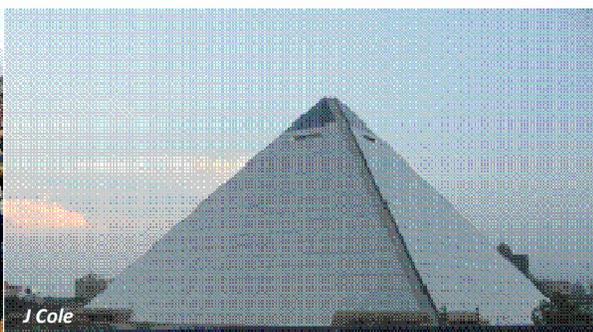


Department of Biological Sciences

creating leaders in research, education and service

College of Arts & Sciences

THE UNIVERSITY OF
MEMPHIS
Dreamers. Thinkers. Doers.



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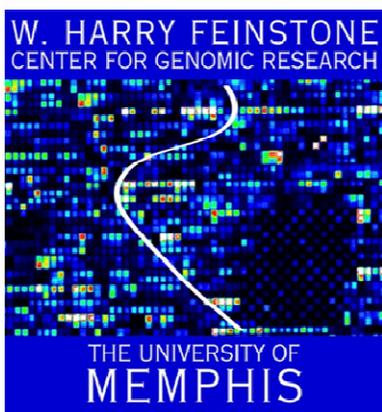
The Department of Biology becomes the Department of Biological Sciences

From Dr. Randall Bayer, Professor and Chair

Over the summer, the Department of Biology changed its name to the Department of Biological Sciences. The primary rationale for making a name change in to the Department of Biology is due to the ever broadening umbrella covered by what has traditionally been called Biology. The Biological Sciences now covers diverse areas such as biochemistry, biophysics, bioengineering, and bioinformatics. Indeed, biological research is in the midst of a revolutionary change due to the integration of powerful technologies along with new concepts and methods derived from inclusion of physical sciences (Chemistry and Physics), mathematics, computational sciences, and engineers. As never before, advances in biological sciences hold tremendous promise for surmounting many of the major

challenges confronting the United States and the world. Historically, major advances in science have provided solutions to economic and social challenges. At the same time, those challenges have inspired science to focus its attention on critical needs. Scientific efforts based on meeting societal needs have laid the foundation for countless new products, industries, even entire economic sectors that were unimagined when the work began. The change of our name to “Biological Sciences” better reflects what has been referred to as the “New Biology”. Indeed the majority of Universities in the United States and Canada have abandoned the traditional “Biology” moniker for newer names, such as Biological Sciences or Integrative Biology.

In Focus: The University of Memphis W. Harry Feinstone Center for Genomic Research



The **University of Memphis W. Harry Feinstone Center for Genomic Research** occupies the 5th floor in the Life Sciences Building. Led by its director, **Dr. Thomas Sutter** (pictured above), the purpose of the Center is to support research and education in the areas of functional and computational genomics and promote collaborative interactions within and outside the University of Memphis. The Center Membership includes faculty from the Departments of Biological Sciences, Biomedical Engineering, Chemistry, Computer Science, Mathematics, Psychology, and the Bioinformatics Program and is a collaborative partner of the FedEx Institute of Technology at the University of Memphis. The Center also has members from the University of Tennessee Health Sciences Center (UTHSC) and St. Jude Children’s Research Hospital (STCRH).

Since 1999, Center faculty have received over \$14M in

grant funding and published more than 100 papers in peer-reviewed journals. The Center has been a consortium member of the NIH-sponsored Integrated Neuroscience Initiative on Alcohol and a Department of Defense Breast Cancer Center of Excellence, which received this designation for its novel approaches towards breast cancer prevention. Other member institutions in the Breast Cancer Consortium include the Eppley Cancer Center at the University of Nebraska, the Fox Chase Cancer Center in Philadelphia, the University of Virginia Medical College, the Stenlin Foundation for Cancer Research and the University of Houston.

Infrastructure support is an important aspect of the Center’s work and has lead to the acquisition of the first Affymetrix GeneChip system in any UT/TBR system university. Acquisition of this equipment has allowed the Center to garner research support and establish research collaborations with SJCRH, UTHSC, Wake Forest Medical School, Johns Hopkins Bloomberg School of Public Health Dartmouth University, University of Nebraska Medical

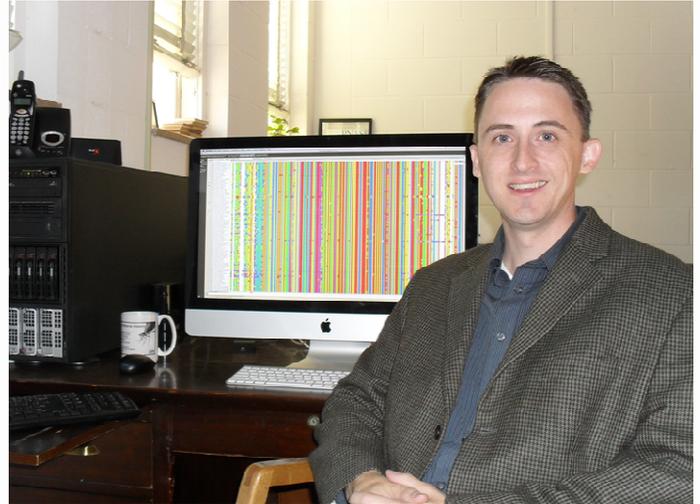




Pictured: **Dr. Shirlean Goodwin** prepares microarray samples. Photo by J Cole

Center, Fox Chase Cancer Center, University of Houston, University of Virginia Medical Center, Vanderbilt University, University of South Carolina, University of North Carolina and New York University. It has also supported collaborations with Roche Biosciences, the General Electric Corporation, Genome Explorations and Affymetrix, as well as the intramural research program of the National Cancer Institute, the National Center for Toxicological Research and ORNL.

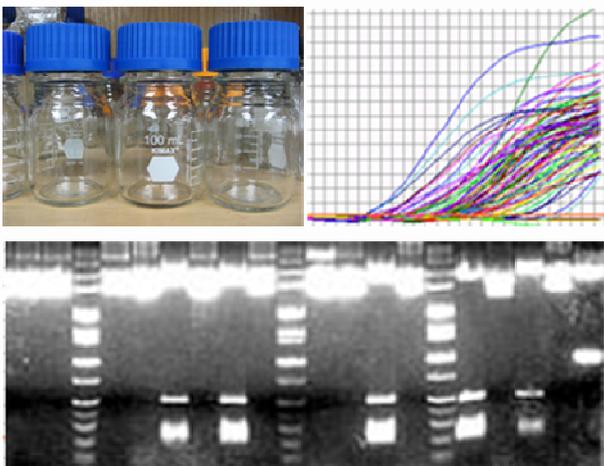
Now that the complete genome sequences of humans, mice and several additional model organisms have been determined, a shift in emphasis is occurring from defining the physical and chemical structure of the genome to determining the biological function of the information encoded by the genome. Functional genomics involves the study global genome-wide or "system-wide" function. A major focus of this research is to define the influence of both genetic and environmental factors on gene expression, with the goal of understanding the anatomy of the genome and the functions associated with sets of genetic information. Several new technologies are helping scien-



Dr. Duane McKenna with a screen full of DNA sequence data. Photo by D. McKenna

tists redefine infectious and chronic diseases, aging and responses to environmental pollutants and drugs, in terms of complex integrated pathways. These same technologies are providing rapid advances in the areas of agriculture, bioremediation, ecology, and evolution.

An emerging interest of the Center is in supporting whole-genome (NextGen) DNA sequence analysis. With the assistance of the Center, **Dr. Duane McKenna**, Assistant Professor of Biological Sciences will do Roche 454 sequencing and Illumina paired-end sequencing on genomic DNA libraries from an insect in the order Megaloptera. He will use the new DNA sequence data and data he has already acquired for this insect to assist in assembling its genome without the assistance of a reference sequence (another complete genome from the same or a related species for comparison). The process of genome assembly is both computationally and methodologically challenging. Basically, it entails taking a large number of short DNA sequences from a shotgun sequencing project and putting them back together to create a representation of the original chromosomes. This process is much more challenging when there is no reference sequence available, as is the case for Megaloptera. To facilitate genome assembly Dr. McKenna will generate an excess of sequence coverage for the megalopteran genome. In addition, reads from a Roche 454 sequencer are relatively long (400-600 base pairs) and should reduce the complexity of assembly by providing a "scaffold" against which the huge numbers of much shorter (50-100 base pairs) reads produced by the other technologies can be aligned and "stitched" together. While in its fledgling stages, this is the first project to sequence a megalopteran genome, and one of relatively few projects to sequence the genome of a holometabolous insect - by far the most diverse group of animals on earth. For more information visit www.memphis.edu/feinstone.



Images provided by J Cole and the W. Harry Feinstone Center

Nobel Laureate Peter Doherty talks about his work

On April 1, 2010, Dr. Peter Doherty presented a talk entitled *Adventures in Immunity: What Day is It?* In 1995, Dr. Doherty received the Albert Lasker Award for Basic Medical Research for his work in immunology. As is often the case, the Lasker Award presaged his 1996 Nobel Prize in Physiology or Medicine. Dr. Doherty shared the prize with Dr. Rolf Zinkernagel for explaining how the body's immune cells (T cells) recognize and protect against viruses in cell-mediated immunity.

Drs. Doherty and Zinkernagel discovered that killer T cells (white blood cells playing a central role in immunity) use two molecules on viral surfaces to recognize infected cells. These molecules include a viral antigen (protein) and a component of the major histocompatibility complex (MHC). T cells recognize "self" (proteins normally expressed by cells) and "non-self" (proteins from viruses). If the T cell recognizes the MHC molecule as "non-self", it then kills the virally infected cell. The T cell uses a T-cell receptor on its surface to recognize the non-self MHC.

In his talk, Dr. Doherty gave an historical perspective on immunology. He described how humans are constantly chal-

lenged by new viruses transferred from animal by new viruses transferred from animal sources (e.g. the recent outbreak of swine flu) and how immune memory has evolved to minimize the cost of these infections; our immune systems "remember" that we have encountered the infection before. This immune memory serves as the basis for vaccination. Dr. Doherty interspersed his talk with reflections on winning the Nobel prize, proving one again that Nobel Laureates are ordinary people.



Pictured: Dr. Peter Doherty. Dr. Peter Doherty holds appointments at the University of Melbourne and St Jude Children's Research Hospital. He is a member of the Royal Society (UK) and the National Academy of Sciences (USA).
Photo by C. Biggers

Faculty News: Promotions and New Faculty



Dr. Stephan Schoech was promoted to the rank of Full Professor in September 2010. Dr. Schoech joined the Department in 2000 and was promoted to Associate Professor in 2004. To achieve the academic rank of Professor, Dr. Schoech established a record of distinguished and effective teaching, service to the Department, the University and the scientific community by serving on committees, scientific review boards and panels as well as editorial boards and panels. He also demonstrated his national and international reputation in his discipline by giving invited presentations at meetings and conferences, by publishing more than 40 peer-reviewed articles and by election as a *Fellow of the American Ornithologists' Union* as well as a *Fellow of the International Ornithologists' Union* in 2010. Dr. Schoech has been continuously funded by the National Science Foundation and mentored many graduate students and post-doctoral fellows. Congratulations to Dr. Schoech.

Pictured left: Dr. Stephan Schoech and a native Chinese panda.



Dr. Omar Skalli joined the Department in August 2010 as the new Director of the Integrated Microscopy Center (IMC). Dr. Skalli received his M.Sc. degree in Neurobiology and his Ph.D. in Cell and Molecular Pathology from the University of Geneva in Switzerland. Dr. Skalli started his academic career as an Assistant Professor in the Department of Anatomy and Cell Biology at the University of Illinois-Chicago. He then moved to the Department of Cellular Biology and Anatomy at the Louisiana State University Health Sciences in Shreveport, with a joint appointment with the Feist Weiller Cancer Center. Dr. Skalli studies the cellular mechanisms responsible for the highly invasive behavior of brain tumors (astrocytomas) which develop from astrocytes or astrocyte progenitor cells. Through his research, he has determined that the intermediate filament protein synemin is present in astrocytomas but not in normal astrocytes and that it is important for the motility of astrocytoma cells. Visit the IMC at www.memphis.edu/imc/

Pictured left: Dr. Omar Skalli, Director of the Integrated Microscopy Center

Faculty News: Grants, Invited Talks, and Awards

GRANTS

Dr. Thomas Sutter and his coPIs **Drs. Carrie Hayes -Sutter** and **Judy Cole** received a 5-year NIH grant entitled *Cellular Determinants of Ah Receptor Signaling* to identify the mechanism(s) by which cell density and EGF receptor signaling affect Ah receptor activation and epidermal barrier function

Drs. Carrie Hayes-Sutter and **Thomas Sutter** received a 1 year grant from General Electric Global Research entitled *Comparison of the Sensitivities of Human and Rhesus Monkey Skin Cells* to compare the sensitivity of human and rhesus monkey skin to induction of CYP1A1 mRNA following *in vitro* exposure to Aryl hydrocarbon receptor agonists.

AWARDS

Dr. Anna Bess Sorin, Instructor and coordinator of BARC (Biology Advising Resource Center) received the **Alumni Association Distinguished Teaching Award**. Each year, four



members of the University faculty are presented Alumni Association Distinguished Teaching Awards in recognition of the high quality of their teaching. Faculty are nominated by students, faculty, and alumni and the twenty faculty members receiving the largest number of nominations are invited to participate. Dr. Sorin has also

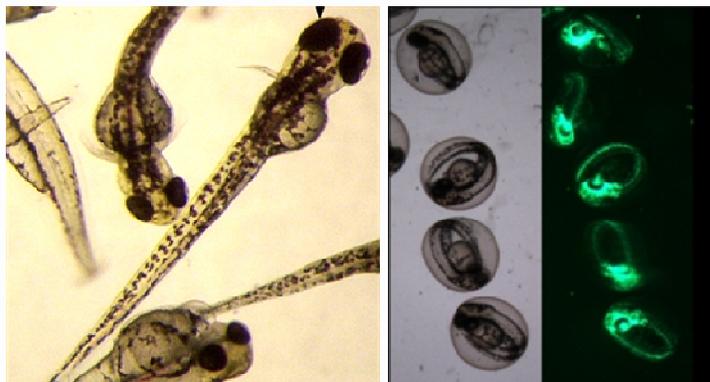
received the *Thomas W. Briggs Foundation Excellence in Teaching Award*, the *Student Disability Services "See Me" Teaching Award* and the *Most Dedicated Teacher, College of Arts & Sciences student body Award*.

Dr. Stephan Schoech, Professor of Biological Sciences was elected a *Fellow of the American Ornithologists' Union* and a *Fellow of the International Ornithologists' Union* in 2010.

Dr. Randall Bayer, Professor and Chair of the Department of Biological Sciences, co-edited *Systematics, Evolution, and Biogeography of Compositae* that was awarded the *Stebbins Medal* for 2007-2009 from the International Association for Plant Taxonomy. This medal is awarded for "an outstanding article or book on plant systematics and/or plant evolution".

Dr. Charles Lessman, Professor of Biological Sciences, received a *Professional Development Award* to spend the spring and summer of 2010 on sabbatical with Dr. Michael Taylor in the Department of Chemical Biology and therapeutics, St. Jude Children's Research Hospital.

While on leave, he made transgenic zebrafish expressing fluorescent proteins and mapped genes. Dr. Lessman also received a *Dunavant College of Arts and Sciences travel award* to work with Dr. Ethan Carver on immunofluorescent studies of the zebrafish paralytic mutant *dead elvis* (which doesn't shake, rattle and roll), identified in the Lessman lab.



Pictured: Zebrafish (left panel) and zebrafish embryos expressing fluorescently labeled proteins (right panel). photos by C. Lessman

INVITED TALKS

Dr. Stephan Schoech gave a keynote presentation *Here today, not gone tomorrow: long-term effects of corticosterone*. in the symposium titled *Corticosterone - long-term impacts on life history* at the 25th International Ornithological Congress, Campos do Jordno, Brazil, August 2010.

Dr. Reza Pezeshki presented *Plant- soil interactions in agricultural ditches, riparian systems, and forested wetlands* at the College of Agriculture, Tottori University, Japan.

Dr. Lewis Coons attended the XIII International Congress of Acarology in Recife, Brazil in August, 2010. Dr. Coons helped organize and moderate the symposium *Global approaches to new nucleic acid technologies* and presented a talk entitled *Regulation of host wound healing cells by tick saliva*.

Dr. Thomas Sutter was an Invited Participant at the Society of Toxicology, Inter-Society Human Health and Disease Prevention Summit, Washington, DC, July 27, 2010. He was also an Invited Speaker, presenting *Genomic Analysis of Human Keratinocytes Identifies Broad Effects of Dioxin on Genes Required for Epidermal Barrier Formation* at Dioxin 2010, San Antonio, TX September 13, 2010.

Dr. Charles Biggers traveled to Denver, CO to attend the 24th Annual meeting of the Human Anatomy and Physiology Society (HAPS) in May 2010.

Dr. Jack Grubaugh becomes Chair of Biology at UT-Martin: Former students reminisce about his time at the University of Memphis



pictured: Dr. Jack Grubaugh

Jack Grubaugh was an Associate Professor of Biological Sciences and Director of the Edward J. Meeman Biological Field Station when he accepted the Chair of Biology at UT-Martin. Dr. Grubaugh arrived at the U of M in 1995, and by the time he left, he had taught over 2000 students, advised 400 more and mentored 8 graduate students. When word spread that he was leaving the University of Memphis, there was an

outpouring of gratitude and best wishes from the student body. What follows are a few examples.

Thank you for allowing me this opportunity to say good things about a professor who deserves the recognition! I am sad that the U of M will be losing him but I know he will make the Department of Biology flourish at UT-Martin as its chairman.

Besides hatred of pandas, Dr. Grubaugh is one of the most charismatic, vibrant, phenomenal educators that anyone could ever have the pleasure of coming in contact with.. he was my mentor, unofficial shrink, and utterly amazing professor. He helped me with matters starting from traffic violations and ending with important lifetime decisions. He is by no means an easy teacher, but he is fair, motivating, and brilliant. Dr. Grubaugh subconsciously creates a drive in his students to do well, and the crucial information learned from his classes have inspired and prepared me greatly for other classes. He was undoubtedly one of the finest instructors at the University of Memphis and I am heartbroken by his departure and it an enormous loss for the university. Many students, including myself, tremendously miss and will always remember Dr. Grubaugh's jokes, guidance, charisma, and love for teaching.

One student remembers the day he saved Dr Grubaugh's life. "Dr. Grubaugh was doing water quality tests at a new construction site and the construction workers were not very happy about it. So on a return trip to resample, he took several students with him, myself included. When he arrived, there was a worker waiting for him, but he quickly left when Dr. Grubaugh and his three body guards exited the van. "

You were such a great influence on many students and will always be remembered fondly at Memphis. I still tell people about your t-shirt that said " The Little Old Engine That Didn't Give a Rat's Behind Either Way."

What I remember most ... is that he ALWAYS kept us laughing. Somehow there would always be pictures of him in the swamp interlaced into our power points. ... he is one of the rare professors that make a lasting impression on a student's life. He was one of the most helpful, most knowledgeable teachers. Biology II required intensive studying to understand the density of materials and how they all correlate. Dr. Grubaugh would offer study sessions where he would re-teach an entire lecture if that's what was needed for us to understand the material. He stayed and repeated things as much as we needed until we understood it. I made a high A in his class, and I think it was because the magnitude of his passion for the things he teaches transferred to me as a student in wanting to understand it.



Pictured: The Medical Entomology class gathers around the "No Man's Land" stone that marks the final resting place of at least 1400 of the yellow fever victims interred at Elmwood Cemetery. Photo by J Grubaugh

Dr. Grubaugh took his students to new and interesting places. Pictured above is his Medical Entomology at Elmwood Cemetery visiting the graves of over 2500 Memphians who died in the yellow fever epidemics in the 1870s.

Dr. Grubaugh, thank you for all you've done for the Department, the University and most of all your students. Best wishes and much success at UT-Martin. They're lucky to have you.

Meet the molerats

In April, 2010, a colony of mole rats left their home in New England for the warmer climates of Memphis, TN. Arriving by World Courier, the colony took up residence in the Life Sciences Building animal quarters where they will be helping Dr. David Freeman understand cooperative breeding and eusocial behaviors. The Damaraland mole rat (*Fukomys damarensis*) and the related naked mole rat (*Heterocephalus glaber*) are the only two mammals to display eusociality, a cooperative breeding system where colony members devote their lives to the reproductive success of one breeding queen. These colonies consist of a dominant breeding pair (a queen and her male breeding partner) and several generations of reproductively suppressed offspring. These non-breeding individuals help the breeding pair raise and care for offspring. Reproductive suppression may involve strong incest avoidance within colonies. Since all of the non-breeders are siblings, this precludes mating among them or with the parents. Additionally, the breeding individuals may actively suppress reproduction in non-breeders by behavioral and/or pheromonal mechanisms.

The non-breeders have a caste system in which one type of non-breeder does the majority of the colony work (e.g., excavating tunnels with their large front teeth, foraging for food, and defending the colony from predators) while the second subset of males do very little work. These so-called "lazy males" may conserve energy until environmental conditions are favorable for leaving the colony to find mates and establish a new colony. Dr. Freeman will be investigating the neuroendocrine and behavioral mechanisms leading to reproductive suppression and identifying the cues and mechanisms that trigger sex behavior between unfamiliar individuals.

In addition to their eusocial behavior, mole rats are very long-lived (14-16 years) for small mammals (70-200 grams). In the "oxidative stress theory" of aging, accumulated oxidative damage due to reactive oxygen species (ROS) is related to aging. Thus, organisms with higher metabolic rates age more rapidly and have shorter life spans. Several vertebrates, including mole rats, fail to conform to the oxidative stress theory of aging as their life spans exceed what is predicted based on their metabolic rate. An explanation for their longevity may be very efficient antioxidant capabilities which counteracts the associated high rate of ROS production, leading to longer life spans. Dr. Freeman is assessing the mole rats' antioxidant capabilities and evaluating rates at which mole rats generate ROS to see if either can explain the mole rat's longevity. To learn more about the mole rats and other research in Dr. Freeman's lab visit www.memphis.edu/biology/faculty/david_freeman.htm



Photos by D. Freeman

Graduate Student News

DEFENSES AND DEGREES

Samuel Pierce defended his dissertation *Flood Responses of *Leersia oryzoides* and *Bacopa monnieri*: Implications for Water Quality in Agricultural Drainage Ditches* March 18, 2010. Dr. Pierce did his graduate work in the laboratory of **Dr. S. Reza Pezeshki**. After brief stint with the Army Corp of Engineers, Dr. Pierce is now a post-doctoral fellow at the Fisheries and Wildlife Research Center at Mississippi State University in Starkville, MS.

Xiaoguang Ouyang presented his defense of *Activation of Yap1 by Hydrogen Peroxide of Cysteine Thiol-reactive Michael Acceptors Leads to Selective Adaptive Gene Responses in the Yeast *Saccharomyces cerevisiae** on April 7, 2010. Dr. Ouyang performed his dissertation work in the laboratory of **Dr. Thomas Sutter** and he is now a Research Associate at the Memphis Zoo in Memphis, TN.



photo by J. Cole

Manali Jonglekar defended her Masters thesis on April 15, 2010. Her thesis work entitled *FeCl₃-induced thrombus formation in the inferior vena cava of mice requires platelets, glycoprotein Ib-IX and von Willebrand factor* was performed in the laboratory of **Dr. T. Kent Gartner**. Ms. Jonglekar is now a Research Assistant in the labora-

tory of the lab of Dr. Gowthami Arepally in the Hematology Division, the Department of Medicine at Duke University School of Medicine in Durham, NC

Travis Wilcoxon defended *Reproductive Senescence in the Florida Scrub-Jay (*Aphelocoma coerulescens*)* on June 30, 2010. Dr. Wilcoxon did his dissertation work in the laboratory of Dr. Stephen Schoech and is now an Assistant professor of Biology at Milliken University in Decatur, IL.

Carolyn Kramer defended her dissertation entitled *Regulation of Host Cell Signaling by Salivary Gland Extract and Saliva from *Dermacentor Variabilis* ((SAY)* on July 1, 2010. Dr. Kramer did her graduate work in the laboratories of Drs. Lewis Coons and Judy Cole and is now teaching at Southwest Tennessee Community College.

PRESENTATIONS

Boughton, R. K., S. J. Schoech, E. S. Bridge, M. S. Pruett, J. W. Fitzpatrick, and R. Bowman. *Environmental drivers of laying date in Florida Scrub-Jays (*Aphelocoma coerulescens*)*. 25th International Ornithological Congress, Campos do Jordno, S.P., Brazil, August 2010.

Michelle Rensel gave an oral presentation titled "*Insights into cooperative breeding from studies of Florida scrub-jays*" and a poster titled "*Glucocorticoids: repeatability and fitness in young Florida scrub-jays (*Aphelocoma coerulescens*)*" at the 25th International Ornithological Congress, Campos do Jordno, S.P., Brazil, August 2010.

Melissa Koontz and **Justin Geise**, attended the 2010 meeting of the South Central Chapter of the Society of Wetland Scientists Oct 21 - 23 in Oxford, Mississippi. Melissa Koontz presented a talk entitled *Flooding conditions and nitrogen concentration affect growth of a buffer grass: *Leersia oryzoides* (L.) sw. (rice cutgrass)*. Justin Geise presented *The effects of fragmentation on arthropod biodiversity in native canebrakes*.

AWARDS

Mariah Benesh is the recipient of the College of Arts and Sciences Travel Enrichment funds to go to the Natural History Museum at Tring (near London) in the United Kingdom.

POST-DOCTORAL POSITIONS

Michelle Rensel has accepted a post-doctoral position in the laboratory of Dr. Barney Schlinger at the University of California Los Angeles starting February, 2011.



Staff News



Raquel Marion received her Masters of Public Health in August 2010. Her Master's project "The Development of the Riverview-Kansas Community Risk Communication Action Plan for the Memphis and Shelby County Health Department Pollution Control Division". Ms. Marion's advisor was Dr. Marian Levy, Associate Professor and Director of the Master of Public Health Program, University of Memphis. In addition to working on her Master's, Ms Marion serves as Molecular Science Lab Coordinator for the department. Ms. Marion coordinates the Introduction to Biology I and General Biology I labs which instruct over 300 students per semester. She also mentors and manages Biology graduate students in leading the instructional labs. Her goal is for the labs to run efficiently and the lab students to have a positive academic experience every semester.

Pictured left: Raquel Marion, MPH.

Undergraduate News: 2010 Awards, Scholarships, and Degrees

BIOLOGY UNDERGRADUATE AWARDS

Sohail Khodabakhshi received the College of Arts and Sciences *Dean's Award for Outstanding Undergraduate*. This award is presented to a student who has displayed outstanding academic achievement, as well as strong leadership, character, scholarship, and contribution to department and campus activities.

Michael (Cody) Scarbrough received the *Biology Faculty Award for Outstanding Undergraduate*. This award is presented to the student who has made the most significant contribution to the department during the past academic year. Nominations are solicited from Biology faculty and the recipient is selected by the Biological Sciences Undergraduate Studies Committee.

BIOLOGY SCHOLARSHIPS

The Department of Biological Sciences is pleased to announce a new undergraduate scholarship. Jessica Linney (BS Biology, 2001) has established the **Justin Lasure Scholarship** in memory of her late brother. The Lasure scholarship provides a one-year award of \$2,000 to Biology majors with preference given to students with a minimum grade point average of 3.5 who are enrolled in Biology research courses (BIOL 4000 or 4001). The first recipient of the scholarship for the 2010 academic year is **Caroline Melton**.

The Department of Biological Sciences Scholarship Committee also awarded the following scholarships to deserving undergraduates.

Elena Gheorghiu-Polk: *The Botany Scholarship* for to a student with interests in Botany.

Mellie Riddle: *The Edward T. Browne Biology Scholarship* is presented to a Sophomore, Junior, or Senior majoring in Biology who has a minimum GPA of 3.25.

Yasasvi Vasili and Melanie Hinte: *The Goldye Feinstone Scholarship* is given to a Sophomore, Junior, or Senior majoring in Biology who has a minimum GPA of 3.25 and an interest in microbiology or molecular cell sciences.

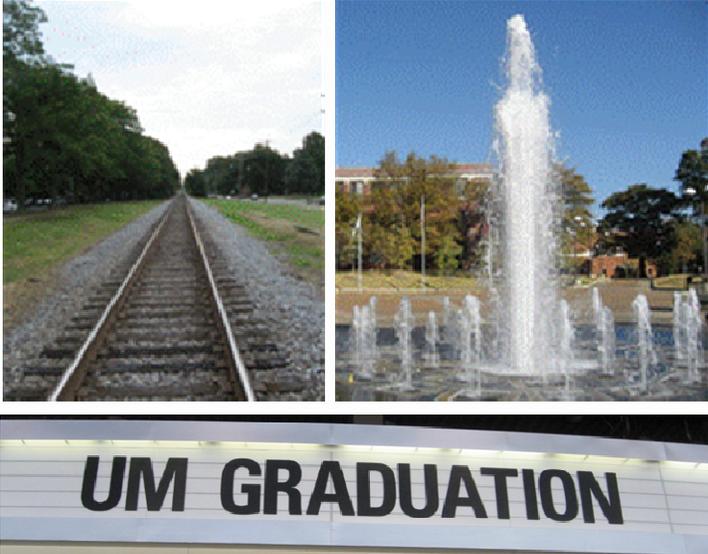
Ashley Whitehead: *The Dr. Virginia M. Norton and Dan Norton Scholarship* is awarded to a Junior or Senior with an expressed interest in a career in Health Science.

Janelle Valle: *The Priscilla Rushton Scholarship* for a Sophomore, Junior, or Senior majoring in Biology who has a minimum GPA of 3.25.

Caroline Melton won *The Omar E. Smith Ecology Scholarship* for the development of an ecological research project conducted under the guidance of a faculty member in the Department of Biological Sciences.



Undergraduate News: The Graduates of 2010



The May graduates represented a milestone for our department. They were the largest and most academically successful group of Biology majors ever to graduate the University of Memphis in a single semester. These are their statistics:

- fifty-eight Biology majors graduated, accounting for more than 63% of the Bachelor of Science degrees from the College of Arts and Sciences
- Biology Majors accounted for:
 - 15 of the 19 students graduating *cum laude*
 - 13 of the 17 graduating *magna cum laude*
 - 11 of the 13 graduating *summa cum laude*
 - 14 of the 17 graduating with University Honors

Congratulations to our graduates!

Biologists@Large



Michelle Wilkes-Martin holding a 50 lb Chinese Giant Salamander.



Forrest Brem with his *Orchid of the Month* Award from the Memphis Orchid Society. To the right, his prize winner.



Michelle Wilkes-Martin (*above, left*) traveled to China with the Memphis Zoo research team to work with China researchers, reserve managers, foresters, and policy makers to coordinate the next phase of a landscape-level biodiversity conservation initiative in the Qinling Mountains of central China. During part of her stay, Michelle worked at a salamander farm. Giant Salamanders are an endangered species because they are hunted for medical purposes and for their meat, which is considered a delicacy. The Chinese giant salamander is the largest living amphibian and can reach over 1.8 meters in length.

Congratulations to **Forrest Brem** (*above, middle*) for yet another prize winning orchid. A species of *Gongora* won the Memphis Orchid Society's "Orchid of the Month" for March. Most of the species of *Gongora* are very easy to grow and perfect plants for neophyte orchidophiles

Biologists@Large



Director of the Marcus Orr Center Jonathan Judaken (l) and Pulitzer Prize-winning historian Edward Larson (r) lead a discussion in Ellington Hall on evolution and public education. The event was sponsored in part by the Department of Biological Sciences and held in conjunction with the BIOL 4100 (Evolution) class. *Photo by*

In late March, the Department of Biological Sciences and the Department of History helped the Marcus Orr Center for the Humanities to host Professor Edward Larson – a Pulitzer Prize-winning author, historian, and renowned expert on the debate over evolution in public education – on a visit to the University of Memphis campus. Dr. Larson gave the inaugural presentation in the theater of the newly-constructed University Center, speaking to over 300 students, faculty, and community members on the topic, “Dayton to Dover: Darwinism on trail, then and now.” The next day Dr. Larson also led an open discussion in the main lecture room in

Ellington Hall over the famous Scopes trial in Dayton, Tennessee, and the more recent court decisions addressing the teaching of evolution. While the discussion took place as part of the BIOL 4100 (Evolution) class, it was open to the public and well-attended by community members and students outside of Biology. Dr Larson’s presentation was the second in a series of collaborations between the Marcus Orr Center and the Department of Biological Sciences designed to explore the connections between science and the humanities. The previous collaboration highlighted the biological, historic, and social impacts of the yellow fever epidemics on Memphis the late 1800’s.



Chad Pope (third from left) explains the ecological role of spicebush to participants in the Audubon Society’s Naturalist Course at Meeman Biological Field Station. The class meets one day each spring at Meeman Station to hear lectures on ecology presented by the biology faculty. *Photo by J Grubaugh*

Biologists@Large



Scientific Advisory Committee, Memphis Zoo. From left to right Dr. Rosanna Capelatto (Rhodes College), Dr. Judy Cole (Chair, University of Memphis), Dr. Ashli Brown (Mississippi State University), Dr. Karyl Buddington (University of Memphis), Dr. Mary Ogilvie (Christian Brothers University) and Dr. Andy Kouba (Director of Conservation and Research, the Memphis Zoo). *Photo by C Vance*

Drs **Karyl Buddington** and **Judy Cole** serve on the *Scientific Advisory Committee (SAC)* for the Conservation Action Network (CAN) at the Memphis Zoo. Created in 1998, the grants division supports local, national and international conservation projects for endangered species and their habitats and has awarded more than \$300,000 to zoo staff and our research associates for conducting projects in the U.S., Brazil, China, Latin America, Caribbean, Russia and Africa. Each spring the zoo awards \$25,000-\$40,000 in grant funds to projects that are peer-reviewed by the SAC. Once these evaluations are completed the CAN board members review the comments and make funding decisions in late April.



UMAR members enjoy the facilities at Meeman Biological Field Station during their annual spring picnic *Photo by J Grubaugh*

In May, fifty members of the **University of Memphis Association of Retirees (UMAR)** gathered at Meeman Biological Field Station for their annual spring picnic. In addition to barbeque and a pot-luck meal, participants learned about the history of Meeman Station from the first director Robert McGowan, held a raffle for lots of great prizes, and enjoyed wonderful conversation while listening to a hammer dulcimer performance. This is the second consecutive year that UMAR has held its picnic at Meeman Station.



After morning lecture, Dr. Mike Kennedy has an impromptu discussion with some of the TWRA professionals and U of M students who attended the remote sensing course at Meeman Biological Field Station. *Photo by J Grubaugh*

In March **Dr. Michael Kennedy** offered a special course at Meeman Biological Field Station in remote-sensing techniques to census large-mammal populations. Participants included biologists from the Tennessee Wildlife Resources Agency as well as University of Memphis graduate and upper-division undergraduate biology students. In addition to discussing some of the modern techniques used for wildlife management, the class provided an excellent opportunity for our students to meet and interact with professionals in the field of wildlife conservation.

Selected Publications by Faculty and Graduate Students

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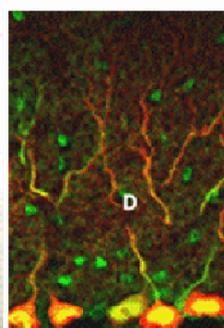
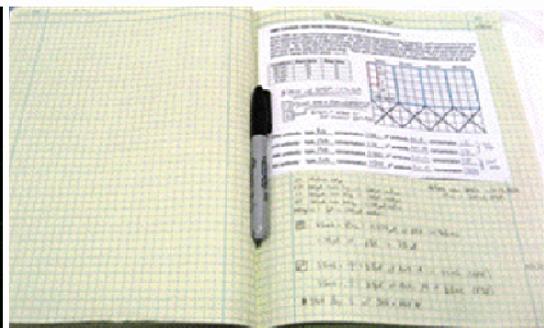
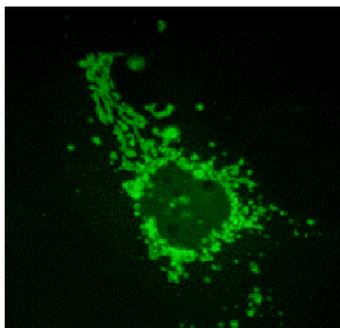
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Selected Publications by Faculty and Graduate Students

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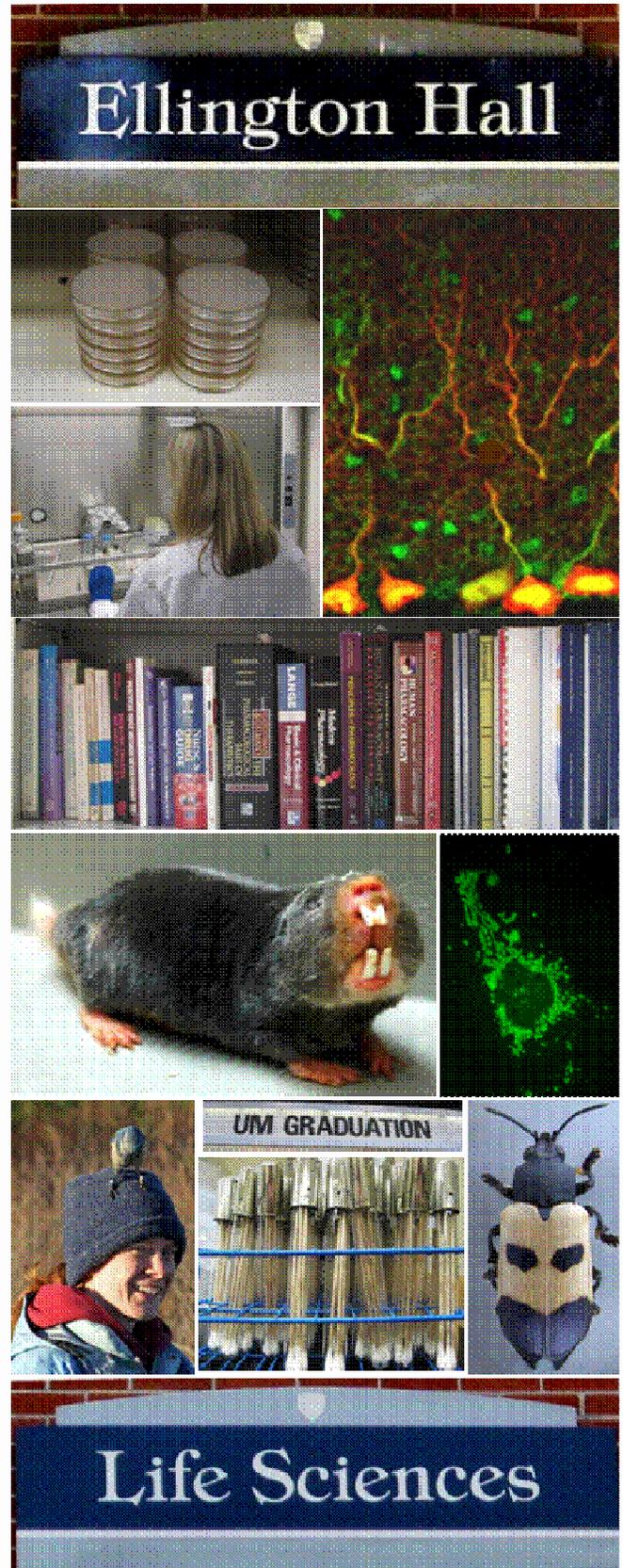
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Photos : J Cole, R Homayouni, D Freeman, T Wilcoxon and D McKenna

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