

# COMP 4882 – Capstone Project

## Spring 2022

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**Instructor:** Dr. James Yu  
Email: [jyu8@memphis.edu](mailto:jyu8@memphis.edu)  
Office: Dunn Hall 320  
Office Hours: By appointment (email). I am generally available in the mornings (M – Th).

**Course Team TA/GA:** TBD

**Textbook:** No explicit required textbook. We will have lecture notes and reading material from various sources in Canvas throughout the course.

**Meeting Times:**

Lectures/ Project team meetings: (in person as in-class)  
Tues, Thurs 2:40 pm to 4:05 pm. Dunn Hall 123.

**Catalog Description:**

Development of significant team project; continuation of COMP 4081; software project management; risk assessment. Software requirements and specifications; software design; software validation; professional and ethical responsibilities. PREREQUISITE: COMP 3115, 4030, and 4081, or permission of instructor.

**List of highly recommended reference textbook resources:**

- Agile Project Management, by Jim Highsmith
- Agile Estimation and Planning, by Mike Cohn.
- Design Patterns, Elements of Reusable Object-Oriented Software, Eric Gamma, Richard Helm,
- Lean Architecture for Agile Software Development, by James O. Coplien.  
Ralph Johnson, John Vlissides (GOF).
- Refactoring, Improving the design of existing code, Martin Fowler
- Software Architecture in Practice, 3/E by Len Bass
- Documenting Software Architectures: Views and Beyond, 3/E by Paul Clements.
- The Pragmatic Programmer, by Andrew Hunt, David Thomas.
- Test-Driven Development by examples, by Kent Beck.

**Capstone Project Course Objectives:**

By the end of the capstone project course, students will have demonstrated their proficiency in:

- work in a self-collaborative team organization environment,
- understand the principles and practices of Agile software development
- gather and prioritize user requirements with clients and team members
- decompose a complex problem, formulate, and provide a rapid prototype for feedbacks,

- explore and propose an alternative solution,
- present to an audience in various forms, oral, written, live demo, and formal presentations

### Expectations:

Each student should spend 8-10 hrs/week on average throughout the semester. These hours include 85 minutes of lecture/team meeting (Tuesday, Thursday) time and 8 hrs outside of class time each week. Most of the class time (80%) covers SCRUM, sprint planning discussions, requirement analysis, user stories brainstorming and mapping, architecture and design layout, sprint demo presentation, and interaction with the instructor. The rest of the class time (20%) will focus on the announcement, brief lecture, and discussion of the current sprint and results. It is not easy to have every team member altogether during the week other than the lecture time. Plan your meeting time wisely with a proper (committed) schedule and goals by having an agenda (Team Lead/Scrum Master). **Attending all your classes and project team meetings is mandatory.** Every team member should have specific roles and responsibilities. Your team scrum master (or team lead) records the scrum meeting minutes with attendants. Every member delivers his/her part of the contributions according to the roles/responsibilities incrementally (per sprint release). The project contributions are graded based on each spring release result.

Not attending the class or the scheduled team meetings (outside the class time) without a valid reason is unprofessional as your team members depend on you. In addition, that will reduce your contribution (ICR) grades. The same applies to tardiness.

### Evaluations (Total 100%)

**90% Sprint Releases (Live Demo, Presentation, Reports)**

**10% Participation (Peer-Peer Reviews)**

Project (Sprint) Release	Sprints	Date (2022)
SP0 – preparation : JIRA tutorial and project setup, gitHub (svc), project selection, Team formation, problem statement (version 1), Sprint Plan		
SP1: sprint plan (PBL), gitHub (SVC), JIRA ready Problem statement (version 2), Key Arch components, prototype.	SP1: 20%	Feb 13
Live demo1, sp1 release reports, SP2 plan	SP1:demo	
SP2: PBL, SBL user stories update; ICR and Team reports, test results Live demo2, sp2 release reports, SP3 plan	SP2: 30%	Mar 13
SP3: SBL, ICR, user stories/points , project results update, test results Live demo3, sp3 release reports. SP4 demo prep.	SP2:demo	
SP4: Final Demo only Live demo4 (Final Showcase)	SP3: 40%	Apr 10
	SP3:demo	
	SP4: 10%	Apr 25 – 29
	SP4: demo	(TBD)
	total 100%	

- Students must pass both sprints 3,4 (Final sprint demo + reports completeness), and the participation scores (> 50%) to pass the course. **Failure to achieve that will result in an 'F' grade.**
- Absent in sprint demo: not present in sprint demo will receive a zero mark without a valid medical note. The student(s) will have to do a makeup later if the course calendar is allowed and other team members are available.

### Grading scale.

A	B	C	D	F
100 -> 89	88 -> 76	75 -> 65	64 -> 60	59 -> 0
<b>A+ ≥ 97%</b>	<b>B+ 85–88%</b>	<b>C+ 71–75%</b>	<b>D+ 62–64%</b>	<b>F ≤ 59%</b>
<b>A 92–96%</b>	<b>B 80–84%</b>	<b>C 67 –70 %</b>	<b>D 60–62%</b>	
<b>A– 89 –91%</b>	<b>B– 76–79%</b>	<b>C– 65 –67 %</b>		

There are four (Sprint) releases with live demonstration and sprint project reports (team + ICR) (peer-to-peer). Each team member needs to include the participation score of their team members with their ICR report. Failure to do so will forfeit their participation marks from the team members.

The first releases (SP1) focus on project selection, team formation, project problem statement, prototyping, development environment preparations, and tutorials on frameworks and tools. The second and third (SP 2,3) releases focus on the project features sprint execution with live demonstrations. The last sprint (SP4) focuses on the final wrap-up and project showcase demo. Each sprint project release deliverables consists of an Individual Contribution Report (ICR)(80%), and one team report (20%). Only one team report per team is required representing the overall project results from the entire team. The team report is written incrementally from each sprint by every member and graded accordingly. 20% of the sprint mark comes from this team report grade weighted by your ICR result, as shown in the following example:

Team A has a score of 88% on a sprint team report:

Team A has five team members with ICR scores of (80, 75, 30, 90, 95) % (no demo scores)

The team report distributed among the five team members will be (%):

$$(80/95 * 88) = 74$$

$$(75/95 * 88) = 69$$

$$(30/95 * 88) = 28$$

$$(90/95 * 88) = 83$$

$$(95/95 * 88) = 88$$

The sprint report score after the weighted team report results:

$$\text{Student 1} = 80*0.8 + 74*0.2 = 79$$

$$\text{Student 2} = 75*0.8 + 69*0.2 = 74$$

$$\text{Student 3} = 30*0.8 + 28*0.2 = 30$$

$$\text{Student 4} = 90*0.8 + 83*0.2 = 89$$

$$\text{Student 5} = 95*0.8 + 88*0.2 = 94$$

The total score for a sprint = (demo\*0.2 + report\*0.8)\*0.9 + participation\*0.1

Students with missing individual sprint reports (ICR) will receive zero for that entire sprint (i.e. no team report or demo marks).

Every team member needs to contribute to writing the team report. However, it does require an "author" to organize and integrate materials from all team members. To do a proper job does need time and effort. This author will receive an additional 5% of the team report mark as a bonus. The team report authorship should rotate among the team members. However, it is up to the team to decide among themselves. Every team member shall do a thorough final review to ensure their contributions are in the team report. Within each ICR, every team member needs to perform a peer-to-peer evaluation of each other (individually) as shown in the following: (ICR without filling out the participation form will forfeit your partition score)

**Participation (10%):** In a separate file (Peer2PeerSprint.docs), each team member needs to fill out the following table as a peer-to-peer evaluation (individually). Failure to do so will forfeit their participation marks from his/her team members. Please refer to the Peer2PeerSprint.docs for more description.

	Criteria	Name1	Name2	Name3	Name4
1	Team members (First name) (not including your name)	BOB	Mary	Joe	Sue
2	Present: (0 or 1 ) if 0 (absent), all the rests are zero. (if present = 0, there is no need to grade the rest)				
3	Present and engage in all team meeting discussions. (1 don't care -- to -- 5 fully engaged in discussions)				
4	Contribute to sprint planning discussion and create backlog (PBL, SBL) items (1 no contribution -- to -- 5 creative and produce practical backlog items )				
5	Consistent in pulling and committed to the SBL ownership. 1 no SBL ownership -- to -- 5 fully committed with timely delivery )				
6	Team communication: genuine updates during SCRUM 1 no updates, --- to -- 5 moving the team towards to meet the sprint goal.				
7	Helpful to the team overcoming issues (in all Software Engineering activities) 1 not involved bystander – to – 5 the goto "firefighter."				
8	Consistently providing retrospective feedbacks for improvement 1 none or complaints-- to-- 5 constructive actions for the next sprint				
9	Respectful and recognizing the dignity of others. 1 very poor -- to-- 5 very well manner				
	<b>TOTAL</b>				

*Maxi = 41 points*

**Submission and late policy.** You need to submit the project reports (team and ICR) on time into Canvas (memphis.instructure.com). Late submission is acceptable with the following penalty policy:

- 0 to 24 hours late: 20% penalty
- 24 to 48 hours late: 40% penalty
- more than 48 hours: no mark

**Exams:** There are **no exams for this class**. All appeals to the sprint result marks, except to that of the final project sprint demo/report, must be registered with the instructor before the scheduled last project sprint demo date.

## [Important: Dates and Deadlines for the Academic Year 2021-2022:](#)

### **Academic Integrity:**

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 project, programming, reports 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 work, 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 project results (live demo and reports) 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>.

### **Student with Disabilities**

If you require disability-related accommodations to meet the course objectives, please contact the Coordinator of Disability Resources located in the Student Development and Advising area of the student services building. For more information about Disability Resources or academic Accommodation, please visit the website at: <http://www.memphis.edu/drs/>

### **COVID-19 INFORMATION**

#### **(Please refer to the following link**

<https://www.memphis.edu/coronavirusupdates/guidelines/index.php> for the policies on COVID-19 Health and Safety)

#### **Class Format**

- In-person/on-ground.
- If you are experiencing symptoms such as sneezing, coughing, or a higher than normal temperature, please get in touch with your health care provider or the Student Health Center at <https://www.memphis.edu/health/>
- Do not attend class in person if you're showing symptoms of illness. However, I will make every effort to have class materials available online for those who cannot attend in person.
- The policy permits faculty members to take action for non-compliance with mask use. If students have concerns about faculty or staff mask use, contact Human Resources at [hr@memphis.edu](mailto:hr@memphis.edu) or 901.678.3573.
- Faculty delivering on-campus instruction may remove their face mask to teach, provided they are located within a delineated teaching area that is no less than 6 feet from students.
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University's COVID19 website ; [Coronavirus Updates - Coronavirus Updates - The University of Memphis](#)

### **Student Resources**

Additional resources can be found on the Dean of Students website at <https://www.memphis.edu/deanofstudents/crisis/index.php>