPANY/ORGANIZATION	PERIOD
Postdoctoral Researcher	Computer Science	University of California, Santa Barbara	2009-2011
Assistant Researcher (Professional Research Series)	Institute for Collaborative Biotechnologies	University of California, Santa Barbara	2011-2015
Assistant Professor	Biological Sciences	The University of Memphis	2015-present

HONORS/AWARDS

HONOR/AWARD	INSTITUTION/COMPANY/ORGANIZATION	YEAR
Hughes Scholars Program Research Fellowship	Cornell University	2001
Geraldine Jackson Fuhrman Predoctoral Fellowship	Stanford University	2002
Predoctoral Research Fellowship	Howard Hughes Medical Institute	2003-2008
Pacific Symposium on Biocomputing Travel Award	Department of Energy	2005
Biomedical Informatics Research Training Fellowship	National Library of Medicine	2008-2009
Program for Excellence in Science Award	AAAS/Science	2009
q-bio Summer School Scholarship	Los Alamos National Laboratory	2009
Banff International Research Station Biochemical Stochasticity Workshop Travel Award	Mathematical Sciences Research Institute	2011
Uncertainty Quantification Workshop Travel Award	The Statistical and Applied Mathematical Sciences Institute	2011
MCQMC Conference Travel Award	National Science Foundation	2012
Steve Hsia Biomedical Paper Award	World Congress on Intelligent Control and Automation	2012
First Time Principal Investigator	The University of Memphis	2017

TEACHING EXPERIENCE

SUBJECT	INSTITUTION
Data Science for Biologists for graduate students	The University of Memphis
Survey of Genomics and Bioinformatics for undergraduate and graduate students	The University of Memphis

STUDENT ADVISING/MENTORING

CURRENT DEGREE	NAME	YEAR OF GRADUATION
BS	Kevin Townsend	2016
MS student	Sambriddhi Mainali	
PhD student	Pulin Agrawal	
PhD student	Caroline Melton	
PhD student	Liangqun Lu	

MS	Mazen Istanbouli	2017
MS student	Ted Ling Hu	

Refereed Journal Publications

Garth D Ehrlich, Richard Veeh, Xue Wang, J William Costerton, Jay D Hayes, Fen Ze Hu, Bernie J Daigle Jr, Miles D Ehrlich, and J Christopher Post. Mucosal biofilm formation on middle-ear mucosa in the chinchilla model of otitis media. *JAMA*, 287(13):1710–1715, Apr 2002. doi:10.1001/jama.287.13.1710.

Bernie J Daigle Jr and Russ B Altman. M-BISON: Microarray-based integration of data sources using networks. *BMC Bioinformatics*, 9:214, 2008. ***Highly accessed*** **article on BioMed Central**. doi:10.1186/1471-2105-9-214.

Bernie J Daigle Jr, Alicia Deng, Tracey McLaughlin, Samuel W Cushman, Margaret C Cam, Gerald Reaven, Philip S Tsao, and Russ B Altman. Using pre-existing microarray datasets to increase experimental power: application to insulin resistance. *PLoS Comput Biol*, 6(3):e1000718, Mar 2010. **Faculty of 1000 Recommended article**. doi:10.1371/journal.pcbi.1000718.

Bernie J Daigle Jr*, Balaji S Srinivasan*, Jason A Flannick, Antal F Novak, and Serafim Batzoglou. *Systems Biology for Signaling Networks*, volume 1 of *Systems Biology*, chapter in Current Progress in Static and Dynamic Modeling of Biological Networks, pages 13–74. Springer, New York, 1st edition, 2010. *Contributed equally. doi:10.1007/978-1-4419-5797-9_2.

Jesse M Engreitz, Bernie J Daigle Jr, Jonathan J Marshall, and Russ B Altman. Independent component analysis: Mining microarray data for fundamental human gene expression modules. *J Biomed Inform*, 43(6):932–44, Dec 2010. doi:10.1016/j.jbi.2010.07.001.

Bernie J Daigle Jr*, Min K Roh*, Dan T Gillespie, and Linda R Petzold. Automated estimation of rare event probabilities in biochemical systems. *J Chem Phys*, 134(4):044110, Jan 2011. *Contributed equally. **Featured in** ***Virtual Journal of Biological Physics Research***. doi:10.1063/1.3522769.

Min K Roh*, Bernie J Daigle Jr*, Dan T Gillespie, and Linda R Petzold. State-dependent doubly weighted stochastic simulation algorithm for automatic characterization of stochastic biochemical rare events. *J Chem Phys*, 135(23):234108, Dec 2011. *Contributed equally. **Featured as a** ***Research Highlight*** **by** ***J Chem Phys***. doi:10.1063/1.3668100.

Ruoting Yang*, Bernie J Daigle Jr*, Linda R Petzold, and Francis J Doyle III. Core module biomarker identification with network exploration for breast cancer metastasis. *BMC Bioinformatics*, 13:12, Jan 2012. *Contributed equally. ***Highly accessed*** **article on BioMed Central**. doi:10.1186/1471-2105-13-12.

Bernie J Daigle Jr, Min K Roh, Linda R Petzold, and Jarad Niemi. Accelerated maximum likelihood parameter estimation for stochastic biochemical systems. *BMC Bioinformatics*, 13(1):68, May 2012. doi:10.1186/1471-2105-13-68.

Robin E White, Curtis J Palm, Lijun Xu, Evelyn B Ling, Mitchell Ginsburg, Bernie J Daigle Jr, Ruquan Han, Andrew J Patterson, Russ B Altman, and Rona G Giffard. Mice lacking the 2 adrenergic receptor have a unique genetic profile before and after focal brain ischemia. *ASN Neuro*, Aug 2012. doi:10.1042/AN20110020.

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Bernie J Daigle Jr, Mohammad Soltani, Linda R Petzold, and Abhyudai Singh. Inferring single-cell gene expression mechanisms using stochastic simulation. *Bioinformatics*, 31(9):1428–35, May 2015. doi:10.1093/bioinformatics/btv007.

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Gunjan S Thakur, Bernie J Daigle Jr, Meng Qian, Kelsey R Dean, Yuanyang Zhang, Ruoting Yang, Taek-Kyun Kim, Xiaogang Wu, Meng Li, Inyoul Lee, Linda R Petzold, and Francis J Doyle III. A Multi-Metric Evaluation of Stratified Random Sampling for Classification: A Case Study. *IEEE Life Sciences Letters*, PP(99):1–1, October 2016. doi:10.1109/LLS.2016.2615086.

Min K. Roh and Bernie J Daigle Jr. SParSE++: Improved event-based stochastic parameter search. *BMC Systems Biology*, 10:109, November 2016. doi:10.1186/s12918-016-0367-z.

Brian Drawert, Andreas Hellander, Ben Bales, Debjani Banerjee, Giovanni Bellesia, Bernie J Daigle Jr, Geoffrey Douglas, Mengyuan Gu, Anand Gupta, Stefan Hellander, Chris Horuk, Dibyendu Nath, Aviral Takkar, Sheng Wu, Per Lötstedt, Chandra Krintz, and Linda R. Petzold. Stochastic Simulation Service: Bridging the Gap between the Computational Expert and the Biologist. *PLoS Computational Biology*, 12(12):e1005220, December 2016. doi:10.1371/journal.pcbi.1005220.

Rasha Hammamieh, Nabarun Chakraborty, Aarti Gautam, Seid Muhie, Ruoting Yang, Duncan Donohue, Raina Kumar, Bernie J Daigle Jr, Yuanyang Zhang, Duna Abu-Amara, Stacy-Ann Miller, Seshmalini Srinivasan, Janine Flory, Rachel Yehuda, Linda Petzold, Owen M. Wolkowitz, Synthia H. Mellon, Leroy Hood, Francis J. Doyle III, Charles Marmar, and Marti Jett. Whole-genome DNA methylation status associated with clinical PTSD measures of OIF/OEF veterans. *Translational Psychiatry*, 7(7):e1169, July 2017. doi:10.1038/tp.2017.129.

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Ruoting Yang, Bernie J Daigle Jr, Linda R Petzold, and Francis J Doyle III. Core module network construction for breast cancer metastasis. In *10th World Congress on Intelligent Control and Automation (WCICA)*, pages 5083–5089, Jul 2012. **Received Steve Hsia Biomedical Paper Award**. doi:10.1109/WCICA.2012.6359441.

Gunjan S Thakur, Bernie J Daigle Jr, Linda R Petzold, and Francis J Doyle III. A multivariate ensemble approach for identification of biomarkers: application to breast cancer. In *The 19th World Congress of the International Federation of Automatic Control (IFAC)*, pages 809–814, Aug 2014.

Yuanyang Zhang, Bernie J Daigle Jr, Lisa Ferrigno, Mitchell Cohen, and Linda Petzold. Data-driven mortality prediction for trauma patients. Selected for presentation at the *Machine Learning in Computational Biology workshop (MLCB 2014) in the Twenty-eighth Annual Conference on Neural Information Processing Systems (NIPS 2014)*, Dec 2014.

Gunjan S Thakur, Bernie J Daigle Jr, Kelsey Dean, Linda R Petzold, and Francis J Doyle III. Metric focused feature selection for customized biomarker identification. In *The Fifth International Conference on Foundations of Systems Biology in Engineering (FOSBE 2015)*, Aug 2015.

Yuanyang Zhang, Bernie J Daigle Jr, Mitchell Cohen, and Linda R. Petzold. A Cure Time Model for Joint Prediction of Outcome and Time-to-Outcome. In *2015 IEEE International Conference on Data Mining (ICDM)*, pages 1117–1122, November 2015. doi:10.1109/ICDM.2015.14.

Nabarun Chakraborty, Seid Muhie, Ruoting Yang, Aarti Gautam, Duncan Donohue, Bernie J Daigle Jr, Yuanyang Zhang, Duna Abu Amara, Janine Flory, Rachel Yehuda, Frank Doyle, Rasha Hammamieh, Charles Marmar, and Marti Jett. Characterization of the Epigenomic Status of the US OEF/OIF War Veterans: A Pilot Clinical Study. *The FASEB Journal*, 30(1 Supplement):831.3–831.3, January 2016.

Eric C. Rouchka, Julia H. Chariker, Benjamin J. Harrison, Juw Won Park, Xueyuan Cao, Stanley Pounds, Susana Raimondi, James Downing, Raul Ribeiro, Jeffery Rubnitz, Jatinder Lamba, Bernie J Daigle Jr, et al. Proceedings of the 15th Annual UT-KBRIN Bioinformatics Summit 2016. *BMC Bioinformatics*, 17(10):297, August 2016. doi:10.1186/s12859-016-1154-y.

Eric C. Rouchka, Julia H. Chariker, David A. Tieri, Juw Won Park, Shreedharkumar Rajurkar, Vikas Singh, Nishchal K. Verma, Yan Cui, Mark Farman, Bradford Condon, Neil Moore, Jerzy Jaromczyk, Jolanta Jaromczyk, Daniel Harris, Patrick Calie, Eun Kyong

Shin, Robert L. Davis, Arash Shaban-Nejad, Joshua M. Mitchell, Robert M. Flight, Qing Jun Wang, Richard M. Higashi, Teresa W-M Fan, Andrew N. Lane, Hunter N. B. Moseley, Liangqun Lu, Bernie J Daigle Jr, et al. Proceedings of the 16th Annual UT-KBRIN Bioinformatics Summit 2016: Bioinformatics. *BMC Bioinformatics*, 18(9):377, October 2017. doi:10.1186/s12859-017-1781-y.

Presentations - Universities/Industry (refereed *)

“Microarray data preprocessing and differential expression analysis.” ARL/ICB Crash Course in Systems Biology, Lawrence Berkeley National Laboratory, Berkeley, CA, Aug 10, 2010.

“Inferring Single-Cell Biological Mechanisms Using Stochastic Simulation.” Department of Systems & Computational Biology, Albert Einstein College of Medicine, Bronx, NY, Apr 2, 2014.

“Inferring Single-Cell Biological Mechanisms Using Stochastic Simulation.” Computer Science and Engineering Department, University of Connecticut, Storrs, CT, Apr 25, 2014.

“Efficient Characterization of Biological Rare Events.” Bio 291C: Exploring BioMath, St. Olaf College, Northfield, MN, May 8, 2014.

“Stochastic Simulation-Based Methods for Inferring Biological Mechanisms.” Department of Mathematics, Statistics, and Computer Science, St. Olaf College, Northfield, MN, May 9, 2014.

“Inferring Single-Cell Biological Mechanisms Using Stochastic Simulation.” Sanford-Burnham Medical Research Institute, La Jolla, CA, May 14, 2014.

“Integrating Heterogeneous Microarray Datasets to Increase Experimental Power.” Department of Biological Sciences, The University of Memphis, Memphis, TN, Feb 9, 2015.

“Increasing Experimental Power by Integrating Heterogeneous Biological Datasets.” Computer Science Colloquium, The University of Memphis, Memphis, TN, Feb 5, 2016.

“Efficient Characterization of Rare Events in Biochemical Systems.” Machine Learning Journal Club, The University of Memphis, Memphis, TN, Mar 18, 2016.

“Knowledge-Guided Integration of Biological Datasets to Increase Experimental Power.” Department of Microbiology and Immunology, Drexel University College of Medicine, Philadelphia, PA, Oct 12, 2016.

“Stochastic Simulation of Biochemical Systems.” Invited lecture, MATH 3410/1: Honors Seminar in Math, The University of Memphis, Memphis, TN, Nov 16, 2016.

“Meet the Scientist.” Graduate Women in Science, The University of Memphis, Memphis, TN, Apr 7, 2017.

“Inferring Single-Cell Biochemical Mechanisms Using Stochastic Simulation.” Department of Microbiology, Immunology, and Biochemistry, The University of Tennessee Health Science Center, Memphis, TN, May 8, 2017.

“Computational Inference of Single-Cell Gene Expression Mechanisms.” Memphis Mathematical Biology Seminar, St. Jude Children’s Research Hospital, Memphis, TN, May 11, 2017.

“MLE to ABC: Parameter Estimation for Stochastic Biochemical Systems.” Seminar Program in Scientific Computing, Department of Information Technology, Uppsala University, Uppsala, Sweden, Sep 13, 2017.

Other Presentations (refereed *)

"Pravastatin effects in a mouse model of Hypercholesterolemia." Stanford Microarray Meeting, Stanford, CA, Jan 14, 2005.

"Using biological knowledge to detect differentially expressed genes in microarray experiments." Bio-X summer research talk, Stanford, CA, Jul 16, 2008.

"Using pre-existing microarray datasets to improve detection of differentially expressed genes." q-bio Summer School on Cellular Information Processing, Los Alamos, NM, Jul 29, 2009.

"Dynamic boolean network inference from adipocyte time course gene expression data." Pfizer Insulin Resistance Project Meeting, Boston, MA, Dec 10, 2009.

"Efficient stochastic simulation of rare event probabilities using importance sampling." UCSB NSF-IGERT systems biology seminar series, Santa Barbara, CA, May 18, 2010.

"Ultrasensitive prion biomarker identification." Systems biology of prion disease Project Meeting, Institute for Systems Biology, Seattle, WA, May 21, 2010.

"An information-theoretic approach to improve the estimation of rare event probabilities in biochemical systems." *Selected for Presentation* at the 11th International Conference on Systems Biology (ICSB 2010), Edinburgh, UK, Oct 11, 2010.

“A Tutorial for Using R/Bioconductor to Perform DNA Microarray Analysis.” UCSB NSF-IGERT systems biology seminar series, Santa Barbara, CA, Jan 31, 2011.

"Accelerated Maximum Likelihood Estimation for Stochastic Biochemical Systems." *Selected for Presentation* at The Fifth Annual q-bio Conference on Cellular Information Processing, Santa Fe, NM, Aug 13, 2011.

"Efficient Biochemical Parameter Estimation Using Rare Event Simulation Techniques." The Third International Workshop on Stochasticity in Biochemical Reaction Networks, Banff, Canada, Sep 16, 2011.

"Efficient Estimation of Rare Event Probabilities in Biochemical Systems." *Selected for Presentation* at the Tenth International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing (MCQMC 2012), Sydney, Australia, Feb 13, 2012.

"Bioinformatics, Modeling, and Machine Learning of PTSD." Systems Biology Approaches to the Study of Post-Traumatic Stress Disorder AIBS Panel Review, Fort Detrick, Frederick, MD, Apr 28, 2014.

"Increasing Experimental Power by Integrating microRNA-mRNA Interaction Networks with Microarray Data." *Selected for Presentation* at The Fourth Annual Winter q-bio Meeting, Honolulu, HI, Feb 16, 2016.

"Integration of microRNA-mRNA Interaction Networks with Microarray Data to Increase Experimental Power." *Selected for Presentation* at the 13th Annual MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Conference, Memphis, TN, Mar 3, 2016.

"Integration of microRNA-mRNA Interaction Networks with Gene Expression Data to Increase Experimental Power." *Selected for Presentation* at the UT-KBRIN Bioinformatics Summit, Cadiz, KY, Apr 10, 2016.

"Network-Based Data Integration for PTSD Omics Data." Department of Psychiatry, NYU Langone Medical Center, New York, NY, Oct 14, 2016.

“Computational Inference of Single-Cell Biological Mechanisms.” BINF 7980: Research Seminar in Bioinformatics, The University of Memphis, Memphis, TN, Oct 28, 2016.

"Clinical Subgroup-Specific PTSD Classification and Biomarker Identification." Systems Biology Approaches to the Study of Post-Traumatic Stress Disorder Project Meeting, Cambridge, MA, Oct 12, 2017.

“Characterizing Biochemical Rare Events Using Stochastic Simulation.” BINF 7980: Research Seminar in Bioinformatics, The University of Memphis, Memphis, TN, Nov 17, 2017.

SUPPORT

(External)

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
Knowledge-Driven Multi-omic Biomarker Identification for Posttraumatic Stress Disorder	U.S. Army Research Laboratory	$485,239	January 2017-January 2022
Identifying Prognostic Biomarkers for Posttraumatic Stress Disorder	U.S. Army Research	$6,561	June 2018-August 2nd

	Office		2018

Internal Support

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
Startup package	The University of Memphis	$161,000	August 2015-present

OUTREACH

Project/s summary

PROJECT	PARTICIPANTS	PERIOD	SPONSORSHIP
tnAchieves Mentor	Memphis high school students	2015-2016	N/A
Hutchison Middle School Science Night poster presentation judge	Middle school students	2016-present	N/A
National Conference on Undergraduate Research (NCUR) abstract reviewer	U.S. undergraduate student researchers	2017	N/A

SERVICE

UNIVERSITY	COMMITTEE/ACTIVITY	PERIOD
The University of Memphis	Bioinformatics MS program application review	2015-present
The University of Memphis	Bioinformatics MS project presentation evaluation	2015-present
The University of Memphis	Biological Sciences PhD student committees (three total)	2016-present
The University of Memphis	Student Research Forum poster presentation judge	2016
The University of Memphis	Computer Science Research Day student oral presentation judge	2016
The University of Memphis	Biological Sciences Strategic Planning Committee	2016-present
The University of Memphis	Bioinformatics Certificate program Steering Group	2016-present
The University of Memphis	Biological Sciences Faculty Search Committee: Genetics, Metagenomics, Microbiology	2016-2017
The University of Memphis	Computer Science MS thesis committee (one total)	2017
The University of Memphis	Biological Sciences Faculty Search Committee: Genetics	2017-2018
The University of Memphis	High Performance Computing System for Research RFP Evaluation Committee	2018

OTHER

SOCIETY/ORGANIZATION/JOURNAL	COMMITTEE/EDITORIAL BOARD/OFFICE	PERIOD
Journal of Biomedical Informatics	Referee	2015, 2017
MidSouth Computational Biology and Bioinformatics Society (MCBIOS)	MCBIOS Conference student and postdoc presentation judge	2016-present
MCBIOS	MCBIOS Conference proceedings referee	2017
International Workshop on Translational Bioinformatics in Precision Medicine, IEEE International Conference on Bioinformatics and Biomedicine	Program Committee member	2017
International Workshop on Translational Bioinformatics in Precision Medicine	Proceedings referee	2017
BMC Cancer	Referee	

Appendix A

Academic Year (please indicate year)	Course #	Course Name	Credit Hours	Percent Taught	Enroll	Labratory Supervised(S)/Instructed(I)	New Preparation (Y) /(N)
2016	BIOL 7708/8708	Data Science for Biologists	3	100%	12	N/A	Y
2016	BIOL 8092	Research	3	100%	2	S	Y
2017	BIOL 4092/6092	Survey of Genomics and Bioinformatics	3	100%	6	N/A	Y
2017	BIOL 6092	Survey of Genomics and Bioinformatics	3	100%	7	N/A	N
2017	BIOL 8092	Research	1	100%	2	S	N
2017	BIOL 7092	Research	3	100%	1	S	Y
2018	BIOL 8103	Dissertation Proposal	3	100%	1	S	Y
2018	BIOL 8092	Research	2	100%	1	S	N

Appendix B

As an Assistant Professor at The University of Memphis, I have served as the primary research advisor for one undergraduate student: Kevin Townsend, who studied Computer Science. After teaching Kevin the basics of genomics and bioinformatics, I helped Kevin develop a research plan and met with him several times each week to discuss results and advise on next steps. During his year in my lab, I helped Kevin create an abstract and poster describing his work, which he successfully submitted to and presented at both the MCBIOS 2016 conference and the 28th Annual UofM Student Research Forum. At the latter event, Kevin received 2nd place for best poster in the Computer Science category.

I have also served as a research advisor for three MS students—Mazen Istanbouli, studying Biological Sciences; Ted Ling Hu, studying Bioinformatics; and Sambriddhi Mainali, studying Computer Science. For each student, I helped them to initially develop and subsequently refine their research plans, and I met with them one-on-one for at least an hour per week to discuss results and next steps. Although Mazen has completed his MS degree and graduated, he is still working in my lab as a volunteer. Besides supervising his research, I am also advising him on applying to PhD programs, which has included helping to edit his personal/research statements and writing a letter of reference.

I have served as primary advisor to three PhD students in my lab—Caroline Melton and Liangqun Lu, studying Biological Sciences, and Pulin Agrawal, studying Computer Science. Caroline initially joined my lab as a volunteer, during which time I provided her with programming tutorials and helped design her research plan. I also assisted her in applying to the Biological Sciences PhD program. Upon acceptance, Caroline joined my lab on an official basis. I have assisted both Caroline and Liangqun in writing abstracts and creating posters describing their research, which they submitted to and presented at the MCBIOS 2017 conference, the 29th Annual UofM Student Research Forum, and the UT-KBRIN Bioinformatics Summit 2017. Caroline won a student travel stipend to the former conference, which funded her registration and travel costs. Both Caroline's and Liangqun's abstracts from the latter conference were ultimately published as conference proceedings in the journal BMC Bioinformatics. As with my other advisees, I meet with each of my PhD students for at least an hour each week to discuss results, advise them on statistics or programming questions, and challenge them to strategically plan future directions. I also hold a biweekly lab meeting, where each student (both MS and PhD) alternates presenting their research or a "journal club" article to the rest of the group.

Finally, I chair the PhD thesis committees of my own Biological Sciences PhD students, and I serve on a third Biological Sciences PhD thesis committee as well as a Computer Science MS thesis committee. These roles involve writing and grading written comprehensive exams, reading and evaluating research prospectuses, and evaluating thesis defenses.

Appendix C

The goal of my lab's research is to improve the inference of biological meaning from the wealth of experimental data collected from single cells to whole organisms. To do so, we develop sophisticated statistical and computational tools that enable integrated analyses of noisy, heterogeneous datasets. Several ongoing projects in my lab in pursuit of this goal include:

Identification of Molecular Biomarkers for Post-traumatic Stress Disorder. Post-traumatic stress disorder (PTSD) is a severe anxiety disorder that affects a substantial portion of combat veterans and poses serious consequences to long-term health. Consequently, the identification of PTSD indicators ("biomarkers") that can be detected in the blood or non-invasively is of great interest. Using minimally invasive data taken from U.S. Army veterans, we are working to identify biomarkers that aid in both the diagnosis and assessment of prognosis of individuals with PTSD. Recently, we have developed computational tools for identifying PTSD biomarkers from "multi-omic" data. We are currently evaluating the potential of these biomarkers to diagnose new patients as well as provide a molecular network-level description of the PTSD phenotype.

Development of Data Integration Methods for Improved Differential Expression Analysis. The detection of differentially expressed (DE) genes between two or more biological conditions is an essential step in the search for candidate disease genes, drug targets, and discriminative biomarkers. An important source of information for differential expression analysis comes from microRNA (miRNA) experiments. While the transcriptional roles of miRNAs are well documented, methods for incorporating miRNA datasets with traditional gene expression assays are lacking. Thus, I recently developed Noisy-Or Optimization for DifferentiaL Expression analysis (NOODLE), a novel Bayesian network-based approach for integrating miRNA-mRNA interaction networks with gene expression data to improve DE gene identification. Current work involves extending the NOODLE approach to other types of high-throughput measurements (*e.g.*, DNA methylation data; transcription factor binding data) as well as incorporating the vast amount of publicly available gene expression data from resources like the Gene Expression Omnibus (GEO).

Computational Inference of Single-Cell Biological Mechanisms. Recent advances in single-cell experimental techniques have provided unprecedented access to the mechanisms underlying fundamental cellular processes. In particular, techniques assaying populations of single cells such as single-cell RNA-seq (scRNA-seq) have highlighted the importance of cellular noise to these mechanisms. Despite growing availability of such single-cell distribution data, limitations in computational methods for model identification and parameter inference remain a bottleneck for developing accurate mechanistic descriptions of cellular processes. I have recently developed a novel maximum likelihood-based method for model identification and parameter inference: distribution Monte Carlo Expectation-Maximization with Modified Cross-Entropy Method (dMCEM^2). My lab is currently using dMCEM^2 to accurately construct models of single-cell gene expression from publicly available scRNA-seq data.

Appendix D

In 2014, I was a co-PI on an Army Research Office grant titled "A Systems Approach to Understanding Post-Traumatic Stress Disorder." This grant was funded for one year for $1,500,000.

In December 2015, I submitted an internal proposal for the Oak Ridge Associated Universities Junior Faculty Enhancement Award. This application was not selected by The University of Memphis Research Office for external submission.

In January 2016, I submitted an NSF pre-proposal to the Division of Environmental Biology as co-PI (PI Jennifer Mandel). This pre-proposal was not invited for a full proposal submission.

In January 2016, I also submitted a proposal for a University of Memphis Faculty Research Grant. This proposal was not selected for funding.

In June 2016, I was awarded a research contract from Leidos Biomedical Research, Inc. via funds from the National Cancer Institute, National Institutes of Health titled "Multi-omic Biomarker Identification for Posttraumatic Stress Disorder." This contract was funded for two months for $29,766.

In December 2016, I submitted a proposal for a BD2K Research Education Curriculum Development: Data Science Overview for Biomedical Scientists (R25) grant from the National Institutes of Health as co-investigator. This proposal was not selected for funding.

In December 2016, I was awarded a research contract from Leidos Biomedical Research, Inc. via funds from the National Cancer Institute, National Institutes of Health titled "Gene Expression and DNA Methylation Biomarker Identification for Posttraumatic Stress Disorder." This contract was funded for 1.5 months for $12,013.

In January 2017, I was awarded a grant from the U.S. Army Research Laboratory titled "Knowledge-Driven Multi-omic Biomarker Identification for Posttraumatic Stress Disorder." This grant is being funded for five years for a total of $485,239.

In January 2017, I submitted an NSF pre-proposal to the Division of Environmental Biology as co-PI (PI Jennifer Mandel; co-PI Vinhthuy Phan), which was invited for a full proposal submission. We submitted a full proposal in August 2017 to the same Division, but it was ultimately not selected for funding.

In February 2017, I submitted a proposal for The University of Memphis Team Initiation Research Investment Fund grant as co-PI (PI Jennifer Mandel; co-PI Vinhthuy Phan). This proposal was not selected for funding.

In January 2018, I was awarded a grant from the U.S. Army Research Office's FY18 Undergraduate Research Apprenticeship Program (URAP) titled "Identifying Prognostic Biomarkers for Posttraumatic Stress Disorder." This grant provides $6,561 for a University of Memphis undergraduate to perform supervised summer research in my lab during summer 2018.

Appendix E

From 2015-2016, I served as a *tnAchieves* mentor, engaging local high school students to help them navigate the college-going process and encouraging them to reach their full potential.

Since 2016, I have served as a poster presentation judge for the Hutchison Middle School Science Night held each March.

In January 2017, I reviewed Biology abstracts for the 31st Annual National Conference on Undergraduate Research (NCUR 2017) held at The University of Memphis.

JOONHYUNG LEE
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University of Memphis
Memphis, TN 38152, USA
jlee17@memphis.edu

Education

2009 UNIVERSITY OF TEXAS AT AUSTIN
Ph.D. in Economics

2004 UNIVERSITY OF TEXAS AT AUSTIN
M.S. in Economics

2002 KOREA UNIVERSITY
B.S. in Economics

Academic Positions

2018– Associate Professor, University of Memphis

2017– Editorial Boards, Future Growth Studies

2012–2018 Assistant Professor, University of Memphis

2010–2012 Visiting Assistant Professor, Southern Methodist University

2009–2010 Research Associate, University of Texas at Austin

Research Publications

1. An empirical investigation on the transfer of expatriates within MNCs from a knowledge perspective (with Carmen Astorne-Figari), forthcoming, *Oxford Bulletin of Economics and Statistics*
2. Evaluation of a behavioral intervention with multiple components among low-income, uninsured adults with obesity and diabetes (with S. Ahn, L. Post, J. Bartlett-Prescott, and K. Ward), forthcoming, *American Journal of Health Promotion*
3. The skill composition of Korean multinational firms, *Future Growth Studies,* December 2016
4. Did China Tire Safeguard Save U.S. Workers? (with Sunghoon Chung and Thomas Osang), *European Economic Review*, 2016, 85, 22-38
5. The Impacts of Offshoring on Temporary Workers: Evidence on Wages from South Korea (with Hongshik Lee), *Review of World Economics/Weltwirtschaftlich Archiv*, 2015, 151, 555-587
6. Technology diffusion and host-country productivity in South-South FDI flows (with Hyukwhang Kim and Hongshik Lee), *Japan and the World Economy*, 2015, 33, 1-10
7. The Transfer of Workers within Multinationals and Ownership of Foreign Affiliates, *Economics Letters*, 2014, 125, 149-152

8. How and Where to Offshore: A Productivity Comparison at the Firm Level (with Jae-Jun Han and Hongshik Lee), *Applied Economics*, 2014, 46(15), 1704-1715
9. Language, Ethnicity, and Intra Firm Trade (with Peter Debaere and Hongshik Lee), *Journal of Development Economics*, 2013, 103, 244-253
10. FDI Externalities and the Response of the Korean Stock Market (with Sungjin Kang and Hongshik Lee), *Korean Economic Review*, 2013, 29
11. Agglomeration, Backward and Forward : Evidence from South Korean Investment in China (with Peter Debaere and Myungho Paik), *Canadian Journal of Economics*, 2010, 43, 520-546
12. It Matters Where You Go: Outward Foreign Direct Investment and Multinational Employment Growth at Home (with Peter Debaere and Hongshik Lee), *Journal of Development Economics,* 2010, 91, 301-309
13. Regional Production Network, Service Offshoring, and Productivity in East Asia (with Moonsung Kang, Hyukwhang Kim, and Hongshik Lee), *Japan and the World Economy*, 2010, 22, 206-216

Other Publications

1. Offshoring and wage inequality, *voxeu.org*, 20 December 2015
2. Clustering together abroad: South Korean multinationals in China, *voxeu.org*, 3 June 2009
3. Venturing abroad at the cost of doemstic employment?, *voxeu.org*, 24 December 2008

Working Papers

- The role of the foreign affiliate productivity for the integration strategies of the multinational firm (with Jae-Joon Han and Hongshik Lee), under review

Work in Progress

- The comparative analysis of the South Korean firm's investment on North Korea versus Southeastern Asian countries (with Sungtaek Cho and Hongshik Lee)
- Evaluation of the Faith Community Nurse (FCN) Transitional Care Program (with S. Ahn)
- Explaining International Intra-firm Trade: A Firm-level Perspective (with Do Won Kwak and Hongshik Lee)

Presentations

2017: Middle Tennessee State University

2016: KAEA worshop (San Francisco); Southern Illinois University (Carbondale); Midwest international economics conference (University of Rochester); Korea University; KDI (Sejong, Korea)

2014: Korea University

2013: Midwest international economics conference (Michigan State University); KDI public policy conference (Seoul, Korea)

2012: University of Memphis; University of Houston at Victoria

2011: Midwest international economics conference (Vanderbilt University); SMU economics faculty symposium

2010: SMU economics faculty symposium

2009: Korea University

2008: Texas econometric camp

2007: Midwest international economics conference (University of Minnesota)

Teaching Experiences

- University of Memphis: International Trade (Graduate, Undergraduate), Econometrics I (Graduate, Undergraduate), Applied Statistics (Graduate), International Macroeconomics (Undergraduate)
- Southern Methodist University: International Trade (Graduate, Undergraduate), Development Economics (Undergraduate)

Grants

- Summer Healthcare Research Grant (2017), Fogelman College of Business and Economics, University of Memphis
- Summer Research Grant (2016), Fogelman College of Business and Economics, University of Memphis
- Summer Research Grant (2015), Fogelman College of Business and Economics, University of Memphis
- New Faculty Summer Research Grant (2013, 2014), Fogelman College of Business and Economics, University of Memphis

Professional Service

- **Referee:** Asia-Pacific Journal of Accounting and Economics, Atlantic Economic Journal, China Economic Review, Contemporary Economic Policy, Economics Bulletin, Economic Modelling, Emerging Markets Finance and Trade, International Economic Journal, International Review of Economics and Finance, Journal of the Asia Pacific Economy, Regional Science and Urban Economics, Review of World Economics, Seoul Journal of Economics, World Development, World Economy

Student Advising

- Dariya (at UM, doctoral thesis, committee member)
- Ida (at UM, doctoral thesis, committee member)
- Reshad Osmani (at UM, doctoral thesis, committee member)
- Eithel Patrick Mc Gowen La Torre (at UM, undergraduate honors thesis)

- Chase Cobb (at UM, undergraduate honors thesis)
- Amlan Datta (at UM, doctoral thesis, committee member)
- Matthew Miles (at UM, undergraduate honors thesis)
- Moon Moon Haque (at UM, doctoral thesis, committee member)
- Sunghoon Chung (at SMU, doctoral thesis, committee member)
- Ayfer Gurun (at SMU, doctoral thesis, committee member)

University Services

- PhD coordinator, Economics department, Fall 2018-present
- Graduate program committee, Economics department, Fall 2012-present
- Undergraduate program committee, Economics department, Fall 2012-present
- Faculty hiring committee, Economics department, Fall 2013-Spring 2014, Fall 2016-Spring 2017
- IT Czar, Economics department, Summer 2014-present
- IT committee, FCBE, Summer 2014-present
- Korean culture club advisor, University of Memphis, Spring 2015-present

Membership

American Economic Association (AEA), Korea-America Economics Association (KAEA)

Personal Information

Married (3 children), Korean Nationality, U.S. Permanent Resident

CURRICULUM VITAE

Name: Philip I. Pavlik Jr.	**Department:**Psychology

EDUCATION

DEGREES	DISCIPLINE	INSTITUTION	YEAR
Certificate	Cognitive Neuroscience	Carnegie Mellon University	2005
PhD	Cognitive Psychology	Carnegie Mellon University	2005
BA	Economics	University of Michigan	1992

EXPERIENCE

RANK/POSITION	DEPARTMENT/DIVISION	INSTITUTION/COMPANY/ORGANIZATION	PERIOD
Assistant Professor	Institute for Intelligent Systems and Psychology	University of Memphis	August 2011-current
Systems Scientist	Human Computer Interaction Institute	Carnegie Mellon University	July 2008 – August 2011
Postdoctoral Researcher	Human Computer Interaction Institute	Carnegie Mellon University	September 2005 – July 2008

HONORS/AWARDS

HONOR/AWARD	INSTITUTION/COMPANY/ORGANIZATION	YEAR
First-Time Principal Investigator Award	University of Memphis	2013
Best Paper - An ACT-R model of the spacing effect	Proceedings of the Fifth International Conference of Cognitive Modeling, Germany	2003

TEACHING EXPERIENCE

SUBJECT	INSTITUTION
Psych 4305: Mind, Brain, and Intelligence	University of Memphis
Psych 7302/8302: Advanced Statistics in Psychology I	University of Memphis
Psych 7514/8514: Cognitive Science Seminar, "Generalization and discrimination of categories and concepts in the transfer of learning"	University of Memphis
Psych 7503/8503: Seminar in Experimental Psychology, “Adaptive Learner Modeling”	University of Memphis
Research Method for the Learning Sciences (with Ken Koedinger), 85-748	Carnegie Mellon University

STUDENT ADVISING/MENTORING

CURRENT DEGREE	NAME	YEAR OF GRADUATION
PhD	Jaclyn Maass	2017
MSGP	Adam Boyd	2014
MSGP	Clayton Estey	2015
PhD	Kenneth Barideaux	2017
PhD	Henry Hua	2015
MSGP	Shardae Dawkins	2015
PhD	Chanda Murphy	2017

CREATIVE ACTIVITIES

ACTIVITY	DATES	LOCATION	SPONSORSHIP
Design of the MoFaCT system to supersede and replace FaCT system. New system is more powerful and easier to use.	2015-current	University of Memphis	University of Memphis
Design and creation of FaCT system for mathematically optimized practice scheduling online and experimental research on learning in the laboratory	2005-2015	Carnegie Mellon and University of Memphis	Multiple sources

Books Published

Lane, H. C., Yacef, K., Mostow, J., & Pavlik Jr., P. I. (2013). *Artificial Intelligence in Education: 16th International Conference, AIED 2013, Memphis, TN, USA, July 9-13, 2013. Proceedings*: Springer Publishing Company, Incorporated. **Proceedings volume**

Baker, R. S. J. d., Merceron, A., & Pavlik Jr., P. I. (2010). *Proceedings of the 3rd International Conference on Educational Data Mining*: International Educational Data Mining Society. **Proceedings volume**

Book Reviews

Pavlik Jr., P. I. (2003). Review of *Dynamical Cognitive Science*. *Brain and Cognition, 51*, 155-156. **Book review**

Pavlik Jr., P. I. (2001). Hybrid modeling of cognition: A review of *The Atomic Components of Thought*. *Brain and Cognition, 47*, 570-573. **Book review**

Refereed Journal Publications

Murphy, C. S., & Pavlik Jr., P. I. (in press). Effects of spacing and testing on inductive learning. *Journal of Articles in Support of the Null Hypothesis*. **Journal article**

Graesser, A., Hu, X., Nye, B., Vanlehn, K., Kumar, R., Heffernan, C., . . . Baer, W. (in press). ElectronixTutor: an intelligent tutoring system with multiple learning resources for electronics. *International Journal of STEM Education, Special Issue*. **Journal article**

Pavlik Jr, P. I., Maass, J. K., & Kim, J. W. (2017). Assessment of Forgetting. In R. Sottilare, A. Graesser, X. Hu, & G. Goodwin (Eds.), *Design Recommendations for Intelligent Tutoring System-Volume 5: Assessment Methods* (Vol. 5, pp. 203-208). **Book chapter**

Thiessen, E. D., & Pavlik Jr, P. I. (2016). Modeling the role of distributional information in children's use of phonemic contrasts. *Journal of Memory and Language, 88*, 117-132. **Journal article**

Koedinger, K. R., Yudelson, M. V., & Pavlik, P. I. (2016). Testing Theories of Transfer Using Error Rate Learning Curves. *Topics in Cognitive Science*, published online. **Journal article**

Goldin, I., Pavlik Jr, P. I., & Ritter, S. (2016). Discovering domain models in learning curve data. In R. A. Sottilare, A. C. Graesser, X. Hu, A. Olney, B. D. Nye, & A. M. Sinatra (Eds.), *Design Recommendations for Intelligent Tutoring Systems: Volume 4-Domain Modeling* (Vol. 4, pp. 115-126). **Book chapter**

Pavlik Jr., P. I., Yudelson, M., & Koedinger, K. R. (2015). A Measurement Model of Microgenetic Transfer for Improving Instructional Outcomes. International Journal of Artificial Intelligence in Education, 25, 346-379. **Journal article**

Li, H., Graesser, A. C., Conley, M., Cai, Z., Pavlik, P. I., & Pennebaker, J. W. (2015). A New Measure of Text Formality: An Analysis of Discourse of Mao Zedong. Discourse Processes, 52(1), 1-28. **Journal article**

Medimorec, S., Pavlik Jr, P. I., Olney, A., Graesser, A. C., & Risko, E. F. (2015). The Language of Instruction: Compensating for Challenge in Lectures. Journal of Educational Psychology, 107(4), 971-990. **Journal article**

Olney, A. M., Brawner, K. W., Pavlik Jr., P. I., & Koedinger, K. R. (2015). Emerging Trends in Automated Authoring Design Recommendations for Adaptive Intelligent Tutoring Systems: Authoring Tools (Volume 3). Army Research Labs/ University of Memphis. **Book chapter**

Pavlik Jr., P. I., Hu, X., & Morrison, D. M. (2014). Issues Regarding the Use of Natural Language Discourse In Intelligent Tutoring Systems. In R. A. Sottilare, A. Graesser, X. Hu, & H. K. Holden (Eds.), Design Recommendations for Adaptive Intelligent Tutoring Systems: Instructional Management (Vol. 2, pp. 185-187). Army Research Labs/ University of Memphis. **Book chapter**

Pavlik Jr., P. I. (2013). Mining the Dynamics of Student Utility and Strategy Use during Vocabulary Learning. *Journal of Educational Data Mining, 5*(1), 39-71. **Journal article**

Thiessen, E. D., & Pavlik Jr., P. I. (2013). iMinerva: A Mathematical Model of Distributional Statistical Learning. *Cognitive Science, 37*(2), 310-343. **Journal article**

Pavlik Jr., P. I., Brawner, K. W., Olney, A., & Mitrovic, A. (2013). A Review of Learner Models Used in Intelligent Tutoring Systems In R. A. Sottilare, A. Graesser, X. Hu, & H. K. Holden (Eds.), *Design Recommendations for Adaptive Intelligent Tutoring Systems Learner Modeling (Volume I)* (pp. 39-68). Army Research Labs/ University of Memphis. **Book chapter**

Forsyth, C. M., Graesser, A. C., Pavlik Jr., P. I., Cai, Z., Butler, H., Halpern, D. F., & Millis, K. (2013). Operation aries!: Methods, mystery, and mixed models: Discourse features predict affect and motivation in a serious game. *Journal of Educational Data Mining, 5*(1), 147-189. **Journal article**

Pavlik Jr., P. I., & Anderson, J. R. (2008). Using a model to compute the optimal schedule of practice. *Journal of Experimental Psychology: Applied, 14*(2), 101–117. **Journal article**

Pavlik Jr., P. I. (2007a). Understanding and applying the dynamics of test practice and study practice. *Instructional Science, 35*, 407–441. **Journal article**

Pavlik Jr., P. I. (2007b). Timing is an order: Modeling order effects in the learning of information. In F. E., Ritter, J. Nerb, E. Lehtinen, & T. O'Shea (Eds.), *In order to learn: How order effects in machine learning illuminate human learning* (pp. 137–150). New York: Oxford University Press. **Book chapter**

Pavlik Jr., P. I., & Anderson, J. R. (2005). Practice and forgetting effects on vocabulary memory: An activation-based model of the spacing effect. *Cognitive Science, 29*(4), 559–586. Journal article

Refereed Conference Publications

Olney, A. M., Pavlik, P. I., & Maass, J. K. (2017). Improving Reading Comprehension with Automatically Generated Cloze Item Practice. In E. André, R. Baker, X. Hu, M. M. T. Rodrigo, & B. du Boulay (Eds.), *Proceedings of Artificial Intelligence in Education: 18th International Conference* (pp. 262-273). Wuhan, China: Springer International Publishing. Paper

Fang, Y., Nye, B., Pavlik Jr., P. I., Xu, Y., Graesser, A., & Hu, X. (2017). Online Learning Persistence and Academic Achievement. In X. Hu, T. Barnes, A. Hershkovitz, & L. Paquette (Eds.), *Proceedings for the 10th International Conference on Educational Data Mining* (pp. 312-316). Wuhan, China. Short paper

Maass, J. K., & Pavlik Jr, P. I. (2016). Modeling the Influence of Format and Depth during Effortful Retrieval Practice. In T. Barnes, M. Chi, & M. Feng (Eds.), *The 9th International Conference on Educational Data Mining* (pp. 143-150). Paper 15% acceptance rate

Pavlik Jr., P. I., Kelly, C., & Maass, J. K. (2016). Using the mobile fact and concept training system (MoFaCTS). In A. Micarelli, & J. Stamper (Eds.), *Proceedings of the 13th International Conference on Intelligent Tutoring Systems* (pp. 247-253). Switzerland: Springer. Short paper 42% acceptance rate

Maass, J., Pavlik Jr., P. I., & Hua, H. (2015). How Spacing and Variable Retrieval Practice Affect the Learning of Statistics Concepts. In C. Conati, N. Heffernan, A. Mitrovic, & M. F. Verdejo (Eds.), 17th International Conference on Artificial Intelligence in Education (Vol. 9112, pp. 247-256). Springer International Publishing. Paper 29% acceptance rate

Nye, B. D., Windsor, A., Pavlik Jr., P. I., Olney, A., Hajeer, M., Graesser, A. C., & Hu, X. (2015). Evaluating the Effectiveness of Integrating Natural Language Tutoring into an Existing Adaptive Learning System. In C. Conati, N. Heffernan, A. Mitrovic, & M. F. Verdejo (Eds.), 17th International Conference on Artificial Intelligence in Education (Vol. 9112, pp. 743-747). Springer International Publishing. Poster 68% acceptance rate

Forsyth, C., Graesser, A. C., Samei, B., Walker, B., & Pavlik Jr., P. I. (2014). Predicting performance behaviors during question generation in a game-like intelligent tutoring system. In J. Polman, A. Kyza, K. O'Neill, & I. Tabak (Eds.), Proceedings of the International Conference of Learning Sciences (pp. 1611-1612). Fulton County, GA: International Society of the Learning Sciences. Poster 52% acceptance rate

Forsyth, C., Graesser, A., Pavlik Jr, P. I., Millis, K., & Samei, B. (2014). Discovering Theoretically Grounded Predictors of Deep vs. Shallow Level Learning. In J. Stamper, Z. A. Pardos, M. Mavrikis, & B. McLaren (Eds.), Proceedings of 7th International Conference on Educational Data Mining (pp. 229-232). Short paper 41% acceptance rate

Maass, J. K., & Pavlik Jr., P. I. (2013a). Using Learner Modeling to Determine Effective Conditions of Learning for Optimal Transfer. In H. C. Lane, K. Yacef, J. Mostow, & P. Pavlik (Eds.), *Artificial Intelligence in Education* (Vol. 7926, pp. 189-198). Springer Berlin Heidelberg. Paper 33% acceptance rate

Maass, J. K., & Pavlik Jr., P. I. (2013b). Utilizing Concept Mapping in Intelligent Tutoring Systems. In H. C. Lane, K. Yacef, J. Mostow, & P. Pavlik (Eds.), *Artificial Intelligence in Education* (Vol. 7926, pp. 880-883). Springer Berlin Heidelberg. Doctoral consortium 68% acceptance rate

Pavlik Jr., P. I., Hua, H., Williams, J., & Bidelman, G. M. (2013). Modeling and Optimizing Forgetting and Spacing Effects during Musical Interval Training. In S. K. D'Mello, R. A. Calvo, & A. Olney (Eds.), *Proceedings of the 6th International Conference of Educational Datamining* (pp. 145-152). Memphis, TN. Paper 25% acceptance rate

Forsyth, C. M., Pavlik Jr., P. I., Graesser, A. C., Cai, Z., Germany, M.-l., Millis, K., . . . Dolan, R. P. (2012). Learning gains for core concepts in a serious game on scientific reasoning. In K.Yacef, O. Zaïane, H. Hershkovitz, M. Yudelson, & J. Stamper (Eds.), *Proceedings of the 5th International Conference on Educational Data Mining* (pp. 172-175). Chania, Greece: International Educational Data Mining Society. Short paper 46% acceptance rate

Pavlik Jr., P. I., & Wu, S. (2011). A dynamical system model of microgenetic changes in performance, efficacy, strategy use and value during vocabulary learning. In M. Pechenizkiy, T. Calders, C. Conati, S. Ventura, C. Romero , & J. Stamper (Eds.), *Proceedings of the 4th International Conference on Educational Data Mining* (pp. 277–282). Eindhoven, the Netherlands. Short paper 46% acceptance rate

Yudelson, M., Pavlik Jr., P. I., & Koedinger, K. R. (2011). User Modeling – A Notoriously Black Art. In J. Konstan, R. Conejo, J. Marzo, & N. Oliver (Eds.), *User Modeling, Adaption and Personalization* (Vol. 6787, pp. 317-328). Springer Berlin / Heidelberg. Paper 22% acceptance rate

Pavlik Jr., P. I., Yudelson, M., & Koedinger, K. R. (2011). Using contextual factors analysis to explain transfer of least common multiple skills. In G. Biswas, S. Bull, J. Kay, & A. Mitrovic (Eds.), *Artificial Intelligence in Education* (Vol. 6738, pp. 256–263). Berlin, Germany: Springer. Paper 32% acceptance rate

Koedinger, K. R., Pavlik Jr., P. I., Stamper, J., Nixon, T., & Ritter, S. (2011). Fair blame assignment in student modeling. In M. Pechenizkiy, T. Calders, C. Conati, S. Ventura, C. Romero , & J. Stamper (Eds.), *Proceedings of the 4th International Conference on Educational Data Mining* (pp. 91–100). Eindhoven, the Netherlands. Paper 33% acceptance rate

Pavlik Jr., P. I., & Toth, J. (2010). How to build bridges between intelligent tutoring system subfields of research. In J. Kay, V. Aleven, & J. Mostow (Eds.), *Proceedings of the 10th International Conference on Intelligent Tutoring Systems, Part II* (pp. 103–112). Pittsburgh, PA: Springer. Paper 38% acceptance rate

Pavlik Jr., P. I., Cen, H., & Koedinger, K. R. (2009a). Learning factors transfer analysis: Using learning curve analysis to automatically generate domain models. In T. Barnes, M. C. Desmarais, C. Romero, & S. Ventura (Eds.), *Proceedings of the 2nd International Conference on Educational Data Mining* (pp. 121–130). Cordoba, Spain. Paper 37% acceptance rate

Pavlik Jr., P. I., Cen, H., & Koedinger, K. R. (2009b). Performance factors analysis -- A new alternative to knowledge tracing. In V. Dimitrova, R. Mizoguchi, B. d. Boulay, & A. Graesser (Eds.), *Proceedings of the 14th International Conference on Artificial Intelligence in Education* (pp. 531–538). Brighton, England. Paper 29% acceptance rate

Pavlik Jr., P. I., Cen, H., Wu, L., & Koedinger, K. R. (2008). Using item-type performance covariance to improve the skill model of an existing tutor. In R. S. Baker, & J. E. Beck (Eds.), *Proceedings of the 1st International Conference on Educational Data Mining* (pp. 77–86). Montreal, Canada. Paper 38% acceptance rate

Koedinger, K. R., Pavlik Jr., P. I., McLaren, B. M., & Aleven, V. (2008). Is it better to give than to receive? The assistance dilemma as a fundamental unsolved problem in the cognitive science of learning and instruction. In V. Sloutsky, B. Love, & K. McRae (Eds.), *Proceedings of the 30th Conference of the Cognitive Science Society* (pp. 2155–2160). Washington, D.C. Paper 74% acceptance rate (poster presentation)

Pavlik Jr., P. I., Bolster, T., Wu, S., Koedinger, K. R., & MacWhinney, B. (2008). Using optimally selected drill practice to train basic facts. In B. Woolf, E. Aimer, & R. Nkambou (Eds.), *Proceedings of the 9th International Conference on Intelligent Tutoring Systems* (pp. 593–602). Montreal, Canada. Paper 30% acceptance rate

Frishkoff, G., Levin, L., Pavlik Jr., P. I., Idemaru, K., & de Jong, N. (2008). A Model-based Approach to Second-Language Learning of Grammatical Constructions. In V. Sloutsky, B. Love, & K. McRae (Eds.), *Proceedings of the 30th Conference of the Cognitive Science Society* (pp. 916-921). Washington, D.C. Paper 74% acceptance rate (poster presentation)

Pavlik Jr., P. I., Presson, N., & Koedinger, K. R. (2007). Optimizing knowledge component learning using a dynamic structural model of practice. In R. Lewis, & T. Polk (Eds.), *Proceedings of the Eighth International Conference of Cognitive Modeling* (pp. 37–42). Ann Arbor: University of Michigan. Paper unknown acceptance rate

Pavlik Jr., P. I., Presson, N., Dozzi, G., Wu, S.-m., MacWhinney, B., & Koedinger, K. R. (2007). The FaCT (Fact and Concept Training) System: A new tool linking cognitive science with educators. In D. McNamara, & G. Trafton (Eds.), *Proceedings of the Twenty-Ninth Annual Conference of the Cognitive Science Society* (pp. 1379–1384). Mahwah, NJ: Lawrence Erlbaum. Paper 69% acceptance rate (poster presentation)

Pavlik Jr., P. I., & Anderson, J. R. (2003). An ACT-R model of the spacing effect. In F. Detje, D. Dorner, & H. Schaub (Eds.), *Proceedings of the Fifth International Conference of Cognitive Modeling* (pp. 177-182). Germany: Universitats-Verlag Bamberg. Paper unknown acceptance rate

Presentations - Conference (refereed *)

Shi, G., Pavlik Jr., P. I., & Graesser, A. (2017). Using an Additive Factor Model and Performance Factor Analysis to Assess Learning Gains in a Tutoring System to Help Adults with Reading Difficulties. In X. Hu, T. Barnes, A. Hershkovitz, & L. Paquette (Eds.), *Proceedings for the 10th International Conference on Educational Data Mining* (pp. 475-476). Wuhan, China. Poster

Liu, R., Koedinger, K., Stamper, J., & Pavlik Jr., P. I. (2017). Workshop: Sharing and Reusing Data and Analytic Methods with LearnSphere. In X. Hu, T. Barnes, A. Hershkovitz, & L. Paquette (Eds.), *Proceedings for the 10th International Conference on Educational Data Mining* (pp. 475-476). Wuhan, China. Workshop

Koedinger, K., Liu, R., Stamper, J., Thille, C., & Pavlik, P. (2017). Workshop: Community based educational data repositories and analysis tools *Proceedings of the Seventh International Learning Analytics & Knowledge Conference* (pp. 524-525). ACM. Workshop

Maass, J. K., & Pavlik Jr., P. I. (2016, November). *Discerning Misconceptions through Retrieval Practice.* Proceedings of the 57th Annual Meeting of the Psychonomic Society, Chicago. Poster

Barideaux Jr., K. J., & Pavlik Jr., P. I. (2016, November). *Examining the Effects of Studying with Music: Turn off the Verbal Music, Unless You're Studying a Concept Map.* Proceedings of the 57th Annual Meeting of the Psychonomic Society, Chicago. Poster

Stamper, J., Koedinger, K., Pavlik Jr., P. I., Rose, C., Liu, R., Eagle, M., . . . Veeramachaneni, K. (2016). Educational Data Analysis using LearnSphere Workshop. In J. Rowe, & E. Snow (Eds.), Proceedings of the EDM 2016 Workshops and Tutorials co-located with the 9th International Conference on Educational Data Mining. Raleigh, NC. Workshop

Medimorec, S., Schaffer, K. V., Pavlik Jr, P. I., Olney, A., Graesser, A. C., & Risko, E. F. (2014, December). The Language of Lectures: Offsetting Challenging Words Canadian Journal of Experimental Psychology (Vol. 68, pp. 257-257). Canadian Psychological Society. Talk

Forsyth, C., Millis, K., Pavlik Jr., P. I., & Graesser, A. C. (2013, April). *Assessing performance metrics within a serious game.* Paper presented at the Annual Meeting of the American Educational Research Association., San Francisco, CA. Talk

Forsyth, C., Graesser, A. C., Cai, Z., Pavlik Jr., P. I., Millis, K., & Halpern, D. (2013, April). *Learner profiles emerge from a serious game teaching scientific inquiry*. Paper presented at the Annual Meeting of the American Educational Research Association., San Francisco, CA. Talk

Barideaux Jr., K. J., Maass, J. K., & Pavlik Jr., P. I. (2013). *A Comparison of Concept Maps and Text Summaries: The Benefits for Learning and Transfer.* Proceedings of the 54th Annual Meeting of the Psychonomic Society, Toronto. Poster

Forsyth, C., Graesser, A., Walker, B., Millis, K., Pavlik Jr., P. I., & Halpern, D. (2013). Didactic Galactic: Types of Knowledge Learned in a Serious Game. In H. C. Lane, K. Yacef, J. Mostow, & P. Pavlik (Eds.), *Artificial Intelligence in Education* (Vol. 7926, pp. 832-835). Springer Berlin Heidelberg. Poster 76% acceptance rate

Pavlik Jr., P. I., Maass, J. K., Rus, V., & Olney, A. M. (2012). Facilitating Co-adaptation of Technology and Education through the Creation of an Open-source Repository of Interoperable Code. In S. A. Cerri, W. J. Clancey, G. Papadourakis, & K.-K. Panourgia (Eds.), *Proceedings of the 11th International Conference on Intelligent Tutoring Systems* (pp. 677-678). Berlin: Springer. Poster 76% acceptance rate

Yudelson, M., Pavlik Jr., P. I., & Koedinger, K. R. (2011). Towards better understanding of transfer in cognitive models of practice. In M. Pechenizkiy, T. Calders, C. Conati, S. Ventura, C. Romero , & J. Stamper (Eds.), *Proceedings of the 4th International Conference on Educational Data Mining* (pp. 373–374). Eindhoven, the Netherlands. Poster 63% acceptance rate

Pavlik Jr., P. I., Yudelson, M., & Koedinger, K. R. (2011). *A method for the microanalysis of pre-algebra transfer.* Proceedings of the Society for Research on Educational Effectiveness: Fall, Washington DC. Talk with abstract

Pavlik Jr., P. I. (2010). Data Reduction Methods Applied to Understanding Complex Learning Hypotheses. In R. S. J. d. Baker, A. Merceron, & P. I. Pavlik Jr. (Eds.), *Proceedings of the 3rd International Conference on Educational Data Mining* (pp. 311-312). Pittsburgh. Poster with abstract

Pavlik Jr., P. I. (2010). Integrating perceptual factors into applied learning research. In E. Albro (Ed.), *Symposium: Perceptual Characteristics and Concept Mastery: What Makes a Difference?* Boston: American Psychology Association 22nd Annual Convention. Invited talk

Pavlik Jr., P. I., & Koedinger, K. R. (2009). *Understanding the advantages of retrieval for long-term retention using modeling.* Proceedings of the 50th Annual Meeting of the Psychonomic Society, Boston. Poster

Pavlik Jr., P. I. (2008). *Classroom testing of a discrete trial practice system.* Proceedings of the 34th Annual Meeting of the Association for Behavior Analysis, Chicago. Talk

Pavlik Jr., P. I., Presson, N., & Hora, D. (2008). *Using the FaCT System (Fact and Concept Training System) for Classroom and Laboratory Experiments.* Proceedings of the Inter-Science Of Learning Center Conference, Pittsburgh, PA. Talk with abstract

Pavlik Jr., P. I. (2007). *Understanding why practice should be fast and accurate*. Paper presented at the 33rd Annual Meeting of the Association for Behavior Analysis, San Diego, CA. Talk

Pavlik Jr., P. I. (2006a). *Understanding the effectiveness of direct instruction methods*. Paper presented at the 24th Annual Meeting of the California Association for Behavior Analysis, Burlingame, CA. Talk

Pavlik Jr., P. I. (2006b). Transfer effects in Chinese vocabulary learning. In R. Sun (Ed.), *Proceedings of the Twenty-Eighth Annual Conference of the Cognitive Science Society* (pp. 2579). Mahwah, NJ: Lawrence Erlbaum. Poster with abstract

Pavlik Jr., P. I., & Anderson, J. R. (2004, November). *Optimizing Paired-Associate Learning.* Proceedings of the 45th Annual Meeting of the Psychonomic Society, Minneapolis, MN. Poster

Pavlik Jr., P. I. (2004, August). *A PDP Model of Spacing Effects in Memory*. Paper presented at the 22nd Annual Pittsburgh-CMU Psychology Conference, Pittsburgh, PA. Talk with abstract

Pavlik Jr., P. I., & Anderson, J. R. (2004). The memory consequences of study after successful recall. In K. D. Forbus, D. Gentner, & T. Regier (Eds.), *Proceedings of the Twenty-Sixth Annual Conference of the Cognitive Science Society* (pp. 1615). Mahwah, NJ: Lawrence Erlbaum. Poster with abstract

Pavlik Jr., P. I., & Anderson, J. R. (2004). An ACT-R model of memory applied to finding the optimal schedule of practice. In

M. Lovett, C. Schunn, C. Lebiere, & P. Munro (Eds.), ***Proceedings of the Sixth International Conference of Cognitive Modeling*** **(pp. 376-377). Pittsburgh, PA: Carnegie Mellon University/University of Pittsburgh. Poster with abstract**

Pavlik Jr., P. I., & Anderson, J. R. (2002). Mental rotation transfer. In W. D. Gray, & C. Schunn (Eds.), ***Proceedings of the Twenty-Fourth Annual Conference of the Cognitive Science Society*** **(pp. 1029). Mahweh, NJ: Lawrence Erlbaum Associates. Poster with abstract**

Pavlik Jr., P. I., & Burns, S. (2001). ***Learning Mental Rotation: Exemplar Learning or Process Learning*****. Paper presented at the Midwestern Psychological Association, Chicago, IL. Poster**

Presentations - Universities/Industry (refereed *)

Pavlik Jr, P. (2015, April). Ingredients for a theory of instruction. Paper presented at the Rice Workshop on Personalized Learning, Rice University, Houston, Texas. Invited talk

Invited, 2012 - 8th Annual PSLC LearnLab Summer School, In-Vivo Experimentation Track Lectures

Invited, 2011 - 7th Annual PSLC LearnLab Summer School, In-Vivo Experimentation Track Lectures

Invited, 2010 - 6th Annual PSLC LearnLab Summer School, In-Vivo Experimentation Track Lectures

Invited, 2009 - University of Phoenix's National Research Center "Optimizing the Practice Schedule"

Invited, 2007 - Department of Modern Languages, Carnegie Mellon University, Graduate Seminar "Using a Cognitive Model to Schedule Vocabulary Practice for Second Language Learners"

Invited, 2006 - Department of Educational and School Psychology and Special Education, Pennsylvania State University "Using Cognitive Theory and Computational Modeling to Explain the Success of Direct Instruction and Precision Teaching"

Invited, 2004 - Department of Psychology, Northern Michigan University "Optimizing Paired-Associate Learning by Paying Attention to Individual and Item Differences"

Invited, 2003 - Tenth Annual ACT-R Summer School, Carnegie Mellon University "Unit 7: Base-Level Activation"

Invited, 2002 - Department of Psychology, Northern Michigan University "Paired-Associate Practice and Forgetting"

SUPPORT

(External)

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
Schmidt University-Industry Postdoc Fellowships	Eric Schmidt Educational Foundation (CMU subcontract)	200K	2018-2019 (2 years)
Building a Scalable Infrastructure for Data-Driven Discovery and Innovation in Education (PI)	NSF subcontract with Carnegie Mellon University	750K	2015-2019
Shareable Knowledge Objects (SKO) as Enhanced, Portable ITS Modules (Co-PI)	Office of Naval Research	$1,477,402	2012-2014
Dynamics of Metacognition and Motivation (PI)	NSF: Pittsburgh Science of Learning Center, Subcontract from Carnegie Mellon University	$56,279	10/2012–10/2013
Generalized Intelligent Framework for Tutors (Senior Scientist)	Army Research Laboratory	$1,289,545	2012-2016
Motivational Effects in Vocabulary Learning: Difficulty and Strategy Use (PI)	NSF: Pittsburgh Science of Learning Center	approx $70K	11/2009-8/2011
Bridging the Bridge to Algebra: Measuring and Optimizing the Influence of Prerequisite Skills on a Pre-Algebra	IES: US Department of Education	$1,121,0[illegible]	8/2007-8/2012

Curriculum (PI)			
Providing Optimal Support for Robust Learning of Syntactic Constructions in ESL (Co-PI)	NSF: Pittsburgh Science of Learning Center	approx $50K	9/2006–8/2007
Postdoctoral Research Grant with Kenneth Koedinger (PI)	Privately funded by Ronald Zdrojkowski	$411,000	8/2005–8/2008

OUTREACH

Project/s summary

PROJECT	PARTICIPANTS	PERIOD	SPONSORSHIP
69th Pittsburgh Regional Science and Engineering Fair	Regional High School Students	April 4, 2008	Business and Industry sponsored
70th Pittsburgh Regional Science and Engineering Fair	Regional High School Students	April 3, 2009	Business and Industry sponsored

SERVICE

UNIVERSITY	COMMITTEE/ACTIVITY	PERIOD
University of Memphis	Gradschoolmatch.com coordinator	2015- current
University of Memphis	SONA (Psychology Subject Pool) administrator	2012-2013
University of Memphis	CRISTAL Representative for Institute of Intelligent Systems	2012-current
University of Memphis	ACAD (College Readiness Course) University Planning Committee	2014
6th International Conference on Educational Data Mining, Memphis	Local Co-Chair	2013
16th International Conference on Artificial Intelligence in Education, Memphis	Local Co-Chair and Proceedings Editor	2013
3rd International Conference on Educational Data Mining, Carnegie Mellon	Program Committee Co-Chair	2010
Transactions on Learning Technologies	Associate Editor	2014-current
National Science Foundation: Perception, Action and Cognition	Grant review	ad hoc
Archives of Scientific Psychology	Journal review	ad hoc
Perceptual and Motor Skills	Journal review	ad hoc
Applied Cognitive Psychology	Journal review	ad hoc
Developmental Science	Journal review	ad hoc
PLOS ONE	Journal review	ad hoc
Journal of Experimental Psychology: General	Journal review	ad hoc
Cognitive Science	Journal review	ad hoc
Psychological Review (with Lynne Reder)	Journal review	ad hoc
Journal of Machine Learning Research (KDD cup issue)	Journal review	ad hoc
Journal of Educational Data Mining	Journal review	ad hoc
International Journal of Artificial Intelligence in Education	Journal review	ad hoc
Learning and Instruction	Journal review	ad hoc
Journal of Experimental Psychology: Applied	Journal review	ad hoc
Memory and Cognition	Journal review	ad hoc
Journal of Educational Psychology	Journal review	ad hoc
User Modeling and User-Adapted Interaction	Journal review	ad hoc
Learning and Instruction	Journal review	ad hoc
Transactions on Learning Technologies	Journal review	ad hoc
16th International Conference on Artificial Intelligence in Education, Memphis	Program Committee	2013

6th International Conference on Educational Data Mining, Memphis	Program Committee	2013
Cognitive Science Conference	Program Committee	2014
Society for Research in Educational Effectiveness	Conference review	ad hoc
Proceedings of the National Academy of Sciences	Conference review	ad hoc
International Conference of Cognitive Modeling	Conference review	ad hoc
Cognitive Science Society Conference	Conference review	ad hoc
International Conference of Educational Data Mining	Conference review	ad hoc
International Conference on Development and Epigenetic Robotics	Conference review	ad hoc
ACM Conference on Human Factors in Computing Systems (CHI)	Conference review	ad hoc
Artificial Intelligence in Education (AIED) Conference	Conference review	ad hoc
Institute for Intelligent Systems Cognitive Science Seminar (UofM)	Speaker	Approx once yearly since 2011
Psychology Dept. Graduate First Year Colloquium (UofM)	Speaker	Approx once yearly since 2011
Works in Progress Symposium (UofM)	Local conference review	Approx once yearly since 2011
Optimal Learning Lab - to discuss research reports and provide methods tutorials	Director	Since 2011 weekly meetings
Cognitive Science Society	Member	2002–2011
Association for Behavior Analysis	Member	2007-2008
Psychonomic Society	Member	2007-2009, 2013-current
International Artificial Intelligence in Education Society	Member	2008-current
International Educational Data Mining Society	Member	2008-current

CONSULTING

ORGANIZATION/COMPANY	PERIOD
McGraw Hill	2017-2018
K12 Inc.	2009-2010
Drill Sargent Website	2010-2011
Kaplan Inc.	2012

May 2018

HONGMEI ZHANG

University Address

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Education

August, 2003	Ph.D. in Statistics, Dept. of Statistics, Iowa State University, Ames, IA
May, 2001	M.S. in Statistics, Dept. of Statistics, Iowa State University, Ames, IA
May, 1999	M.S. in Mathematics, Dept. of Mathematics & Computer Science, Truman State University, Kirksville, MO
May, 1997	M.S. in Electronic Engineering, Nanjing Research Institute of Technology Nanjing, China

Professional Experience

Aug. 2017 – present	Professor (tenured) Division of Epidemiology, Biostatistics, and Environmental Health Sciences, University of Memphis, Memphis, TN
Aug. 2016 – present	Division Director, Division of Epidemiology, Biostatistics, and Environmental Health Sciences, University of Memphis, Memphis, TN
Aug. 2013 – present	Program Coordinator (Biostatistics), Division of Epidemiology, Biostatistics, and Environmental Health Sciences, University of Memphis, Memphis, TN
Aug. 2013 – Aug. 2017	Associate Professor (tenured) Division of Epidemiology, Biostatistics, and Environmental Health Sciences, University of Memphis, Memphis, TN
Aug. 2012 – Aug. 2013	Associate Professor (tenured) Department of Epidemiology and Biostatistics, University of South Carolina, Columbia, SC
Aug. 2007 – Aug. 2012	Assistant Professor Department of Epidemiology and Bio-statistics, University of South Carolina, Columbia, SC
Aug. 2003 – Aug. 2007	Statistical consultant
Aug. 2003 – Aug. 2007	Assistant Professor Department of Mathematics and Statistics, University of West Florida Pensacola, FL
May, 2001-Aug., 2002	Research Assistant, Laurence H. Baker Center in Biological Statistics Ames, IA

Aug., 1999-2001	Research Assistant, Statistical Computing Section, Department of Statistics, Iowa State University, Ames, IA.
Dec. 1990-1994	Technician, Nanjing Research Institute of Electronic Technology, Nanjing, China

Recent Memberships and Professional Services

Memberships

2004-2005	Mathematical Association of America (MAA)
Sept. 1999-present	American Statistical Association (ASA)

Professional Services

2009 –2013	Secretary/Treasurer of the ASA South Carolina Chapter
2007	Vice president of the ASA Florida Chapter
2005 – 2007	Secretary/Treasurer of the ASA Florida Chapter

Professional Meeting/Seminar Organizations

2014	Section Chair of the “Bayesian Nonparametric Methods and Some Applications” at the 2014 Joint Statistical Meeting, Boston MA
2012	Organizer of the ASA South Carolina Chapter 2013 Meeting
2007-2010	Organizer of the BIOS Forum, University of South Carolina
2007 committee	Chair of the ASA Florida Chapter 2005 Meeting organizing
2006 Conference	Section Chair of the “Bayesian Statistics” at the International Statistics, Mathematics, and Related fields
2005 the	Section Chair of the “DNA Data and Microarray Measurements” at 2005 Joint Statistical Meeting

Referee/Reviewer for funding agencies

2008	Reviewer for the 2008 Arnold School of Public Health Seed Grant Applications
2011	Medical Research Council (MRC), United Kingdom
2012	Health Effects Institute, USA
2013	NIH/NIAID IRAP Research Initiative review panel (temporary)
2015	NIH KNOD Research Initiative review panel (temporary)
2015	NIH/ Children’s Environmental Health & Disease Prevention Research Centers (Special panel)
2016	NIH/NIEHS P30 review panel NIH/NIEHS Training grants review panel NIH KNOD Research Initiative review panel (temporary) NIH/NICHD P01 review panel NIH/NHLDB secondary data analyses review panel (R21)

Journals Reviewed

Biometrics; Biostatistics; Journal of Agricultural, Biological, and Environmental Statistics (JABES); Computational Statistics and Data Analysis; Statistics in Medicine; Mathematical Biosciences; GENE; Journal of Genetics; Proceedings of the National Academy of Sciences (PNAS); Journal of Genetica; The Journal of Applications in Genetics and Molecular Biology; Journal of Evolutional Biology; Contemporary Clinical Trials; Environmental and Ecological Statistics; PLosOne; American Journal of Biostatistics; Briefings in Bioinformatics.

Books Reviewed: Ad-hoc reviewer for CRC
Editorial Board: American Journal of Biostatistics

Awards and Honors

2010	Promising Investigator Research Award University of South Carolina, Columbia, SC
2006	Collaborative Research Award University of West Florida, Pensacola, FL
2006	University Summer Research Award University of West Florida, Pensacola, FL
2004	University Summer Research Award University of West Florida, Pensacola, FL
2003	The George W. Snedecor Award in Statistics Iowa State University, Ames, IA
2003	Vince Sposito Computing Excellence Award , Iowa State University, IA
2002	Vera David Fellowship, Iowa State University, IA

Research grant applications

Funded projects (sorted by starting year and ending year):

Active grants:

1) Title: Does epigenetic methylation explain the gender-switch in adolescent asthma?
   PI: Hongmei Zhang
   Funding Source: NIAID/NIH
   Amount funded: $3,036,427
   Duration: 01/01/2016 – 12/31/2020
   Role and % effort: PI (20%)

2) Title: Effect of Prenatal Compounds on Adult Lung Function via Neonatal DNA
   PI: Wilfried Karmaus
   Funding Source: NHLBI/NIH
   Amount funded: $3,282,776
   Duration: 09/01/2016 – 08/31/2021
   Role and % effort: Co-I (10% on average)

3) Title: Epigenome-wide association study of childhood asthma
   PIs: Arshad, Peters, Vijay
   Funding Source: NIAID/NIH
   Amount funded: $3,875,019
   Duration: 09/01/2016 – 08/31/2021
   Role and % effort: Co-I (5%)

4) Title: Epigenetics of severe asthma

PIs: Arshad, Peters, Vijay
Funding Source: NHLBI/NIH
Amount funded: $2,712,390
Duration: 04/01/2017 – 03/31/2022
Role and % effort: Co-I (3%)

5) Title: Joint patterns of multi-genetic/epigenetic factors via non-parametric clustering and their association with allergic diseases
PI: Meredith Ray
Funding Source: NIAID/NIH
Amount funded: $140,000
Duration: 01/2018 – 12/31/2019
Role and % effort: Co-I (3%)

Completed grants:

1) Title: Does epigenetic methylation explain the gender-switch in adolescent asthma?
PI: Hongmei Zhang
Funding Source: Asthma and Allergy Foundation of America
Amount funded: $40,000
Duration: 08/07/2015 – 08/06/2017
Role and % effort: PI (10%)

2) Title: Patterns of infant feeding and child's health at six years of age
PI: Wilfried Karmaus
Funding Source: CDC HRSA R40
Amount funded: $100,000
Duration: 04/01/2016-03/31/2017
Role and % effort: Co-I (5%)

3) Title: Phenomics: Joint clustering to associate changes in allergy and asthma over time (R21)
PI: Hongmei Zhang
Funding Source: NIAID/NIH
Amount funded: $372,111.00
Duration: 1/15/2013 – 1/14/2016 (no cost extension_
Role and % effort: PI (25%)
4) Title: Transgenerational epigenetic inheritance of allergy in a multigenerational cohort (R01)
PI: Wilfried Karmaus
Funding Source: NIAID/NIH
Amount funded: $2,676,923.00
Duration: 1/2011-12/2015
Role and % effort: Co-I and lead statistician (20% with a support of graduate assistants for all years and a Post-Doc for years 3 to 5)
5) Title: Vitamin D and Related Genes, Race, and Prostate Cancer Aggressiveness
PI: Susan Steck
Funding Source: DOD
Amount funded: $713,828
Duration: 1/2011-12/2015 (no cost extension)
Role and % effort: Co-I and lead statistician (7% on average. The 3rd year is no-cost extension)
6) Title: South Carolina Cancer Disparities Community Network – II

PI: James Hebert
Funding Source: NIH
Amount funded: $4,778,222.00
Dates: 07/2010 - 06/2015
Role and % effort: Co-I and lead statistician (5% on years 1 to 4, and 15% on year 5)

7) Title: Data analysis on sleep disruption as a risk factor of cancer among veterans
PI: Hongmei Zhang
Funding source: Department of Veteran's Affairs, Health Services Research & Development
Amount funded: $35,000.00
Duration: 09/01//2012 – 08/31/2013
Role and % effort: PI (10%)

8) Title: Use of a Community-University Partnership to Eliminate Environmental Stressors (P50)
PI: Sacoby Wilson
Funding source: NIH
Amount funded: 1,215,541.00
Duration: 9/2009-6/2013
Role and % effort: Co-I and lead statistician (10%)

9) Title: Sleep Disruption among Veterans: Implications for Cancer Risk
PI: Jim Burch
Funding source: Department of Veteran's Affairs, Health Services Research & Development
Amount funded: $99,529.00
Duration: 03/2011 - 02/2012
Role and % effort: Co-I and lead statistician (10%)

10) Title: Multiple Modes of Infant Feeding and Trajectories Influencing Infant Health
PI: Wilfried Karmaus
Funding Source: HSRA
Amount funded: $100,000.00
Duration: 02/2010 - 01/2011
Role and % effort: Co-I and lead statistician (10%)

11) Title: Joint Clustering Methods Through Quantile Regression
PI: Hongmei Zhang
Funding Source: Office of Research and Graduate Education, University of South Carolina
Amount funded: $10,000.00
Duration: 4/2010-7/2011
Role and % effort: PI (10%, no salary support but with student and local travel support)

12) Title: Measuring gene expression in epithelial duct cells collected from breast milk
PI: Wilfried Karmaus
Funding Source: USC Medical School - The Interdisciplinary Conference on Pregnancy and the Health of Women and Children
Total Amount: $3,000
Dates: 01/2009 – 04/2009
Role and % effort: Co-I and lead statistician (no salary release)

13) Title: Epidemiology of asthma: risk & prognosis in a cohort from birth to adolescence
PI: Wilfried Karmaus (USC subcontract)
Funding source: NIH
Amount funded: $236,000.00
Duration: 6/2009-5/2012
Role and % effort: Co-I and lead statistician (20% with support of graduate assistants for all years)

14) Title: Evaluate Micronutrient Effect to The Prevention of South Carolina Neural Tube Defect Accommodating Measurement Errors and Bias
PI: Hongmei Zhang
Funding Source: Research Opportunity Program, University of South Carolina
Amount funded: $9,000.00
Duration: 05/2008—08/2009
Role and % effort: PI (10%, no salary support but with student and local travel support)

15) Title: Summer Research on False Positive Quad Screening Tests
PI: Hongmei Zhang
Funding Source: USC Medical School - The Interdisciplinary Conference on Pregnancy and the Health of Women and Children
Total Amount: $3,000
Dates: 05/2008 – 8/2008
Role and % effort: PI (10%, no salary support but with student support)

16) Title: The Influence of Gender on Molecular Signatures of Fibrotic Lung Disease
PI: Hongmei Zhang (MPI with Tara Sabo-Attwood)
Funding Source: NIH
Amount funded: $140,040.00
Duration: 9/2008-8/2010 (extended to 8/2011)
Role and % effort: PI (10%)

17) Title: Stress, endocrine disruption, and adverse pregnancy outcomes
PI: Wilfried Karmaus
Funding source: GEAR, EPSCoR/IDeA
Amount funded: $36,000.00
Duration: 12/2008 -- 04/2009
Role and % effort: Co-I and lead statistician (2.5%)

18) Title: Combinatorial and Statistical Problems in Genomics
Co-PI: Hongmei Zhang, Rohan Hemasinha
Funding Source: NSF
Total Amount: $110,000.00
Dates: 05/2007-08/2008
Role and % effort: Co-PI (10%)

19) Title: Sampling Design in Biological Area and Phylogenetic Analysis in Genetics
PI: Hongmei Zhang
Funding Source: University of West Florida
Amount funded: $6,250.00
Duration: 05/2006-11/2006
Role and % effort: PI (20%)

20) Title: Future Sampling Plan for Unseen Species with Finite Population
PI: Hongmei Zhang
Funding Source: University of West Florida
Amount funded: $6,250.00
Duration: 05/2004-11/2004
Role and % effort: PI (20%)

Publications

**denotes co-authors are students/post-docs under my supervision. Students/Post-docs as the first author or a co-author are underlined.*

Article accepted or in press

Statistical methods:

Statistical Applications:

1. Liu W, Cheung YT, Brinkman TM, Banerjee P, Srivastava D, Nolan VG, **Zhang H**, Gurney JG, Pui CH, Robison LL, Hudson MM, Krull KR. *Behavioral symptoms and psychiatric disorders in child and adolescent long-term survivors of childhood acute lymphoblastic leukemia treated with chemotherapy only.* Psychooncology (accepted).
2. SH Arshad, JW Holloway, W Karmaus, **H Zhang**, S Ewart, L Mansfield, S Matthews, C Hodgekiss, G Roberts, R Kurukulaaratchy. *A cohort profile: The Isle of Wight whole population birth cohort (IOWBC)*. International Journal of Epidemiology (accepted).
3. SE Steck, OO Omofuma, LJ Su, AA Maise, A Woloszynska-Read, CS Johnson, **H Zhang**, JT Bensen, ETH Fontham, JL Mohler, and L Arab. *Calcium, Magnesium, and Whole Milk Intake and High-Aggressive Prostate Cancer in the North Carolina-Louisiana Prostate Cancer Project (PCaP).* The American Journal of Clinical Nutrition (accepted).
4. C Venter, K Maslin, **H Zhang**, A Kaushal, W Terry, VK Patil, T Dean, SH Arshad. *Use of cluster analysis to characterize patterns of sensitization in childhood allergy.* Pediatric Allergy and Immunology (accepted).

Article published

Statistical methods:

5. **H Zhang**, Y Zou, W Terry, W Karmaus, H Arshad. *Joint clustering with correlated variables, The American Statistician, DOI: 10.1080/00031305.2018.1424033.* **2018.**
6. *A Kaushal**, **H Zhang**, W Karmaus, M Ray, MA Torres, AK Smith, S Wang. *Comparison of different cell type correction methods for genome-scale epigenetics studies.* BMC Bioinformatics. Vol. 18, 216. **2017.**
7. S Han*, **H Zhang**, W Karmaus, G Roberts, H Arshad. *Adjusting background noise in cluster analyses of longitudinal data.* Computational Statistics and Data Analysis. DOI: 10.1016/j.csda.2016.11.009. **2016.**
8. M Ray*, X Tong*, GA Lockett, **H Zhang**, W Karmaus. *An efficient approach to screening epigenome-wide data.* BioMed Research International. Vol. 2016, Article ID 2615348, 16 pages. **2016**.
9. S Han*, **H Zhang**, R Homayouni, W Karmaus. *An efficient Bayesian approach for Gaussian Bayesian network structure learning.* Communications in Statistics - Simulation and Computation. 10.1080/03610918.2016.1143103. **2016**.
10. M Ray, J Kang, **H Zhang**, *Identifying Activation Centers with Spatial Cox Point Processes Using FMRI Data*, in IEEE/ACM Transactions on Computational Biology and Bioinformatics, Vol. 13, 1130-1141. **2016**.
11. S Han*, **H Zhang**, G Lockett, N Mukherjee, J Holloway, W Karmaus*, Identifying heterogeneous transgenerational DNA Methylation Sites via Clustering in Beta Regression.* Annals of Applied Statistics. Vol. 9, 2052-2072. **2015**.
12. W Terry*, **H Zhang**, A Maity, H Arshad, W Karmaus. *Unified Variable Selection in Semi-parametric Models*. Statistical Methods in Medical Research. DOI. 10.1177/0962280215610928. **2015.**

13. **H Zhang**, X Huang, J Gan*, W Karmaus, T Sabo-Attwood. *A Two-component G-prior for Variable Selection*. Bayesian Analysis. **2015**. DOI. 10.1214/15-BA953
14. X Huang, **H Zhang**. *Variable selection in linear measurement error models via penalized score functions.* Journal of Statistical Planning and Inference. Vol. 143: 2101-2111. **2013.**
15. B Omolo, **H Zhang**, W Karmaus. *Cautions of Using Allele-Based Tests Under Heterosis.* International Journal of Statistics in Medical Research. Vol. 2: 47-54. **2013**.
16. **H Zhang**, A Maity, H Arshad, J Holloway, W Karmaus. Variable selection in semi-parametric models. Statistical Methods in Medical Research. DOI: 10.1177/0962280213499679. **2013**.
17. **H Zhang**, J Gan*. *A reproducing kernel-based spatial model in Poisson regression.* International Journal of Biostatistics. Vol. 8, pages 28. **2012**.
18. H He*, **H Zhang**, A Maity, Y Zou, J Hussey, W Karmaus. *Power of a reproducing kernel-based method for testing the joint effect of a set of single-nucleotide polymorphisms.* Genetica. DOI 10.1007/s10709-012-9690-5. **2012**.
19. **H Zhang**, K Ghosh, and P Ghosh. *Sampling designs via a multivariate hypergeometric-Dirichlet process model for a multi-species assemblage with unknown heterogeneity*. Computational Statistics and Data Analysis. Vol. 56: 2562-2573. **2012**.
20. D Rahardja, Y Zhao, and **H Zhang**. *Bayesian credible sets for a binomial proportion based on one-sample binary data subject to one type of misclassification.* Journal of Data Science. Vol. 10: 51-59. **2012**.
21. J Gan*, **H Zhang**, R Best. *Mixture of measurement errors and their impact on parameter Inferences.* Journal of Statistical Computing and Simulation. Vol. 83: 613-626. **2011.**
22. **H Zhang**, W Karmaus, J Gan*, W Bao*, Y Zhao, D Rahardja, J Holloway, M Scott, and SH Arshad. *Adjusting wheal size measures to correct atopy misclassification*. International Journal of General Medicine. Vol. 4: 597-606, **2011**.
23. M Dey, H Stern, and **H Zhang**. *Information Content in Small and Large Trades*. Economic Notes. Vol. 40: 45-74, **2011**.
24. D Rahardja, Y Zhao, and **H Zhang**. *Maximum Likelihood Estimation of Odds Ratios in Misclassified Binary Data with a Validation Substudy*. Model Assisted Statistics and Applications. Vol. 6: 121-125, **2011**.
25. **H Zhang**[1], and J Zhang[2]. *A Semiparametric Bayesian Estimation Method of the Accelerated Failure Time Model.* Advances and Applications in Statistical Sciences, Vol. 1: 125-143, **2010**. [1,2]Equal contribution.
26. H Luo[1], **H Zhang**[2], RA Long, and R Benner. *Depth Distributions of Alkaline Phosphatase and Phosphonate Utilization Genes in the North Pacific Subtropical Gyre*. Aquatic Microbial Ecology. Vol. 62: 61–69, **2010**. [1,2]Equal contribution
27. **H Zhang**, R Hemasinha, X Gu. A Statistical Model and Algorithm for Genome Phylogeny Accommodating Lateral Gene Transfer, The International Journal of Systems and Synthetic Biology. Vol. 1: 241-253, **2010**.
28. **H Zhang**. *Designing sampling plans to capture rare objects*. Canadian Journal of Statistics, Vol. 37: p417-434, **2009**.
29. **H Zhang**, H Stern. *Sample size calculation for finding unseen species.* Bayesian Analysis, Vol. 4. 763 – 792, **2009**.
30. **H Zhang**, Y Zhong, B Hao, and X Gu. *A Simple Method for Phylogenomic Inference Using the information of Gene-Content of Genomes,* Gene, 441: p163-8. doi:10.1016/j.gene.2008.07.008, **2009**.
31. **H Zhang** and H Stern. *Inferences for genotyping error rate in ancestry identification from simple sequence repeat marker profiles*, JABES, Vol. 14: p170-187, **2009**.
32. **H Zhang**. *Inferences on the Number of Unseen Species and the Number of Abundant/Rare Species*, Journal of Applied Statistics, Vol. 34: 725-40, **2007**.
33. **H Zhang** and H Stern. *Assessment of ancestry probabilities in the presence of genotyping errors*. Theoretical and Applied Genetics, Vol. 112: 472-482, **2006**.

34. **H Zhang** and H Stern. *An investigation of a generalized multinomial model for species data*, J. Statistical Computing and Simulation, Vol. 75: 347-362, **2005**.
35. X Gu and **H Zhang**. *Genome Phylogenetic Analysis Based on Extended gene contents.* Molecular Biology and Evolution, Vol. 21: 1401-1408, **2004**.
36. **H Zhang** and X Gu. *Maximum Likelihood for Genome Phylogeny on Gene Content.* Statistical Applications in Genetics and Molecular Biology, Vol. 3: Article 31, **2004**.
37. **H Zhang**, A Nitzman, and T Royappa. *Statistical Modeling and Sizing Determination Guidelines*. J. TAPPI, Vol. 3: 3-8, **2004**.

Statistical applications:

38. **H Zhang**, A Kaushal, N Soto-Ramírez, et al.. *Acquisition, remission, and persistence of eczema, asthma, and rhinitis in children*. Clinical Experimental Allergy. 00:1–9. https://doi.org/10.1111/cea.13096. **2018**.
39. Y Yang, Y Xu, DA Rodriguez, Y Michael, **H Zhang**. *Active travel, public transportation use, and daily transport among older adults: The association of built environment*. Journal of Transport & Health. https://doi.org/10.1016/j.jth.2018.01.012. **2018**.
40. HS Arshad, C Hodgekiss, JW Holloway, G Roberts, W Karmaus, H Zhang, S Ewart, L Mansfield, R Kurukulaaratchy. *Lung Function Trajectories From Childhood To Young Adulthood; A Peek Into The Future Of Lung Health?* Journal of Allergy and Clinical Immunology. Vol. 141. AB81. 10.1016/j.jaci.2017.12.260. **2018.**
41. S Iqbal, G Lockett, JW Holloway, SH Arshad, **H Zhang**, A Kaushal, SR Tetali, N Mukherjee, W Karmaus. *Changes in DNA Methylation from Age 18 to Pregnancy in Type 1, 2, and 17 T Helper and Regulatory T-Cells Pathway Genes*. International Journal of Molecular Sciences, **19**(2): 477. **2018**.
42. AH Ziyab, J Hankinson, S Ewart, E Schauberger, K Kopec-Harding, H Zhang, A Custovic, H Arshad, A Simpson, WJ Karmaus. *Epistasis between FLG and IL4R Genes on the Risk of Allergic Sensitization: Results from Two Population-Based Birth Cohort Studies*. Scientific reports. Feb 19;8(1):3221. **2018.**
43. A Chan, W Terry, **H Zhang**, W Karmaus, S Ewart, J Holloway, G Roberts, R Kurukulaaratchy, H Arshad. *Filaggrin Mutations Increase Allergic Airway Disease in Childhood and Adolescence Through Interactions with Eczema and Aeroallergen Sensitization.* Clinical and Experimental Epidemiology. Vol. 48 (2): 147-155. **2018**.
44. W Liu, YT Cheung, HM Conklin, LM Jacola, D Srivastava, VG Nolan, **H Zhang**, JG Gurney, I Huang, LL Robison, C Pui, MM Hudson, KR Krull. *Evolution of neurocognitive function in long-term survivors of childhood acute lymphoblastic leukemia treated with chemotherapy only*. J Cancer Survival. https://doi.org/10.1007/s11764-018-0679-7. **2018.**
45. JF Felix, …., **H Zhang**, …, SJ London. *Cohort profile: Pregnancy And Childhood Epigenetics (PACE) Consortium.* International Journal of Epidemiology. Vol. 47(1):22-23u. **2018.**
46. N Soto-Ramirez, S Kar, **H Zhang**, W Karmaus. *Infant feeding patterns and eczema in children in the first 6 years of life*. Clinical and Experimental Allergy. Vol. 47, 1285–1298. **2017**.
47. W Karmaus, N Soto-Ramirez, **H Zhang**. *Infant feeding pattern in the first six months of age in USA: A follow-up study.* International Breastfeeding Journal. Vol. 12:48. **2017**.
48. S Chen, N Mukherjee, VD Janjanam, SH Arshad, RJ Kurukulaaratchy, JW Holloway, **H Zhang**, W Karmaus. *Consistency and variability of DNA methylation in women during puberty, young adulthood and pregnancy*. Vol. 9. Genetics and Epigenetics. Vol. 9. 1179237X17721540. **2017.**
49. GC Sharp, …, **H Zhang**, …, CL Relton. *Maternal BMI at the start of pregnancy and offspring epigenome-wide DNA methylation: Findings from the Pregnancy and Childhood Epigenetics (PACE) consortium.* Human Molecular Genetics. Vol. 26 (20): 4067-4085. **2017.**
50. A Kaushal, **H Zhang**, W Karmaus, TM Everson, CJ Marsit, MR Karagas, S Tsai, H Wen, S Wang, *Genome-wide DNA methylation at birth in relation to in utero arsenic exposure and the associated health in later life.* Environmental Health. Vol. 16:50. **2017**.

51. A Ziyab, S Ewart, GA Lockett, **H Zhang**, H Arshad, J Holloway, W Karmaus. *Expression of the filaggrin gene in umbilical cord blood predicts eczema risk in infancy: a birth cohort study*. Clinical and Experimental Allergy. Vol. 47(9):1185-1192. **2017.**
52. SH Arshad, W Karmaus, **H Zhang**, JW Holloway. *Multi-generational cohorts in asthma and allergy*. Journal Allergy and Clinical Immunology. Vol. 139: 415-421. **2017.**
53. S Ahn, S Kim, **H Zhang**. *Changes in Depressive Symptoms among Older Adults with Multiple Chronic Conditions: Role of Positive and Negative Social Support.* International Journal of Environmental Research and Public Health. Vol. 14 (1). **2017.**
54. K Burwell-Naney, SM Wilson, SL Tarver, ER Svendsen, C Jiang, OA Ogunsakin, **H Zhang**, DA Campbell, H Fraser-Rahim. *Baseline Air Quality Assessment of Goods Movement Activities Prior to the Port of Charleston Expansion: A Community-University Collaborative.* Environmental Justice. Vol. 10(1): 1-10. doi:10.1089/env.2016.0018. **2017**.
55. PA Dugué, YM Geurts, RL Milne, GA Lockett, **H Zhang**, W Karmaus, JW Holloway. *Is there an association between season of birth and blood DNA methylation in adulthood?* Allergy. **2016**. Vol. 71(10):1501-4.
56. A Smith, M Ray, N Jain, **H Zhang**, M Sebelik. *The burden of angioedema on United States emergency departments: 2006–2010.* The Laryngoscope. 10.1002/lary.26336. **2016.** Nov 1.
57. VD Janjanam*, N Mukherjee, GA Lockett, L Globig, FI Rezwan, R Kurukulaaratchy, **H Zhang**, SH Arshad, JW. Holloway, W Karmaus. *Tetanus Vaccination Is Associated With differential DNA-Methylation: Reduces the Risk of Asthma in Adolescence.* Vaccine. **2016.** *http://dx.doi.org/10.1016/j.vaccine.2016.10.068.*
58. P Chen, N Soto-Ramirez, **H Zhang**, W Karmaus. *Association Between Infant Feeding Modes and Gastroesophageal Reflux: A Repeated Measurement Analysis of the Infant Feeding Practices Study II.* Journal of Human Lactation. DOI: 10.1177/0890334416664711. **2016.**
59. M Alexander*, JB Burch, SE Steck, C-F Chen, TG Hurley, P Cavicchia, N Shivappa, J Guess, **H Zhang**, SD Youngstedt, KE Creek, S Lloyd, K Jones, JR Hébert. *Case-Control Study of Candidate Gene Methylation and Adenomatous Polyp Formation*, International Journal of Colorectal Disease. doi:10.1007/s00384-016-2688-1. Oct. 22, **2016**.
60. M Alexander*, M Ray, J Hébert, S Youngstedt, **H Zhang**, S Steck, R Bogan, J Burch. *The National Veteran Sleep Disorder Study: Descriptive Epidemiology and Secular Trends, 2000-2010*. Sleep. Vol. 39:1399-1410. **2016**.
61. N Soto‐Ramirez, K Boyd, **H Zhang**, V Gangur, L Goetzl and W Karmaus. *Maternal serum but not breast milk IL‐5, IL‐6, and IL‐13 immune markers are associated with scratching among infants.* Allergy, Asthma & Clinical Immunology. 12:25. DOI 10.1186/s13223-016-0129-x. **2016.**
62. GA Locketta, N Soto-Ramírezb, M Ray, TM Everson*, …, **H Zhang**, W Karmaus, JW Holloway, *Association of Season of Birth with DNA Methylation and Allergic Disease*. Allergy. DOI:10.1111/all.12882. **2016.**
63. N Mukherjee, GA Lockett, SK Merid, E Melén, G Pershagen, JW Holloway, SH Arshad, S Ewart, H Zhang, W Karmaus. *DNA methylation and genetic polymorphisms of the Leptin gene interact to influence lung function outcomes and asthma at 18 years of age*. Int. J. Mol. Epidemiology and Genetics. Vol. 7: 1-17. **2016.**
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Prick Test at Ages 4, 10 and 18: a Prospective Birth Cohort Study, Allergy, Asthma & Clinical Immunology. Vol. 6, No. 1, 6 pages, **2010**.

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Statistical software:

134. M Ray*, X Tong*, **H Zhang**. ttScreening: *Genome-wide DNA methylation sites screening by use of training and testing samples.* R Core Team. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL: http://www.R-project.org. **2014.**
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136. X Gu, W Huang, D Xu, and **H Zhang**. *GeneContent: Software for Whole-Genome Phylogenetic Analysis*, Bioinformatics. Vol. 21: 1713-1714, **2004**.

Book Chapter:

137. X Gu and **H Zhang**. *Modeling the genomic evolution of gene contents* (p167-185). Statistical Theory and Methods for Evolutionary Genomics, X Gu, **2010**. Oxford University Press, USA. Note: in this Chapter, the contents in the articles 34, 45, and 46 listed above are included.

Advising

Post-doctoral fellow
1/2013-4/2015 Shengtong Han

Students (Ph.D.)
Students under supervision at the University of Memphis
2014- 2017 Akhilesh Kashal
2017- present Shadia Khan Sunny

Students under supervision at the University of South Carolina
2012-2014 Meredith Ray (University of South Carolina)

2011-2014 Xin Tong (University of South Carolina)
2010-2013 Yubo Zou (University of South Carolina)
2007-2010 Jianjun Gan (University of South Carolina)

Students (MS or MPH)

Students under supervision at the University of Memphis
2015-present Lee Curbo
2013-1/2014 Elliott Cole (statistics concentration)
2013-2015 Will Terry (Statisitcs)
2014-2015 Bilal Mohammed Quraishi

Students under supervision at the University of South Carolina
2011-2012 Genevieve Ray
2010-2012 Hong He
2010-2011 Xin Tong
2008-2010 Weichao Bo

Students under supervision at the University of West Florida
2007 Joshua Kelly
2005 Chirstel Chancey
2005 Sue Dickerson

Research Staff Supervisions

Research supervision at the University of Memphis
2013-2014 Meredith Ray
2013-1/2014 Wenhui Sheng

Graduate Assistant (GA) Supervisions (Hired graduate research assistants)

GA supervision at the University of South Carolina
2011-2013 Ashok Varma Samantapudi
2012-2013 Meredith Ray
5/2011-2012 Genevieve Ray
2010-2013 Xin Tong
2010-2011 Yubo Zou
2010-2011 He Hong
2007-2010 Jianjun Gan
2008-2010 Weichao Bao
Fall 2007 Ju Qiu

Academic Supervisions (Academic Advisor)

Academic supervision at the University of Memphis
2015-present Lee Curbo
2014-present Sohely Perven

Academic supervision at the University of South Carolina

2010-2014 Meredith Ray
2010-2013 Yubo Zou
2009-2012 Hong He
2008-2010 Jianjun Gan

Abstracts/Presentations

The first author is the presenter. *denotes presentations given by students under my supervision. Students as the first author or a co-author are underlined. Presentations, which I was involved as a co-author but I did not participate in the conference, are not included.
Conference/Workshop presentations:

12/2017 (Invited)	**H Zhang**. From variable selection to differential Bayesian networks. American Statistical Association Western TN Chapter meeting. Memphis, TN.
08/2017	**H Zhang**, S Han, W Sheng, W Karmaus, H Arshad. The joint clustering via Dirichlet process mixture model on longitudinal data. JSM 2017, Baltimore, MD.
06/2017 (Invited)	H Zhang. Gender and epigenetic differences, from the Isle of Wight study birth cohort and beyond. NIAID Asthma Gender Shifting Workshop, Rockville MD.
05/2017	R Velampati, **H Zhang**, SK Merid, E Melen, H Arshad, W Karmaus, JW Holloway, S Ewart. DNA methylation and allergic sensitization to 11 allergens, a genome scale study. ATS 2017, Washington DC.
05/2017	L Han, **H Zhang,** SP Oggu, A Kaushal, H Arshad, W Karmaus, JW Holloway, S Ewart. Identifying stable and dynamic CpG sites pre- and post-adolescence transition via a longitudinal genome-scale study. ATS 2017, Washington DC.
09/2016	**Three students** presented at the European Respiratory Society (ERS 2016) annual conference held in London, UK. The projects were on association studies between DNA methylation and allergic diseases.
08/2016	**H Zhang**, X Huang, S Han, W Karmaus Bayesian method for testing differential directed acyclic graphs. JSM 2016, Chicago.
12/2015	**H Zhang**, X Huang, S Han, W Karmaus Bayesian method for testing differential directed acyclic graphs. Singapore, December 17-19th, 2015.
08/2015	Y Zou, **H Zhang**, W Terry, W Karmaus, H Arshad. Joint cluster with correlated variables via a semi-parametric Bayesian model. Joint Statistical Meeting, Seattle, WA. Aug. 8-13, 2015.
02/2015	**B Quraishi** and **A Kaushal** both orally presented at the AAAAI (Feb. 20-24, Houston, TX) meeting on applications of random forest and robust regressions in studies related to allergic disease (Quraishi) and arsnic exposure (Kaushal).
10/2014 (Invited)	**H Zhang**, Y Zou, W Karmaus 2, G Roberts, H Arshad, Joint Clustering on Correlated Variables. West Tennessee ASA Chapter monthly meeting.

08/2014 **H Zhang**, X Huang, J Gan, W Karmaus, T Sabo-Attwood. A two-component G prior for variable selection. JSM annual meeting, Boston, MA. Aug. 2-7, 2014

08/2014 **S Han,** H Zhang, G Lockett, N Mukherjee, J Holloway, W Karmaus. Identifying Heterogeneous Transgenerational DNA Methylation Sites via Clustering in Beta Regression. JSM annual meeting, Boston, MA. Aug. 2-7, 2014

08/2014 **M Ray,** H Zhang, J Kang. Clustering fMRI Metadata to Identify Significant Regions of Brain Activation. JSM annual meeting, Boston, MA. Aug. 2-7, 2014

06/2014 **H Zhang**, Y Zou, W Karmaus 2, G Roberts, H Arshad, Joint Clustering on Correlated Variables. WNAR annual statistic meeting. Honolulu, HI, June 15-18, 2014.

06/2014 **H Zhang**, S Han, GA Lockett, N Mukherjee, JW Holloway, W Karmaus. Identifying Heterogeneous Transgenerational DNA Methylation Sites via Clustering in Beta Regression. The third Joint Biostatistics Symposium. June 25-28, Chengdu, China, 2014

09/2013 (Invited) **H Zhang.** Burden Disparities in Air Toxic Exposure and Cancer Risks. Charleston Area Environmental Justice and Health Summit, Sept. 6-7, 2013

05/2013 **H Zhang,** et al. Interaction Between DNA Methylation And Genotype In Th2 Pathway Genes, Association With Asthma And Adolescent Transition Of Asthma Between Ages 10 And 18 Years. ATS 2013, Philadelphia.

12/2013 **H Zhang.** Bayesian Variable Selection in Linear and Semi-parametric Models. The 9th ICSA International Conference: Challenges of Statistical Methods for Interdisciplinary Research and Big Data. Hong Kong, China.

09/2012 (Invited) **H Zhang**. Methylation data, pre-processing, data mining and analysis. International Society for Environmental Epidemiology, Columbia, SC.

08/2012 **H Zhang**, X Huang, J Gan*, W Karmaus, T Sabo-Attwood. Variable adaptive calibration and variable selection in linear models with mismesured covariates. Joint Statistical Meeting, San Diego, CA.

06/2012 (Invited) **H Zhang**, K Ghosh, P Ghosh, Capturing species at a certain abundance level in a multi-species assemblage with unknown heterogeneity. Southern Regional Council of Statistics, Jekyll Island, GA.

05/2012 (Invited) **H Zhang**. Mismeasurement model Bioinformatics and Biostatistics Workshop. Atlanta, GA.

08/2011 Y Zou, **H Zhang**, W Karmaus, and H Arshad, A Bayesian Approach for Joint Clustering Through a Dirichlet Process. 2011 Joint Statistical Meeting, Miami, FL.

05/2011 N Soto-Ramirez, M Alexander, W Karmaus, M Yousefi, **H Zhang**, R Kurukulaaratchy, A Raza, F Mitchell, S Ewart, S H. Arshad. Oral presentation at the American Thoracic Society International Conference, CO. *Breastfeeding Is Associated With Increased Lung Function At Ages 10 And 18 Years: Longitudinal Analyses Of The Isle Of Wight Birth Cohort.*

05/2011 M Youself, W Karmaus, **H Zhang**, G Roberts, S Matthews, B Clayton, SH Arshad. Poster presentation at the American Thoracic Society International

Conference, CO. *Methodological Assessment Of Puberty Indicators For Use In Respiratory Research.*

05/2011 M Youself, SH Arshad, **H Zhang**, W Karmaus, R Kurukulaaratchy, R Twiselton, S Ewart. Poster presentation with discussion at the American Thoracic Society International Conference, CO. *Leptin Influences Respiratory Health Independently Of Body Mass Index.*

05/2011 AH Ziyab, W Karmaus, **H Zhang**, S Ewart, JW Holloway, SH Arshad. Oral presentation at the American Thoracic Society International Conference, CO. *The Role Of Filaggrin Mutations And Allergic Sensitization On The Development Of Asthma: Longitudinal Analyses Of The Isle Of Wight Birth Cohort.*

03/2011 **H Zhang**, X Huang, W Karmaus, J Gan*, T Sabo-Attwood. Oral presentation at the annual Eastern North American Region (ENAR) conference, FL. *Bayesian Adaptive Calibration and Variable Selection in Linear Models with Mismeasured Covariates.*

12/2010 (invited) **H Zhang**, H Stern. The 25th International Biometric Conference, Brazil. *Inferences for the Genotyping Error Rate from Ancestry Identification Data.*

06/2010 **H Zhang**, W Karmaus, W Bao, J Gan, M Scott, SH Arshad. Poster presentation at the 29th Congress of the European Academy of Allergy and Clinical Immunology, UK. *Correcting Atopy Misclassification through Wheal Size Adjustment.*

06/2010 G Roberts, H Zhang, W Karmaus, A Raza, M Scott, S Matthews, R Kurukulaaratchy, SH Arshad. Oral presentation at the 29th Congress of the European Academy of Allergy and Clinical Immunology, UK. *Trends in atopy in the first 18 years of life: results from the Isle of Wight birth cohort study*

06/2010 A Ziyab, A Raza, W Karmaus, N Tongue, H Zhang, S Matthews, SH Arshad, G Roberts. Poster presentation at the 29th Congress of the European Academy of Allergy and Clinical Immunology, UK. *Trends in eczema in the first 18 years of life: results from the Isle of Wight 1989 birth cohort study.*

*****04/2010 J Gan*, **H Zhang**. Oral presentation at the annual American Statistical Association South Carolina Chapter meeting, SC. *Semi-parametric Measurement Error Modeling in Logistic Regression, with application to Survey Data.*

*****04/2010 W Bao*, **H Zhang**. Oral presentation at the annual American Statistical Association South Carolina Chapter meeting, SC. *Clustering Analysis of Zernike Coefficients from High Order Aberration Patient.*

03/2010 **H Zhang**, K Ghosh, P Ghosh. Oral presentation at the annual Eastern North American Region conference, LA. *Bayesian Species Clustering via DP and Sampling Designs via Monte Carlo.*

*****03/2010 J Gan*, **H Zhang**. Oral presentation at the annual Eastern North American Region conference, LA. *Semi-parametric Measurement Error Modeling in Logistic Regression.*

05/2009 R Davis, W Bao*, **H Zhang**. Poster presentation at the Association for Research in Vision and Ophthalmology conference, FL. *Clustering analysis of higher order aberration coefficients.*

03/2009 J Gan, **H Zhang**. Oral presentation at the annual Eastern North American Region conference, TX. *Impact of Multi-level Measurement Errors in Survey Data.*

05/2008 (invited) **H Zhang**, H Stern. Oral presentation at the International Conference on BioMedical Engineering and Informatics, China. *An Approximated Likelihood Approach for Genotyping Error Rate Estimation When Assessing Ancestry Probabilities.*

03/2008 **H Zhang**. Oral presentation at the annual Eastern North American Region conference, TX. *Joint Effect from Environmental and Behavior Risk Factors to Cancer Death Rates using Bayesian Multi-level Modeling.*

02/2007 (invited) **H Zhang**, H Stern. Oral presentation at the annual American Statistical Association Florida Chapter meeting, FL. *Future Sampling Designs to Capture Animals from Rare Species.*

02/2006 **H Zhang**, X Gu. Oral presentation at the annual American Statistical Association Florida Chapter meeting, FL. *Inference on the Number of Unseen Species and the Number of Abundant/Rare Species.*

01/2006 **H Zhang**. Oral presentation at the Hawaii International Conference on Statistics, Mathematics and Related Fields, HI. *Inferences on the Number of Species and the Number of Abundant/Rare Species.*

08/2005 **H Zhang**. Oral presentation at the annual Joint Statistical Meeting, MN. *Inferences on the Number of Species and the Number of Abundant/Rare Species.*

03/2005 **H Zhang**. Oral presentation at the annual Eastern North American Region conference, TX. *Genome Phylogenetic tree Analysis Based on Extended gene contents.*

02/2005 **H Zhang**. Oral presentation at the annual American Statistical Association Florida Chapter meeting, FL. *Inferences on the Number of Species and the Number of Abundant/Rare Species.*

05/2004 **H Zhang**, X Gu. Oral presentation at the Interface 2004: Computational Biology and Bioinformatics, MD. *Genome Phylogenetic tree Analysis Based on Extended gene contents.*

02/2004 **H Zhang**, H Stern. Oral presentation at the annual American Statistical Association Florida Chapter meeting, FL. *Sample size calculation for finding unseen species.*

Seminars/Symposiums at institutions

04/2015 **H Zhang,** X Huang, J Gan, W Karmaus, T Sabo-Attwood. A two-component G prior for variable selection. Department of Mathematical Sciences. University of Memphis, Memphis, TN

04/2015 (invited) **H Zhang,** Y Zou, W Terry, W Karmaus, H Arshad. Joint cluster with correlated variables via a semi-parametric Bayesian model. Bioinformatics seminar, University of Memphis, Memphis, TN.

04/2014 (invited) **H Zhang.** Variable selection in semi-parametric models. Bioinformatics seminar, University of Memphis, Memphis, TN.

02/2013 (Invited) **H Zhang.** Medical University of South Carolina, Charleston, SC.

10/2010 (invited)	**H Zhang**, W Karmaus, J Gan, W Bao, Y Zhao, D Rahardja, M Scott, SH Arshad. Oral presentation at the Department of Clinical Sciences and Simmons Cancer Center, University of Texas Southwestern Medical Center at Dallas, TX. *Correcting Atopy Misclassification through Wheal Size Adjustment.*
09/2010 (invited)	**H Zhang**, K Ghosh, P Ghosh. Oral presentation at the Department of Statistics, University of South Carolina, SC. *Capturing Species at A Certain Abundance Level from A Population with Unknown Heterogeneity.*
10/2009	**H Zhang**, J Gan. Oral presentation at the Department of Epidemiology and Biostatistics, University of South Carolina, SC. *The Impact of Risk Factors on Cancer Incidences with Random Spatial Effect Adjusted Using Kernel Machines.*
01/2008 (invited)	**H Zhang**. Oral presentation at the Medical University of South Carolina. *Ancestry Identification, Genotyping Error, and Its Impact.*
10/2007	**H Zhang**, H Stern. Oral presentation at the Bioinformatics Group, University of South Carolina. *Inferences for Genotyping Error Rate in Ancestry Identification From SSR Marker Profiles.*
01/2005	**H Zhang**, Oral presentation at the Department of Mathematics and Statistics, University of West Florida, FL. *Constructing Phylogenies.*
03/2004 (invited)	**H Zhang**, H Stern. Oral presentation at the Department of Statistics, Florida State University. *Sample size calculation for finding unseen species.*
11/2003	**H Zhang**. Oral presentation at the Department of Mathematics and Statistics, University of West Florida. *Applications of Microarray data.*

Teaching Experience

Courses taught at the University of Memphis
Graduate courses in Biostatistics:
PUBH 7310/8310 Mixed modeling
Textbook: West, B.T., Welch, K.B., and Galecki, A.T. (2007). Linear Mixed Models: A Practical Guide Using Statistical Software. Boca Raton: Chapman & Hall/CRC.

PUBH 7153/8153 Biostatistics in Bioinformatics.
Textbooks: 1) Bioinformatics and Computational Biology Solutions Using R and Bioconductor, by Gentleman, V.J. Carey, W. Huber, R.A. Irizarry, S. Dudoit, 2005. 2) RNA-seq Data Analyses, a Practical Approach. Eija Korpelainen, Jarno Tuimala, Panu Somervuo, Mikael Huss, Garry Wong. Chapman & Hall/CRC Press, 2014.

Graduate courses in genetic statistics:
PUBH 7455/8455 Genetic and Epigenetic Epidemiology
Textbook: A statistical Approach to Genetic Epidemiology by *Andreas Ziegler and Inke König*

Course taught at the University of South Carolina:
Graduate courses in Biostatistics:
BIOS 700 Introduction to Biostatistics. Textbook: Principles of Biostatistics (2nd edition) by *Marcello Pagano and Kimberlee Gauvreau*

BIOS 701 Concepts and Methods of Biostatistics. Textbook: Principles of Biostatistics (2nd edition) by *Marcello Pagano and Kimberlee Gauvreau*
BIOS 757 Intermediate Biometrics. Textbook: Applied Regression Analysis and Multivariate Methods (4th edition) by Kleinbaum, Kupper, Muller, and Nizam.
BIOS 775 Biostatistical Aspects of Bioinformatics.Textbooks: 1) Statistical Computing with R by *Maria Rizzo*. 2) Bioinformatics and Computational Biology Solutions Using R and Bioconductor, R. by Gentleman, V.J. Carey, W. Huber, R.A. Irizarry, S. Dudoit, 2005.

Graduate courses in genetic statistics:
EPID 777 Genetic and Epigenetic Epidemiology
Reading material: A statistical Approach to Genetic Epidemiology by *Andreas Ziegler and Inke König*
EPID894 Genetic Epidemiology
Textbook: A statistical Approach to Genetic Epidemiology by *Andreas Ziegler and Inke König*

Courses taught at the University of West Florida:
Undergraduate courses in Statistics:
Sta2023 Essentials of Statistics.Text book: Essentials of Statistics by *Mario Triola.*
Sta4173 Biostatistics. Text Book: Biostatistical Analysis (4th edition) by *Jerrold Zar*

Graduate courses in Statistics:
Sta5176 Biostatistics. Text Book: Biostatistical Analysis (4th edition) by *Jerrold Zar*
Sta5166 Applied Statistics. Text Book: Statistics by *McClave and Sincich*
Sta5206 Analysis of Variance. Text Book: Applied Linear Models (5th edition) by *Neter,Kutner, Nachtsheim, and Li*
Sta5207 Applied Linear Regression Models. Text Book: Applied Linear Models (5th edition) by *Neter,Kutner, Nachtsheim, and Li*
Sta6246 Experimental Design. Text Book: Design and analysis of experiments (5th Edition) by *Douglas Montgomery*
Sta6507 Nonparametric Data Analysis. Text Book: Practical Nonparametric Statistics (3rd edition) by *W.J. Conover*

Courses taught at the Iowa State University:
Stat 227 (2002-2003) Introduction to Business Statistics

Courses taught at the Truman State University:
College Algebra (1999), Summer course for the SEE (Scholastic Enhancement Experience) program

Guest lectures and short courses

2017	Short course to graduate students in the Psychology Department, University of Memphis, Memphis
2014	Guest lecture on semi-parametric variable selection, University of Memphis, Memphis (BINF 7980).
2012	Guest lecture on path analysis, University of South Carolina, Columbia (EPID 845)

2010, 2011	Guest lecture on biostatistician in grant proposal writing (EPID 801), University of South Carolina, Columbia
2010, 2011, 2012	Guest lecture on bioinformatics in public health (EPID 758), University of South Carolina, Columbia
2008, 2009	Guest lecture on gene-gene and gene-environmental interaction, University of South Carolina, Columbia (EPID 801)
Dec., 2008	Guest lecture on measurement error, University of South Carolina, Columbia (EPID 845)
Dec. 14, 2007:	Short course in Statistics to OB/GYN Doctors, University of South Carolina, Columbia

CURRICULUM VITAE

Name: Deepak Venugopal	**Department:**Computer Science

EDUCATION

DEGREES	DISCIPLINE	INSTITUTION	YEAR
Ph.D.	Computer Science	University of Texas at Dallas	2015
MS	Computer Science	University of Texas at Dallas	2004
Bachelor's in Engineering	Information Sciences and Engineering	BMS College, Bangalore University	2001

EXPERIENCE

RANK/POSITION	DEPARTMENT/DIVISION	INSTITUTION/COMPANY/ORGANIZATION	PERIOD
R&D Engineer		Nokia	2007 - 2010
R&D Engineer		SMobile Systems (acquired by Juniper Networks)	2005 - 2007

HONORS/AWARDS

HONOR/AWARD	INSTITUTION/COMPANY/ORGANIZATION	YEAR
Doctoral Consortium Scholarship ($1000)	SIGAI	2015

TEACHING EXPERIENCE

SUBJECT	INSTITUTION
Foundations of Data Science (graduate)	University of Memphis
Machine Learning (graduate)	University of Memphis
Databases (graduate)	University of Memphis
Machine Learning (undergraduate)	University of Memphis
Data Mining (undergraduate)	University of Memphis
Artificial Intelligence (undergraduate)	University of Memphis

STUDENT ADVISING/MENTORING

CURRENT DEGREE	NAME	YEAR OF GRADUATION
Ph.D.	Khan Md. Al Farabi	
Ph.D.	Md. Maminur Islam	
MS	Saichand Upputuri	2017
MS	Soumya Medapati	2017
MS	Megha Vashisht	2017
MS	Fatemeh Zareie	2016
MS	Ruthvik Gopidi	2016
MS	Swaroop Goli	2016
MS	Hari Cheekati	2016
MS	Rashmi Prakash	2016
MS	Sindhu Ananthanarayana	2016
MS	Kyle Cherry	2016
BS	Lindsey Warren	Fall 2017

Refereed Journal Publications

Naveen Kumar, Deepak Venugopal, Liangfei Qiu and Subodha Kumar, Detecting Review Manipulation on Online Platforms with Hierarchical Supervised Learning, Journal of Management Information Systems (JMIS), Taylor & Francis (forthcoming), (pre-print 33

pages)

Deepak Venugopal, Advances in inference methods for Markov Logic Networks, IEEE Intelligent Informatics 18(1), 2017, IEEE Computer Society, pp. 13-19 (Invited)

Deepak Venugopal and Guoning Hu, Efficient Signature based Malware Detection on Mobile Devices, Journal on Mobile Information Systems, 4(1), pp. 33-41, IOS press, 2008

Refereed Conference Publications

Md. Khan Al Farabi*, Somdeb Sarkhel and Deepak Venugopal, Efficient Weight Learning in High-Dimensional Untied MLNs, In the 21st International conference on Artificial Intelligence and Statistics (AISTATS), 2018, PMLR, (forthcoming) (acceptance rate: 214/645 = 33.1%) (preprint 9 pages)

Md. Maminur Islam*, Somdeb Sarkhel and Deepak Venugopal, Learning Mixtures of MLNs, In the 32nd AAAI Conference on Artificial Intelligence (AAAI), AAAI Press, 2018 (forthcoming) (acceptance rate: 938/3808 = 24.6%) (preprint 8 pages)

Somdeb Sarkhel, Deepak Venugopal, Nicholas Ruozzi and Vibhav Gogate, Efficient Inference for Untied MLNs, In the 26th International Joint Conference on Artificial Intelligence (IJCAI), 2017, AAAI press, pp. 4617-4624. (acceptance rate 660/2540=26%)

Md. Maminur Islam*, Md. Khan Al Farabi* and Deepak Venugopal, Adaptive Blocked Gibbs Sampling for Inference in Probabilistic Graphical Models, International Joint Conference on Neural Networks (IJCNN), 2017, IEEE, pp. 262-269 (oral acceptance rate 372/933=39.8%)

Deepak Venugopal and Vasile Rus, Joint Inference for Mode Identification in Tutorial Dialogues, In 26th International Conference on Computational Linguistics (COLING), 2016, ACL, pp. 2000-2011. (acceptance rate 337/1039 = 32%)

Jing Lu*, Deepak Venugopal, Vibhav Gogate and Vincent Ng, Joint Inference for Event Coreference Resolution, In 26th International Conference on Computational Linguistics (COLING) 2016, ACL, pp. 3264-3275. (acceptance rate 337/1039 = 32%)

Deepak Venugopal, Somdeb Sarkhel* and Kyle Cherry*, Non-parametric Domain Approximation for Scalable Gibbs Sampling in MLNs, In 32nd Conference on Uncertainty in Artificial Intelligence (UAI), 2016, AUAI Press, pp. 745-755. (acceptance rate 85/275=31%)

Somdeb Sarkhel*, Deepak Venugopal, Tuan An Pham*, Parag Singla and Vibhav Gogate, Scalable Weight Learning in Markov Logic using Approximate Counting, In 30th AAAI Conference on Artificial Intelligence (AAAI), 2016, AAAI press, pp. 1067-1073. (acceptance rate 549/2132= 26%)

Deepak Venugopal, Somdeb Sarkhel* and Vibhav Gogate, Just Count the Satisfied Groundings: Scalable Local-Search and Sampling Based Inference in MLNs, In 29th AAAI Conference on Artificial Intelligence (AAAI), 2015, AAAI press, pp. 606-3612. (acceptance rate 531/1991 = 26%)

Deepak Venugopal and Vibhav Gogate, Scaling-up Importance Sampling for Markov Logic Networks, In 28th Annual Conference on Neural Information Processing Systems (NIPS), 2014, Curran Associates, pp. 2978-2986 (acceptance rate 414/1678 = 24.6%)

Deepak Venugopal and Vibhav Gogate, Evidence-Based Clustering for Scalable Inference in Markov Logic, In European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD), 2014, Springer, pp. 258-273. (acceptance rate 115/483 = 23.8%)

Somdeb Sarkhel*, Deepak Venugopal, Parag Singla and Vibhav Gogate, Lifted MAP Inference for Markov Logic Networks, In 17th International Conference on Artificial Intelligence and Statistics (AISTATS), 2014, PMLR, pp. 859-867. (acceptance rate 120/335 = 35.8%)

Deepak Venugopal, Chen Chen*, Vibhav Gogate and Vincent Ng, Relieving the Computational Bottleneck: Joint Inference for Event Extraction with High-Dimensional Features, In Empirical Methods in Natural Language Processing Conference (EMNLP), 2014, ACL press, pp. 831-843. (acceptance rate 155/510 = 30%)

So[illegible] Parag Singla and [illegible] Integer Polynomial Programming Based [illegible] Lifted MAP Inference", In 28th Annual Conference on Neural Information Processing Systems (NIPS), 2014, pp. 3302- 3310, Curran

Associates. (acceptance rate 414/1678 = 24.6%)

Deepak Venugopal and Vibhav Gogate, Dynamic Blocking and Collapsing for Gibbs Sampling", In 29th Conference on Uncertainty in Artificial Intelligence (UAI), 2013, AUAI press, pp. 664 - 673. (acceptance rate 73/233 = 31%)

Deepak Venugopal and Vibhav Gogate, GiSS: Combining SampleSearch and Gibbs Sampling for Inference in Mixed Probabilistic and Deterministic Graphical Models, In 27th AAAI Conference on Artificial Intelligence (AAAI), 2013, AAAI press, pp. 897 - 904. (acceptance rate 203/827 = 29%)

Deepak Venugopal and Vibhav Gogate, On Lifting the Gibbs Sampling Algorithm, In 26th Annual Conference on Neural Information Processing Systems (NIPS), 2012, Curran Associates, pp. 1655-1663. (acceptance rate 370/1467 = 25.2%)

Vibhav Gogate, Abhay Jha* and Deepak Venugopal, Advances in Lifted Importance Sampling, In 26th AAAI Conference on Artificial Intelligence (AAAI), 2012, AAAI Press, pp. 1910-1916 . (acceptance rate 294/1129 = 26%)

Guoning Hu and Deepak Venugopal, A Malware Signature Extraction and Detection Method Applied to Mobile Networks, In 26th IEEE. International Performance Computing and Communications Conference, 2007, IEEE, pp. 19-26. (acceptance rate 37%)

Deepak Venugopal, An efficient signature representation and matching method for mobile devices, In Proceedings of the International Wireless Internet Conference, ACM press, 2006

Deepak Venugopal, Guoning Hu and Nicoleta Roman, Intelligent virus detection on mobile devices, In International Conference on Privacy, Security and Trust, 2006, ACM. (short paper). (acceptance rate 30%)

Presentations - Universities/Industry (refereed *)

University of Tennessee Health Sciences Center Pediatrics-center For Biomedical Informatics, “Markov Logic Networks for Biomedical Event Extraction”, 2017

International Paper Data Science Summit,“Data Science Education and Research at University of Memphis”, 2017

Summer School, National University of Columbia, “Markov Logic Networks and Applications”, 2017

“Predictive Analytics for Crime using Social Media” at the Smart Cities Cluster Meeting, Fedex Institute of Technology, 2017

“Machine Learning Techniques and their Applications in Software Testing”, STEP Research Workshop on Advances and Innovations in Software Testing, Fedex Institute of Technology, 2017

"Securing Online Discussion Forums" in the Annual Workshop on Advances and Innovations in Cyber Security, Fedex Institute of Technology, Memphis, 2016

"Statistical Relational Learning: Research Challenges and Applications" Fedex World Technology Center, Collierville, 2016

"Detecting Anomalous Online Reviewers" at the Cyber-Security and Systems Testing Cluster (CAST) Meeting, Fedex Institute of Technology, 2016

"Approximate Counting for scalable inference in MLNs" at the CS Colloquium, University OF Memphis, 2015

Other Presentations (refereed *)

Quarter Day Tutorial on Recent Advances and Applications in Markov Logic networks (with Dr. Vincent Ng), In the 32nd AAAI Conference on Artificial Intelligence (AAAI), New Orleans, 2018

Half Day Tutorial on Markov Logic Networks: Recent Advances and Practical Applications, (with Dr. Vincent Ng), In the 26th International Joint Conference on Artificial Intelligence (IJCAI), Melbourne, 2017

Half-Day Tutorial on Advanced Markov Logic Techniques for Scalable Joint Inference in NLP, (with Dr. Vincent Ng), In Empirical Methods in Natural Language Processing Conference (EMNLP), Austin, 2016

Hierarchical Machine Learning Approach To Detect Anomalous Behavior in Online Social Media Forums, Naveen Kumar, Deepak Venugopal and Robin Poston, INFORMS Annual Meeting, Nashville, 2016

SUPPORT

(External)

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
Adobe Research	Adobe Research	10,000	2017-2018
Adobe Research	Adobe Research	9,000	2017
Detecting Fine-grained crime types from Twitter	City of Memphis	11,304	03/17 - 12/17

Internal Support

ACTIVITY	AGENCY/SOURCE	AMOUNT	PERIOD
Securing Online Review Platforms: An Anomaly Detection Framework Using Advanced Machine-Learning	Fedex Institute of Technology (CAST)	13,000	03/17-05/18
Securing Online Discussion Forums	Fedex Institute of Technology (CAST)	13,000	03/2016 - 12/2016

OUTREACH

Project/s summary

PROJECT	PARTICIPANTS	PERIOD	SPONSORSHIP
R Immersion for Data Science (Fall 2017)	18	3 days	Fedex Institute of Technology
Immersive R (spring 2017)	8	3 days	Fedex Institute of Technology
Immersive R (Fall 2016)	20	3 days	Fedex Institute of Technology

SERVICE

UNIVERSITY	COMMITTEE/ACTIVITY	PERIOD
University of Memphis	Graduate Committee	2016 - Current
University of Memphis	Faculty search committee	2016 - Current
University of Memphis	Undergraduate Committee	2015

OTHER

SOCIETY/ORGANIZATION/JOURNAL	COMMITTEE/EDITORIAL BOARD/OFFICE	PERIOD
International Conference on Artificial Intelligence and Statistics (AISTATS)	Program Committee	2018, 2017
International Joint Conference on Artificial Intelligence (IJCAI)	Program Committee	2018, 2017, 2016
International Conference in Machine Learning (ICML)	Program Committee	2018
Neural Information Processing Systems (NIPS)	Reviewer	2017, 2016, 2015
AAAI conference on Artificial Intelligence (AAAI)	Program Committee	2017
International Conference on Learning Representations (ICLR)	Program Committee	2017
European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD)	Program Committee	2018, 2017, 2016
North American Chapter of ACL (NAACL-HLT)	Program Committee	2018
C	Program Committee	

AI Journal	Reviewer	
IEEE Transactions on Neural Networks and Learning systems	Reviewer	
Journal of AI Research	Reviewer	
IEEE Transactions on Knowledge and Data Engineering	Reviewer	

Appendix A

Academic Year (please indicate year)	**Course #**	**Course Name**	**Credit Hours**	**Percent Taught**	**Enroll**	**Labratory Supervised(S)/Instructed(I)**	**New Preparation (Y) /(N)**
Spring 2018	COMP 7745/8745	Machine Learning	3.0	100	43		N
Spring 2018	COMP/ECE 4720/6720	Artificial Intelligence	3.0	100	14		Y
Fall 2017	COMP 4745	Machine Learning	3.0	100	8		N
Fall 2017	COMP 7115	Database Systems	3.0	100	22		N
Spring 2017	COMP 4118/6118	Data Mining	3.0	100	24		Y
Spring 2017	COMP 7745/8745	Machine Learning	3.0	100	33		N
Fall 2016	COMP 7150/8150	Foundations of Data Science	3.0	100	36		Y
Fall 2016	COMP 4745	Machine Learning	3.0	100	17		Y
Spring 2016	COMP 7745/8745	Machine Learning	3.0	100	36		Y
Fall 2016	COMP 7115	Database Systems	3.0	100	20		Y

Appendix B

Md. Maminur Islam (2016 -) (Ph.D. Dissertation Advisor)
Khan Md. Al Farabi (2016 -) (Ph.D. Dissertation Advisor)
Saichand Upputuri: Live Crime Analysis through Twitter using Spark streaming, Summer 2017 (Cummins Software) (MS Project Advisor)
Megha Vashisht: A graphical interface for Magician, Spring 2017 (Database Engineer at Fedex) (MS project advisor)
Soumya Medapati: Collaborative Filtering with Noisy reviews, Spring 2017 (Data Scientist at Le Bonheur) (MS project advisor)
Parya Zaire, Text Analysis of Reviews, Fall 2016 (Data Manager at UTHSC) (MS Project Advisor)
Ruthvik Gopidi, Distributional Analysis for Reviews, Fall 2016 (Software Engineer for State of Vermont) (MS Project Advisor)
Swaroop Goli, Spark-based MLN Processing, Fall 2016 (First Tennessee Bank) (MS Project advisor)
Hari Charan Cheekati, Spark-based MLN Processing, Summer 2016 (Hilton Hotels) (MS Project Advisor)
Rashmi Prakash, Adaptive Gibbs Sampling, Spring 2016 (Fedex) (MS Project Advisor)

Sindhu Aswathanarayana, Constructing Dictionaries for Review Analysis, Spring 2016 (Juniper Networks) (MS Project Advisor)

Kyle Cherry, Adaptive Sampling in MLNs, Spring 2016 (Operations Analyst at Fedex Forecasting) (MS Project Advisor)

Nathan Ron Ferguson (Center for Applied Earth Science and Engineering Research) (Independent Study Advisor)

Lindsey Warren: Crime Analytics using Twitter, Fall 2017 (Undergraduate Research Advisor)

Nabin Maharjan (CS) (Ph.D. Dissertation Committee)

Eiman Ali Aldhahri (CS) (Ph.D. Dissertation Committee)

Faisal Alsubaei (CS) (Ph.D. Dissertation Committee)

Liangqun Lu (Biology) (Ph.D. Dissertation Committee)

Abishek Duggal (EECE) (Ph.D. Dissertation Committee)

Franz Parkins (EECE) (Ph.D. Dissertation Committee)

Shamima Najnin (EECE) (Fall 2017) (Ph.D. Dissertation Committee)

Rajendra Banajade (CS) (Spring 2017) (Ph.D. Dissertation Committee)

Monawar Hossain (CS) (Spring 2017) (Ph.D. Dissertation Committee)

Vamsi Krishna Polam (Summer 2017) (MS Thesis Committee)

Aditya K Murthy (Summer 2017) (MS Thesis Committee)

Rakshit Choudhary (Fall 2017) (MS Project Committee)

Kumar Prasad Dahal (Fall 2017) (MS Project Committee)

Chandra Shekhar Challapila, (Spring 2017) (MS Project Committee)

Rong Qi (Fall 2017) (MS Project Committee)

John Shrein (Fall 2016) (MS Project Committee)

Shanshan Gao, Fall 2016 (MS Thesis Committee)

Sharifa Begum (Fall 2016) (MS Project Committee)

Sujith Shreshta (Fall 2016) (MS Thesis Committee)

Saikat Das (Spring 2016) (MS Project Committee)

Ruchi (Fall 2016) (MS Project Committee)

Marc Badrian (Spring 2016) (MS Project Committee)

Rahul Vemuri (Spring 2017) (MS Project Committee)

George E. Relyea

University of Memphis School of Public Health
3825 Desoto Avenue, 226 Robison Hall, Memphis, TN 38152
Telephone: (901) 678-1716; Email: GRelyea@memphis.edu

EDUCATION

Ph.D.	1995	
Economics (not completed)		
M.S.	1982	Applied Mathematics, University of Memphis
M.A.	1981	Economics, University of Memphis
B.B.A.	1977	Economics and Quantitative Management, University of Memphis

ACADEMIC APPOINTMENTS

2016-present	Associate Research Professor in School of Public Health, University of Memphis
2007-2016	Assistant Research Professor in School of Public Health, University of Memphis
2000-2007	Assistant Research Professor in Center for Community Health, University of Memphis.

ADMINISTRATIVE APPOINTMENTS

2000-2007	Managed Data Management group in Center for Community Health, UM
1995-2000	Managed Academic Systems for Web Technologies, Training Center, Innovative Technologies and Academic Research support, IS, UM.
1982-1995	Senior statistician/consultant and director of Statistical Services
1981-1982	Statistical Application Programmer II and statistician in Statistical Services/Computer Center, Memphis State University, Memphis, TN.
1979-1981	Graduate Assistant in Computer Center, Memphis State University
1978-1979	Graduate Assistant in department of Economics, Memphis State University

OTHER PROFESSIONAL APPOINTMENTS

2015-	Faculty senator for School of Public Health
2015-	Affiliate with Center for Health Systems Improvement (CHSI), University of Tennessee, Memphis.
2005-2009	Teaching Professor and Affiliate in Department of Psychology, University of Memphis
2013-present	Affiliate in School of Communication Sciences and Disorders

HONORS AND AWARDS

2014	Nominated by students and faculty for distinguished teaching award
2013	Nominated by students and faculty for distinguished teaching award
1994-1995	Vice President of American Statistical Association, Memphis chapter
1991	Nominated for outstanding staff award

FUNDED GRANT AND CONTRACT HISTORY

Wesely Housing Corporation of Memphis (J. Okwumabua (PI)) 01/01/2016-/30/06/2016
$5,000 awarded for conducting study and analyzing
Feasibility of chair aerobics and functional exercise intervention
Among seniors
Role: Co-Investigator and statistician

R01 PCORI-Baptist Cancer Institute (Dr. Lisa Klesges, PI) 10/1/2012-08/01/2013
$415,957 awarded for SPH subcontract
Project Purpose:
Evaluate administration and care of cancer patients.
Role: Co-PI and statistician

Diabetes Initiative (Dr. Marian Levy, PI) 9/1/2012-08/01/2013
$41,598
Project Purpose:
Evaluate reduction of obesity and diabetes through dieting
Role: Statistician

R01 College students as facilitators to reduce obesity disparity 02/13/2011-11/14/2013
Dr. Debbie Slawson, PI, ETSU
$32,440 awarded for SPH subcontract
Project Purpose:
Use students to facilitate healthy eating and exercise to reduce obesity
In high school student in rural Appalachia.
Role: Co-PI and statistician

FRG (Faculty Research Grant), 02/01/2012-07/01/2013
Mental Health Study, Dr. Jebose Okwumabua, PI.
$ 4,000
Project Purpose:
Evaluate effect of PA of mental Ill patients
Role: Co-PI and statistician

R01 Virtual Civilian Aeromed Evac Training,. Dr. Lin Zhan, PI. 07/01/2011-12/01/2013
Project Purpose:
$37,132 awarded for SPH subcontract
Develop computer training method using Artificial Intelligence
Role: Evaluator

External Evaluation 01/10/2010-09/30/11
DHHS AAHPERD (PI: Paul Wright)
$88,426
Project Purpose:
Evaluate efficacy of playground equipment on activity of young children.
Role: Co-PI and statistician

Autosense 2007-2011
NIDA/NIH (PI: Santosh Kumar)
$402,018
Project Purpose:
Development and measurements of portable devices that can enable precise, reliable and objective measurement

of personal exposure to both addictive substances and psychosocial stress, as experienced by humans in real life situations.
Role: Statistician

PACE: Activity Friendly Neighborhoods (PI: McClanahan, B) 07/01/2009-2011
$387,750
Work with Shelby County and Memphis's architects, city engineers, housing developers, and housing authorities to identify ways to communicate healthy active living environments through a unified development code.
Role: Serve on advisory/research board.

Babylove II Residential Treatment (PI: Satish Kedia) 07/01/2009-2010
$64,000 for SPH subcontract
Assess outcomes from an alcohol and substance abuse treatment facility
Role: Statistician

Protective Behavioral Strategies (PI: James Murphy) 07/01/2009-2011
$54,017
To examine the effectiveness of a PBS-only intervention for reducing alcohol use and negative alcohol-related consequences among heavy-drinking college students.
Role: Statistician

R01 TW05962 (Maziak, Wasim., PI) 07/01/02-6/30/07
NIH//NCI/FIC
$1,219,245
Establishment of the Syrian Center for Tobacco Studies
The goal of this project is to develop capacity and infrastructure support for tobacco control efforts in the Eastern Mediterranean region, focusing on primary-care based smoking cessation intervention.
Role on project: Statistician

U01 HL62662 (Klesges, R.C., PI) 04/01/99-03/31/06
NIH/NHLBI
$3,455,998
Decreasing Weight Gain in African American Preadolescent Girls
The major goals of this project are to identify social and behavioral determinants that will form the core of the intervention program and to conduct a 2-year randomized clinical trial comparing interventions to standard care.
Role on Project: Investigator and statistician

R01 HL68569 (Ward, K.D., PI) 12/01/03-11/30/07
NIH/NHLBI
$2,771,647
Increasing physical activity to aid smoking cessation.
The goal of this project is to conduct a randomized controlled trial to evaluate the efficacy of community-based exercise programming as an adjunct to behavioral/pharmacologic smoking cessation treatment.
Role on Project: statistician and data management

PUBLICATIONS IN THE PEER REVIEWED LITERATURE

1 Chia-cheng Lee, Yuna Jhang, **George Relyea**, Li-mei Chen, & D. Kimbrough Oller (Feb. 2018). Babbling development as seen in canonical babbling ratios: A naturalistic evaluation of all day recording. *Infant Behavior and Developmen*t. Vol 50(Feb 2018) 140-153.

2 Doris K. Amoah, Vikki Nolan**, George Relyea**, James G. Gurney, Xinhua Yu, Fances A. Tylavasky & Fawaz Mzayek (2017): Factors associated with residential mobility during pregnancy, Women & Heal, DOI: 10.1080/03630242.2017.1372843.

3 Collins, A.C., Ward, K.D., McClanahan, B.M., Slawson, D.L., Vukadinovich, C.M., Mays, K.E. Wilson, N., & **Relyea, G.** Bone accrual in child and adolescent non-elite swimmers: a two-year longitudinal study. In press, *Clinical Journal of Sport Medicine.*

4 Collins, M.D**., Relyea G.E**., Blustein, E.C., Badami, S.M. (Nov. 2017). Heterogeneous changes in avian body size across and within species. J Ornithol (2017) 158:39. Doi: 10.1007/s10336-016-1391-x.

5 Collins, M.D**., Relyea G.E**., Blustein, E.C., Badami, S.M. Neotropical exhibit variable body-size changes over time and space. Northeastern Naturalist 24(1): 82-96. 2017. Doi: https://doi.org/10.1656/0145.0240107

6 Chia-cheng Lee, Yuna Jhang, Li-mei Chen, **George Relyea** & D. Kimbrough Oller. (June 06, 2016): Subtlety of Ambient-Language Effects in Babbling: A study of English- and Chinese-Learning Infants at 8, 10, and 12 Months. *Language Learning and Development*, DOI: 10.1080/15475441.2016.1180983

7 Caia J , Weiss LW , Chiu LZF, Schilling , BK, Paquette MR , **Relyea GE** . Do lower-body dimensions and body composition explain vertical jump ability? Journal of Strength and Conditioning Research. Nov 2016;30(11): 3073-3083, DOI: 10.15419/JSC.0000000000001406

8 González, M, Melgar M, Homsi, M, Shuler A, Antillon-Klussmann, F, Matheu, L, Ramirez M, Grant M, Lowther, D. **Relyea, G.** Caniza* M. Measuring readiness for and satisfaction with a hand hygiene e-learning course among healthcare workers in a pediatric oncology centre in Guatemala City. Int J of Infection Control. DOI:10.3396/IJIC,.v12i4.022.16

9 Pirkey, P, Satish, K, Webb, L, Relyea, GE, Alam, MM, Mzayek, F..*Cigarette Smoking Initiation among Substance Abuse Treatment Population: How applicable is the Gateway Hypothesis*?. J Addiction Prevention, Dec. 2015, Vol:3, Issue 2.

10 Miriam Lourdes Gonzalez, Mario Melgar, Maysam Homsi, Ana Shuler, Federico Antillon-Kussmann, Laura Matheu, Marylin Ramierz, Michael M Grant, Deborah L Lowther, **George Relyea**, Miguela Ayala Canzia. Measuring readiness for and satisfaction with a hand hygiene e-learning course among healthcare workers in a paediatric oncology centre in Guatemala City. *Int J of Infec Control*. 2016, V12:i4 Doi: 10.3396/IjIC.v1214.022.16 .

11 Kedia, S, Alam, MM, **Relyea, GE**, Boop, SE, Hillin, D, Risner, J. Lost to Follow-up among Homelss in substance Abuse Treatment in Tennessee: A Methodological Challenge. Presented at Americal Public Health Association Annual Conference, 2016, Denver CO. DOI:10:13140/RG.2.2.32912.61444 .

12 Caia J , Weiss LW , Chiu LZF , Schilling , BK, Paquette MR , **Relyea GE** . Do lower-body dimensions and body composition explain vertical jump ability? Journal of Strength and Conditioning Research. Nov;30(11):3073-3083

13 Pirkey P., Kedia S, Webb L**, Relyea G**, Alam MM, and Mzayek F.
Cigarette Smoking Initiation among Substance Abuse Treatment Population: How applicable is the

Gateway Hypothesis? J Addiction Prevention. Dec. 2015 Vol: 3, Issue: 2.

14 Angelica Samudio, Diego Figueredo, Alvaro Lassaletta, Ofelia Zelada, Anibal Peris, Luis Bogado Yinde, **George Relyea**, Antonio Pered, Luis Madero, Raul Ribeiro, Giuseppe Masera and Miguela. Building a National Pediatric Cancer Center and Network in Paraguay: Lessons for addressing challenges in a low-income Country. J. *Pediatr Hematol oncol*, Vol 00, No 00, 2015.

15 Bell T, Wang J, Nolly R, Ozdenerol E, **Relyea G**, Zarzaur ML. Predictor of Functional Limitation Trajectories after Injury in a national representation of U.S. Older Adult Population. Ann Epidemiol. Dec: 2015(12):894-900. Doi: 10.1016/j.annepidem. 2015.08.012

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17 Churong, Jia, Kenneth D. Ward, Fawaz Mzayek, and **George Relyea**. (2014). Blood 2,5 dimethyfuran as a sensitive and specific biomarker for cigarette smoking. http://informahealthcare.com. DOI: 10.3109/1354750X2014.935956.

18 Bloodworth B, Ward KD, **Relyea GE**, and Cashion K (May 2014). Food availability as a determinant of weight gain among renal transplant recipients. *Res Nurs Health*, 37(3): 253-9. Doi 10.1002/nu.21599

19 Wang L, Slawson DL, **Relyea GE**, Southerland JL and Wang, Y. (2014). Prevalence and risk factors of adolescent obesity in Southern Appalachia. *Chronic Dis*, 11:140348. Doi http://dx.doi.org/10.5888/pcd11.140348 .

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21 Ginley MK, Whelan JP, Meyers AW, **Relyea GE**. Impulsivity in predicting college student gambling. *J Gambl Stud,* 2014, 30:521-536.

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23 Kyle M Johnson, M iriam L Gonzalez, Lourdes Duenas, Mario Gamero, **George Relyea**, Laura E; Luque and Miguela A. Caniza (2013) "Improving waste segregation while reducing costs in a tertiary-care hospital in a lower–middle-income country in Central America", *Waste Management & Research*. DOI: 10.1177/0734242X13484192.

24 Jeannette Kirby, Mae Dolendo, Don Guimera, Czarina Gastillo, Kyle M. Johnson, Fawaz Mzayek, Vikki G. Nolan, **George Relyea**, Miguela A. Caniza (2013). "Predictors of Wait-Time for Antibiotic Initiation and Association of Wait-Time with Hospital Length of Stay and ICU Admission among Children With Cancer at the Southern Philippines Medical Center. *Pediatr Blood Cancer*. DOI 10.1002.pbc.24836.

25 Meredith K. Ginley, James P. Whelan, **George E. Relyea**, Jessica L. Simmons, Andrew W. Meyers & Godfrey D. Pearlson. (2013). "College Student Beliefs about Wagering: An Evaluation of the Adolescent Gambling Expectancies Survey". *J. of Gambling Studies*. DOI 10.1007/s10899-013-9403-8.

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30 Ward, K. D., Kedia, S. Webb, **Relyea, G. E.** (2012). Nicotine dependence among clients receiving publically funded substance abuse treatment. *Drug & Alcohol Dependence*. 125, 95-102.

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PRESENTATIONS

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2 **Relyea, G.E**. Biostatistical Consideration to Consider When Preparing a Study. Presented to Global Paediatric Medicine-infectious Disease, St. Jude. Presented to international physicians at St. Jude, Mar. 02, 2017.

3 Connors, J. N., **Relyea, G.E**., Ozidenerol, E., Chang, C., Bailey, J. and Fitzerald, D. If Super-Utilization is the New Perfect Strom Are We Missing the Boat in Our Readmission Reduction Efforts? Presented at Academy Health Annual Research meeting, June, 25-27, 2017, New Orleans, LA.

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5 Weiss, L.W., Caia, J., Chiu, L., Schilling, B. K., Paquette, M. R., **Relyea, G. E**. Combining Men & Women on Prediction Models of Vertical Jump: Is This Problematic? Presented at National Strength and Conditioning Association meeting, Las Vegas, July 17, 2017.

6 Lisa Wang, Claudia Chernov, Vikki Nolan, Sharon Perlman, **George Relyea**, Fawaz Mzayek, Charon Gwynn. Predictors of High Allostatic Load in New York City Residents, NYC HANES 2013-2014. Annals of

Epidemiology, Vol 27, Issue 8, P 510. DOI: https://doi.org/10.1016/j.annepidem.2017.07.077

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16 Danielle A Stafford, Taylor McKeehan Dula, **George E. Relyea**, Deborah Slawson (2015). 'Association of Perceived weight Status and Dessert Intake among Rural Appalachian Adolescents', Presented as student poster, ETSU, Johnson City, TN.

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19 Marian Levy, Marla Royne, **George Relyea**, Chee Lam, and Cynthia Puljic (2013). 'Salsa, Sabor y Salud: Reducing Obesity and Diabetes Risk in Latino Families. Presented at 141st APHA Annual Meeting and Exposition. Boston, MA.

20 McKeehan, T., **Relyea, G**., Slawson, D. (2013, March). Rural Appalachia Adolescents Association of Eating Away from Home and Dietary Quality. Poster presented at TPHA East Grand Division Conference, Sevierville, TN.

21 McKeehan, T., **Relyea, G.,** Slawson, D. (2013, March). Rural Appalachia Adolescents Association of Eating Away from Home and Dietary Quality. Poster presented at Appalachian Student Research Forum, East Tennessee State University, Johnson City, TN.

22 McKeehan, T., **Relyea, G.**, Slawson, D. (2013, November). Eating out is related to increased sugar intake among rural Appalachian adolescents: Results of the Team Up for Healthy Living Project. Poster presented at The Obesity Society's 31st Annual Scientific Meeting, Atlanta, GA.

23 Slawson, D., **Relyea, G**., McKeehan, T., Holt, T., Lowe, E. (2013 November). Dietary Intake Among Rural Appalachian Adolescents: Baseline Results From the Team Up for Healthy Living Project. Poster presented at The Obesity Society's 31st Annual Scientific Meeting, Atlanta, GA.

24 Kmet, Jennifer, Levy, Marian, **Relyea, George**, Sweat, David. (2013). "What went right? Factors Associated with a Dramatic Decline in Infant Mortaility in an Urban Population. Presented at 141st APHA Annual Meeting and Exposition. Boston, MA.

25 Yuna Jhang, Anne S. Warlaumont, Rick Dale, Healther Ramsdel, Li-mei Chen, **George Relyea**, D. Kimbrough Oller. (2013) "Recognition of Functional Flexibility in Early Infant Vocalization: Diary Reported from Taiwanese and American Parents. ASAH Convention, Chicago, IL.

26 Webb, L. R., Kedia, S., **Relyea, G. E.,** Ward, K. D. (2012). Difference between substance abuse clients in treatment with and without history of tobacco use. *Poster presentation at TN APHA: Nashville, TN.*

27 Sharon Tabachnick, Maryke Neiberg, Ray Miller, and **George Relyea**. Future- and Proximally-oriented Motivational Goals Among Graduate Optometry Students. Poster presentation at Sixth Self Biennial International Conference, June 19-22, 2011, Quebec City, Canada.

28 Webb, L. R., Kedia, S., Ward, K. D., **Relyea, G.E.** (June, 2011). Willingness to quit smoking among substance abuse recovering patients. Poster presented at the Annual Convention of the College on Problems of Drug Dependence. Hollywood, FL.

29 Mustafa al'Albsi, Santosh Kumar, Emre Eritn, Kathryn Feuvrel, Nancy Dold, Susan Kuldanek, Satish Kedia, **George Relyea**, Maria Scott, Manju Venugopal, Kenneth Ward, and Larentz Wittmers (Jan. 2010). Integration of Novel Methods to Assess Effects of Stress and Alcohol Use. Presented at NIH sponsored symposium.

30 Emre Ertin, Santosh Kumar, Mustafa al'Absi, Satish Kedia, Marcia Scott, Manju Venugopal, Kenneth W. Ward, Kathryn Feuvrel, Animikh Ghosh, Santanu Guha, Somnath Mitra, Kurt Plarre and **George E. Relyea**, Lorentz Wittmers(Jan, 2010). AutoSense: A Wireless Sensor System to Quantify Personal Exposures to Psychosocial Stress and Alcohol in Natural Environments. Presented at NIH sponsored symposium.

31 Bracken, K. L., McDevitt-Murphy, M. E., Ward, K., Stockton, M., Lanctot, J., **Relyea, G**., Mzayek, F., Forde, D., & Read, M. Ethnic differences in exposure to Hurricane Katrina and resulting PTSD symptoms. Poster presented at the 2009 annual meeting of the International Society of Traumatic Stress Studies, Atlanta, GA.

32 Ward, K.D., **Relyea, G.E.,** Stockton, M.L., Forde, D.R., Lanctot, J.Q., McDevitt-Murphy, M.E., Read, M.C., and Mzayek, F. (May 2008). Effects of Hurricane Katrina on use of Tobacco, Alcohol, and Marijuana. Presented at Annual Scientific meeting of the American Academy of Health Behavior, Oxnard, CA.

33 Klesges, LM, Klesges, RC, Obarzanek, E, Kumanyika, S, Beech, B, Stockton, M, Lanctot, J., **Relyea, G**, Murray, D, Slawson, D, Sherrill-Mittleman, D (May, 2008). Efficacy and Behavioral Mediators of A Weight Gain Prevention Intervention for African American Girls: The Memphis Girls Health Enrichment Multisite Studies (GEMS). Presented as part of the GEMS symposium at Int. Soc. Beh. Nutr. & Physical Activity, Banff, Alberta Canada.

34 Pont, S. J., Klesges, R.C. **Relyea, G.E**., Kumanyika, S, Klesges, L.M. , Stockton, M, Beech, B.M (May, 2008). Parental Body Mass Index, Age, and Family Eating Environment in African American Girls. Presented at Pediatric Academic Societies Meeting, Honolulu, Hawaii.

35 Klesges, R.C. Oberzanck, E, Klesges, L, Beech, B., Kumanyika, S. McClanahan, B, Stockton, M., Lanctot, J., **Relyea, G**, Murray, D, Slawson, D, and Mittleman, D. (Nov. 2007). The Memphis Girls health Enrichment Multisite Studies (GEMS): An Evaluation of the Long Term Efficacy of A Weight Gain Prevention Intervention in African American Girls. Presented at AHA conference.

36 Klesges RC, Obarzenek E, Klesges LM, Beech BM, Kumanyika SK, McClanahan B, Stockton M, Lanctot J, **Relyea GE**, Murray DM, Slawson D, Sherrill-Mittleman D. The Memphis girls health enrichment multi-site studies (GEMS): An evaluation of the long term efficacy of a weight gain prevention intervention in African-American girls. Abstract 3709 presented at American Heart Association, 2007.

37 McDevitt-Murphy, M. E., Ward, K. D., Stockton, M. L., Lanctot, J. Q., **Relyea, G.,** Mzayek, F., Forde, D. R., & Read, M. C. (Nov. 2007). Symptoms of PTSD among ever-smokers surviving hurricane Katrina. Poster presented at the annual meeting of the Association for Behavioral and Cognitive Therapies, Philadelphia, Pennsylvania.

PRESENTATIONS SUBITTED FOR 2016/2017 PRESENTATIONS

1. Michelle B Stockton, Kenneth D. Ward, Barbara S McClanahan, Mark W Vander Weg, Lace Coday, Nancy Wilson, **George Relyea**, Mary C Read, Stephanie Connolly, Karen C Johnson. Lifestyle Enhancement Program: Evaluation of a Community-based Physical Activity Smoking Cessation Program. Poster presentation submitted to ACSM's 64th Annual Meeting, 8th World Congress on Exercise in Medicine and World Congress on the Basic Science of Exercise and the Brain, 30 May-03 June, 2017 .

ARTICLES SUBMITTED AND UNDER REVIEW FOR 2016/2017

1. Chia-Cheng L, Una Jhang, George Relyea, Li-mei Chen, and D. Kimbrough Oller. Effects of Language Differences and Social Circumstances on Canonical babbling Rations in English- and Chinese-learning Infants at Two Ages. Submitted to Infant Behavior and Development, May 5, 2017.

2. Deborah Leachman Slawson, William T Dalton, Taylor M Dula, Jodi L Southerland, Liang Wang, Mary Ann Littleton, Diana Mozen, **George Relyea**, Karen Schetzin, Elizabeth F Lowe, James M Stoots, Tiejian Wu. College Students as Facilitators in Reducing Adolescent Obesity Disparity in Southern Appalachia: Team Up Healthy Living, submitted to *Contemporary Clinical Trials*, 2016.

3. Meredith K. Ginley, **George E. Relyea**, James P. Whelan, Andrew W. Meyers. Systematic Item Reduction with Big Data: Testing a Structural Modeling Approach. Submitted in Jan 2017.

TEACHING ACTIVITIES

Course Development and Instruction (All courses taught in PUBH otherwise noted)

Developed course and Instructor for PUBH 7150/8150-Biostatistical Methods I, Fall 2007-2017
Developed online course and Instructor for PUBH 7150 M50-Biostatistical Methods I, Spring 2007-2017
Developed course and Instructor for PUBH 7152/8152-Biostatistical Methods II, Spring 2007-2015
Developed online course and Instructor for PUBH 7152 M50-Biostatistical Methods II, Spring 2007-2015
Developed course and Instructor for PUBH 7210/8210-Mixed Model Regression, Fall 2007-2015
Developed course and Instructor for PUBH 7311/8311-Applied Categorical Analysis, Spring 2007-2015
Developed course and Instructor for PUBH 7309/8309-Applied Survival Analysis, Fall 2015
Developed course and Instructor for PUBH 7209/8209 -Advanced SAS Programming I, Fall 2013-2017
Developed course and Instructor for PUBH 7210/8210-Advanced SAS Programming II, Spring 2013-2017
Developed course and Instructor for PUBH 7308/8308-Applied Multivariate Statistics, 2012-2017
Developed course and Instructor for PUBH 7190/8190-Advanced SAS I, 2012-2017
Developed course and Instructor for PUBH 7191/8191-Advanced SAS II, 2012-2017
Developed course and Instructor for PUBH 7305/8305-Meta-analysis, 2012- 2017
Instructor for PUBH 7400/8400 Special Topics-Time Series, Fall 2013
Developed course and Instructor for PUBH 7104/8104-Large Data Sets in Public Health, Fall 2009-2017
Developed course and Instructor for PUBH 7305/8305-Meta-analysis, Fall 2012-2017
Developed course and Instructor for PUBH 7207/8207-SAS for Data Management, Fall 2012-2015
Developed course and Instructor for PUBH 7155/815- Introduction to SPSS, 2012-2014
Developed course and Instructor for PUBH 7156/8156-Introduction to SAS, 2012-2014
Instructor for PSYC 7302/8302-Advanced Statistics I, Psychology Dept., 2000-2007
Instructor for PSYC 7310/8310-Mixed Model Regression, Psychology Dept., 2000-2007
Instructor for PSYC 7311/8311-Applied Categorical Data Analysis, Psychology Dept., 2000-2007
Instructor for ISDA 2710-Business Statistics I, Fogelman Business & Econ., Fall 1991-1995
Instructor for ISDA 2711-Business Statistics II, Fogelman Business & Econ., Fall 1991-1995
Instructor for ECON 4120-Time Series & Economic Forecasting, Fogelman Business & Econ., Fall 2007

Educational Contributions to Promote Professional Training and Development

Presentation lecture on 'Biostistical considerations in Epidemiological surveillance' GPM-ID students at St Jude, Memphis, Tn, March 2017

Basic research statistics, presented to Southern College of Optometry students, Nov. 2016 and 2017.

Advanced SAS programming, summer 2016 and scheduled for 2017.

IBM SPSS and basic Analytics, scheduled for summer 2017.

Healthcare Analytics using SAS data miner, UoM-SPH Summer Institute, August 2015

Medical research consulting with medical students in family practice at UT Memphis/St. Francis hospital, summer 2015.

Co-Instructor, SAS Basics and Data Management, UoM-SPH Summer Institute: August 2013, 2014

Instructor, "Statistics made easy", UoM-SPH Summer Institute: August 2014

Conducted workshop on Mixed Models for CREP at UM, summer 2013.

Guest Faculty for "Power analysis for Clinical Trials" for course in Randomized Clinical Trials, SPH, 2012-2013, and 2017

Guest Lecture for "Advance Regression Techniques", for PhD class, UT Memphis, Nov. 2010, 2016, and 2017

Guest Lecture on 'Basic Statistics' for Evidence based medicine class, Southern College of Optometry, summer 2012

Presented a lecture on "Hypothesis Testing and Experimental Research Designs Common in the Medical Field" to optometry faculty at Southern College of Optometry, Nov., 2017.

Presented a lecture on "Hypothesis Testing and Experimental Research Designs Common in the Medical Field" to optometry students at Southern College of Optometry, Oct. 1, 2010 and 2016

Guest Lecture on 'Statistics for Optometrists' to faculty of Southern College of Optometry, summer 2014

Presentation to TN Health department at Jackson, TN ,'Statistics Made Easy', summer 2013

Presentation to TN Health department at Memphis, TN, 'Statistics Made Easy', summer 2014

Basic statistical analyses for librarians. Presented in June-July, 2012 to UoM librarians.

Basic research designs and power analysis. Presented to graduate students in PUBH 7450/8450, Fall 2012-2015

Engaging graduate students through experiential learning in the classroom, panel discussion in SPH COFAD L&L meeting, Oct. 19, 2012.

Conducted the following Workshops for faculty and students at UoM from 1981-2017:

SEM and CFA using LISREL

Introduction to SPSS (super mini computers and Windows environment)

Introduction to SAS (super mini computers and Windows environment)

Introduction to SAS/IML

Introduction to BMDP

Introduction to Minitab

Introduction to S+

Introduction to Mathematica

Introduction to Data Mining using SPSS/Clementine

Thesis and Dissertation Degree Committees and Mentoring Relationships

1979-2000 Acknowledged contributions to *over* 250 theses and dissertations while senior statistician/director in Statistical Services and Academic Systems, UoM.

Current (2000-Present) Participation on Thesis and Dissertation (or Proposal) committees:

1. Sungmin Lee. Predicting Speech Recognition using the Speech Intelligibility Index (SII) for Cochlear Implant Users and Listeners with Normal Hearing. Proposal committee in School of Communication Sciences, UoM, Spring 2017.
2. Matthew T Suda. Patterns of Gambling and Drinking Behaviors among Treatment-Seek Disorder Gamblers. Proposal committee in Psychology Dept, UoM, Spring 2017.
3. Cem Akkus. Targeting Risk Areas for Childhood Lead Poisoning: Spatio-Temporal Analysis of Blood Lead Levels (BLLS) in Shelby County Children Screened 1994-2013. Dissertation committee, August 2016.
4. Paige Magdovitz. Evaluate the Incremental Utilization of RESPeRATE with or without MI in Managing BP. Member. Psychology dept, U of Memphis, fall 2016.
5. Amy S. Farrell. What Do Young Adults Consider to be "Smoking?" A Study of Individual Differences. Psychology Dept. Fall 2016
6. Jason Jacobs-Letnz. PhD Dissertation proposal. Stigmatized Losses: An Experimental Investigation. Psychology Dept., Spring 2016.
7. Shauita Starks. Predictors of Quality of Life in African American Women Caring for Persons with End Stage Renal Disease. Member of committee, UTHSC-Memphis, 2016
8. Jill Nault. Ad hoc member of PhD committee, 'Regional Variation in Readmission costs and Utilization Associated with High Repeat Utilization', UTMem, Spring 2015.
9. Chia-Cheng Lee, serve as outside member on PhD oral exam committee, School of Communication Sciences and Disorders, May, 2015.
10. April Nellum, PhD dissertation member, 'Effects of stress, depression, and social support on smoking cessation and relapse among low-income pregnant women', 2014-2015, Social and Behavior Sciences, SPH.
11. Phillip D. Ruse. Member of dissertation committee in College of Education for 2015/2016
12. Satya Surbhi, 'Does medication adherence mediate the positive impact of a care transitions program on health care utilization and costs among vulnerable populations?', UTMem. Member of PhD examination committee and dissertation committee for 2015/2016.
13. Bianca M. Jackson, MPH thesis committee, 'Measuring primary care engagement in Emergency department patients in a medically underserved area', Spring 2015, SPH UM.
14. Codruta Andy Collins, PhD dissertation committee, 'The association of lifestyle factors and bone accrual in adolescents', 2014-2017, Social Behavioral Sciences, SPH, U of Memphis.
15. Amy S. Farrell,' Individual differences in Young Adult's definition of Smoking'. PhD thesis in Psychology. U. Memphis. Completed in summer 2014.
16. Jenni B. Teeters, 'Brief motivational Interventions Reduce Driving After Drinking among college drinkers', Midpoint manuscript defense, Psychology dept., U of Memphis
17. Ronald H. Dallas, PhD thesis, 'Post-transition outcomes from pediatric to adult health care among young people living with human immunodeficiency virus(HIV)', Social and Behavioral Sciences, SPH, U of Memphis, 2014-2-15.
18. Charles Matthew Stapleton, PhD thesis, 'Gender differences in Attributions of shame, guilt, and pride among rural and urban Chinese elementary school students', Psychology dept., U of Memphis.
19. Kiraat Munshi, PhD examination committee and dissertation committee, Health Outcomes & Policy Research Program, UTHSC, 2014-2015.
20. Larita Webb Taylor, PhD dissertation committee, 'The effects of traumatic stress on preterm delivery and low birth weight among African American and White women', Social behavioral Sciences, U of Memphis, 2014-2015.
21. Courtnee Melton, PhD dissertation committee, 'The relationship between Health Lieracy and health outcomes among African-American Asthma Patients, UT Memphis.
22. Tara Cherry, PhD dissertation and exam committee,' Actual body weight, body mass index, dual energy X-ray Absorptiometry and outcomes following weight gain in kidney transplant patients', Nursing, UTHSC.
23. Teressa Bell, PhD dissertation committee, 'Predictors and mediators of long-term functional limitations after injury in the older adult population', UTHSC. 2014-2015.
24. Toylyn Braud, PhD dissertation committee and exam committee, 'Assessing the role of faith based

organizations in health promotion', 2014-2015, UTHSC.

13. Meredith Kathleen Ginley, PhD thesis proposal, 'The psychometric evaluation of the Memphis impulsivity measure', Psychology dept., U of Memphis, 2014-2015.
14. Fatima Ferguson, PhD dissertation. 'An analysis of the effects of school climate on school annual yearly progress', Instruction and curriculum leadership, COEHSS, U of Memphis, 2015.
15. Kaitlyn Philipps. MS thesis proposal. 'General nutrition knowledge of pediatric cancer patients at the completion of therapy',COEHSS, U of Memphis.
16. Pradeep Srinivasa Brahma Podila, PhD dissertation committee, 'Exploring opportunities towards reducing hospital readmissions in Memphis.
17. Hope Link, PhD dissertation committee, 'Reengaging in a Cyclical Model of Self-Regulated Learning', Dept. of Education, UoM, 2013-2-14.
18. Thaddeus Grace, MS thesis, 'Children's lead poisoning in the United States: a spatial data mining approach, Dept. of Earth Sciences, UM, 2014.
19. Sterling Hutchinson, MS thesis, 'Language Statistics Encodes Social Network Information', Dept. of Psychology, UoM.
20. Alan Albright, PhD thesis, 'Undergraduate Statistics and Extraneous Cognitive Load: Is it Possible to Have one Without the Other?', Psychology Dept, UM, 2013-2o14.
21. Crescent Elayne Rowell, PhD thesis, 'The Development and Psychometric Testing of A Hypertension Knowledge Instrument in a Vulnerable Population, UTHSC.
22. Gina M. Caucci, PhD thesis committee, 'An Analysis of Communicative gestures in emotionally infused Contexts', Dept. of Psychology, UM.
23. Jeannette Kirby, MPH thesis, 'Predictors of Wait-time for Antibiotic Initation and Its Association with Length of Hospital Stay and ICU-Admission Among Children with Cancer at the Southern Philippine Medical Center', SPH UM, 2013-2014.
24. Bethany A. King, PhD thesis, 'Epistemological Beliefs of Engineering Students, Comparative Analysis of Educational Levels and Institutional Type, 2010, Dept. Of Psychology, UoM.
25. Cara Hedges, MS thesis, 'Feasibility and Reliability of a General Nutrition Knowledge Questionnaire in College Students, Dept. of Education, UoM, 2014.
26. Kaitlyn Elizabeth Phillips, MS Thesis, 'General Nutrition Knowledge of Pediatric Cancer Patients at the Completion of Therapy', Dept. of Education, UoM.
27. Charles Matthew Stapleton, PhD Thesis, 'Gender Differences in Attributions of羞愧 (Shame), (Guilt),and 自豪 (Pride) Among Rural and Urban Chinese Elementary School Students', 2015, Psychology, UoM.
28. Jennifer Barnoud, PhD Thesis, 'Obesity in Patients with Severe and Persistent Mental Illness', MS thesis, Clinical Nutrition, 2015, UM.
29. Elaheh Shirnesham, PhD Thesis, 'Health Outcomes and Policy Research', UTHSC, Memphis. Also member of PhD examination committee in 2014/2015.

PROFESSIONAL SOCIETY MEMBERSHIPS

Member of American Statistical Association since 1982

University of Memphis Service

2016-	Member of Health Analytics committee, School of Public Health
2014-	Faculty Senator for School of Public Health
2014-	Member full graduate faculty
2014-	Member Faculty Senate subcommittee on Academic Support

2013-	Member Ph.D examination committees for Nursing and Health Disparities, UT, Memphis; Dept. of Psychology, UoM, and Communication and School of Communications Sciences & Disorders, UoM
2013-	Member SPH curriculum committee
2014-	Member University subcommittee on Public Records
2014-	Member of University Committee for Faculty Affairs and Development (COFAD)
2014-2017	Member MPH Admissions committee, School of Public Health
2014-2017	Member of MPH marketing committee, School of Public Health
2013-2017	Member SPH Ph.D. student admission committee
2013-2017	Member SPH Ph.D. examination committee for Epidemiology, School of Public Health
1995-2000	Information Systems Liaison to the IT Academic Advisory Committee, University of Memphis

Andrew J. Hussey

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University of Memphis
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Webpage: http://www.andrewjhussey.com/

Education

Ph.D. Economics, Duke University, Durham, NC, 2006.

Primary Fields: Labor Economics, Health Economics

Secondary Fields: Econometrics, Economics of Education, Industrial Organization

Dissertation: "The Effects of Advanced Education on Labor Market Outcomes: An Analysis of MBAs"

Committee: Peter Arcidiacono (chair), Paul Ellickson, Brad Heim, Marjorie McElroy

M.A. Economics, Duke University, Durham, NC, 2001.

B.A. Economics & Chemistry, *Magna Cum Laude* St. Olaf College, Northfield, MN, 2000.

Academic Experience

University of Memphis, Department of Economics

George Johnson Associate Professor, Fall 2015-Present.

Associate Professor, Fall 2012–Present.

George Johnson Research Fellow, Spring 2015–Present.

Assistant Professor, Fall 2006–Summer 2012.

Research

Journal Publications

The Role of Confidence and Noncognitive Skills for Post-Baccalaureate Academic and Labor Market Outcomes (with Weiwei Chen and Wayne Grove), 2017, *Journal of Economic Behavior and Organization* 138: 10-29.

Long Term Trends in Fair and Unfair Inequality in the United States (with Michael Jetter), 2017, *Applied Economics* 17: 1147-63.

Disruption in Parental Co-habitation on Short-term, Medium-term and Long-term Outcomes of Adolescents (with Debjani Kanjilal and Anil Nathan), 2016, *Journal of Family and Economic Issues* 37(1): 58-74

Experimental Evidence of the Effects of an Early Intervention Program on Economics Student Outcomes (with Doug Campbell), 2015, *Applied Economics Letters* 22(11): 895-899.

Greek Organization Membership and Collegiate Outcomes at an Elite Private University (with Nathan Martin and Jay Walker), 2015, *Research in Higher Education* 56(3): 203-227.

Adolescent Obesity, Educational Attainment, and Adult Earnings (with John Amis and Albert Okunade), 2014, *Applied Economics Letters* 21(13): 945-50.

AIDing Contraception: HIV and Recent Trends in Abortion Rates (with Alex Nikolsko-Rzhevskyy and Jay Walker), 2014, *Applied Economics* 46(15): 1788-1803.

Preferential Admission and MBA Outcomes: Mismatch Effects by Race and Gender (with Wayne Grove), 2014, *B.E. Journal of Economic Analysis & Policy* (Advances) 14(3): 613-668.

Returns to MBA Quality: Pecuniary and No-Pecuniary Returns to Peers, Faculty, and Institution Quality (with Wayne Grove), 2014, *Labour Economics* 26: 43-54.

Racial Segregation Patterns in Selective Universities (with Peter Arcidiacono, Esteban Aucejo, and Kenneth Spenner), 2013, *Journal of Law and Economics* 56(4): 1039-60.

Effects of Peers and Social Environment on Adolescent Psychological Well-Being (with Debjani Kanjilal and Albert Okunade), 2013, *International Journal of Business & Economics* 3(2): 69-83.

The Payoff to School Selectivity: An Application of Dale and Krueger's Method to MBA Programs (with Weiwei Chen and Wayne Grove), 2012, *Economics Letters* 116(2): 247-249.

Human Capital Augmentation Versus the Signaling Value of MBA Education, 2012, *Economics of Education Review* 31(4): 442-451.

The Gender Pay Gap Beyond Human Capital: Heterogeneity in Noncognitive Skills and in Labor Market Tastes (with Wayne Grove and Michael Jetter), 2011, *Journal of Human Resources* 46(4): 827–874.

The Effect of Ethics on Labor Market Success: Evidence from MBA Graduates, 2011, *Journal of Economic Behavior and Organization* 80(1): 168–180.

Estimating the Ex Ante Expected Returns to College (with Omari Swinton), 2011, *American Economic Review Papers & Proceedings* 101(3): 598–602.

Returns to Field of Study Versus School Quality: MBA Selection on Observed and Unobserved Heterogeneity (with Wayne Grove), 2011, *Economic Inquiry* 49(3): 730–749.

The Effects of Focused Area of Study on Self-Reported Skill Gains and Satisfaction of MBA Graduates, 2009, *Journal of Global Business Management* 5(2): 112-119.

Overweight Adolescents and On-time High School Graduation: Racial and Gender Disparities (with Albert Okunade and Mustafa Karakus), 2009, *Atlantic Economic Journal* 35(3): 225–242.

The Economic Returns to an MBA (with Peter Arcidiacono and Jane Cooley), 2008, *International Economic Review* 49(3): 873–899.

Working Papers

Explaining Inequality Between Countries: The Declining Power of Political Institutions (with Michael Jetter and Dianne McWilliam), Revise and Resubmit, *Review of Income and Wealth*.

Beauty Premiums and Academics: Lifting the Online Veil (with Jobu Babin, Alex Nikolsko-Rzhevskyy, and David Taylor).

MBAs, Earnings and Promotions: Estimating the Compensating Differential of Managerial Status.

Crime Spillovers and Hurricane Katrina (with Alex Nikolsko-Rzhevskyy and Ioana Pacurar)

A Labor Market Punishing to Mothers: Opting Out and Gender Gaps in Earnings and Labor Supply Among MBAs (with Wayne Grove).

The Entrepreneurial Personality of Aspiring Business Professionals: Expectations and Actual Self-Employment (with Carmen Astorne-Figari and Daniel Mangrum).

Investigating Gender Differentials in Earnings and Returns to Coauthorship in Economics (with Nicholas Kanamaru).

Other Publications

Understanding the Long-Term Consequences of Childhood Obesity in Tennessee (with Albert Okunade and John Amis), 2011. One of two papers published in Conference Program from *1st Annual Research Development Conference*, Nashville, 2011.

Investigating the Source and Magnitude of Returns to the Master's of Business Administration Degree, 2011, *Proceedings of the 2nd International Scientific Conference*, Vlora, Albania.

Teaching Experience

Intermediate Microeconomics, University of Memphis.

Labor Economics (undergraduate), University of Memphis.

Econometrics I (graduate), University of Memphis.

Econometrics II (graduate), University of Memphis.

Labor Economics (graduate), University of Memphis.

Business Application of Economic Theory (or Economics for the Global Executive), Executive MBA Program and online, University of Memphis.

Principles of Microeconomics, University of Memphis.

Sex, Drugs & Rock 'n' Roll: The Economics of Vice (self-designed course), University of Memphis.

Sex, Drugs & Rock 'n' Roll: The Economics of Vice (undergraduate and graduate), Universidad EAFIT, Medellin, Colombia.

Intermediate Microeconomics I, Duke University.

Personnel Economics, Duke University.

Game Theory, Talent Identification Program (TIP), Duke University.

Game Theory, University of Memphis.

Independent Studies, University of Memphis – Graduate: Spring 2008, Fall 2008, Fall 2009, Fall 2010, Summer 2011, Fall 2011, Spring 2012, Spring 2013, Summer 2013, Fall 2013, Spring 2014, Fall 2015, Fall 2016, Spring 2017, Fall 2017, Spring 2018; Undergraduate: Summer 2009, Spring 2011.

Seminar and Invited Presentations

Duke University, Department of Economics, 2005. "Compensating Differentials, Tournaments and the Market for MBAs."

Duke University, Social Sciences Research Institute, 2006. "Compensating Differentials, Tournaments and the Market for MBAs."

University of Memphis, Department of Economics, 2006. "Compensating Differentials, Tournaments and the Market for MBAs."

University of Memphis, Department of Economics, 2007. "Human Capital Augmentation and the Signaling Value of MBA Education."

University of Mannheim, Department of Economics, 2007. "Compensating Differentials, Tournaments and the Market for MBAs."

LeMoyne College, Department of Economics, 2007. (presented by Wayne Grove)

Syracuse University, Department of Economics, 2008. (presented by Wayne Grove)

George Mason University, Department of Economics, 2008. (presented by Wayne Grove)

University of Mississippi, Department of Economics, 2008. "Returns to MBA Concentrations."

College of the Holy Cross, Department of Economics, 2010. "Returns to Three Dimensions of MBA Quality: Peers, Faculty, and Institutions."

1st Annual Research Development Conference, Nashville, 2011. "Understanding the Long-Term Consequences of Childhood Obesity in Tennessee," with Albert Okunade and John Amis.

University of Adelaide, Department of Economics, 2012. "MBAs, Earnings and Promotions: Estimating the Compensating Differential of Managerial Status."

University of Alabama, Department of Economics, 2012. "MBAs, Earnings and Promotions: Estimating the Compensating Differential of Managerial Status."

Depaul University, Department of Economics, 2012. "MBAs, Earnings and Promotions: Estimating the Compensating Differential of Managerial Status."

Tilberg University, Department of Econometrics, 2014. "Racial Segregation Patters in Selective Universities."

The Urban Child Institute, 2015. "A Review of Early Childhood Intervention Programs."

University of Memphis, 2018. "Investigating Gender Differentials in Returns to Co-authorship in Economics."

Lafayette College, 2018. "Investigating Gender Differentials in Returns to Co-authorship in Economics."

Conference Papers

November 2016, 86th Annual Meetings of the Southern Economic Association, Washington, D.C.: "Investigating Gender Differentials in Returns to Co-authorship in Economics," with Nick Kanamaru.

April 2016, Midwest Economics Association Annual Meeting, Chicago: "Estimating the Extent and Determinants of Gender Earnings Differentials among Academic Economists," with Nick Nanamaru.

Nov. 1015, 85th Annual Meetings of the Southern Economic Association, New Orleans: "Estimating the Extent and Determinants of Gender Earnings Differentials among Academic Economists," with Nick Nanamaru.

June 2015, Western Economic Association International conference, Honolulu: "'A Labor Market Punishing to Mothers?': Opting Out and Gender Gaps in Earnings and Labor Supply," with Wayne Grove.

Jan. 2014, American Economic Association conference, Philadelphia: "'A Labor Market Punishing to Mothers?': Opting Out and Gender Gaps in Earnings and Labor Supply," with Wayne Grove.

Dec. 2013, 9th Annual Conference on Economic Growth and Development, New Delhi, India: "'A Labor Market Punishing to Mothers?': Opting Out and Gender Gaps in Earnings and Labor Supply," with Wayne Grove.

Nov. 2013, 83rd Annual Meetings of the Southern Economic Association, Tampa: "Estimating the Impact of an Early Intervention Program on Student Academic Performance and Retention," with Doug Campbell.

Nov. 2013, 83rd Annual Meetings of the Southern Economic Association, Tampa: "Decomposing Inequality in the United States: Fair vs. Unfair Determinants," with Michael Jetter.

Nov. 2013, 83rd Annual Meetings of the Southern Economic Association, Tampa: "Returns to Education in the Presence of Uncertainty," with Rodney Andrews, Enrique Lopezlira, and Omari Swinton.

Oct. 2012, Midwest Valley Economics Association Annual Conference, Memphis: "The Link between Retirement Wealth and Retirement Timing of Faculty," with Alex Nikolsko-Rzhevskyy and Ioana Sofia Pacurar.

May 2012, Society of Labor Economists (SOLE) Annual Conference, Chicago: "Affirmative Action in MBA Programs: Investigating the Mismatch Hypothesis for Race and Gender," with Wayne Grove.

Nov. 2011, 81st Annual Meetings of the Southern Economic Association, Washington, D.C.: "The Determinants and Effects of Confidence on Academic and Labor Market Outcomes," with Weiwei Chen and Wayne Grove.

June 2011, 2nd International Scientific Conference, Vlora, Albania. "Investigating the Source and Magnitude of Returns to the Master's of Business Administration Degree."

Jan. 2011, American Economic Association conference, Denver: "The Gender Pay Gap Beyond Human Capital: Heterogeneity in Noncognitive Skills and in Labor Market Tastes," with Wayne Grove and Michael Jetter.

Jan. 2011, American Economic Association conference, Denver: "Estimating the Ex Ante Expected Returns to College," with Omari Swinton.

Nov. 2010, 80th Annual Meetings of the Southern Economic Association, Atlanta: "Affirmative Action in MBA Programs: Investigating the Mismatch Hypothesis for Race and Gender," with Wayne Grove.

Nov. 2010, 80th Annual Meetings of the Southern Economic Association, Atlanta: "Estimating the Expected Net Returns to College," with Omari Swinton.

Oct. 2010, 8th Annual Southeastern Health Economics Study Group Conference, University of Georgia: "The Effects of Peers and Social Environment on Mental Health," with Debjani Kanjilal and Albert Okunade.

Sept. 2010, Social Capital and Health Global Network III Workshop, Oslo, Norway: "The Effects of Peers and Social Environment on Mental Health," with Debjani Kanjilal and Albert Okunade.

Nov. 2009, 79th Annual Meetings of the Southern Economic Association, San Antonio: "Returns to Three Dimensions of MBA Quality: Peers, Faculty, and Institutions," with Wayne Grove.

Nov. 2009, 79th Annual Meetings of the Southern Economic Association, San Antonio: "Gender Wage Gaps Among MBAs: The Roles of Human Capital, Character Traits, Expectations, Preferences and Choices," with Wayne Grove and Michael Jetter.

Nov. 2009, 79th Annual Meetings of the Southern Economic Association, San Antonio: "Crime Spillovers and Hurricane Katrina," with Alex Nikolsko-Rzhevskyy and Ioana Sofia Pacurar.

Nov. 2009, 79th Annual Meetings of the Southern Economic Association, San Antonio: "The Effect of Health Conditions on Wages: A DNA Identification Strategy," with Padmaja Ayyagari and Anil Nathan.

Nov. 2009, 79th Annual Meetings of the Southern Economic Association, San Antonio: "(Un)planned Parenthood and HIV/AIDS," with Alex Nikolsko-Rzhevskyy and Jay Walker.

Nov. 2009, 79th Annual Meetings of the Southern Economic Association, San Antonio: "Analyzing the Effects of Parental Co-Habitation on Short-term, Medium-term and Long-term Outcomes of Adolescents: a Propensity Score Matching Approach," with Debjani Kanjilal.

July 2009, Western Economic Association International, Vancouver: "Estimating the Intrinsic and Extrinsic Returns to Multiple Measures of MBA Quality," with Wayne Grove.

March 2009, 9th Annual Missouri Economics Conference, Columbia, MO. "Crime Spillovers and Hurricane Katrina," with Alex Nikolsko-Rzhevskyy and Ioana Pacurar.

Midwest Economics Association (MEA) Annual Meeting, 2009. "Analyzing the Effects of Parental Divorce on Children's Outcomes During Adolescence: A Propensity Score Matching Approach," with Debjani Kanjilal.

Nov. 2008, 78th Annual Meetings of the Southern Economic Association, Washington, D.C.: "Human Capital Augmentation and the Signaling Value of MBA Education."

July 2008, 2nd Biennial Conference of the American Society of Health Economists, Durham, NC: "Non-urgent Emergency Department Use in Tennessee: The Effects of Race Analysis," with Cyril Chang and Peter Miller.

July 2008, Western Economic Association International, Honolulu: "Human Capital Augmentation and the Signaling Value of MBA Education."

Dec. 2007, National Bureau of Economic Research (NBER) Conference on High Skilled Labor Markets, Cambridge, MA: "Compensating Differentials, Tournaments, and the Market for MBAs."

Nov. 2005, 75th Annual Meetings of the Southern Economic Association, Washington, D.C.: "Getting More Than You're Paid: Worker Sorting and the Non-Pecuniary Value of Managerial Status."

Oct. 2005, International Academy of Business and Economics (IABE) Annual Conference, Las Vegas: "The Effect of Ethics on Labor Market Success: Evidence from MBAs."

Grants

Tennessee Board of Regents Diversity Grant (2009–2010): "Understanding the Long-Term Effects of Childhood Obesity in Tennessee," with Albert Okunade and John Amis ($60,000).

Graduate Management Admission Council - Management Education Research Institute Grant (2008–09): "Estimating the Intrinsic and Extrinsic Returns to Multiple Measures of MBA Quality," with Wayne Grove ($80,835).

Project SEAPHE (Scale and Effect of Admissions Preferences in Higher Education) Research Grant, via UCLA (2008–09): "The Extent and Impact of Admissions Preferences in MBA Education," with Wayne Grove ($40,000).

Summer Research Grant, Fogelman College of Business and Economics, University of Memphis (2016).

Summer Research Grant, Fogelman College of Business and Economics, University of Memphis (2015).

Summer Research Grant, Fogelman College of Business and Economics, University of Memphis (2012).

Summer Research Grant, Fogelman College of Business and Economics, University of Memphis (2011).

Summer Research Grant, Fogelman College of Business and Economics, University of Memphis (2009), with Albert Okunade.

New Faculty Summer Research Grant, Fogelman College of Business and Economics, University of Memphis (2007, 2008).

Academic and Professional Honors & Awards

George Johnson Professorship, Fogelman College of Business & Economics, University of Memphis, 2015-2020

George Johnson Research Fellow Award, Fogelman College of Business & Economics, University of Memphis, 2015-2017.

Program for Advanced Research in the Social Sciences (PARISS) Fellowship, Social Sciences Research Institute, Duke University, 2005–2006

The Dean's Award for Excellence in Teaching, Nominee, Duke University, 2005

Spencer Foundation Education Policy Research Program Fellowship, 2004–2006

Conference Travel Fellowship, Duke University, Fall 2004

Course Development Grant, Duke University, 2004

Calvin Hoover Fellowship, Duke University, 2000–2001

Phi Beta Kappa, 2000

Finstad Grant Award for Entrepreneurial Studies, St. Olaf College, 1999.

University Service

Economics M.A. Program Coordinator, Spring 2010–present.

Masters Programs Subcouncil, Committee Member, 2009–present; Chair, Fall 2016–present;

Economics Department Seminar Coordinator, 2007–2016.

Graduate Graduate Curriculum Committee, Department of Economics, 2006–present.

University Council of Graduate Studies, 2016–present.

Economics Department Undergraduate Curriculum Committee, Spring 2011–present.

MILE Program, Board Member and Department Representative, Spring 2011–present.

Economics Ph.D. Comprehensive Exam Committee, 2009–present.

Fogelman DOLS (online curriculum) committee, Fall 2015–present.

Fogelman MBA Review Committee, Spring 2017.

Fogelman "4 C's" Program Coordinator, Fall 2011–Fall 2013.

Economics Department Faculty Hiring Committee, Fall 2007–Spring 2008, Fall 2009–Spring 2011, Spring 2012, Spring 2013 (chair), Fall 2013-Spring 2014 (chair), Fall 2016-Spring 2017 (chair).

Department volunteer: Discover your Major Day, 2008–2010; Graduate Programs Fair, 2011, 2012, 2015.

Evaluator: Undergraduate Works in Progress Forum, 2016.

Judge, Annual Student Research Forum, 2008, 2011.

MILE Interviewer Volunteer, Spring 2011, 2012.

Fogelman Feeds Volunteer, Spring 2011.

Lead Marshall for College of Business, Commencement, Spring 2011.

Internship Advisor for undergraduate student, Spring 2009.

Professional Service

Referee: *American Journal of Health Economics, Applied Economics, B.E. Journal of Economic Analysis and Policy, Demography, Eastern Economic Journal, Economic Inquiry, Economics of Education Review, Economics Letters, Education Economics, Journal of Economic Behavior & Organization, Journal of Economic Psychology, Journal of Human Capital, Journal of Labor Economics, Journal of Policy Analysis and Management, Journal of Public Economics, Labour Economics, Public Finance Review, The Social Science Journal, Southern Economic Journal*

Textbook reviewer: Goolsbee, Levitt, Syverson: Microeconomics (1st ed.); O'Sullivan: Intermediate Microeconomics (1st ed.); Skeath and Velenchik: Microeconomics (1st ed.)

External Reviewer, Rhodes College, Department of Economics, Spring 2018.

Member of Organizing Committee, 9th Annual Southeastern Health Economics Study Group Conference, University of Memphis, Oct. 2011.

Graduate Advising

On the dissertation committees of the following Ph.D. recipients/candidates (with initial job placement):

Gennady Lyakir, 2008, Assistant Professor, Champlain College.

Peter Miller (M.A.), 2008, Associate, Nathan Associates.

Dennis Arvik, 2009, Senior Pricing Analyst, AEGON.

Debjani Kanjilal, 2010, Assistant Professor of Economics, Elizabeth City State University.

Julie Hyde (Accounting), 2011, Assistant Professor, Southern Adventist University.

Michael Jetter, 2011, Assistant Professor of Economics, Universidad EAFIT (Colombia).

Jay Walker, 2012, Assistant Professor of Economics, Niagara University.

Gregory Lubiani, 2012, Assistant Professor, Health Services Administration, Xavier University.

Weiwei Chen, 2013, Post-doc, Center for Disease Control.

Riham Ishak, 2013.

Moon Moon Haque, 2013. Associate Professor, Asia-Pacific Institute of Management.

Joseph Reid (Accounting), 2013, Assistant Professor, North Carolina A&T State University.

Stephanie Steinberg, 2014. Senior Health Economist, United Health Care.

Ioana Sofia Pacurar, Spring 2014.

Stephanie Hairston (Accounting), 2014, Assistant Professor, Georgia Southern University.

Ji Yu (Accounting), Spring 2015, Assistant Professor, SUNY New Paltz.

Demba Fofana, 2017, Assistant Professor, University of Texas Rio Grande Valley.

Jeffrey (Jobu) Babin (chair), Spring 2017, Assistant Professor, Western Illinois University.

Dariya Ainekova (chair), expected Spring 2019.

Yi Lu, expected Spring 2019.

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Marital Status: Married, two children
Citizenship: USA

Educational Background

Bachelor of Arts, Mathematics, Miami University, 1973.
Master of Arts, Economics, The Ohio State University, 1975.
Doctor of Philosophy, Economics, The Ohio State University, 1980.
Principle fields: Soviet and East European Economics, International Trade, Econometrics. Dissertation title: "A Disequilibrium Macroeconomic Model of the Modified Centrally Planned Economy: Poland."

University Positions

2018-	University of Memphis Board of Trustees
2006	Visiting Scholar, Research Department, St. Louis Federal Reserve Bank, St. Louis, Missouri
2000	Visiting Scholar, Institute for Economic Research – Halle, Halle, Germany Short-term visiting professor, University of Warsaw
1994 -	Professor and William N. Morris Chair of Excellence in International Economics, University of Memphis.
1996 - 1997	Interim Chairperson, Department of Economics, Fogelman College of Business and Economics, The University of Memphis.
1994 - 1997	Director, International Masters of Business Administration, Fogelman College of Business and Economics, The University of Memphis.
1991-1994	Professor of Economics and W. Frank Barton Faculty Fellow, The Wichita State University.
1992	Visiting Professor, University of Warsaw, Warsaw, Poland (Summer).
1991	Mitsui Distinguished Fellow, Mitsui Research Institute Co., Inc., Tokyo, Japan (Summer).
1989-1991	Pew Charitable Trusts Economics Scholar-in-Residence and Director of Economics Program, Institute for East-West Studies, NY, New York.
1988-1989	Associate Professor, The Wichita State University.
1986-1988	Assistant Professor, The Wichita State University.
1982-1986	Assistant Professor, University of North Carolina - Greensboro.

1981-1982 Fulbright Scholar, Main School of Planning and Statistics, Warsaw, Poland.
1979-1981 Instructor, Assistant Professor, University of North Carolina - Greensboro.

Administrative Experience

1996 - 1997 Interim Chairperson, Department of Economics. Responsible for all academic programs (BA, BS, MA, PhD concentration), curriculum and course development developed new policies and procedures, performed faculty annual review and promotion and tenure. Fifteen faculty, two professional staff and several student employees.

1994 - 1997 Director, International Masters of Business Administration, Fogelman College of Business and Economics, The University of Memphis. Redesigned interdisciplinary curriculum and implemented new courses; developed a profitable overseas internship program; managed marketing and student recruitment and graduate placement. Three professional staff and several student employees.

1992-1993 Director of USIA collaborative program between WSU and Comenius University, Bratislava, Slovakia. Designed and administered academic and outreach programs, solicited funding, selected 14 faculty participants to teach graduate level courses and assist Comenius University faculty in curriculum and course development, performed program evaluation and final reporting.

1989-1991 Director of Economics Division of the IEWS, NY, NY. Designed and initiated the economics and security program at the Institute. Greatly expanded program budget and activities. Selected and advised international fellows; supervised research and program staff and interns. Administered research and assistance programs in economics and security, solicited and received funding for economics programs.

1987-1989 Graduate Coordinator, Department of Economics, WSU. Administered graduate programs in economics (MA in Economics and Business Economics). Recruited and advised students, awarded assistantships, assigned assistants to faculty, administered comprehensive exams.

Sponsored Activities

Principal Investigator for sponsored research or Project Director for institutional programs or research funded by the Pew Charitable Trusts, the Sasakawa Peace Foundation, the Japan Economics Foundation, the United States Information Agency, the Council for Soviet and East European Research, the International Research and Exchanges Board, the American Council of Learned Societies, the Social Science Research Council. Participant in projects funded by the Ford Foundation, the Rockefeller Brothers Fund and the John D. and Catherine T. MacArthur Foundation, FedEx, St. Louis Federal Reserve Bank, The Commercial Appeal.

Consulting Activity

SRI - International, Arlington, VA and Wharton Econometric Forecasting Associates, Washington, DC (1979-1981). Research and development for macroeconometric model of Poland.

Food and Agriculture Organization of the United Nations, Rome, Italy (1984). Background

research and coauthored sections of FAO annual *State of Food and Agriculture in the World.*

The RAND Corporation. Santa Monica, CA (1985). Review and critique staff research prior to publication.

International Bank for Reconstruction and Development. Washington, DC (1990-1991). Project design, background research, and operations missions. Small and medium enterprise development in Czechoslovakia, Hungary, Poland and Yugoslavia.

Expert Evaluation Group, EU project on EU Integration and the Prospects for Catch-Up Development in Central and East European Countries – The Determinants of the Productivity Gap (2001- 2005).

Academy for Educational Development. USAID Project, Research Training for Professional Economists, Yerevan, Armenia. (2003).

FedEx Services. Research Adviser and Project Coordinator, "Survey Based Indicators of Future Economic Activity: Construction of an Index of Expected Transportation Services Demand," Memphis, TN (2003-2004).

Bearing Point. Structural Macroeconometric Modeling. USAID funded project for customs and tax project for the Ministry of Finance. Yerevan, Armenia (2004).

BearingPoint. Implementing Inflation Forecast Targeting in Kazakhstan. USAID project for the National Bank of the Republic of Kazakhstan. Almaty and Astana, Kazakhstan (2005-2006).

Asian Development Bank. Financial Sector Governance, Implementing Inflation Forecast Targeting, National Bank of the Republic of Kazakhstan. Almaty and Astana, Kazakhstan (2007-2009).

Deloitte Consulting, LLP. Economic Reform to Enhance Competitiveness, National Bank of the Republic of Kazakhstan, Almaty, Kazakhstan (2009- 2010).

Deloitte Consulting LLP, Macroeconomic Project, Astana, Kazakhstan, Ministry of Economic Development and International Trade, (2012)

Sibley International/International Development Group. Azerbaijan Competitiveness and Trade project, Econometric and DSGE modeling and forecasting, Center for Research and Development, National Bank of Azerbaijan, Baku, Azerbaijan (2013)

National Bank of the Republic of Kazakhstan. Technical and policy consultant on forecasting and policy analysis system. (2014)

Professional Service

Coeditor, *Comparative Economic Studies* (2003-2007).

Associate Editor, *Economic Change and Restructuring* (2005-2009).

Associate Editor, *Economics of Planning* (1998-2005).

Member of Board of Editors, *Russian and East European Finance and Trade* (1998-2002).

Member of Board of Editors, *Emerging Markets Finance and Trade* (2002-2006).

Member of Board of Editors, *International Atlantic Economic Journal* (1998-present).

Member of Board of Editors, *Comparative Economic Studies* (1994-1997).

Member of Scientific Committee of the Board of Editors of the *European Journal of Comparative Economics* (2004 – 200611).

Referee for *Comparative Economic Studies, Journal of Comparative Economics, Journal of*

Money, Credit and Banking, *Journal of Banking and Finance, Emerging Markets Finance and Trade, World Development*, *International Review of Economics and Finance, European Journal of Comparative Economics, Association for Comparative Economic Studies Bulletin*, *Review of Social Economy, Atlantic Economic Journal, Economic Systems* .

Member of the Board of Directors, Executive Committee, European Association of Comparative Economics, 2006- 2011, 2016-present

Member of Fulbright Selection Committee for Central Europe, Council for International Exchange of Scholars, Washington, D.C. (1997-2000).

Member of Board of Directors, Memphis World Affairs Council (1995-1999).

Member of Selection Committee for Edmund S. Muskie Fellowships for scholars from the Newly Independent States and Baltic Countries, (1993-1996).

Member of Selection Committee for Exchanges with Central and Eastern Europe of the International Research and Exchanges Board (1992-1995).

Member of Ad Hoc Committee on Economics Education Reform in Eastern Europe of the National Research Council of the National Academy of Sciences, Washington, D.C. (1991).

Member of Selection Committee for Eisenhower Exchange Fellowships (1991).

External Reviewer, US Department of State, FREEDOM Support Act, Educational Partnership Program, Economic Development Proposals, Academy for Educational Development (2004).

Member of National Peer Review Committee, Fulbright Senior Specialists Program, Council for the International Exchange of Scholars, (2004-2005).

Member, International Committee, Memphis in May (1997-2000, 2002-present).

Member of the American Association for the Advancement of Slavic Studies.

Member of the American Economics Association.

Executive Director, Economic Club of Memphis (1998-2012).

Publications

Books and Monographs:

Monetary and Banking Reform in Post Communist Economies (New York: IEWS and Westview Press, 1992). Edited with Andrzej Rudka.

Technology Markets and Export Controls in the 1990's: Four Views (New York: New York University Press and IEWS, 1991). Ed.

Economic Reform in Poland: The Aftermath of Martial Law 1981‑1988 (Greenwich, CT: JAI Press, 1991). Ed.

Economic Transition in Eastern Europe and the Soviet Union: Issues and Strategies (New York: IEWS, 1991).

The End of Central Planning? Socialist Economies in Transition: The Cases of Czechoslovakia, Hungary, China and the Soviet Union. (New York: IEWS, 1990), Edited with Claire Gordon.

Symposium Issue of Journals (Guest Editor)**:**

Risk, Regulation and Competition in Banking and Finance in Transition Economies, Comparative Economic Studies, 50,2 (2008).
Inflation Targeting in Transition Economies, Comparative Economic Studies, 50,3 (2008).

Journals:

"Tax Havens, Tax Evasion and Tax Information Exchange Agreements in the OECD," *European Financial Management*, 23,3: 519-543 (2017). With Bhavik Parikh and Tanja Steigner. (Best paper award, most downloads, for *European Financial Management*, 2017).

"Exchange Rate Regimes and Welfare Losses from Foreign Crises: The Impact of the US Financial Crisis on Mexico," *Review of International Economics*, 25,1: 132-147 (2017), With Kayhan Koleyni.

"Foreign Direct Investment and Export Performance in Emerging Economies: Evidence from Indian IT Firms," *Review of Development Economics*, 18(4), 681-692, (2014). With Oleks Nikolsko-Rzhevskyy and Deepraj Mukherjee,

"Did the Recent Housing Boom Signal the Global Financial Crisis?" *Southern Economic Journal,* 78,3: 999-1018. (2012) With Saktinil Roy.

"Causes of Banking Crises: Deregulation, credit booms, and asset bubbles, then and now," *International Review of Economics and Finance*, 24: 270-294. (2012) With Saktinil Roy.

"What is Really Common in the Run-up to Banking Crises?" *Economics Letters*, 113 (2011) 211-214. With Saktinil Roy.

From Peg to Float: Exchange Market Pressure and Monetary Policy in the Czech Republic," *Review of International Economics,* 19(1), 93-108. (2011) With Gennady Lyakir.

"Using Extraneous Information to Analyze Monetary Policy in Transition Economies" *Journal of International Money and Finance*, 28 (2009) 868-879. With William T. Gavin.

"Introduction to Symposium: Inflation Targeting in Emerging Economies: Prerequisites, Policies and Outcomes," *Comparative Economic Studies*, 50,3: 416-420 (2008)

"Inflation Targeting in Armenia: Monetary Policy in Transition," *Comparative Economic Studies* 50,3: 421-437. (2008). With King Banaian and Grigor Sargsyan.

"Risk, Regulation and Competition in Banking and Finance in Transition Economies," *Comparative Economic Studies*, 50,2: 210-216 (2008). With Koen Schoors and Rudi Vandervennet

"Real Exchange Rate Misalignment: Prelude to Crisis?" *Economic Systems,* 30: 207-230 (2006). With Saktinil Roy.

"Najwazniejsze zagrozenia rownowagi finansow publicznych w Polsce w przedniu wejscia do Unii Europejskiej," *Studi Ekonomiczne* 36/37, 1-2: 11-30 (2003) With Ryszard Rapacki.

"Liberalization, Entry and Product Quality in Transition Economies," *Economic Systems*, 26,4. (2002). With Pinaki Bose.

"Fiscal Reform, Fiscal Policy and Fiscal Constraints during Transition in Poland," *Post-Soviet Economics and Geography,* 41,8: 581-598. (2000) With Ryszard Rapacki.

"Determinants of the Real Exchange Rate, Misalignment and Implications for Growth in Poland," *Economic Systems*, 24,2:171-205. (2000) With Wenyuan Teng.

"Banking Sector Reform in the Transition Economies - A Central Banking Perspective: Comment," *Economic Survey of Europe*, (1998), No. 2:82-84.

"Access to Bank Loans in a Transition Economy: The Case of Hungary," *Journal of Comparative Economics,* 24,1:79-89. (1997) With Philip Hersch and Jeffry Netter.

"Competition in Transition Economies: Determinants of Price- Cost Margins in Private Sector Manufacturing in Eastern Europe." *Southern Economic Journal*, 61, 2: 356- 366 (1994). With Phillip Hersch and Sharad Bhandari.

"The Estimation of Technical Efficiency in Polish Industry: 1961-1986." *Economic Systems* 15, 1:43-56 (1991). With John Neufeld.

"Losses in Polish Industry Due to Resource Misallocation." *Jahrbuch der Wirtshaft Osteuropas*, 14, 2: 139-150 (1990).

"The Chronic Shortage Model of Centrally Planned Economies." *Soviet Studies,* 41, 3:345- 364 (1989).

"Productivity Growth in Polish Industry." *Journal of Comparative Economics*, 11, 1:1- 20 (1987).

"Disequilibrium in Centrally Planned Economies - Beyond Cycles." *Jahrbuch der Wirtschaft Osteuropas*. 12, 2:65-69 (1987). With Jan Winiecki.

"The Failure of Effective Technology Transfer in Polish Industry." *Economics of Planning,* 21, 1:1- 12 (1987).

"The Relative Economic Efficiency of Private versus Public Waterworks in the 1890's." *Business and Economic History,* 15: 13- 27 (1986). With William Hausman and John Neufeld.

"The Real and Monetary Impact of Exogenous Disturbances Upon Centrally Planned Economies: With an Application to Poland." *Carl Beck Papers,* 405 (1985).

"The Polish Economic Crisis: Contributing Factors and Economic Costs." *Journal of Comparative Economics*, 8, 1:25- 40 (1984). With Keith Crane.

"Discriminating Among Alternative Production Functions in Polish Industry." *Empirical Economics*, 9, 1:59- 66 (1984).

"Microeconomic Efficiency in the Polish Enterprise During the NEM Period." *Economics of Planning*, 18, 1:1- 21 (1982).

"Estimation of the Variable Elasticity of Substitution Production Function for Polish Industry and Implications for Growth." *Ekonomia* 45:75-86 (1985).

"Econometric Models of East European Economies: A Survey of Models of Poland." *The Association of Comparative Economic Studies Bulletin*, 33, 2:58-69 (1981).

Chapters in Edited Volumes:

"Exchange Rate Misalignment: Macroeconomic Fundamentals as an Indicator of Exchange Rate Crises in Transition Economies," *Empirical Methods for Analyzing the Risks of Financial Crises,* Sonderheft 3/2003, Institut für Wirtschaftforschung Halle, Halle

"Russian Financial Transition: The Development of Institutions and Markets for Growth," in *Russia's Uncertain Economic Future* a Compendium of papers submitted to the Joint Economic Committee, Congress of the United States (Washington, D.C.: U.S. Government Printing Office, 2000).

"Determinants of Productivity in Central Europe during Economic Transition," in *Planning, Shortage and Transformation,* Essays in Honor of Janos Kornai, Eric Maskin and Andras Simonovits, Eds. (Cambridge: MIT Press, 2000). With Sharad Bhandari.

"Economic Transition and Economic Performance: Lessons from Eastern Europe and the Former Soviet Union" in *The System Transformation of Transition Economies: Europe, Asia and North Korea,* Doowon Lee, Ed. (Seoul: Yonsei University Press, 1997) with Michael

"Post-Privatization Issues in Central Europe," in *East Central European Economies in Transition,* Study Papers submitted to the Joint Economic Committee, Congress of the United States, (Washington, D.C.: U.S. Government Printing Office, 1994)

"Banking in Central Europe During the Protomarket Period: Developments and Emerging Issues." In *Development and Reform of the Financial System in Central Europe.* John P. Bonin and Istvan Szekely, editors. (Hampshire, UK: Edward Elgar Publishing, Ltd.

"Technology Controls and Prospects for Change," In T*echnology Markets and Export Controls* in the 1990s: Four Views. David M. Kemme, Editor. (New York: New York University Press and IEWS, 1991).

"Obstacles to Reform: 1981‑1988." In *Economic Reform in Poland: The Aftermath of Martial Law 1981‑1988.* David M. Kemme, editor. (Greenwich, CT: JAI Press, 1991).

"The Chronic Excess Demand Hypothesis." In *Models of Disequilibrium and Shortage in the Centrally Planned Economies,* C. Davis and W. Charemza, editors. (Andover, UK: Chapman and Hall, 1989).

"Economic Reform and Foreign Trade in Poland, Comments." In *Economic Adjustment and Reform in Eastern Europe and the Soviet Union,* Josef Brada, Ed A. Hewett, and Thomas A. Wolf, editors (Durham, NC: Duke University Press, 1988).

"The Polish Crisis: An Economic Overview." In *Politics in Contemporary Poland: Edge of the Abyss,* Jack Bielasiak and Maurice Simon, editors (New York: Praeger Publishers, 1984).

Special Reports, Articles in Professional Journals and Proceedings:

"A Strategy for the Transition to Inflation Forecast Targeting," Economic Consulting Report to the NBK, March 2014. With Warren Coats.

"Implementing Inflation Forecast Targeting in Kazakhstan" Economic Consulting, Report to the NBK December 2014. With Warren Coats.

"Implementing Inflation Forecast Targeting—Modeling—December Trip Report," Economic Consulting Report to the NBK, December 2014. With Warren Coats and Karel Musil.

"Kazakhstan, The Launch of Inflation Targeting," Economic Consulting Report to the NBK, October, 2015. With Warren Coats.

"Kazakhstan: Implementing Inflation Forecast Targeting: Final Report," March 2009, ADB Financial Sector Governance TA-4431 (KAZ).

"Kazakhstan: Implementing Inflation Forecast Targeting: Progress Report #8," January 2009, ADB Financial Sector Governance TA-4431 (KAZ).

"Kazakhstan: Implementing Inflation Forecast Targeting: Progress Report #7," September 2008, ADB Financial Sector Governance TA-4431 (KAZ).

"Kazakhstan: Implementing Inflation Forecast Targeting: Progress Report #6," June 2008, ADB Financial Sector Governance TA-4431 (KAZ).

"Kazakhstan: Implementing Inflation Forecast Targeting: Progress Report #5," March 2008, ADB Financial Sector Governance TA-4431 (KAZ).

"Kazakhstan: Implementing Inflation Forecast Targeting: Progress Report #4," December 2007, ADB Financial Sector Governance TA-4431 (KAZ).

"Kazakhstan: Implementing Inflation Forecast Targeting: Visit to the Czech National Bank: Progress Report #3," November 2007, ADB Financial Sector Governance TA-4431 (KAZ). With Warren Coats.

"Kazakhstan: Implementing Inflation Forecast Targeting, Progress Report #2, Asian Development Bank, September 2007. With Warren Coats.

"Kazakhstan: Implementing Inflation Forecast Targeting, A Progress Report, Asian Development Bank, June 2007. With Warren Coats.

"Implementing Inflation Forecast Targeting: A Progress Report," BearingPoint/USAID, November 2006. With Warren Coats.

"Implementing Inflation Forecast Targeting," BearingPoint/USAID, August 2005. With Warren Coats.

"Global Economic Outlook 2007: Growth Slow Everywhere, but Outlook is Positive," *Business Perspectives*, 18,3: 16-19

Memphis Business Activity – Economic Survey, On-line monthly report. With Dennis Wilson. An on-line publication at the web site SurveyMemphis.org.

Kazakhstan: Implementing Inflation Forecast Targeting, Progress Report #2. Asian Development Bank, Technical Assistance Consultant's Report. September 2007. With Warren Coats. In English and Russian.

Kazakhstan: Implementing Inflation Forecast Targeting, Progress Report. Asian Development Bank, Technical Assistance Consultant's Report. June 2007. With Warren Coats. In English and Russian.

Memphis Business Activity – Economic Survey, On-line monthly report. With Dennis Wilson. A monthly on-line publication at the web site SurveyMemphis.org.

Development Strategies a Comparative View, Conference Papers and Proceedings European Association of Comparative Economics, 9th Bi-annual Conference, Bristol, UK. September 2006.

Implementing Inflation Forecast Targeting: A Progress Report, BearingPoint Technical Assistance Report to the National Bank of the Republic of Kazakhstan, November 2006. With Warren Coats. In English and Russian.

Implementing Inflation Forecast Targeting, BearingPoint Technical Assistance Report to the National Bank of the Republic of Kazakhstan, August 4, 2005. With Warren Coats.

Modeling CPI Inflation in Armenia" Macroeconomic and Fiscal Analysis Team, Bearing Point, USAID Tax and Fiscal Reform Project, October 8, 2004.

"Measuring the Monetary Transmission Mechanism in Transition Economies," *EU Enlargement, What Comes after 2004? Book of Abstracts,* EACES 8th Bi-Annual Conference, Belgrade, September 23-25, 2004.

"A Structural Econometric Model of the Armenian Economy: Version 2," Macroeconomic and Fiscal Analysis Team, Bearing Point, USAID Tax and Fiscal Reform Project, August 20, 2004.

"Global Economic Update," *Business Perspectives*, Winter 2000/2001, 13,2:18-20.

"The Global Economy: Out Like a Lion, In Like a Lion," *Business Perspectives*, Winter 1999/2000, 12,2: 20-23.

"Real Exchange Rate Misalignment: Recovery and Growth in Transition Economies," with William Teng, in Proceedings of the conference *Banking Reform in South East European Transitional Economies*, Zeljko Sevic, Ed., (Greenwich, U.K.: University of Greenwich, Balkan Center for Public Policy Studies and Humanities Research Center, Sofia, 1999).

"The Development of Banking Systems in Central Europe: Lessons to be Learned," in Proceedings of the conference *Banking Reform in South East European Transitional Economies,* Zeljko Sevic, Ed., (Greenwich, U.K.: University of Greenwich, Balkan Center for Public Policy Studies and Humanities Research Center, Sofia, 1999).

"The World Economic Outlook," *The University of Memphis Update*, January 27, 1999.

"Privatizing MLG&W: Choice is not so Easy," *The Commercial Appeal*, p. B3, January 4, 1998.

"The Role of the Parliament and Central Bank in Monetary Policy" in *Experience, Forms, and Methods of Parliamentarian's Activities*, Congressional Research Service, Library of Congress, (Washington, D.C.: USGPO, Fall 1994).

Reform of the System of Money Banking and Credit in Central Europe (Kiev, Ukraine: Harvard University Project on Economic Reform in Ukraine, 1994). In Ukrainian.

"The Reform of the Financial System in Central Europe: Money, Banking and Credit," *Conference Economies in Transition*, (Washington, D.C.: ORD 1993)

"Market Opportunities in Eastern Europe," *Proceedings of the 5th International Symposium on Pacific Asian Business* (Honolulu: Pacific Asian Management Institute, 1992.)

"The Houston Report: The Failure of Perestroika," *International Economic Insights*, 2,1:9-12 (1991).

"Prospectors Should Stake Their Claims," *International Business*, June 1990.

"Economic Transition in Poland," *International Economic Insights*, 1,3:36-39 (1990).

"Poland: Review of the Private Small and Medium Scale Enterprise Sector," International Bank for Reconstruction and Development, Report No. 8991-POL, September 5, 1990. Multiple authors.

Managing the Transition: Integrating the Reforming Socialist Economies into the World Economy, Report of the Working Group on International Economic Change, Re-structuring and East-West Security, (New York: IEWS, 1989). (Reprinted in Japanese in *Seiron*, February, 1990, pp. 160-174).

"Changes in Technical Efficiency and the Economic Slowdown in Eastern Europe and the Soviet Union" Final Report to the National Council for Soviet and East European Research, December 1988. With Robert Whitesell.

"Residential Neighborhoods: The Neglected Dimension of Local Wealth and Development," *Business and Economic Report*, 17, 3:9-12 (1987).

"Productivity and Efficiency: A Review and Application of the Frontier Production Function to Polish Industry: 1971-1980." Discussion Paper No. 9, Seminar on CMEA Forecasting, Faculty of Economic Sciences, University of Warsaw. May 1983.

"A Preliminary Specification of an Econometric Model of Poland." SRI-International, Center for Economic Policy Research and Wharton Econometric Forecasting Associates, Inc., Washington, D.C., September 1979.

Reviews and Other Publications:

Review of *Financial Structure and Economic Growth: A Cross Country Comparison of Banks, Markets, and Development*, Edited by Asli Demirguc-Kunt and Ross Levine, *Comparative Economic Studies*, 47, 710-712 (Dec 2005).

Review of Financial Liberalization, How far, How fast?, Gerard Caprio, Patrick Honohan and Josef Stiglitz, Editors, *Journal of Comparative Economics*, 32,2: 364-366 (2004).

Review of "The Mixed Blessing of Financial Inflows: Transition Countries in Comparative Perspective," Janos Jacs, Robert Holzman, and Michael Wyzan, Editors, *Journal of Comparative Economics,* 28,4: 845-848 (2000).

Review of Systemic Changes and Stabilization in Eastern Europe, Laszlo Csaba, editor. *The Slavic Review*, 51, 4: 861-862 (1992).

Review of Gorbachev's Struggle for Economic Reform: The Soviet Reform Process, 1985‐1988, by Anders Aslund. *The Russian Review,* 50, 2:230‐232 (1991).

Review of *East-West Agricultural Trade*, James R. Jones, editor. *Soviet Union/Union Sovietique*, 14, 1:138 (1987).

Review of Exchange Rate Theory and Practice, John F. O. Bilson and Richard C. Marston, editors. *Southern Economic Journal*, 53, 2:541‐543 (1986).

Review of *Economic Relations with the USSR*, Abraham S. Becker, editor. *Soviet Union/Union Sovietique*, 12, 2:239-240 (1985).

Review of *Industrial Innovation in the Soviet Union*, R. Amann and J. Cooper, editors. *The Wall Street Review of Books* 12, 1:53-56 (1984).

Review of The Socialist Corporation and Technocratic Power: The Polish United Workers' Party, Industrial Organization and Workforce Control: 1958‐1980 by Jean Woodall. *Southern Economic Journal* 51, 1:292‐293 (1984).

Review of Alcohol in the USSR: A Statistical Study, by Vladimir G. Treml. *Southern Economic Journal* 50, 3:923924 (1984).

Review of Diplomacy of Power: Soviet Armed Forces as a Political Instrument, by Stephen Kaplan. *Southern Economic Journal*, 49, 3:891‐892 (1983).

Review of The Impact of International Economic Disturbances on the Soviet Union and Eastern Europe: Transmission and Response, Egon Neuberger and Laura D'Andrea Tyson, editors. *Southern Economic Journal*, 48, 3:824‐826 (1982).

Review of The Disequilibrium Model in a Controlled Economy, by David Howard. *Southern Economic Journal* 47,2: 553‐555 (1980).

Working papers, papers in progress or under review:

"Russian Financial Transition: The Development of Institutions and Markets for Growth," William Davidson Institute, University of Michigan, Working Paper No. 455 (October 2001), pp. 1-36.

"Real Exchange Rate Misalignment in Poland and Russia: Macroeconomic Fundamentals and Currency Crises" William Davidson Institute, University of Michigan Working Paper No.97 (October 2005), pp 1-54. With Saktinil Roy.

"Using Extraneous Information to Analyze Monetary Policy in Transition Economies" St. Louis Federal Reserve Bank, Working Paper # 2004-034B, Revised August 2006. With William T. Gavin.

"Estimating the Yuan Real Exchange Rate and Exchange Rate Misalignment: 1986-2006."

With Jeff Chen and Wende Deng. William Davidson Institute, University of Michigan, Working Paper No. 934 August 2008.

"Understanding Reserve Bank of Australia Monetary Policy with Real-Time Data and Forward-Looking Taylor Rules," with Gennady Lyakir. Presented at the 78th annual meetings of the Southern Economics Association, Washington, D.C. November 21-23, 2008. Being revised for submission.

"Foreign Direct Investment and Domestic Firm Globalization in an Emerging Economy: Evidence from Indian IT Firms." With Deepraj Mukherjee. Paper presented at the annual meeting of the Midwest Economics Association, March 20-22, 2009. Cleveland Ohio. Being revised for submission.

"The National Funds of Kazakhstan: 'The Future Ain't What it Used to Be'" US State Department Title VIII Grant Report.

"Sovereign Wealth Fund Issues and The National Fund(s) of Kazakhstan" (August 12, 2012). William Davidson Institute Working Paper No. 1036. Available at SSRN: https://ssrn.com/abstract=2188391 or http://dx.doi.org/10.2139/ssrn.2188391

Honors, Awards, Grants

IREX STG Fellowship for "Understanding the Role of Samruk Kazyna in the Economic Development of Kazakhstan: Transparency, Governance and Performance," U.S. State Department Title VIII Grant, 2013

"The National Fund of the Republic of Kazakhstan: Is the Future Now?" U.S. State Department Title VIII Research Grant, 2010-2011.

Memphis Business Index: Monthly Survey. Funded jointly by The Commercial Appeal, the Memphis Branch of the St. Louis Federal Reserve, the Memphis Chamber of Commerce and the University of Memphis, 2005-2010.

Memphis 2005: The Economic Development Strategy, Progress Reporting with Bureau of Business and Economic Research, University of Memphis, 1996-2000.

NAFSA Baltic/East Central European Assistance Awards Program. (Student scholarships August 1994-July 1996).

United States Information Agency: "Assistance to Comenius University in the Development of Business and Management Education," February 1, 1993 to September 30, 1993.

International Research and Exchanges Board: "Effectiveness of Monetary Policy in Central Europe," 1992-1993.

Mitsui International Exchange Program for Distinguished Fellows, Mitsui Research Institute Co., Ltd. Tokyo, 1991.

Pew Charitable Trusts, Economics Scholar-in-Residence, IEWS, 1989-1991.

National Council for Soviet and East European Research, "Changes in Technical Efficiency and the Economic Slowdown in Eastern Europe and the Soviet Union," 1987-1988.

International Research and Exchanges Board, "New Dimensions of the Polish Economy," 1987.

W. Frank Barton School of Business Research Award, Outstanding Article in a Referred Journal, 1987.

WSU Research Committee, "Productivity and Efficiency growth in Eastern Europe," 1986-1987.

American Council of Learned Societies/Social Science Research Council, "Macroeconomic

Disequilibrium in Centrally Planned Economics," 1985-1986.
International Research and Exchanges Board, "Macroeconomic Disequilibrium in Centrally Planned Economies," 1985-1986.
UNC-G Research Council Grant, "Macroeconomic Stabilization in Centrally Planned Economies," 1984-1985.
American Council of Learned Societies/Social Science Research Council, "Industrial Production and Resource Allocation in Poland: Alternatives for Economic Recovery," May-July, 1983.
Fulbright Lectureship, Central School of Planning and Statistics, Warsaw, Poland, 1981-1982.
UNC-G Research Council Grant, "Econometric Modeling of a Centrally Planned Economy: Poland," 1981-1982.
UNC-G Excellence Foundation Faculty Summer Fellowship, 1981.
UNC-G Research Council Grant, "The Import of Technology and Industrial Reorganization in Poland," 1979-1980.
National Defense Foreign Language Fellowship (Russian), 1974-1979.

Professional Activities

Program Presentations: P-Paper, D-Discussant, C-Chair
Southern Economic Association: 1980 (P,D), 1983 (P,D), 2005 (P), 2006(P), 2007(P), 2008 (P,D).
American Association for the Advancement of Slavic Studies: 1983 (P,D), 1984 (D,C), 1985 (P,D), 1986 (D), 1987 (P),1988 (P,C), 1989 (P), 1991 (P), 1992 (P), 1997(D),1998(C,D), 1999 (P), 2000(P).
Midwest Slavic Association: 1984 (P).
International Studies Association: 1985 (C), 1987 (C), 1989 (C).
Central Slavic Association: 1987 (C).
Allied Social Sciences Meetings: 1990 (D), 1992 (P), 1993 (P), 1994 (P), 1995 (D), 1999(P), 2000 (P), 2002 (D), 2005(D), 2006(D), 2007(D).
Southwest Academy of International Business: 1993 (C), 1994 (C).
The Advanced Management Institute, I.E.E.: 1994 (P).
Missouri Valley Economics Association: 1995 (P), 1996 (P,D), 1999 (P).
International Atlantic Economic Association: 1999 (C, P), 2008 (P)
European Econometric Society: 1999 (P).
European Association for Comparative Economic Studies: 2000 (D), 2002 (P), 2004 (P), 2006(P,D), 2008 (P,D)
Western Economics Association and Hong Kong Economics Association 2005 (P).

Conference Participation: I-Invited Participant, P-Paper, D-Discussant, C-Chair, O-Organizer
"The State of the Economy," United Capital Private Wealth Counseling, Memphis, TN September 19, 2013.

"Dynamic Stochastic General Equilibrium Modeling," workshop at the Center for Research and Development, Central Bank of Azerbaijan, July 19-August 13, 2013, Baku, Azerbaijan.

"New Keynesian Synthesis," workshop at the Center for Research and Development, Central Bank of Azerbaijan, April 7-23, 2013. Baku, Azerbaijan.

"Estimating Exchange Market Pressure and Monetary Policy of Singapore," 83rd Annual meeting of the Southern Economic Association, November 24, 2013, Tampa, FL. (Co-authored with Amlan Datta and Sumant Rai, presented by Amlan Datta).

"The Euro-Area Debt Crisis, Current Account Imbalances and economic Growth," Disscusant, ASSA Meetings, San Diego, CA, January, 2013.

"The National Fund(s) of Kazakhstan: 'The Future Ain't What it Used to Be'," Presented at the ASSA Meetings, San Francisco, CA, January, 2012.

Invited participant, "A Conversation with Memphis TN Business Leaders,' White House Business Council, The White House, Washington, D.C. February 3, 2012.

"US Economic Outlook, from Crisis to Recovery," 49th Annual Meeting, Missouri Valley Economic Association, October, 2012, Memphis, TN.

"The National Fund of the Republic of Kazakhstan: Is the Future Now?" National Council for Eurasian and East European Research, Title VIII, U.S. Department of State Research Conference, University of Delaware. June 1-2, 2011.

"Emerging Europe: Outperforming Periphery and Core," for Global Interdependence Center, National Bank of Poland, Krakow, Poland, May, 2012

"The National Fund(s) of Kazakhstan as a Source of Investment Funds," Presentation at the Sixth Annual Colloquium: "The Energy Silk Road: TAPI, BTC, Turkmen-China Pipelines," The Harriman Institute, Columbia University, April 17, 2012. "The US Financial Crisis: Recession, Recovery and Reform Adapting to the New Normal," 2nd International Scientific Conference, Faculty of Economics University of Vlora, June 17-18, 2011.

"Foreign Direct Investment and Export Investment in Emerging Economies: Evidence from Indian IT Firms," Euro Conference 2011, Izmir, Turkey, June, 2011. With Deepraj Mukherjee and Alex Nikolsko-Rzhevskyy.

"NAIRU as a Monetary Policy Guide in Transition Economies: An Application to Kazakhstan," with Saida Agambayeva. Presented at the International Atlantic Economic Conference, Warsaw, Poland, April 9-13, 2008.

"When are Traditional Guides for Monetary Policy Useful in Transition Economies? NAIRU in Kazakhstan," With Saida Agambayeva. Presented at the 10th Biennial Meetings of the European Association of Comparative Economics, Moscow Russia, August 28-30, 2008.

"Yuan Real Exchange Rate Undervaluation, 1997-2006: How Much, How Often? Not Much, Not Often" With Jeff Chen, Wende Deng. Invited Plenary Session presentation at the 35th Annual International MacroModels Conference, Gdansk, Poland, December 2008.

"Implementing Inflation Targeting in Kazakhstan." With Warren Coats. Paper presented to the Ministry of Economics and Budget Planning, Government of Kazakhstan. Astana, Kazakhstan. March, 2009. In English and Russian.

" Macroeconometric Modeling to Support Inflation Targeting," Intergovernmental Roundtable hosted by the National Bank of the Republic of Kazakhstan, Astana, Kazakhstan,

September 10, 2007. (O,I,P)

Conference on Risk, Regulation and Competition: Banking in Transition Economics, Ghent University, Ghent, Belgium, September 1-2, 2006. (I,D)

"Inflation Targeting in Armenia: Monetary Policy in Transition" with King Banaian and Grigor Sargsyan. Presented at the European Association for Comparative Economic Studies, 9th Bi-Annual Conference, Brighton, England, September 7-9, 2006. (P)

"The Editorial Process for Comparative Economic Studies," session of Journal Editors at the European Association of Comparative Economics, September 2006 Bristol UK. (I,P)

"Inflation Targeting in the Armenian Context," Armenian International Policy Research Group Conference, "Armenia: Monetary and Financial Sector Policies and Challenges," The World Bank, April 21, 2006, Washington, D.C. (I,P)

"Using Extraneous Information to Analyze Monetary Policy in Transition Economies," with Bill Gavin, Presented at Western Economics Association – Hong Kong Economics Association, Pacific Rim Conference, January 14-16, 2005.(P)

"Inflation Targeting Prerequisites Training Options for the NBRK," Regional USAID – BearingPoint Conference on Central Asia, Almaty, Kazakhstan, December 2005. (I)

"Measuring the Monetary Transmission Mechanism in Transition Economies," with William Gavin presented at the Conference on "EU Enlargement, What Comes after 2004?" European Association for Comparative Economics, 8th Bi-Annual Conference, Belgrade September, 23-25, 2004 (P)

"A Structural Econometric Model of the Armenian Economy: Version 2," Macroeconomic and Fiscal Analysis Team, Bearing Point, USAID Tax and Fiscal Reform Project, August 20, 2004. Presented at workshop for the Ministry of Finance and Central Bank of Armenia, Yerevan, Armenia. (I,P)

"Modeling CPI Inflation in Armenia," Macroeconomic and Fiscal Analysis Team, Bearing Point, USAID Tax and Fiscal Reform Project, October 8, 2004. Presented at workshop for the Ministry of Finance and Central Bank of Armenia, Yerevan, Armenia. (I,P)

Conference on "EU Integration and Prospects for Catch-up Developments in Central and East European Countries- The Determinants of the Productivity Gap," Warsaw, Poland, 2002. (I,D).

"Measuring Real Exchange Rate Misalignment in Transition Economies," Economics Workshop, Middle Europe Department, Economic Research Institute-Halle, Halle, Germany, November 2001. (I,P)

"Russian Financial Transition: The Development of Institutions and Markets for Growth," Economics Workshop, Middle Europe Department, Economic Research Institute- Halle, Halle, Germany, November 2001. (I,P)

Conference on Banking Reform in South East European Transitional Economies, Sofia, Bulgaria, June 23-26, 1999 (I, P).

Workshop on "Understanding the Development, Risks and Vulnerabilities of Capital Markets in Transition Economies," United States Department of the State, Meridian International Center, June 16, 1999 (I, P).

Follow-up workshop on Risks, Vulnerabilities and Reform Prospects for Banking and Financial Sectors in Selected Transition Economies, sponsored by the United States Department of State, Meridian International Center, Washington, D.C., August 26, 1998 (I).

"Financial, Business and Reform Prospects in Post-Communist Transition Economies," United States Department of State, Meridian International Center, June 1998 (I,D).

"Best Practice Strategies for Economic Development, A Regional Economic Development Symposium," Memphis, TN May 22, 1998 (O,C). With Memphis Branch of the Federal Reserve Bank of St. Louis and the Memphis Area Chamber of Commerce.

Economic Commission for Europe Spring Seminar on "Enterprise and Bank Restructuring in the Transition Economies," Geneva, Switzerland, April 1998. (D,I)

The Ethics of Electronic Information in the 21st Century, A Scholarly Symposium at the University of Memphis, September 24-27, 1998 (O,P).

US-Polish Economics Roundtable, "Pension and Insurance Reform in Poland: Rebuilding the Social Safety Net," Polanica, Poland. October 5-7, 1997 (O,P,C).

National Bank of Hungary, Budapest, Hungary, May 1997. Presented "Causal Linkages among Monetary Variables in Transition Economies: Hungary and Poland." (P,I).

Central East European Economic Research Center, University of Warsaw, Warsaw, Poland, May 1997. Presented "Causal Linkages among Monetary Variables in Transition Economies: Hungary and Poland." (P,I).

International Conference on "The System Transformation of the Transition Economies: Europe, Asia and North Korea," Institute for Korean Unification Studies, Yonsei University, Seoul, Korea, September 14, 1996. (P,I)

"International Economic Activity and Memphis 2005," Memphis World Trade Club, May 21, 1996 (I).

6th Annual "Administrative Strategies for Internationalizing the Business School" seminar in conjunction with AACSB Spring meeting, Los Angeles, April 18-21, 1996.

Social Sciences Seminar at East Carolina University, March 21, 1996. Presented "Economic Transition in Eastern Europe and the C.I.S." (P,I).

I.T.E.S.M. in Monterrey, Mexico, March 15, 1996. Lecture on "Economic Transition in Eastern Europe and the C.I.S." (P,I).

Conference on "Emerging Securities Markets," University of Washington, Seattle, November 28, 1995. (P,I)

Parliamentary Conference on "Experience, Forms and Methods of Parliamentarian's Activities," Supreme Rada, Kiev, Ukraine, June 15-17, 1994. (P,I)

International Conference on "Bad Enterprise Debts in Central and Eastern Europe" Budapest, Hungary, June 6-8, 1994. (I)

Conference on Economic Reform in Eastern Europe, Arlington, VA, Fall 1993.

International Conference on "Development and Reform of the Financial System in Central and Eastern Europe," Vienna, Austria, October 28-31, 1993. (P,I)

US-Polish Economics Roundtable, "Economic Recovery, Trade Record and Social Costs," Charleston, SC September 17-19, 1993.

Conference on "The Post-Communist Transitions: Mid-Course Corrections," University of Maryland and Carnegie Endowment for International Peace, Washington, D.C., April 27-May 1, 1993. (P,I)

US-Polish Economics Roundtable, "Structural Adjustment and Trade Performance," Warsaw and Kazimierz Dolny, Poland, June 5-7, 1992. (P,I)

IEWS International Conference on "Privatization and Management of Large Enterprises in

East Central Europe," Stirzin, CSFR, March 13-15, 1992. (P,I).

5th Annual International Symposium on Pacific Asian Business, Honolulu, Hawaii, January 5-8, 1992. (P,I).

The Jerome Levy Institute of Bard College Conference on "Moving to a Market Economy: Policies for Economic Reform in Eastern Europe and the Soviet Union." Annandale-On-Hudson, New York. October 25-26, 1991. (P).

IEWS International Conference on "Western Assistance to East-Central Europe." Bardejov, Slovakia, CSFR, June 6-9, 1991 (O,I,P).

IEWS International Conference on "Money, Banking and Credit in Eastern Europe and the Soviet Union." Tokyo, Japan, May 15-18, 1991 (O,C).

IEWS International Conference on "Intraregional Trade and the Collapse of the CMEA." Stirin, Czechoslovakia, November, 1990 (O,I,D).

IEWS International Conference on "The Challenges and Opportunities for Building a More Secure Europe in the 1990s." Stockholm, Sweden, June 7-9, 1990. (O,I,P).

NATO Colloquium on "The Political and Legal Framework of Trade and Economic Relations Between the European Community and Eastern Europe." Brussels, Belgium, April 4-6, 1990 (I).

IEWS International Conference on "International Economic Change and Restructuring." Athens, Greece, March 31-April 2, 1990. (O,I).

IEWS International Conference on "The Future Political Architecture of Europe." New York, NY, March 19-20, 1990. (I).

New York University, Center for International Relations: Panel discussion on "Soviet Integration in the World Economy," November 29, 1989. (P).

IEWS International Conference on "Seeking Security in the 1990s: The Common Responsibility of West and East." Frankfurt, FRG, October 19-21, 1989. (O and Principal Author of Conference Report).

Hungarian Institute of International Affairs (Budapest) and Instituto Affari Internazionale (Rome)International Seminar on "The Emerging European Cooperation." Budapest, Hungary, June 26-27, 1989. (I).

IEWS International Conference on "International Economic Change, Restructuring and Security." Moscow, USSR, March 31-April 3, 1989. (O,I).

International Conference on "Modeling of Disequilibrium and Shortage in Centrally Planned Economies," Centre for Russian and East European Studies, University of Birmingham, Birmingham, UK, April 6-8, 1987. (I,P).

Conference on "Detecting Turning Points in Centrally Planned Economies," Airlie House, Airlie, VA., November 1986 (I.P).

Conference on "The Polish Economy and Debt: In Search of Solutions," at the Wilson Center of the Smithsonian Institution, Washington, D.C., October 21-22, 1985 (I,P).

The 12th Annual Conference "Macromodels 1985: Problems of Building and Estimation of Large Econometric Models" sponsored by the Institute of Econometrics and Statistics, University of Lodz and Committee of Statistics and Econometrics, Polish Academy of Sciences, December 1985. (I).

Conference on "Quantitative Analysis of East European Economies," Airlie House, Airlie, VA, March 1985. (I,P).

Conference on "The Soviet Union and Eastern Europe in the World Economy," at the Kennan Institute for Advanced Russian Studies, The Smithsonian Institution, October 1984. (I,D).

The 8th Annual Conference "Macromodels 1981: Problems of Building and Estimation of Large Econometric Models," Institute of Econometrics and Statistics, University of Lodz, Lodz, Poland, December 1981. (I).

International Conference on "Economic Development Processes in the Contemporary Socialist Economy," Main School of Planning and Statistics, Warsaw, Poland, October 1981. (I).

"The Challenge of the 1980's - Regional Perspectives," 20th International Affairs Symposium, School of International Studies, June 1981. (I,D).

Conference on "East European Economic Statistics: Trends and Prospects," Congressional Research Service, Library of Congress, Washington, D.C., March 1981. (I).

Ford Foundation Workshop of the Hungarian Economy. Indiana University, October 1979. (I).

Ford Foundation Workshop on East-West Industrial Cooperation. Indiana University, August 1978. (I,P).

Ph.D. Dissertations Supervised

Charoenwong, Chanika, "The Development of Causal Linkages between Monetary Instruments and Monetary Targets in Central Europe: The Case of Poland and Hungary." University of Memphis, December 1996.

Teague, Thomas T., "A Paradigm of Hungarian Exchange Rates During the Transition to a Market Economy." May 1998.

Teng, Wenyuan, "The Determination of Foreign Exchange Rates in Transition Economies and Implications for Growth: The Case of Poland and the People's Republic of China." University of Memphis. December 1998.

Chen, Yung-Cheng. "A Comparison of Short Run Foreign Exchange Rate Forecasting with Smooth Transition Autoregressive versus Exponential Generalized Autoregressive Conditional Heteroscedastic in Mean Models." University of Memphis. 2000.

Roy, Saktinil, "Determining Real Exchange Rate Misalignments and Predicting Exchange Rate Crises in Eastern Europe: Statistical and Artificial Intelligence Methods." University of Memphis. August 2004.

Chen, Gi-kuang, "Two Essays in International Economics." University of Memphis. October 2006.

Vanina Farber, "Inflation and Interest Rate Adjustment Mechanisms to Internal Imbalances and External Shocks Under Argentina's Convertibility Plan (1991-2002)," University of Memphis, December 2007.

Lyakir, Gennady, "Essays on Monetary Policy in Small Open Economies," University of Memphis, May 2008.

Arvik, Dennis, "Essays in Exchange Rate Economics," University of Memphis, August, 2009.

Mukherjee, Deepraj, "Three Essays in International Economics," University of Memphis, August 2010.

Walker, Jay Kody, "Essays in Applied Microeconomics" University of Memphis, May, 2012.

Datta, Amlan, "Essays in International Economics," May 2015.

Koleyni, Kayhan, "Two Essays on Financial Crises," December 2016.

University Teaching
General/MBA courses:
Principles of Economics, Micro and Macro (undergraduate)
Money, Banking and Economic Activity (undergraduate)
Economics for the Global Executive (MBA)
Business Applications of Economic Theory (graduate)
Quantitative methods, statistics and econometrics:
Business and Economic Statistics (undergraduate)
Quantitative Analysis I (undergraduate, MBA)
Quantitative Analysis II (advanced undergraduate, graduate)
Econometrics I, basic econometric methods (graduate)
Econometrics III, time series econometrics (graduate)
International economics:
Comparative Economic Systems (advanced undergraduate, graduate) International Economics and Business (advanced undergraduate, graduate, MBA)
Essentials of Economics for International Business (MBA)
International Trade Theory and Policy (graduate)
Theory of International Trade (graduate)
Problems in East-West Trade (graduate seminar)
Seminar in International Trade and Finance (graduate, MBA seminar)

University Service

The University of Memphis:

Economics Department Graduate Programs Committee, 1997-present, Chair 2001-2007.
University Campus International Advisory Organization, 1997-1998.
Fogelman College Structure Implementation Committee, 1997.
Ex-Officio member of all Economics Department Committees, 1997.
Fogelman College Administrative Council (Deans/Chairs), 1997.
University Asian Studies Development Group, 1997.
Chairperson, Fogelman College Structure Review Committee, 1997.
Economics Department ad hoc committee on graduate curriculum, 1996.
Fogelman College of Business and Economics International Business Programs Committee, 1996-1998.
Fogelman College of Business and Economics, Ad Hoc Committee on Roles and Rewards, 1996-1998.
Fogelman College of Business and Economics, MBA Curriculum Review Committee, 1996-1998.
Fogelman College of Business and Economics, Search Committee Sparks Family Chair of Excellence in International Business, 1996-1998.
Chairperson, Fogelman College of Business and Economics, Structure Review Committee, 1996.
University Graduate Council, 1996-1998.

Fogelman College of Business and Economics, International MBA Curriculum Review Sub-Committee, 1995-1996.
University Home Page Policy Committee, 1995-1996.
Fogelman College of Business and Economics, Graduate Council, 1995-1997, 2002-2007. Chair, PhD Sub-council, 2002-2003.
Fogelman College of Business and Economics, Search Committee, Sales and Marketing Executives Chair of Excellence in Marketing, 1995-1996.
Economics Department, Graduate Curriculum Committee, 1995-1999.
Director, University International MBA Council, 1994-1997.
Economics Department, Committee on Ranking Journals, 1999-2000.
Committee on Evaluating Department Chair, 1999-2000.
Chairperson, Economics Department Graduate Programs Committee, 2000-2007.
Chairperson, Economics Department Faculty Search Committee, 2000.
Chair, Dept. of Economics, Assistant Professor Search Committee, 2000-2001.
University Director of International Programs Search Committee, 2001/2002.
Fogelman College, Intellectual Contributions Committee, 2001-2002.
Chairperson, Economics Department, Vision and Planning Committee, 2001-2002.
University Director of International Programs Search Committee, 2001-2002.
Ph.D. Coordinator, Department of Economics, 2001-2007.
Chair, Fogelman College, College Rankings Committee-U.S. News World Reports, 2002-2003.
University Graduate Council, 2001-2003.
Search Committee Director of International Studies, College of Arts & Sciences, Spring 2003.
Cecil H. Humphries Professorship Reappointment Committee. Cecil C. Humphries School of Law, Fall 2002.
Cecil H. Humphries Professorship Reappointment Committee, Cecil C. Humphries School of Law, Fall 2003.
Chair, Department of Economics Assistant Professor Search Committee, 2003-2004.
Fogelman College, Promotion and Tenure Committee, 2003-2007.
Member, Economics Department Assistant Professor Search Committee, 2005-2006.
Co-Chair, University of Memphis Task Force on International Education, 2005- 2007.
Fogelman College, Task Force on Undergraduate Curriculum, 2008-2010.
Fogelman College, Assessment Oversight Committee, 2007-present.
Economics Department Assistant Professor Search Committee, 2009-2010.

Wichita State University:
University Research Council, 1993-1994.
Professional Sports Counseling Panel, Chairperson, 1993-1994.
Program Review Academic Advisory Committee to the Provost, 1991-1992.
Chairperson, Program Review Committee, W. Frank Barton School of Business, 1991-1992.
Graduate Council, 1991-1993.
Search Committee, Vice-President for Research, 1991.
Department of Management Promotion Committee, 1991.
Chairperson, University Task Force on International Education, 1988-1989.
Graduate Coordinator, Department of Economics, 1987-1989.

Graduate Programs Committee, 1987-1989.
Executive MBA Committee, W. Frank Barton School of Business, 1987.
Executive Committee, Department of Economics, 1986-1989.
Distinguished Scholarship Competition, 1986-1987.

UNC-Greensboro:
Fellowships and Special Studies Awards Committee, 1984-1986.
Chairperson, 1985-1986.
Committee on Curricula, 1985-1986.
International Studies Committee, 1983-1986.
Russian Studies Committee, 1979-1986.
Ad Hoc Committee on International Studies, 1984-1985.
Fulbright Screening Committee, 1983-1984.
Washington Center Screening Committee, 1980-1984.
SBE Accreditation Self-Study Committee, 1980.

Vasile Rus, PhD

William Dunavant Professor
Director of the Data Science Initiative at The University of Memphis
Systems Testing Research Fellow of The Fedex Institute of Technology
Department of Computer Science
Institute for Intelligent Systems
The University of Memphis

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Research Interests

Broad Interests: Artificial Intelligence, Data Science, STEM-C Education
Specific Interests: Intelligent Interactive Systems, Natural Language Processing, Information Extraction and Retrieval, Unsupervised and Supervised Machine Learning for Semantic and Dialogue and User Models
Applications: Dialogue-based Intelligent Tutoring Systems, Companion Bots for Healthcare

Education

PhD in Computer Science, May 2002
Southern Methodist University, Dallas, TX
Dissertation: *Logic Form and Its Application to Question Answering*

M.Sc in Computer Science, May 1999
Southern Methodist University, Dallas, TX
Master Thesis: *Implementation of a Marker-propagation Inference Algorithm in Java*

B.Sc. in Computer Science, June 1997
Technical University of Cluj-Napoca, Romania
INPG, Grenoble, France
Thesis: *File System Spy for ADELE Objectual Configuration Manager*
Advisor : Jacky Estublier/Tudor Muresan

Professional Membership

Member IEEE, IEEE Computer Society, AAAI, ACL

Experience

William Dunavant Professor 2016-present
The University of Memphis

Professor 2015-2016
Department of Computer Science
The University of Memphis

Associate Professor 2010-2015
Department of Computer Science
The University of Memphis

Assistant Professor 2004-2010
Department of Computer Science
The University of Memphis

Assistant Professor 2003-2004
Department of Computer and Information Sciences
Indiana University

Research/Teaching Assistant/Associate 1998 – 2002
Dept. of Computer Science and Engineering
Southern Methodist University, Dallas, TX

Research/Teaching Assistant 1997
Dept. of Computer Science and Engineering
Technical University of Cluj-Napoca, Romania

Outstanding Visitor Student 01/97 – 06/97
LSR/Dassault Systemes, Grenoble, France

- developed a file system monitor for Windows NT File System (OOD &C++ implementation) as part of ADELE objectual configuration manager

Scholarships, Awards, Grants

Current Externally Funded Projects

- CSEdPad: Investigating and Scaffolding Students' Mental Models during Computer Programming Tasks to Improve Learning, Engagement, and Retention, funded – National Science Foundation, PI, [$749,635.00], 2018-2021
- DRK-12: Developing and Testing the Internship-inator, a Virtual Internship in STEM Authorware System, **funded –** National Science Foundation, co-PI, [$999,982 UofM share out of $2,999,719.00], 2014-2018
- ARL: Generalized Intelligent Framework for Tutors (GIFT), **funded -** Army Research Lab, co-PI, [$1,289,545], 2013-2018

Previously Funded Projects

- Learning from Tutor.com Database, **funded –** Department of Defense, PI, [$557,656.00], 2014-2015
- DeepTutor: An intelligent tutoring system based on deep language and discourse processing and advanced tutoring strategies, **funded**, IES, **PI**, [$1,650,272.00], 2010-2014
- ONR: Shareable Knowledge Objects (SKO) as Enhanced, Portable ITS Modules, **funded**, **Co-PI**, ONR, [$1,477,402], 2012-2014
- Contextual Research – Empirical Research -Detecting, Tracking, and Modeling Cognitive, Affective, and Meta-cognitive Regulatory Processes to Optimize Learning with MetaTutor, **funded**, NSF, **co-PI**, [$1,496,507.00], 2010-2013
- High-end computing equipment to support research in software testing, blogosphere mining, and question generation, **funded**, Sun Microsystems, [$25,395.00], PI, 2009-2010
- The 2nd Workshop on Question Generation, **funded**, NSF, [$16,000.00], **PI**, 2009-2011
- Workshop on the Question Generation Shared Task and Evaluation Challenge, **funded**, NSF, [$25,345.00], **PI**, 2008-2009
- Machine Learning Experiences in Artificial Intelligence, **funded**, NSF, [$249,970.00], Faculty Associate, 2007-2009

Internal

- Defect Report Analysis Across Projects, **funded**, University of Memphis – STEP Program, [$6,000.00], **PI**, 2009-2010
- Advanced Defect Analysis Methods, **funded**, Fedex Institute of Technology – Systems Testing Excellence Program, [$10,000.00], **PI**, 2007-2008
- Systems Testing Expert System, **funded**, Fedex Institute of Technology – Systems Testing Excellence Program, [$10,000.00], **PI**, 2006-2007
- Effectiveness of Pedagogical Agents in Regulating Students Understanding of Science, NSF, **funded**, [$904,581.00], **co-PI**, 2006-2009
- Starting-Up a BioNLP Research Program, **funded**, The University of Memphis Faculty Research Grant, [$5,500.00], **PI**, 2006-2007
- Indiana University Summer Research Grant ($8,000.00), **funded**, **PI**, 2004-2005

Other Research Awards

- **William Dunavant Professorship**
- **WINNER** (with my lab team) of the Semantic Textual Similarity competition at SemEval 2016, the premier forum for automated semantic evaluation
- **WINNER** (with my lab team) of the Semantic Textual Similarity competition at SemEval 2015, the premier forum for automated semantic evaluation
- Systems Testing **Research Fellow** of The Fedex Institute of Technology
- **BEST PAPER AWARD** at *The 2nd International Conference on Smart Learning Environments (ICSLE 2012)*, September 23-25, Sinaia, Romania
- **BEST PAPER AWARD** at The 13th International Conference on Computational Linguistics (Cicling 2012), March 11-17, IIT Delhi, India
- **BEST PAPER AWARD** – Honorary Mention at *The 22nd Midwest Artificial Intelligence and Cognitive Science*
- **BEST PAPER AWARD** at IEEE's Symposium Series on Computational Intelligence in Cyber Security 2009
- TEMPUS scholarship award for **OUSTANDING** students from **European Union**, 1997
- Member of the **WINNING team** of the **1999 Question Answering track** at Text Retrieval Conference (TREC) organized by National Institute for Standards and Technology (**NIST**)
- Member of the **WINNING team** of the **2000 Question Answering track** at Text Retrieval Conference (TREC) organized by National Institute for Standards and Technology (**NIST**)
- Member of the **WINNING team** of the **2001 Question Answering track** at Text Retrieval Conference (TREC) organized by National Institute for Standards and Technology (**NIST**)
- **OUTSTANDING** student scholarship award from **Romanian government** during undergraduate studies (1992-1997)

Publications

Books

- **Rus, V.** & Graesser, A.C. (Eds.). (2009). The Question Generation Shared Task and Evaluation Challenge. ISBN: 978-0-615-27428-7.
- **Rus, V.** & Lester, J. (Eds.). (2009). *Proceedings of the 2nd Workshop on Question Generation*. July 6, 2009, Brighton, UK.
- Tufis, D., **Rus, V.**, & Forascu, C. (eds.) (2013). Towards Multilingual Europe 2020: A Romanian Perspective, Romanian Academy Publishing House, Bucharest, Romania, February 2013, ISBN 978-973-27-2282-4. 370 pp.
- Forăscu, C., Ioniţă, A., Tufiş, D., Cristea, D., & **Rus, V.** (eds.) (2012). Language Technologies in Romanian and Diaspora Research & Development, September 2012, University Al.I. Cuza Publishing House, Iaşi, Romania. ISBN 978-973-703-813-5. 54 pp.
- Rus, V., and Markov, Z. (2017). Proceedings of the 30th Florida Artificial Intelligence Research Society Conference, Vasile Rus and Zdravko Markov (Editors), 826 pp., references, index, illus., ISBN 978-1-57735-787-2, The AAAI Press, Palo Alto, California.

- Brawner, K., and Rus, V. (2018). Proceedings of the 31st Florida Artificial Intelligence Research Society Conference, Brawner, K. and Rus, V. (Editors), 872 pp., references, index, illus., ISBN 978-1-52735-437-2, The AAAI Press, Palo Alto, California.

Journals and Book Chapters

- Ming, L.. and Rus, V. (under review). Automatic Neural Chinese Question Generation, ACM's Transactions on Learning Technologies
- Graesser, A.C., Hu, X., Nye, B., VanLehn K., Kumar, R., Heffernan, C., Heffernan, N., Woolf, B., Olney, A.M., Rus, V., Andrasik, F., Pavlik, P., Cai, Z., Wetzel, J., Morgan, B., Hampton, A.J., Lippert, A.M., Wang, L., Chen, Q., Vinson IV, J.E., Kelly, C.N., McGlown, C., Majmudar, C.A., Morshed, B., and Baer, W. ElectronixTutor: an intelligent tutoring system with multiple learning resources for electronics. In International Journal of STEM Education: Innovations and Research, January 2017. DOI 10.1186/s40594-017-0072-5.
- Graesser, A.C., Rus, V., Hu, X. (2017). Instruction based on tutoring. In R.E. Mayer and P.A. Alexander (Eds.), Handbook of Research on Learning and Instruction (2nd edition, 2017). New York: Routledge Press.
- Liu, M., Rus, V., & Liu, L. (2018). Automatic Chinese Multiple Choice Question Generation Using Mixed Similarity Strategy, IEEE's Transactions on Learning Technologies.
- **Rus. V.** & Stefanescu, D. (2016). Non-intrusive assessment of learners' prior knowledge in dialogue-based intelligent tutoring systems. Journal of Smart Learning Environments. (2016) 3:2, pp. 1-18. Springer International.
- **Rus, V.**, Maharjan, N., & Banjade, R. (2015). Unsupervised Discovery of Tutorial Dialogue Modes in Human-to-Human Tutorial Data, *Proceedings of the Third Annual GIFT Users Symposium* (Eds. Sottilare, R. and Sinatra, A.M.), Army Research Lab, June 2015, pp. 63-80.
- **Rus, V.**, Conley, M., & Graesser, A. (2014). The DENDROGRAM Model of Instruction: On Instructional Strategies and Their Implementation in DeepTutor, *Design Recommendations for Adaptive Intelligent Tutoring Systems: Adaptive Instructional Strategies* (Volume 2), (Eds. Sottilare, R.), Army Research Lab.
- Ming, L., Calvo, R., & **Rus, V**. (2014). Automatic Generation and Ranking of Questions for Critical Review, Journal of Educational Technology Society Journal, v14 - N 3. pp. 16-27.
- **Rus, V.**, D'Mello, S., Hu, X., & Graesser, A.C. (2013). Recent Advances in Conversational Intelligent Tutoring Systems, *AI Magazine*, 34(3):42-54.
- **Rus, V.**, Baggett, W., Gire, E., Franceschetti, D., Conley, M., Graesser, A.C. (2013). Towards Learner Models based on Learning Progressions in DeepTutor, Learner Models (Eds. Sottilare, R.), Army Research Lab.
- **Rus, V.**, Niraula, N., Lintean, M., & Graesser, A.C. (2013). An Overview of Dialogue and Semantic Processing in Educational Technologies, Chapter in (Eds. Forascu, C., Ionita, A., Tufis, D., Cristea, D. & Rus, V.) Language Technologies in Romanian and Diaspora Research & Development, September 2012, University Al.I. Cuza Publishing House, Iasi, Romania. ISBN 978-973-703-8135.
- **Rus, V.**, Wyse, B., Piwek, P., Lintean, M., Stoyanchev, S., & Moldovan, C. (2012). A Detailed Account of The First Question Generation Shared Task Evaluation Challenge, Special Issue on Question Generation of the Journal of Dialogue and Discourse, 3(2), 177-204.

- Ming, L. Calvo, R., & **Rus, V.** (2012). G-Asks: An Intelligent Automatic Generation System for Academic Writing Support, Special Issue on Question Generation of the Journal of Dialogue and Discourse, 3(2), 101-124.
- Lintean, M., **Rus, V.**, & Azevedo, R. (2011). Automatic Detection of Student Mental Models during Prior Knowledge Activation in MetaTutor, International Journal of Artificial Intelligence in Education, 21(3), 169-190.
- **Rus, V.**, Lintean, M., Cai, Z., Graesser, A.C., Witherspoon, A., & Azevedo, R. (2011). Computational Aspects of The Intelligent Tutoring System MetaTutor, In Applied Natural Language Processing, Phillip McCarthy and Chutima Boonthum-Denecke (Eds.), IGI Global, 2011.
- **Rus, V.**, Lintean, M., Graesser, A.C, & McNamara, D.S. (2011). Text-to-Text Similarity of Sentences, In Applied Natural Language Processing, Phillip McCarthy and Chutima Boonthum-Denecke (Eds.), IGI Global, 2011.
- Graesser, A.C., **Rus, V.**, Cai, Z., & Hu, X. (2011). Question Answering and Generation, In Applied Natural Language Processing, Phillip McCarthy and Chutima Boonthum-Denecke (Eds.), IGI Global, 2011.
- **Rus. V.** (2010). Challenges and Solutions in Intelligent Tutoring Systems with Natural Language Interaction, in Forascu, C. & Tufis, D., Multilinguality and Interoperability in Language Processing, Romanian Academy Press, ISBN: 978-973-27-1972-5.
- Shala, L., **Rus, V.** & Graesser, A. (2010). Automatic Speech Act Classification in Arabic. Subjetividad y Procesos Cognitivos Journal, Vol. 14, No. 2, 2010, pp. 284-292.
- Lintean, M., & **Rus, V.** (2010). Paraphrase Identification Using Weighted Dependencies and Lexical Semantics. *Informatica: The International Journal of Computing*. 34(2010), 19-28.
- **Rus, V.**, McCarthy, P. M., Graesser, A. C., & McNamara, D. S. (2009). Identification of Sentence-to-Sentence Relations Using a Textual Entailer. *The International Journal on Research in Language and Computation*, November 2009.
- **Rus, V.**, Russell, I., & Markov, Z. (2009). MLXeAI: Biomedical Term Classification. *The Journal of Computing Sciences in Colleges , 24* (5), 85-92.
- **Rus, V.** (2009). Where Next in Knowledge Representation?, *Proceedings of the The Knowledge Engineering: Principles and Techniques International Conference*, Cluj, Romania, July 2-4, 2009 [Plenary Talk Chapter].
- Graesser, A. C., **Rus., V.**, D'Mello, S., & Jackson, G. T. (2008). AutoTutor: Learning through natural language dialogue that adapts to the cognitive and affective states of the learner. In D. H. Robinson & G. Schraw (Eds.), *Current perspectives on cognition, learning and instruction: Recent innovations in educational technology that facilitate student learning* (pp. 95–125). Information Age Publishing.
- **Rus**, V., McCarthy, P.M., McNamara, D., & Graesser, A.C. (2008). Natural Language Understanding and Assessment, Chapter in *Encyclopedia of Artificial Intelligence*, ISBN: 978-1-59904-849-9, July, 2008
- **Rus, V.,** McCarthy, P., McNamara, D., & Graesser, A.C. (2008). A Study on Textual Entailment, *International Journal on Artificial Intelligence Tools*, 17(4):659-685-499, August, 2008
- Lintean, M. & **Rus,V.** (2008). Large Scale Experiments with Naïve Bayes and Decision Trees for Function Tagging, *International Journal on Artificial Intelligence Tools*, 17(3):483-499, June, 2008
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- **Rus, V.** & Graesser, A.C. (2007). *Lexico-Syntactic Subsumption for Textual Entailment*, In Recent Advances in Natural Language Processing IV: Selected Papers from RANLP 2005, John Benjamins Publishing Company, ISBN: 9789027248077, 2007
- McCarthy, P.M., Briner, S.W., **Rus, V.,** & McNamara, D.S. (2007). *Textual Signatures: Identifying Text-Types Using Latent Semantic Analysis to Measure the Cohesion of Text Structures* in Natural Language Processing and Text Mining (Hardcover) by Anne Kao (Editor), Steve Poteet (Editor), Springer; 1 edition (2007), ISBN: 184628175X, pages 107-122.
- Graesser, A.C., McNamara, D.S. & **Rus, V.** (2007). Computational modeling of discourse and conversation. In M. Spivey, M. Joanisse, & K. McRae (Eds.), Cambridge Handbook of Psycholinguistics: Cambridge: Cambridge University Press.
- **Rus, V.** & Ravi, S. (2006). Towards a Base Noun Phrase Parser Using Web Counts. *Journal of Computing Sciences in Colleges*, Volume 21 Issue 5
- Hempelmann, C. F., **Rus, V.**, Graesser, A. C., & McNamara, D. S. (2006). Evaluating State-of-the-Art Treebank-style Parsers for Coh-Metrix and Other Learning Technology Environments. *Natural Language Engineering*, 12-2, 131-144.
- **Rus, V.** & Hempelmann, C. (2005). "*Across-Genres and Empirical Evaluation of State-of-the-Art*", Treebank-style Parsers, International Journal of Archives of Control Sciences, Special Issue, October 2005
- Markham, J., & **Rus, V.** (2005). *On the implementation of a baseline part-of-speech tagger* , Pages: 151 - 159 Journal of Computing Sciences in Colleges, Volume 20 , Issue 6 (June 2005) [NOTE: First author is an undergraduate student]
- **Rus, V.** : "Automated Learning Applied to Functional Arguments Identification", *International Journal of Computing and Information Technologies*, Vol. 12, No3, September 2004
- **Rus, V.** & Moldovan, D.I. (200)2. High Precision Logic Form Transformation, *International Journal on Artificial Intelligence Tools*, vol. 11 no. 3, September 2002

Refereed Conferences

- Rus, V., Gautam, D., Bowman, D., Graesser, A.C., Shaeffer, D. (2017). *Markov Analysis of Students' Professional Skills in Virtual Internships*, Proceedings of the 30th International Florida Artificial Intelligence Research Society Conference (FLAIRS 2017), San Marco Island, Florida, USA May 16-18, 2017. [NOMINATED FOR BEST PAPER AWARD]
- Maharjan, N., Banjade, R., Gautam, D., Tamang, L.J., Rus, V. (2017). *DT_Team at SemEval-2017 Task 1: Semantic Similarity Using Alignments, Sentence-Level Embeddings and Gaussian Mixture Model Output*, Proceedings of the 11th International Workshop on Semantic Evaluation (SemEval-2017),
- Banjade, R., Maharjan, N., Gautam, D., Adrasik, F., Graesser, A.C., and Rus, V. (2017). *Pooling Word Vector Representations across Models*, 18th International Conference on Computational Linguistics and Intelligent Text Processing, April 17-23, 2017, Budapest, Hungary.
- Maharjan, N., Banjade, R., Rus, V. (2017). *Automated Assessment of Open-ended Student Answers in Tutorial Dialogues Using Gaussian Mixture Models*, Proceedings of the 30th International Florida Artificial Intelligence Research Society Conference (FLAIRS 2017), San Marco Island, Florida, USA May 16-18, 2017. [NOMINATED FOR BEST STUDENT PAPER AWARD]
- Gautam, D., Swiecki, Z., Shaffer, D.W., Graesser, A.C., Rus, V. (2017). *Modeling Classifiers for Virtual Internships Without Participant Data*, Proceedings of the 10th International Conference on Educational Data Mining, Wuhan, China, June 25 - June 28, 2017.

- Rus, V., Maharjan, N., Tamang, L.J., Yudelson, M., Berman, S., Fancsali, S.E., Ritter, S. (2017). *An Analysis of Human Tutors' Actions In Tutorial Dialogues*, Proceedings of the 30th International Florida Artificial Intelligence Research Society Conference (FLAIRS 2017), San Marco Island, Florida, USA May 16-18, 2017.
- Maharjan, N., Tamang, L.J., and Rus, V. (2017). Towards The Discovery of Effective Tutorial Strategies Employed by Professional Tutors, The Second International Workshop on Intelligent Mentoring Systems, The 18th International Conference on Artificial Intelligence in Education, Wuhan, China, June 28 - July 2, 2017.
- Banjade, R., Niraula, N., and **Rus, V.** (2016). Towards Intra- and Inter-Sentential Negation Scope and Focus Detection in Tutorial Dialogue. *Proceedings of the Twenty-Nineth International Florida Artificial Intelligence Research Society Conference* (FLAIRS 2016), Key Largo Resort, Key Largo, Florida, USA May 16-18, 2016.
- Banjade, R., Maharjan, N., Niraula, N.B., and **Rus, V.** (2016). DT-Sim at Semeval-2016 task 2: Interpretable semantic textual similarity. In Proceedings of the 10th International Workshop on Semantic Evaluation (SemEval 2016), San Diego, California, June. Association for Computational Linguistics.
- Banjade, R., Maharjan, N., Gautam, D., and **Rus, V.** (2016). DTSim at SemEval-2016 Task 1: Semantic Similarity Model Including Multi-Level Alignment and Vector-Based Compositional Semantics, In Proceedings of the 10th International Workshop on Semantic Evaluation (SemEval 2016), The 15th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies will be held in San Diego, California, June 12 to June 17, 2016.
- **Rus, V.**, Banjade, R., Maharjan, N., Morrison, D., Ritter, S., and Yudelson, M. (2016). Preliminary Results on Dialogue Act Classification in Chatbased Online Tutorial Dialogues, *Proceedings of the 9th International Conference on Educational Data Mining*, Raleigh, NC, June 29 - July 2, 2016.
- Venugopal, D. and **Rus, V.** (2016). Joint Inference for Mode Identification in Tutorial Dialogues, Proceedings of the 26th International Conference on Computational Linguistics (COLING 2016), Osaka, Japan, December 11-16, 2016
- **Rus, V.**, Banjade, R., Niraula, N., Gire, E., Franceschetti, D. (2016). The 3rd International Conference On Smart Learning Environments, Lecture Notes in Educational Technology, pp. 171-181, Springer, 2016.
- Banjade, R., Maharjan, N., Niraula, N.B., Gautam, D., Samei, B., and **Rus, V.** (2016). Evaluation Dataset (DT-Grade) and Word Weighting Approach towards Constructed Short Answers Assessment in Tutorial Dialogue Context, *The 11th Workshop on Innovative Use of NLP for Building Educational Applications (NAACL 2016)*, The 15th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies will be held in San Diego, California, June 12 to June 17, 2016.
- **Rus, V.**, Gautam, D., Swiecki, Z., Shaffer, D.W., Graesser, A.C. (2016). Assessing Student-Generated Design Justifications in Engineering Virtual Internships, *Proceedings of the 9th International Conference on Educational Data Mining*, Raleigh, NC, June 29 - July 2, 2016.
- Fancsali, S.E., Ritter, S., Berman, S.R., Yudelson, M., **Rus, V.**, and Morrison, D.M. (2016). Toward Integrating Cognitive Tutor Interaction Data with Human Tutoring Text Dialogue Data in LearnSphere, *Proceedings of the 9th International Conference on Educational Data Mining*, Raleigh, NC, June 29 - July 2, 2016.
- Ritter, S., Fancsali, S.E., Yudelson, M., **Rus. V.**, and Berman, S. (2016). Toward Intelligent Instructional Handoffs Between Humans and Machines, 30th Conference on Neural Information Processing Systems (NIPS 2016), Barcelona, Spain, December 5-10, 2016.

- **Rus, V.** & Stefanescu, D. (2015). Towards Non-Intrusive Assessment in Dialogue-based Intelligent Tutoring Systems, *The 2nd International Conference on Smart Learning Environments*, September 23-25, Sinaia, Romania. [**BEST PAPER AWARD**]
- Banjade, R., Niraula, N., Maharjan, N., **Rus, V.**, Stefanescu, D., Lintean, M., & Gautam, D. (2015). NeRoSim: A System for Measuring and Interpreting Semantic Textual Similarity, *Proceedings of the 9th International Workshop on Semantic Evaluation (SemEval 2015)*, pages 164–171, Denver, Colorado, June 4-5, 2015. [**WINNER OF SEMEVAL** COMPETITION]
- **Rus, V.**, Niraula, N., Maharjan, N., & Banjade, R. (2015). Automated Labelling of Dialogue Modes in Tutorial Dialogues, *Proceedings of the Twenty-Eighth International Florida Artificial Intelligence Research Society Conference*, FLAIRS 2015, May 18-20, 2015, Hollywood, Florida, AAAI Press 2015.
- Niraula, N., Gautam, D., Banjade, R., Maharjan, N., **Rus, V.** (2015). Combining Word Representations for Measuring Word Relatedness and Similarity, *Proceedings of the Twenty-Eighth International Florida Artificial Intelligence Research Society Conference*, FLAIRS 2015, May 18-20, 2015, Hollywood, Florida, AAAI Press 2015.
- Banjade, R., **Rus, V.**, Niraula, N. (2015). Using an Implicit Method for Coreference Resolution and Ellipsis Handling in Automatic Student Answer Assessment, *Proceedings of the Twenty-Eighth International Florida Artificial Intelligence Research Society Conference*, FLAIRS 2015, May 18-20, 2015, Hollywood, Florida, AAAI Press 2015.
- Niraula, N., & **Rus, V.** (2015). Judging the Quality of Automatically Generated Gap-fill Question using Active Learning, *Proceedings of the Tenth Workshop on Innovative Use of NLP for Building Educational Applications*, 2015, pages 196–206, Denver, Colorado, June 4, 2015.
- Lintean, M. & **Rus, V.** (2015). An Optimal Quadratic Approach to Monolingual Paraphrase Alignment, *The 20th Nordic Conference on Computational Linguistics (NODALIDA 2015)*, Lithuania, Vilnius, 11 - 13 May 2015.
- Banjade, R., Maharjan, N., Niraula, N., **Rus, V.**, & Gautam, D. (2015). Lemon and Tea Are Not Similar: Measuring Word-to-Word Similarity by Combining Different Methods, *Computational Linguistics and Intelligent Text Processing*, Lecture Notes in Computer Science, Volume 9041, 2015, pp 335-346.
- **Rus, V.**, Niraula, N., & Banjade, R. (2015). DeepTutor: An Effective, Online Intelligent Tutoring System That Promotes Deep Learning, *The Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15)*. January 25–30, 2015, Austin, Texas, USA.
- Samei, B., **Rus, V.**, Nye, B., & Morrison, D. (2015). Hierarchical Dialogue Act Classification in Online Tutoring Sessions, *The Eighth International Conference on Educational Data Mining* (EDM 2015), Madrid, Spain. June 26-29, 2015.
- **Rus, V.**, Graesser, A., Niraula, N., & Banjade, R. (2015). DeepTutor: Integrating Learning Progressions In Unsupervised After-school Online Intelligent Tutoring, *The 17th International Conference on Artificial Intelligence in Education (AIED 2015)*, June 22-26, 2015, Madrid, Spain.
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- Brent, M., Baggett, W.B., Graesser, A.C., & **Rus, V.** (2014). *Error Analysis As A Validation of Learning Progressions*, The 7th International Conference on Educational Data Mining. EDM 2014. July 4, 2014.

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- **Rus, V.**, Stefanescu, D., Baggett, W., Niraula, N., Franceschetti, D., & Graesser, A.C. (2014). Macro-adaptation in Conversational Intelligent Tutoring Matters, *The 12th International Conference on Intelligent Tutoring Systems*, June 5-9, Honolulu, Hawaii.
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- Shala, L., **Rus., V.** & Graesser, A.C. (2014). A Bilingual Analysis of Cohesion in a Corpus of Leader Speeches, *The 27th International Conference of the Florida Artificial Intelligence Research Society (FLAIRS 2014*), May 21-23, Pensacola Beach, FL, USA.
- **Rus, V.** (2014). Opportunities and Challenges in Semantic Similarity, *The 27th International Conference of the Florida Artificial Intelligence Research Society (FLAIRS 2014*), Invited Paper (based on the Invited Talk I gave), May 21-23, Pensacola Beach, FL, USA.
- **Rus, V.**, Banjade, R., and Lintean, M. (2014). *On Paraphrase Identification Corpora*, The 9th International Conference on Language Resources and Evaluation, Reykjavik, May 26-31, 2014, Iceland.
- Niraula, N., **Rus, V.**, Banjade, R., Stefanescu, D., Baggett, W. and Morgan, B. (2014). The DARE Corpus: A Resource for Anaphora Resolution in Dialogue Based Intelligent Tutoring Systems, The 9th International Conference on Language Resources and Evaluation, Reykjavik, May 26-31, 2014, Iceland.
- **Rus, V.**, Stefanescu, D., Niraula, N., Graesser, A.C. (2014). DeepTutor: Towards Macro- and Micro-Adaptive Conversational Intelligent Tutoring at Scale, ACM's Learning@Scale Conference, March 4-6, 2014, Atlanta, Georgia.
- Ştefănescu, D., Banjade, R., **Rus, V**. (2014). Latent Semantic Analysis Models on Wikipedia and TASA. The 9th International Conference on Language Resources and Evaluation, May 26-31, 2014, Reykjavik, Iceland.
- Ştefănescu, D., **Rus, V.**, Niraula, N., Banjade, R. (2014). Combining Knowledge and Corpus-based Measures for Word-to-Word Similarity. In *The 27th International Conference of the Florida Artificial Intelligence Research Society (FLAIRS 2014*), May 21-23, Pensacola Beach, FL, USA.
- Ştefănescu, D., Banjade, R., **Rus, V.** (2014). A Sentence Similarity Method based on Parsing and Information Content. In *Proceedings of 15th International Conference on Intelligent Text Processing and Computational Linguistics* (CICLing 2014), April 6-12, Kathmandu, Nepal.
- Ştefănescu, D., Rus, V., and Graesser, A.C. (2014). Towards Assessing Students' Prior Knowledge from Tutorial Dialogues, In Proceedings of the 7th International Conference on Educational Data Mining (EDM), July 4-7, London, UK.
- **Rus, V.**, Niraula, N., & Banjade, R. (2013). Similarity Measures based on Latent Dirichlet Allocation. *The 14th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2013)*, March 24-30, Samos, Greece.
- **Rus, V.**, Lintean, M., Banjade, R., Niraula, N., & Stefanescu, D. (2013). SEMILAR: The Semantic Similarity Toolkit. *The 51st Annual Meeting of the Association for Computational Linguistics (ACL 2013)*, August 4-9, Sofia, Bulgaria.

- **Rus, V.**, Niraula, N., Lintean, M., Banjade, R., Stefanescu, D., & Baggett, W. (2013). Recommendations for the Generalized Intelligent Framework for Tutoring based on the Development of the DeepTutor Tutoring Service, *Workshop on Generalized Intelligent Framework for Tutoring (GIFT)*, The 16th International Conference on Artificial Intelligence in Education (AIED 2013), July 9-13, Memphis, TN.
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- **Rus, V.** (1999). *On the implementation of a text inference algorithm in Java*, Master Thesis in Computer Science, SMU Dallas, TX, May 1999
- **Rus, V.** (1997). *File System Spy for ADELE Configuration Manager*, Diploma Thesis, LSR/Dassault Systems Laboratory, June 1997, Grenoble, France

Technical Reports

- **Rus, V.** (2002). *Document Processing for Question Answering on Semantic Web Collections*, LCC, September 2002, Dallas, Texas
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Conference/Invited/Plenary Talks

- Automated Labelling of Dialogue Modes in Tutorial Dialogues, The Twenty-Eighth International Florida Artificial Intelligence Research Society Conference, FLAIRS 2015, May 18-20, 2015, Hollywood, Florida.
- An Optimal Quadratic Approach to Monolingual Paraphrase Alignment, The 20th Nordic Conference on Computational Linguistics (NODALIDA 2015), Lithuania, Vilnius.

- DeepTutor: An Effective, Online Intelligent Tutoring System That Promotes Deep Learning, The Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15). January 25-30, 2015, Austin, Texas, USA.
- Hierarchical Dialogue Act Classification in Online Tutoring Sessions, The Eighth International Conference on Educational Data Mining (EDM 2015), June 26-29, 2015, Madrid, Spain.
- DeepTutor: Integrating Learning Progressions In Unsupervised After-school Online Intelligent Tutoring, The 17th International Conference on Artificial Intelligence in Education (AIED 2015), June 22-26, 2015, Madrid, Spain.
- Rus, V., Maharjan, N., & Banjade, R. (2015). Unsupervised Discovery of Tutorial Dialogue Modes in Human-to-Human Tutorial Data, The 3rd Generalized Intelligent Tutoring Framework Symposium, June 17-18, Orlando, FL.
- Mining Gap-fill Questions from Tutorial Dialogues, The 7th International Conference on Educational Data Mining, July 4, 2014, London, UK
- Assessing Students' Prior Knowledge From Tutorial Dialogues, The 7th International Conference on Educational Data Mining, July 4, 2014, London, UK
- Macro-adaptation in Conversational Intelligent Tutoring Matters, The 12th International Conference on Intelligent Tutoring Systems, June 8, Honolulu, Hawaii
- A Bilingual Analysis of Cohesion in a Corpus of Leader Speeches, The 27th International Conference of the Florida Artificial Intelligence Research Society (FLAIRS 2014), May 23, Pensacola Beach, FL, USA
- Opportunities and Challenges in Semantic Similarity, *The 27th International Conference of the Florida Artificial Intelligence Research Society (FLAIRS 2014)*, **Invited Talk**, May 22, Pensacola Beach, FL, USA
- DeepTutor: Towards Macro- and Micro-Adaptive Conversational Intelligent Tutoring at Scale, *ACM's Learning@Scale Conference*, Atlanta, GA, March 4, 2014
- DeepTutor – Promoting Deep Learning of Complex Science Topics, *Annual Principal Investigator Meeting*, Institute for Education Sciences, Washington, DC, September 26, 2013
- Recommendations for the Generalized Intelligent Framework for Tutoring based on the Development of the DeepTutor Tutoring Service, *Workshop on Generalized Intelligent Framework for Tutoring (GIFT), The 16th International Conference on Artificial Intelligence in Education (AIED 2013),* July 9-13, Memphis, TN.
- The Role of Learning Progressions In The Development Of An Intelligent Tutoring Systems For All Ages, *Improving Middle School Science Instruction Using Cognitive Science - A National Conference* on May 21-22, 2013 in Washington, DC (poster presentation)
- Experiments with Semantic Similarity Measures based on LDA and LSA, *The 1st International Conference on Statistical Speech and Language Processing (SLSP 2013)*, July 29-31, Tarragona, Spain.
- Concepts versus Latent Topics. The 23rd Meeting of The Society for Text and Discourse, July 16-18, 2013, Valencia, Spain [poster presentation]
- **Keynote Speaker:** AAAI Fall Symposium on Question Generation, Nov 5, 2012, Arlington, VA
- Semantic Similarity Using Quadratic Assignment, Computer Science Colloquium, October 26, 2012
- Learning Progressions-driven Intelligent Tutoring Systems - Annual Principal Investigator Meeting, Institute for Education Sciences, Washington, DC, September 5, 2012 (**Invited Plenary Talk**)
- Language Processing From Sailors to Tutors to Software Developers, The University of Sydney, Department of Electrical Engineering, April 4, 2012

- DeepTutor – An Intelligent Tutoring System that Promotes Deep Science Learning, Annual Principal Investigator Meeting, Institute for Education Sciences, Washington, DC, September 7, 2011
- Dissimilarity Kernels for Paraphrase Identification, *The 24th International Florida Artificial Intelligence Research Society Conference*, Palm Beach, FL, May 19, 2011.
- A Linguistic Analysis of Student Generated Paraphrases, Proceedings of the *24th International Florida Artificial Intelligence Research Society Conference*, Palm Beach, FL, May 19, 2011.
- Automated Speech Act Classification for Online Chat, *The 22nd Midwest Artificial Intelligence and Cognitive Science Conference*, Cincinatti, OH, April 2, 2011.
- The Ubiquity of Natural Language in a Linked, Knowledge-Based World, **Plenary Talk**, The 21st Midwest Artificial Intelligence and Cognitive Science Conference, South Bend, IN, April 18, 2010
- Automatic Speech Act Classification in Arabic, *Workshop on Natural Language Processing in Social Sciences*, Buenos Aires, Argentina, May 2010
- An Overview of The First Question Generation Shared Task and Evaluation Challenge, *The Third Workshop on Question Generation*, Pittsburgh, PA, June 2010
- The Ubiquity of Natural Language in a Linked, Knowledge-driven World, Computer Science Colloquium, Memphis, TN, November 19, 2010
- The First Question Generation Shared Task and Evaluation Challenge, Intelligent Tutoring Systems course, Department of Psychology, The University of Memphis, November 18, 2010
- Assessing Student Paraphrases Using Lexical Semantics and Word Weighting, *The 14th International Conference on Artificial Intelligence in Education*, Brighton, UK, July 9, 2009
- Building Resources for an Open Task on Question Generation, The *2nd Workshop on Question Generation*, Brighton, UK, July 6, 2009
- Where Next in Knowledge Representation?, ***Plenary Talk***, *The 2nd Knowledge Engineering: Principles and Techniques International Conference*, Cluj, Romania, July 3, 2009
- MLeXAI: Biomedical Term Classification, *Workshop on MLeXAI: Machine Learning Experiences in AI: A Multi-Institutional Project*, In conjunction with the 22 FLAIRS Conference, Sanibel Island, FL, May 18, 2009
- Data-driven Defect Management and Testing Processes in Large-scale Software Development, *International Research Workshop on Advances and Innovations in Software Testing*, Memphis, TN, May 4, 2009
- Challenges, Solutions, and Surprises in Sentence-level Paraphrase Identification, *Brown Bag Series*, Institute for Intelligent Systems, Memphis, TN, April 13, 2009
- MLxAI: Biomedical Term Classification, *The Seventh Annual Conference of the Consortium for Computing Sciences in Colleges – Mid-South*, Conference, April 4, 2009
- *Trends in Language and Information Processing*, Department of Computer Science, University of Mississippi, September 10, 2008
- *Defect Reports Can Be Automatically Clustered Based on Their Summaries*, Artificial Intelligence Techniques in Software Engineering Workshop, Patras, Greece, July 21, 2008
- Paraphrase identification with lexico-syntactic graph subsumption, *International Conference of the Florida Artificial Intelligence Research Society, May 16, 2008*
- *Automatic Clustering of Defect Reports*, International Conference on Software and Knowledge Engineering, Redwood City, CA, July, 5, 2008
- Paraphrase identification with lexico-syntactic graph subsumption, *International Conference of the Florida Artificial Intelligence Research Society, May 16, 2008*

- *Predicting Defects in Large Open Source Software*, Workshop on Advances and Innovations in Software Testing, Memphis, TN, May 5, 2008
- *Advanced Defect Analysis Methods*, Workshop on Software Testing sponsored by International Paper, Memphis, TN, January 11, 2008
- *Knowledge Management in Modern Software Testing*, Workshop on Knowledge Management in Software Testing sponsored by Nomura Research Japan, Memphis, TN, November 7, 2007
- *Mining Text from Large and Structurally-Diverse Repositories*, MIS Department, Fogelman College of Business and Economics, The University of Memphis, Memphis, TN, October 26, 2007
- *An Overview of BioNLP*, Bioinformatics Colloquium, The University of Memphis, Memphis, TN, September 28, 2007
- *A General Framework for Information Processing with Application to Quantitative Software Testing*, Workshop on Advances and Innovations in Software Testing, Memphis, TN, May 5, 2007
- *Text To Text Generation, Workshop on Shared Tasks in Natural Language Generation*, Arlington, VA, April 21, 2007
- *Evaluation in Natural Language Generation: The Question Generation Task*, Workshop on Shared Tasks in Natural Language Generation, Arlington, VA, April 20, 2007
- *Large Scale Experiments with Functional Tagging*, Knowledge Engineering: Principles and Techniques, Cluj-Napoca, Romania, *June 7, 2007*
- *Natural Language based Knowledge Representations,* Computer Science Colloquium Series, Department of Computer Science, University of Memphis, Spring 2007, Memphis, TN, March 2, 2007
- *Experiments with Generating Questions About Facts*, International Conference on Computational Linguistics and Intelligent Text Processing (CICLing), Mexico City, Mexico, February 22, 2007
- *Unsupervised Method for Base Noun Phrase Parsing*, International Conference on Computational Linguistics and Intelligent Text Processing (CICLing), Mexico City, Mexico, February 22, 2007
- *Adaptive Question Answering in AutoTutor*, AutoTutor Research Group Meeting, Memphis, TN, February 19, 2007
- *Natural Language based Knowledge Representations,* Cognitive Brown Bag Series, Fall 2006, Memphis, TN, November 13, 2006
- *Adaptive Question Answering*, Coh-Metrix Research Group Meeting, Memphis, TN, November 6, 2006
- *Deeper Natural Language Processing for AutoTutor,* AutoTutor Research Meeting, Institute for Intelligent Systems, Memphis, TN, July 24, 2006
- *Deeper Natural Language Processing for Evaluating Student Answers in Intelligent Tutoring Systems,* National Conference of the American Association for Artificial Intelligence (AAAI), Boston, MA, July 15, 2006
- *The Look and Feel of a Textual Entailer,* Language Resources and Evaluation Conference (LREC), Genoa, Italy, May 24, 2006
- A Dependency Approach To Textual Entailment, International Conference of the Florida Artificial Intelligence Research Society (FLAIRS), Melbourne, FL, 13 May, 2006
- *Two Related Lexico-Syntactic Approaches to Entailment,* Second Recognizing Textual Entailment Challenge (RTE-2), Venice, Italy, April 11, 2006
- *Towards a Base Noun Phrase Parser with Web Counts*, Mid-South Computing Sciences in Colleges Consortium Conference, Memphis, TN, April 1, 2006
- *Analysis of a Textual Entailer,* International Conference on Computational Linguistics and Intelligent Text Processing (CICLing), Mexico City, Mexico, February 21, 2006

- *A Survey of Computational Linguistics Tools and Applications,* Learning Technologies Seminar, Institute For Intelligent Systems, The University of Memphis, January 25, 2006
- *A Study of a Textual Entailer,* IEEE's International Conference of Artificial Intelligence, Hong Kong, November 16, 2005
- *Natural Language Processing/Computational Linguistics,* Cognitive Science Seminar coordinated by Dr. Max Louwerse, November 9, 2005
- *Logic and Language,* Knowledge Representation Class taught by Dr. Lee McCauley November 8, 2005
- *Lexico-Syntactic Subsumption for Textual Entailment,* Recent Advances in Natural Language Processing Borovetz, Bulgaria, September 18, 2005
- *Lexico-Syntactic Graphs for Deeper Text Understanding,* CS Colloquium, Memphis, TN September 16, 2005
- *Lexico-Syntactic Subsumption for Textual Entailment,* Learning Technologies Meeting, Institute for Intelligent Systems, September 07, 2005
- *Augmenting AutoTutor with Deeper Natural Language Processing,* Mathematical Psychology Conference, August 2005, Memphis, TN
- *Building Large Knowledge-Bases from Online Dictionaries,* FLAIRS 2005, May 2005, Clearwater, FL
- *Across-Genres and Empirical Evaluation of Treebank-Style Parsers,* Language and Technology Conference, April 2005, Poznan, Poland
- *Mining Answers from Large Collections*, Computational Applications and Cyber-infrastructure Symposium, Murfreesboro, TN, January 2004
- *Prospects of Textual Entailment in Intelligent Tutoring Systems,* Learning Technologies Seminar, Institute for Intelligent Systems, University of Memphis, December 2004
- *The Impact of World Knowledge on Open Domain Question Answering,* Department of Computer Science, University of North Texas, Denton, TX, November 2004
- *Using Decision Trees for Logic Arguments Identification*, International Conference on Artificial Intelligence, Las Vegas, NV, June 2004
- *Using World Knowledge for Question Answering,* University of Memphis/Fedex Institute of Technology, March 2004, Memphis, TN
- *Learning Functional Arguments,* Roosevelt University, Chicago, IL, March 2004 (MAICS-2004)
- *Logic and Language,* Florida Atlantic University, April 2003
- *Logic Form and Its Application to Question Answering*, Toyota Technological Institute, April 2003
- *Logic Form and Its Applications*, Purdue University, March 2003
- *Bracketing Compound Nouns for Logic Form Derivation*, FLAIRS, May 2002
- *Concept-based Representation: Combining syntax and semantics*, Technical University of Cluj-Napoca, January 2002
- *High Precision Logic Form Transformation*, ICTAI, November 2001
- *Transformation of WordNet Glosses into Logic Form*, FLAIRS, May 2001

Program Committees, Reviewing, Editorship

- ***Associate Editor and Reviewer for The International Journal on Artificial Intelligence Tools (IJAIT; 2009-present)***
- ***Local Coordinator for North American Computational Linguistics Olympiad (NACLO 2008-present)***
- ***Reviewer/Panelist for various NSF programs***
- ***Reviewer Software Quality Journal***

- ***Reviewer Journal of Artificial Intelligence Research***
- ***Reviewer Journal of Natural Language Engineering***
- ***Reviewer for IEEE Transactions on Neural Networks***
- ***Reviewer for IEEE Transactions on Neural Networks***
- ***Program Committee*** for the AAAI Conference on Artificial Intelligence (AAAI 2016)
- ***Program Committee member*** for the International Conference on Recent Advances in Natural Language Processing (RANLP 2015)
- ***PC Member*** for the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2015)
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2015)
- ***Program Committee*** member for the IEEE International Conference on Software Testing (ICST 2015)
- ***Program Committee member*** for CICLing 2015 (16th International Conference on Intelligent Text Processing and Computational Linguistics)
- ***Program Committee member*** for the International Conference of the Society for Text and Discourse (ST&D 2015)
- ***Program Committee member*** for the International Conference on Artificial Intelligence in Education (AIED 2015)
- ***Invited Sessions Chair*** for the International Conference on Smart Learning Environment (ICSLE-15)
- ***Invited Session Chair*** for the International Conference on Intelligent Tutoring Systems (ITS 2014)
- ***Invited Session Chair*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2014)
- ***Program Committee*** *member* for the International Conference on Empirical Natural Language Processing (EMNLP 2014)
- ***Program Committee*** *member* for the 52nd Annual Meeting of the Association of Computational Linguistics (ACL 2014)
- ***Program Committee member*** for International Conference on Computational Linguistics (COLING-2014)
- ***Program Committee*** *member* for The Fifth Conference on Educational Advances in Artificial Intelligence (EAAI-2014)
- ***PC Member*** for the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2014)
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2014)
- ***Program Committee*** member for 12th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2014)
- ***Program Committee*** *member* for the 51st Annual Meeting of the Association of Computational Linguistics (ACL 2013)
- ***Program Committee member*** for European Association of Computational Linguistics (EACL-2013)
- ***Program Committee*** *member* for The Fourth Symposium on Educational Advances in Artificial Intelligence (EAAI-2013)
- ***PC Member*** for the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2013)
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2013)
- ***Special Track PC Member*** for Cognition, AI, and Human Computer Interaction, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2013)

- ***Program Committee*** member for 12th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2013)
- ***Program Committee member*** for European Conference on Data Mining (ECDM-2013)
- ***Program Committee*** *member* for the 50th Annual Meeting of the Association of Computational Linguistics: Human Language Technologies (ACL-HLT 2012)
- **Co-chair** - Language Technologies for Research and Development, September 25-26, 2012, Romanian Academy, Bucharest, Romania
- ***Program Committee*** *member* for The Third Symposium on Educational Advances in Artificial Intelligence (EAAI-2012), Toronto, Canada
- ***PC Member*** for the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2012), Marco Island, FL, May 2012
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2012), Marco Island, FL, May 2012
- ***Special Track PC Member*** for Cognition, AI, and Human Computer Interaction, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2012), Marco Island, FL, May 2012
- ***Program Committee*** member for 12th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2012), New Delhi, India, March, 2012
- ***Program Committee member*** for the Midwest Artificial Intelligence and Cognitive Science Conference (MAICS-2012), Cincinnati, Ohio, April 2012
- ***Program Committee member*** for European Conference on Data Mining (ECDM-2012)
- ***Editorial Advisory Board*** *for the volume "Quantitative Semantics and Soft Computing Methods for the Web" by Ramon Brena and Adolfo Guzman-Arenas*
- ***Program Committee member*** *for The 3rd International Conference on Knowledge Engineering: Principles and Techniques (KEPT-2011)*
- ***PC Member*** for the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2011), West Palm Beach, FL, May 2011
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2011), Palm Beach, FL, May 2011
- ***Special Track PC Member*** for Cognition, AI, and Human Computer Interaction, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2011), Palm Beach, FL, May 2011
- ***Program Committee*** member for the IEEE International Conference on Software Testing (ICST 2011), Berlin, Germany, 2011
- ***Program Committee*** *member* for the 25th Conference on Artificial Intelligence (AAAI-2011), San Francisco, CA
- ***Program Committee*** *member* for The Second Symposium on Educational Advances in Artificial Intelligence (EAAI-2011), San Francisco, CA
- ***Area Chair for the 49th*** Annual Meeting of the Association of Computational Linguistics: Human Language Technologies (ACL-HLT 2011)
- ***Program Committee*** member for 12th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2011), Tokyo, Japan, February, 2011
- ***Program Committee member*** for the Midwest Artificial Intelligence and Cognitive Science Conference (MAICS-2011), Cincinnati, Ohio, April 2011
- ***Program Committee member*** for European Conference on Data Mining (ECDM-2011)
- ***Program Committee member*** *for The Tenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2011), Taipei, Taiwan, May 2-6, 2011*

- ***Co-chair*** *of The First Question Generation Shared Task and Evaluation Challenge (QG-STEC), Pittsburgh, PA, June 2010*
- ***Program Committee*** member for the 4th Workshop on Intelligent Techniques in Software Engineering (ISEW 2009), European Conference on Machine Learning and Practices of Knowledge Discovery in Databases (ECML-PKDD), September, Athens, Greece
- ***Steering Committee member*** *for the 3rd Workshop on Question Generation, Pittsburgh, PA, June 2010*
- ***Program Committee member*** *for the 12th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC 2010), Timisoara, Romania, September 2010*
- ***Program Committee member*** for the 48th ACM Southest Conference (ACMSE 2010), Oxford, Mississippi, April 2010
- ***Program Committee*** member for 11th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2010), Iasi, Romania, April 2010
- ***Program Committee*** member for the Workshop on Artificial Intelligence techniques in Software Engineering (AISEW 2010), October 5-7, Larnaca, Cyprus
- ***Steering Committee Member*** for The 3rd Workshop on Question Generation, Pittsburgh, PA, June 18, 2010
- ***PC Member*** the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2010), Daytona Beach, FL, May 2010
- ***Program Committee*** member for the IEEE International Conference on Software Testing (ICST 2010), Paris, France, April 2010
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2010), Daytona Beach, FL, May 2010
- ***Workshop Co-chair*** for The 2nd Workshop on Question Generation, Brighton, UK, July 4-5, 2009
- ***Program Committee*** member for Empirical Methods in Natural Language Processing, Singapore, August 6-7, 2009
- ***Program Committee*** member for European Conference on Data Mining, Algarve, Portugal, June 18-20, 2009
- ***Program Committee*** member for Workshop on Computational Approaches to Linguistic Creativity (CALC-09), in conjunction with NAACL-HLT 2009, Boulder, Colorado, June, 2009
- ***Program Co-chair*** for the Third International Research Workshop on Advances and Innovations in Systems Testing, Memphis, TN, May 2009
- ***Program Committee*** member for the IEEE International Conference on Software Testing (ICST 2009), Denver, Colorado, March 2009
- ***Program Committee*** member for the 2nd Workshop on Artificial Intelligence techniques in Software Engineering (AISEW 2009), April 22-23, Thessaloniki, Greece
- ***Program Committee*** member for 10th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2009), Mexico City, Mexico, February 2009
- ***PC Member*** the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2009), Sanibel Island, FL, May 2009
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2009), Sanibel Island, FL, May 2009
- ***National Science Foundation Panelist*****,** Spring 2008, non-discloseable details
- ***Program Co-chair*** for the NSF-sponsored Workshop on The Question Generation Shared Task and Evaluation Challenge, Arlington, VA, September 2008

- **Reviewer** for the 22nd International Conference on Computational Linguistics (COLING-08), Manchester, UK, August 2008
- ***Reviewer*** for Society for Text and Discourse Conference, Memphis, TN, July 2008
- ***Program Co-chair*** for the Second International Research Workshop on Advances and Innovations in Systems Testing, Memphis, TN, May 2008
- ***Program Committee*** member for Ninth International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2008), Haifa, Israel, February 2008
- ***PC Member*** the Florida Artificial Intelligence Research Society International Conference (FLAIRS 2008), Coconut Grove, FL, May 2008
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2008), Coconut Grove, FL, May 2008
- ***Program Committee*** member for the Workshop on Automated Syntactic Annotations for Interoperable Language Resources, Hong Kong, January 2008
- ***PC Member*** for the 23rd Annual ACM Symposium on Applied Computing (SAC-2008), Natural Language Processing and Speech Recognition track, Fortaleza, Ceara, Brazil March 16-20, 2008
- ***Program Committee*** *member for the Third Language & Technology Conference (LTC-2007), Poznan, Poland, October 2007*
- ***Program Committee*** member for the 19th IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2007), Patras, Greece, October 2007
- ***Program Committee*** member for the *Workshop on Computational Approaches to Figurative Language*, in conjunction with Human Language Technologies: The Annual Conference of the North American Chapter of the Association for Computational Linguistics (HLT-NAACL 2007), Rochester, NY, April 2007
- ***Program Chair*** for the *Workshop on Advances and Innovations in Systems Testing*, Memphis, TN, May 2007
- **Reviewer** for the 29th Annual Meeting of the Cognitive Science Conference, Nashville, TN, August 2007
- ***Workshops/Tutorials/Panels Chair,*** Consortium for Computing Sciences in Colleges (CCSC) Mid South 2007 Conference Committee, Monroe, LA, March 2007
- ***Reviewer*** for School of Languages at the University of Melbourne, 2007
- ***Program Committee*** member for Eight International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2007), New Mexico, Mexico, February 2007
- ***Special Track PC Member*** for Machine Learning, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2007), Key West, FL, May 2007
- ***Special Track PC Member*** for Applied Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2007), Key West, FL, May 2007
- ***Reviewer*** *for* Council of Southern Graduate Schools' (CSGS) Master's Thesis Award, 2006
- ***Program Committee*** member for Seventh International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2006), New Mexico, Mexico, February 2006
- ***Panelist*** *for Goals and Dataset Proposals for RTE-3*, The Second PASCAL Recognizing Textual Entailment Challenge (RTE-2), Venice, Italy, April 10, 2006
- ***Workshops/Tutorials/Panels Chair,*** Consortium for Computing Sciences in Colleges (CCSC) Mid South 2006 Conference Committee, Memphis, TN, March-April 2006

- ***PC Member*** for Florida Artificial Intelligence Research Society International Conference (FLAIRS 2006), Melbourne Beach, FL, May 2006
- ***Special Track PC Member*** for Machine Learning, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2006), Melbourne Beach, FL, May 2006
- ***Special Track Co-Chair and Coordinator*** for Trends in Natural Language Processing, Florida Artificial Intelligence Research Society International Conference (FLAIRS 2006), Melbourne Beach, FL, May 2006
- ***Panelist,*** First Meeting on FedEx Institute Vision, Mission, and Research, January 2005
- Invited Program Committee Member for "Machine Learning" Special Track at Florida Artificial Intelligence Research Society International Conference (FLAIRS 2005), Clear Water, FL (see http://www.cs.ccsu.edu/~markov/flairs2005-ml/)
- Invited Program Committee Member for Florida Artificial Intelligence Research Society International Conference (FLAIRS 2005), Clearwater FL, May 2005
- **Special Track Co-Chair and Coordinator** for "Natural Language based Knowledge Representations: New Perspectives" at Florida Artificial Intelligence Research Society International Conference (FLAIRS 2005), Clear Water, FL (see logica.iusb.edu/flairs05.html)
- ***National Science Foundation (NSF) Panelist,*** **Fall 2004 (date and program non-discloseable)**
- **Invited Chair** for the Expert Systems session at Florida Artificial Intelligence Society International Conference (FLAIRS 2004), Miami FL, May 2004
- **Chair and Coordinator** of the *Logic Form Task international competition* (**3rd most popular** out of 16 tasks in SENSEVAL – see www.senseval.org) in conjunction with ACL 2004, Barcelona, Spain (26 teams participating from all around the world including University of California Berkeley, Stanford University, University of Pennsylvania, etc.)
- Invited Committee Member for Machine Learning Special Track in conjunction with FLAIRS 2004, Miami FL, May 2004
- Invited Committee Member for Florida Artificial Intelligence Research Society International Conference (FLAIRS 2004), Miami FL, May 2004
- **Chair** for Knowledge Engineering and Management Session at IKS 2003, November 17-19, Scottsdale, AZ
- Invited Committee Member for Florida Artificial Intelligence Research Society International Conference, (FLAIRS 2003), St. Augustine FL, May 2003.
- Invited Committee Member for Word Sense Disambiguation: Recent Advances and Future Directions, ACL 2002 Workshop, Philadelphia PA, June, 2002.
- Program Committee Member International Conference on Artificial Intelligence, IC-AI 2002, Las Vegas NV, June 2002
- Invited Committee Member for Florida Artificial Intelligence Research Society International Conference, 2002 FLAIRS, Pensacola FL, May 2002.

Classes Taught:

- Introduction to Computer Science
- Advanced Data Structures
- Programming UNIX
- Programming Languages
- Natural Language Processing (Graduate)
- Information Retrieval (Graduate)
- Machine Learning (Graduate)

- Software Engineering (Graduate)

University Service

- Undergraduate Curriculum Committee
- Graduate Curriculum Committee
- Research and Development Committee
- Lab committee
- Search Committee
- University Senate

Advisees

- Katragadda, Kranthikiran (MSc, 2005)
- Kolli, Sai (MSc - 2006)
- Mohammed, Sameer (MSc, 2006)
- Vemulakonda, Srividya (MSc - 2006)
- Venkatachalam, Raja (MSc - 2006)
- Riaz Uddin (MSc - 2006)
- Xian, Yi (MSc - 2006)
- Sireesha Ravi (MSc - 2006)
- Praveen Ankaraju (MSc - 2006)
- Avani Chenreddy (MSc - 2006)
- Krishna Velidi (MSc – 2007)
- Srividya Vemulakonda (MSc – 2007)
- Shalini Jannama-Reddy (MSc – 2007)
- Sameer Mohammed (MSc – 2007)
- Rajitha Satharla (MSc - 2007)
- Rachana Tippavajula (MSc - 2007)
- Bina Solanki (MSc - 2008)
- Santhosh Kasturi (MSc - 2008)
- Natasha Velaga (MSc – 2008)
- Raluca Stoian (MSc - 2008)
- Reshma Jangili (MSc - 2009)
- Bhanu Mangipudi (MSc - 2010)
- Sandeep Ladda (MSc - 2010)
- Aman Patel (MSc – 2013)
- Borhan Samei (Masters student – 2014 expected)
- Desai, Kirtan (PhD, 2004-2007, interrupted)
- Cristian Moldovan (PhD, 2009-2012, interrupted)
- Lintean, Mihai (PhD - 2011)
- Archana Bhattarai (PhD – 2013)
- Nobal Niraula (PhD – 2015 expected)
- Lubna Shala (PhD – 2015 expected)
- Rajendra Banjade (PhD – 2016 expected)
- Eric Hicks (PhD – 2017 expected)

- Dipesh Gautam (PhD – 2018 expected)
- Nabin Maharjan (PhD – 2018 expected)

Graduate Theses/Projects and Qualifying Exams Committee

- Ravikanth Linga, Masters of Science, November the 11th, 2004
- Koteswara Rao Kommineni, November the 9th, 2004
- Andrew Neel, PhD , November the 15th, 2004
- Kiran Boba, PhD Qualifying Exam, November the 15th, 2004
- Madhavi Gujja, Masters Project, April 5th, 2005
- Varun BhoomiReddy, Masters Thesis, April 13th , 2005
- Edilbert Kamal Dass, Master Project, April 19th, 2005
- Madhavi Tangallapally, Master Project, April 20th, 2005
- Kiran Boba, PhD Qualifying Exam, April the 24th, 2005
- Patrick Jeuniaux, Masters Thesis, May 11th, 2005
- Rajesh Ramanand, PhD Qualifying Exam, October the 28th, 2005
- Andrew Olney, Dissertation Proposal, March the 1st, 2006
- Rajesh Ramanand, PhD Qualifying Exam, March the 24th, 2006
- Yi Xian, Masters Thesis, April the 3rd, 2006
- Sai Kolli, Masters Project, April the 18th, 2006
- Riaz Uddin, Masters Project, April the 20th, 2006
- Laxmi Swetha Potana, Masters Project, April the 20th, 2006
- Lilian Priscilla Kalyanapu, Masters Project, April the 21st, 2006
- Ravinder Kumar Talla, Masters Project, April the 21st, 2006
- Aysha Salma, Masters Project, April the 28th, 2006
- Satish Chitupolu, Masters Project, May the 5th, 2006
- Andrew Olney, PhD Defense, June the 29th, 2006
- Rajasekaran Venkatachalam, Masters Project, June the 30th, 2006
- Scott Brown, Masters Thesis, July the 7th, 2006
- Deepali Abhyankar, Masters Project, July the 24th, 2006
- Prakhar Kavdia, Masters Project, July the 25th, 2006
- Malleswari Saranu, Masters Project, July the 26th, 2006
- Rajesh Ramanand, PhD Qualifying Exam, August the 24th, 2006
- Sita Pulavarti, Masters Project, November the 6th, 2006
- Makram Raboudi, Masters Project, November the 10th, 2006
- Sireesha Ravi, Masters Project, November the 17th, 2006
- Ravinder Reddy Siriseni, Masters Project, November the 30th, 2006
- Praveen Ankaraju, Masters Project, December 1st, 2006
- Avani Chenreddy, Masters Project, December 1st, 2006
- Adithya Kamineni, Masters Project, December 1st, 2006
- Yan Yan, Masters Project, December 5th, 2006
- Kirtan Desai, PhD Qualifying Exam, February 14th, 2007
- Kirtan Desai, PhD Qualifying Exam, March 6th, 2007
- Jason Watkins, MSc Thesis, March 15th, 2007
- Mihai Lintean, PhD Qualifying Exam, April 12th, 2007
- Krishna Velidi, Masters Project, April 12th, 2007
- Vinay Maddi, Masters Project, April 13th, 2007

- Srividya Vemulakonda, Masters Project, April 13th, 2007
- Shalini Jannama-Reddy, Masters Project, April 13th, 2007
- Geetha Aradhyula, Masters Project, April 25, 2007
- Will Stewart, Masters Project, May 3, 2007
- Andrew Neel, PhD Dissertation Defense, May 10, 2007
- Stephen Briner, Masters Thesis Proposal, May 16, 2007
- Ashok Aluri, Masters Project, July 6, 2007
- Lubna Shala, PhD Qualifying Exam, July 12, 2007
- Fatema Noor Julia, Masters Thesis, August 10, 2007
- Lubna Shala, PhD Qualifying Exam, August 15, 2007
- Courtney Bell, Non-thesis Masters Exam, September 21, 2007
- Matthew Anyanwu, PhD Qualifying Exam, September 28, 2007
- Matthew Anyanwu, PhD Qualifying Exam, October 24, 2007
- Stephen Briner, Masters Thesis Defense, October 29, 2007
- Mihai Lintean, PhD Qualifying Exam, November 8, 2007
- Phani Priya Uppalapati, Masters Project, November 13, 2007
- Dinesh Mallam, Masters Project, November 27, 2007
- Sameer Mohammed, Masters Project, November 27, 2007
- Madhu Kolli, Masters Project, November 28, 2007
- Rajitha Satharla, Masters Project, November 28, 2007
- Rachana Tippavajula, Masters Project, November 29, 2007
- Naga Jyothi, Masters Project, November 29, 2007
- Matthew Anyanwu, PhD Qualifying Exam, November 30, 2007
- Mihai Lintean, PhD Qualifying Exam, December 21, 2007
- Eddy Ochieng, Masters Project, March 13, 2008
- Bina Solanki, Masters Project, April 18, 2008
- Sushma Vemulapalli, Masters Project, April 25, 2008
- Mike Nolen, PhD Proposal, April 29, 2008
- Santhosh Kasturi, Masters Project, July 15, 2008
- Vivek Datla, Masters Thesis, September 11, 2008
- Natasha Velaga, Masters Project, November 5, 2008
- Raluca Stoian, Masters Thesis, November 12, 2008
- Wei Yin, Masters Project, November 20, 2008
- Vasudha Koya, Masters Project, November 24, 2008
- Venkatesh Karuveppampatti, Masters Project, November 24, 2008
- Matthew Anyanwu, Dissertation Proposal, November 24, 2008
- Ramjee Yerneni, Masters Project, November 26, 2008
- Suhanya Veeravatnam, Masters Project, November 26, 2008
- Sidney D'Mello, Dissertation Proposal, November 26, 2008
- Bin Zhang, Masters Project, December 3, 2008
- Sarah Lee, PhD Proposal, February 25, 2009
- Derrel Blain, PhD Dissertation Defense, March 18, 2009
- Ryan McCall, Masters Project, May 6, 2009
- Sidney D'Mello, PhD Dissertation Defense, June 19, 2009
- Reshma Jangili, Masters Project, July 27, 2009
- Matthew Anyanwu, PhD Dissertation Defense, February 9, 2010
- Manasa Medikonda, Masters Project, November 11, 2010
- Bhanu Mangipudi, Masters Project, November, 2010, **Chair**

- Sandeep Ladda, Masters Project, November 19, 2010, **Chair**
- Mihai Lintean, Dissertation Proposal, December 7, 2010, **Chair**
- Neva Smith, Masters Project, April 14, 2011
- Sujoy Roy, Dissertation Proposal, April 18, 2011
- Megan Elizabeth Bailey, Masters Project, April 20, 2011
- Swathi Bavanaka, Masters Project, April 21, 2011
- Sarah Lee, Dissertation Defense, May 3, 2011
- Archana Bhattarai, Dissertation Proposal, May 3, 2011, **Chair**
- Mihai Lintean, Dissertation Defense, June 20, 2011, **Chair**
- Javier Snaider, Dissertation Proposal, February 15, 2012
- Chris Simmons, Dissertation Proposal, April 26, 2012
- Javier Snaider, Dissertation Defense, July 5, 2012
- Sujoy Roy, Dissertation Defense, May 8, 2012
- Xudong Huang, Masters Project, March 27, 2013
- Shi Feng, Masters Project, April 15, 2013
- Harkeerat Bedi, Dissertation Defense, February May 16, 2013
- Nisrine Ait Khayi-Enyinda, Masters Project, July 6, 2013
- Archana Bhattarai, Dissertation Defense, July 10, 2013, **Chair**
- Aman Patel, Masters Project Defense, October 31, 2013, **Chair**
- Ahmed Afroza, Masters Project, November 26, 2013
- Chaitanya Vemulapalli, Masters Project, November 26, 2013
- Pulin Agarwal, Masters Project, November 27, 2013
- Ryan McCall, PhD Proposal, March 22, 2014
- Daqi Dong, Masters Thesis, March 24, 2014
- Xudong Huang, Major Area Paper proposal, April 17, 2014
- Chris Simmons, PhD Dissertation defense, May 2, 2014
- Md Mahbubur Rahman, Masters Thesis defense, May 8, 2014
- Nobal Niraula, PhD Dissertation proposal, May 4, 2014, **Chair**
- Amin Ahsan Ali, PhD Dissertation proposal, May 5, 2014
- Ryan McCall, PhD Dissertation Defense, June 25, 2014
- Jun Xie, Masters Thesis Defense, July 2, 2014
- Vivek Datla, PhD Dissertation Defense, July 9, 2014
- Mike Nolen, PhD Dissertation Defense, July 10, 2014
- Md Mishfaq Ahmed, Masters Project Defense, July 22, 2014
- Md Iqbal Fahad Polash, Masters Project Defense, April 14, 2015
- Padma Deepika Annambhotla, Masters Project Defense, April 13, 2015, **Chair**
- Nobal Niraula, Dissertation Defense, May 11, 2015, **Chair**
- Haiying Li, Dissertation Defense, October 21, 2015
- Rodrigo Silva-Lugo, Dissertation Proposal, November 6, 2015
- Anusha Sudini, Masters Project Defense, November 11, 2015
- Sri Ram, Masters Project Defense, November 13, 2015
- Maria Luong, Masters Project Defense, November 24, 2015
- Sindhuja Datla, Masters Project Defense, November 30, 2015, **Chair**
- Steve Ash, Dissertation Proposal, December 9, 2015, **Chair**
- Mustafa Hajeer, Dissertation Proposal, February 12, 2016

Mentored Postdoctoral Fellows

- Dr. Mihai Lintean, 2011-2012
- Dr. Fazel Keshtkar, 2012-2013
- Dr. Dan Stefanescu, 2013-2014

Xiaofei Zhang

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http://www.cs.memphis.edu/~xzhang12/

Current Position

University of Memphis — Memphis, USA
Assistant Professor (Tenure-track) — Sep. 2018–Present

Education

The Hong Kong University of Science and Technology — 2009–2013
Ph.D in Computer Science & Engineering
Dissertation: Efficient processing of complex join queries on the cloud
Committee: Dik Lun Lee, Ke Yi, Jianliang Xu, Yeou-Koung Tung, Lei Chen (advisor)

University of Science and Technology Beijing — 2002–2009
M.S in *Computer System & Architecture*
Thesis: Efficient cache-aware linear algebra computation (Advisor: Changjun Hu)
B.S in *Computer Science & Technology*
Final year project: Real-time job scheduling toolkit for high performance cluster computing

Research Interests

- Large scale data management
- Graph databases
- Knowledge discover & management
- Query optimization

Publications

Book Chapter

- Efficient Join Query Processing on the Cloud
  Xiaofei Zhang, Lei Chen
  Cloud Computing and Digital Media, 191-234, 2014

Journals

- Correlation Constraint Shortest Path over Large Multi-Relation Graphs
  Xiaofei Zhang, M. Tamer Özsu
  Proceedings of the VLDB Endowment, Vol. 12(5), 2019 (Accepted)
- Distance-Aware Selective Online Query Processing Over Large Distributed Graphs
  Xiaofei Zhang, Lei Chen
  Data Science and Engineering, Vol. 1, pp. 1-20, 2017
- Bonding Vertex Sets over Distributed Graphs: A Betweenness Aware Approach
  Xiaofei Zhang, Hong Cheng, Lei Chen
  Proceedings of the VLDB Endowment Vol. 8 (12), pp. 1418-1429, 2015
- Efficient Parallel Processing of Distance Join Queries Over Distributed Graphs
  Xiaofei Zhang, Lei Chen, Min Wang
  IEEE Trans. Knowl. Data Eng. Vol. 27 (3), pp. 740-754, 2015
- Locality-aware Allocation of Multi-dimensional Correlated Files on the Cloud Platform.

8. University College Name Change

Presentation

Presented by Tom Nenon

Presentation to the Board of Trustees

The University of Memphis Board of Trustees

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: University College Name Change (announcement)

Presented by: Dr. Thomas Nenon, Provost and Executive Vice President for Academic Affairs

Background:
University College has changed its name to College of Professional & Liberal Studies (CPLS). This new name depicts the types of programming offered and will help students better identify and recognize the College as a destination for programs unique to the undergraduate and graduate curriculum with two distinct academic paths (Professional and Liberal Studies).

THE UNIVERSITY OF MEMPHIS

Office of the Dean
University College

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MEMORANDUM

TO: Dr. Thomas Nenon
Interim Provost

FROM: Dr. Richard Irwin
Executive Dean, University College

DATE: March 20, 2019

SUBJECT: University College Name Change

Since its establishment in 1975, University College has been an innovator of new programs and a catalyst for interdisciplinary and multidisciplinary efforts throughout the campus.

University College has grown in its curriculum and program offerings and found a unique place at the University of Memphis. At this time, as we re-envision our mission and better align ourselves with the University of Memphis strategic plan, the College administrators, faculty and staff have voted on a College name change to better reflect our program offerings. This new name – **College of Professional & Liberal Studies (CPLS)** depicts the types of programming we offer and places us among like-minded and similarly named Colleges from universities across the nation. The proposed name change will help students better identify and recognize our College as a destination for programs unique to the undergraduate and graduate curriculum with two distinct academic paths (Professional and Liberal Studies). As our College has grown in interdisciplinary programming, the name University College no longer accurately depicts our mission and vision. By rebranding, the new name more accurately depicts the types of programming we offer and places us among like-minded and similarly named colleges from universities across the nation. Beyond our traditional students who come to us for "destination programs," the name College of Professional and Liberal Studies also helps our non-traditional students understand the types of academic programs we offer for both personal and professional goals.

The College faculty and staff engaged in discussion about the name change during the spring 2018 semester. The name change was also supported by Dr. Karen Weddle West. After receiving such positive feedback, the name change was also discussed with Dr. Rudd. Required

Approve

3/20/19

I recommend approval

Nenon

3/20/19

An Equal Opportunity / Affirmative Action University

documentation was presented to the Undergraduate Curriculum Council (UUC) and the University Council for Graduate Studies (UCGS) in February 2019 and was unanimously approved at both bodies.

We appreciate your consideration and support of this name change to better reflect the programming our College offers the University of Memphis community at the undergraduate and graduate levels.

9. Chair of Excellence Name Change

For Approval

Presented by Jasbir Dhaliwal

Presentation to the Board of Trustees

The University of Memphis Board of Trustees
For Approval

Date: June 5, 2019

Committee: Academics, Research, & Student Success Committee

Presentation Title: Approval of the Sparks Chair of Excellence in Global Research Leadership

Presented by: Dr. Jasbir Dhaliwal, Executive Vice President for Research and Innovation

Background:
The University of Memphis established the Sparks Family Chair of Excellence in International Business in 1996. The chair was established with the hope that it would attract top academic talent to help internationalize the University's business research program alongside two other chairs of excellence focused on international business: The Robert Wang Chair in lnternational Business and the William N. Morris Chair in lnternational Economics. However, the position has been vacant since 2006 as we have had difficulty locating and retaining suitable candidates.

Therefore, we propose to redesignate income from the existing chair to establish a Chair of Excellence in Global Research Leadership. While reporting to the Provost like all other Chairs of Excellence, this Chair of Excellence will be housed in the University's Division of Research and lnnovation to provide administrative flexibility to assign the Chair to focused and/or interdisciplinary area(s) of research excellence best able to contribute towards the University's strategic research goal of attaining and maintaining Tier I Carnegie Classification status. Data science and artificial intelligence are anticipated initial target areas.

Committee Recommendation:
The Academics, Research, & Student Success Committee recommends approval of the Sparks Chair of Excellence in Global Research Leadership and related funding as indicated in the meeting materials.

THE UNIVERSITY OF MEMPHIS

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MEMORANDUM

TO: Mike Krause, Executive Director Tennessee Higher Education Commission

FROM: M. David Rudd, President, University of Memphis

DATE: February 5, 2019

RE: Request to redirect Chair of Excellence funds in International Business to establish a Rotating Chair of Excellence in Global Research Leadership at the University of Memphis

The University of Memphis established the Sparks Family Chair of Excellence in International Business in 1996. The chair was established with the hope that it would attract top academic talent to help internationalize the University's business research program alongside two other chairs of excellence focused on international business: The Robert Wang Chair in International Business and the William N. Morris Chair in International Economics.

Unfortunately, the University has been unable to fill this position since 2006. Difficulty locating and retaining suitable candidates for the current chair stems, in part, from the fact that our two other international business chairs have been quite successful and stable. Chair holder activities have resulted in robust international business curriculum, significant success creating cross-disciplinary partnerships with area studies and foreign language programs to support a range of curricular and outreach efforts, and strong ties with the business community. Hence, it appears the impression among candidates may be that there is insufficient room for additional, signature opportunities for growth that would attract someone of Chair of Excellence caliber.

Given the 12 years of vacancy, it is unlikely we will be able to successfully fill and retain a candidate for the Sparks Family Chair of Excellence in International Business, and that the endowment funds supporting this Chair would be better used to support research and educational excellence in an area of study more responsive to emerging areas of research and academic program opportunity.

Therefore, we propose to redesignate income from the existing chair to establish a Chair of Excellence in Global Research Leadership. While reporting to the Provost like all other Chairs of Excellence, this Chair of Excellence will be housed in the University's Division of Research and Innovation to provide administrative flexibility to assign the Chair to focused and/or interdisciplinary area(s) of research excellence best able to contribute towards the University's

strategic research goal of attaining and maintaining Tier 1 Carnegie Classification status. Data science and artificial intelligence are anticipated initial target areas.

As President, I am authorized by the University of Memphis Board of Trustees to make this request. The donor of the private funds, Mrs. Rita Sparks, has also authorized this action (see attached letter).

STATE STATUTORY REQUIREMENT

T.C.A. 49-7-502 states,

(e) The Tennessee higher education commission shall have an advisory role with respect to the location of the chairs upon the recommendation of the governing boards of the University of Tennessee and the board of regents.

(f) The education committee of the senate and the education committee of the House of Representatives shall review the comments of the commission and the governing boards' decisions with respect to each chair. No funds shall be expended for the chairs of excellence authorized by this part until the governing boards have received the written comments of the education committees on each specific chair established. In submitting a specific chair for review, the commission and appropriate governing board shall:

(1) Estimate the annual funding required, by source, to support operation of the chair;
(2) Describe the general qualifications of individuals that the institution intends to recruit to fill the chair;
(3) Comment on how establishment of the chair will assist the institution in achieving that institution's mission; and
(4) Comment on the impact the establishment of the chair will have on any other institutional programs.

(g) As chairs are filled, each governing board shall submit a report to the education committees of the senate and the House of Representatives that includes the appointees' general background, experience and qualifications.

INFORMATION ON THE SPARKS FAMILY CHAIR OF EXCELLENCE IN GLOBAL RESEARCH LEADERSHIP AT THE UNIVERSITY OF MEMPHIS

(1) Estimate the annual funding required, by source, to support operation of the chair:

Projected Annual Budget for the Chair: Recurring Budget from Endowment: $99,800

Chair holder salary	
Internal Funding Share (E&G) from Existing Line	$150,000
Share from Endowment Income	$50,000
TOTAL SALARY	**$200,000**
Chair holder benefits (@35.3%)	
Internal Funding Share (E&G) from Existing Line	$52,950
Share from Endowment Income	$17,650
TOTAL BENEFITS	**$70,600**
Travel—from Endowment Income	$12,150
Operating Expenses—from Endowment Income	$20,000
TOTAL INTERNAL (E&G) FUNDING	**$202,950**
TOTAL ENDOWMENT INCOME FUNDING	**$99,800**
TOTAL ANNUAL FUNDING FOR CHAIR	**$302,750**

(2) Describe the general qualifications of individuals that the institution intends to recruit to fill the chair:

The holder of the Chair of Excellence in Global Research Leadership will be a person globally recognized and considered a national leader in her/his field of study. The Chair holder is expected to provide leadership and bring national and international research recognition to the University. The Chair holder should possess a doctoral degree and have achieved tenure in her/his academic field. The Chair holder should have a demonstrated record of securing extramural funding for her/his program of innovative research, have demonstrated ability to lead interdisciplinary and large-scale research programs, be widely and consistently published in top peer reviewed journals, and have a demonstrated track record of mentoring and matriculating graduate students. We anticipate recruiting an individual with expertise in Data Science and/or Artificial Intelligence as our initial focus.

The designated holder of the Sparks Family Chair of Excellence in Global Research Leadership will be expected to:

- engage in innovative teaching and research;
- publish the results of his/her research in high-quality scholarly journals and/or professional publications;
- organize seminars and workshops and develop coursework on timely and relevant topics;
- collaborate with colleagues locally, regionally and nationally;
- secure extramural support for his/her research program;
- provide campus leadership and engage with the business and professional community; and
- promote quality and the maintenance of a student-centered environment.

(3) Comment on how establishment of the chair will assist the institution in achieving that institution's mission:

The University of Memphis is a doctoral granting research university. Among its central goals is to achieve the highest research classification awarded by the Carnegie Foundation for the Advancement of Teaching – Doctoral Granting Research University/Very High Research Activity. This designation is consistent with our vision of being an internationally recognized, urban public research university.

In order to achieve this goal, the University of Memphis must strategically invest its resources to promote growth in areas relevant to national, state, and local priorities and recruit and retain top faculty talent capable of competing for scarce extramural funding. In 2014, we received authorization to redirect another Chair of Excellence to Computer Science. As a result, the University of Memphis has established itself as a national leader in emerging areas of research related to mobile health and mobile sensor technologies, big data analytics, and data privacy and security. Synergistic activity and investments have resulted in designation as a National Center for CyberSecurity Research and Academic Excellence, awarding of a NIH National Big Data to Knowledge Center of Excellence, and receipt of our single largest sponsored project – a $13.4 million Information Advanced Projects Activity (IARPA) contract.

Through this request, we expect to replicate our prior success and build signature, new research, curricular and outreach initiatives in an area(s) with high sponsored research grown potential that leverage both existing and emerging areas of research strength on our campus. We are requesting that this chair be classified as a 'rotating' chair to allow us to assess its topical focus on the Chair's 6-year review cycle to determine if new directions should be pursued, or if the Chair should maintain its topical focus for subsequent 6-year cycles. This is important, as the world of research changes rapidly. Six years ago, 3-D printing was of relevance only to small, niche industries. Now, manufacturing companies from biodevices to aerospace have made transition to use of Advanced Manufacturing technologies a top priority. Similarly, the dramatic and rapid shift to deploy Artificial Intelligence tools across industry sectors and significant advances in new materials design for energy applications are simply things we could not have foreseen.

We must equip ourselves to be more nimble in our research and academic leadership if we are to help position Tennessee as a national and international leader. By shifting the focus of this Chair to permit us to recruit a globally recognized scholar in an area of emerging research, we will be afforded the opportunity to strategically re-assess our focus to seize new opportunities.

(4) Comment on the impact the establishment of the chair will have on any other institutional programs:

The Chair holder will improve curriculum and programs by:

- providing consultation and education to stakeholders within and outside the university through organizing conferences, conducting workshops, and leading seminars;
- serving as a catalyst to develop new academic and industry partnerships with other areas of strength within the university and with other national and international research organizations and industries;
- developing new curriculum and/or new instructional methodologies as appropriate;
- making significant research contributions;

- providing campus leadership to help develop a culture of interdisciplinary and team science based research; and
- encouraging joint research projects between students and faculty.

AGREEMENT TO AMEND

THE SPARKS FAMILY CHAIR OF EXCELLENCE IN INTERNATIONAL BUSINESS

AT THE UNIVERSITY OF MEMPHIS

1. This documents records mutually agreed changes to the original agreement dated July 10, 1996 between the University of Memphis and Willard & Rita Sparks pertaining to the above mentioned Chair of Excellence.
2. Given the growth of the university since 1996, these changes are being made to better guide the Chair of Excellence to contribute directly towards the University's new strategic goal of achieving the highest Research One (R1) tier of the Carnegie classification for doctorate-granting research universities.
3. The revised title of the Chair will be the Sparks Family Chair of Excellence in Global Research Leadership.
4. The Chair will be housed in the Division of Research & Innovation at the University of Memphis instead of the Fogelman College of Business & Economics to provide the university with administrative flexibility for being able to assign the Chair of Excellence to focused and/or interdisciplinary areas of research excellence that are best able to contribute towards the strategic research goal of the university pertaining to the Carnegie classification.
5. Recommendations as to filling the Chair of Excellence will be made to the President of the University by the Executive Vice President for Research in consultation with the Provost based on the consideration of a selection committee as per the original agreement.
6. Suggested guiding principles include: 1) The discipline/sub-discipline of focus should represent areas with high sponsored research growth potential that leverage both existing and new areas of research strength; and 2) The individual selected should be internationally recognized as a leader in her/his area of research and possess a strong track record of recruiting and matriculating doctoral students as well as demonstrated ability to secure extramural support for her/his research.
7. Notwithstanding the above revisions, all other terms and stipulations of the original agreement dated July 10, 1996 remain as agreed.

Rita Sparks

Rita T. Sparks

11/16/18

Date

M. David Rudd, President, University of Memphis

11/19/18

Date

THEC TSAC

MIKE KRAUSE
Executive Director

BILL LEE
Governor

STATE OF TENNESSEE
HIGHER EDUCATION COMMISSION
STUDENT ASSISTANCE CORPORATION
PARKWAY TOWERS, SUITE 1900
NASHVILLE, TENNESSEE 37243-0830
(615) 741-3605

February 6, 2019

Chairman Dolores Gresham
Senate Education Committee
Cordell Hull Office Building
425 5th Avenue North, Suite 526
Nashville, TN 37243-0119

Chairman Mark White
House Education Committee
Cordell Hull Office Building
425 5th Avenue North, Suite 624
Nashville, TN 37243-0119

Dear Chairman Gresham and White:

Pursuant to T.C.A. 49-7-503, the Tennessee Higher Education Commission has reviewed the request submitted by the University of Memphis to redirect funds from the Sparks Family Chair of Excellence in International Business to establish the Sparks Family Chair of Excellence in Global Research Leadership.

The attached request satisfies all of the requirements to modify an existing Chair of Excellence as it relates to the following: (1) annual funding; (2) qualifications of the Chair holder; (3) impact on the institutional mission; and (4) impact on programs.

THEC believes that the redirecting of these funds to establish a Chair of Excellence in Global Research Leadership will facilitate the University of Memphis in achieving its Carnegie classification goal of a doctoral granting research university with very high research activity. Additionally, the University has received a letter of support from the donor, Mrs. Rita Sparks.

Contingent on a favorable response to this request, the next step in the approval process is for action by the University of Memphis' Board of Trustees at their upcoming March 6th meeting. Thank you both for your continuing support of higher education in Tennessee. Please contact me if you should have questions.

Sincerely,

Mike Krause
Executive Director

Attachment
cc: President M. David Rudd, University of Memphis

10. Road to Carnegie I

Presentation

Presented by Jasbir Dhaliwal

The University of Memphis Board of Trustees

Presentation

For Information

Date: June 5, 2019

Committee: Academic, Research & Student Success Committee

Presentation Title: Road to Carnegie RI Status

Presented by: Dr. Jasbir Dhaliwal, Executive Vice President for Research and Innovation



Road to Carnegie R1 Status

Academic Research & Student Success Committee

Jasbir Dhaliwal, PhD.
EVP for Research & Innovation

June 5, 2019
University Center

Board of Trustees
JUNE 2019

PCA loadings based on rank-order data

Aggregate Criteria

Doctorates: STEM*	0.914
Research Staff*	0.902
S&E R&D Expenditures	0.900
Doctorates: Social Sciences	0.873
Doctorates: Humanities	0.819
Non-S&E R&D Expenditures	0.791
Doctorates: Other Fields	0.616

Per-capita Criteria

Per-capita S&E R&D Expenditures*	0.931
Per-capita Research Staff	0.928
Per-capita Non-S&E R&D Expenditures	0.614

https://www.nsf.gov/statistics/srvyherd/surveys/srvyherd_2017.pdf

Road to Carnegie R1 Status

THE UNIVERSITY OF MEMPHIS | Board of Trustees

Critical Criteria	Key Actions
STEM Doctorates	Investing $2.43M over next two years to increase STEM doctoral enrollments.
	Helping STEM departments develop plans to support these students after two years by growing their external research funding from federal agencies.
	Supporting the Graduate School hire of a coordinator to recruit STEM doctoral students from minority and underrepresented groups.
	Investing $300K each year for First Generation STEM doctoral students.
Research Staff & Post-Doctoral Fellows	Launching new Post-Doctoral Fellowships Program with $710K in external support.
	Partnering with Epicenter Memphis for a Deep Science Entrepreneurship Post-Doctoral Fellows Program to commercialize U of M patents to create six new Sweetbio-type ventures in the next 12 months (first in the nation).
	Partnering with Green Mountain Technology – first company to grow its data analytic capabilities by funding a post-doctoral fellow in data analytics.
	Working with faculty to ensure future applications for large federal grants to include funding for doctoral students and post-doctoral fellowships.
	Auditing all non-faculty PhD-qualified research positions on campus to ensure accurate classifications for research staff

Road to Carnegie R1 Status

THE UNIVERSITY OF MEMPHIS | Board of Trustees

Critical Criteria	Key Actions
Per Capita S&E Research Expenditures	Working with STEM departments to accurately count research-related expenditures.
	Targeting focused research development activities in high growth potential areas: e.g. Leading new FedEx-inspired research consortium on Metal Additive Manufacturing with the University of Alabama, University of Mississippi and Auburn University.
	Reengineering central research support functions including research and proposal development, award and grant management services including research accounting to better serve faculty.
	Working with Deans to encourage hiring local unit-based research support staff and streamlining customer service processes.
	Increasing partnerships with industry and international research partners: e.g. Collaborating with City of Memphis on $418K NIST grant for MAP901 Project for First Responders and partnering with Czech Academy of Sciences to potentially access European research funding.
	Launching new research clusters in Data Science and AgriTech & Food Sciences.
	Receiving first dividend from UMRF Ventures Inc. for boosting U of M research.
	Increasing grant success: Nate DeYonker (Chemistry) 13th NSF Career Grant recipient.
	Working with Provost to [illegible]e-track appointments towards bolstering per capita research expenditures by about $15K.

Road to Carnegie R1 Status

THE UNIVERSITY OF MEMPHIS | Board of Trustees

Faculty Member	Examples of Recent External Funding Successes
Firouzeh Sabri: Physics & Materials Science	$252,934 from National Science Foundation for “REU Site: Multidisciplinary Physics Research”
James Murphy: Psychology	$291,439 from National Institutes of Health for “Applying Behavioral Economics to Predict Alcohol Trajectories during the Transition to Adulthood.”
James McCutcheon: Criminology & Criminal Justice	$115,724 from US Department of Justice in coordination with the City of Memphis Police Department (CMPD) for “Technology Innovation for Public Safety."
Charles Camp: Civil Engineering	$149,691 from Tennessee Department of Transportation/US Department of Transportation for “Bump at the End of the Bridge: Enhanced Remediation Decision Making via 3D Measurement and Advanced 3D Dynamic Analysis.”
M. David Rudd: President	$170,070 from Department of Defense in collaboration with University of Utah for “Brief Cognitive Behavioral Therapy (BCBT) Replication Trial.”
Beverly Cross: Education	$150,000 from the Memphis Housing Authority/HUD for “South City Choice Neighborhood.”
Michael Goklias: Civil Engineering	$299,997 from the Tennessee Department of Transportation/US Department of Transportation for “Truck Parking Needs in Tennessee” & “Planning Guidebook for Commodity and Freight Movement.”
Deborah Moncrieff: Communications Sciences	$107,198 from the National Institutes of Health (NIH) in collaboration with University of Colorado for "TACIT Teletherapy."
Randel Cox: Earth Sciences	$66,712 from the US Geological Services (USGS) for "Paleoseismic investigation of the Eastern Tennessee seismic zone."

CAESER	Key Actions
Doctorates/Masters	Fully multidisciplinary, supported graduate students in Engineering, Geology, Computer Science, City Regional Planning, Physics, Business, and others
	Fall 2019 will support 5 PhDs and 11 masters with $422,000 *external* funding (annually)
	Fall 2020 to add 10 new *externally* funded ($300,000 annually) masters and 1 PhD
	Additional $150,000 (annual) *external* dollars support graduate student research
Research Staff & Post-Doctoral Fellows	Seven full-time staff supported 100% on *external* dollars ($583,000 annually)
	One post-doc is ending their term with a new post-doc position opening in Fall 2019 (*external* funding)
Undergraduates	40-50 research internships are filled annually, some students staying on for 3+ years (*external* funding)
Community Engagement	CAESER works closely with 65 community organizations (within last 6 months) to provide research support
Special Service	Director, Dr. Brian Waldron, served as State of TN expert witness on U.S. Supreme Court case on local groundwater lawsuit

CAESER's two main research thrusts

1. **Water** such as groundwater (drinking water), surface water and atmospheric inputs
2. **Mapping and spatial analyses** using GIS such as infrastructure mapping, legacy data migration, land use planning, blight cause/effect, job creation, economic growth

Active awards 2018 – May 2019: $4,300,000 (contracts/grants)
$2,280,000 (current)

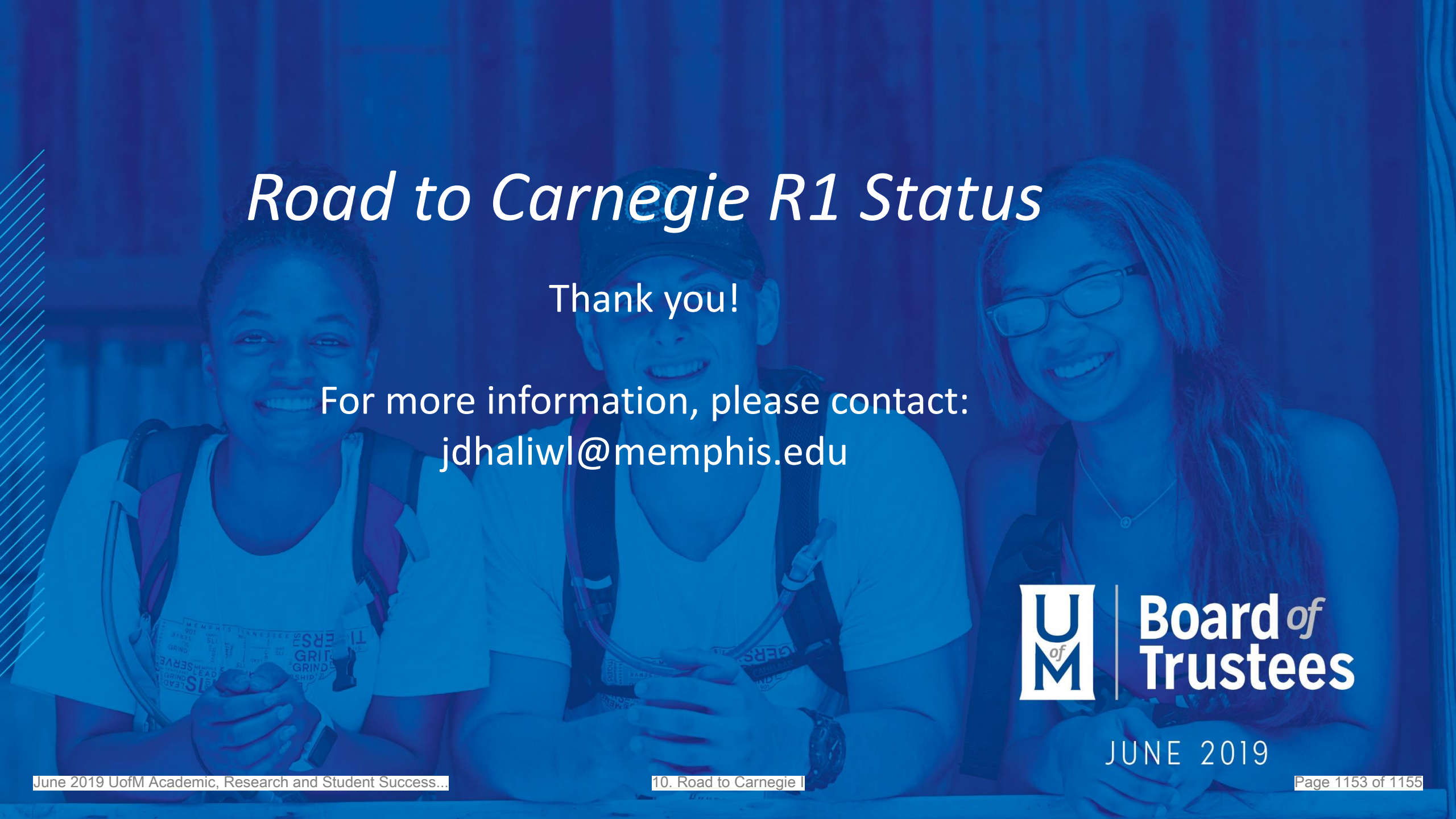
Most recent award: $1,000,000 annually for 5 years (MLGW)

- Seeking 1:1 match ($5,000,000 total) against this award from local corporations
  - Raised $680,000 thus far from two corporations (Carol Roberts is assisting)

Road to Carnegie R1 Status

Thank you!

For more information, please contact:
jdhaliwl@memphis.edu



Board of Trustees

JUNE 2019

11. Additional Committee Business

12. Adjournment