Syllabus- CSE416.3 (Software Engineering)

3 credits

Course Information

Semester:	Fall 2024
Time:	Tuesday and Thursday, 2:00PM - 3:20PM
Location/Delivery:	In-person and Synchronous online: direct instruction occurs in real time either in the designated classroom (CS2120) or via a Zoom session. Most sessions are planned to be offered in-person, but some sessions may be held through Zoom if the educational objectives can be better achieved on-line. For any on-line session, an e-mail message will be sent in advance to each student with the URL needed to access the session. Recordings of in-person class sessions will not be made available, so be sure to attend during the regular class hours. Recordings of on-line class sessions will also not be made available, but you will be enabled to record each session once you are admitted into the Zoom session.
Text (recommended, but not required):	1. UML Distilled, 3rd Edition, Martin Fowler, Addison-Wesley, ISBN# 0-321-19368-7, 2003.

Contact Information

Instructor:	Dr. Robert Kelly
E-mail:	robkelly@cs.stonybrook.edu (be sure to include "CSE416" with no spaces, in the subject line of any e-mail message you send to me)
Office hours:	Zoom sessions: Mondays, 5:00PM-6:30PM and Wednesdays, 2:00PM-3:30PM (send me an email message in advance to set your appointment time). If possible, I will attempt to schedule your office session before the next available office hours' time slot.
Office location:	New Computer Science 218

Content

CSE416 integrates and applies the basic concepts and modern tools and techniques of Software Engineering into a semester-long project. It emphasizes the development of reliable and maintainable software via system requirements and specifications, software design methodologies including object-oriented and procedural design, implementation, integration, and testing; software project management; life-cycle documentation; software maintenance; and consideration of human factor issues.

This is a project course, so you will be working in a team of 3-4 students to develop a complex system using the principles of software engineering. A single project will be available for all students.

For CSE majors, completion of CSE 316 (or CSE260) is required to enroll in this course. You will also find that CSE305, CSE333. CSE336, CSE337, and CSE356, although not required, provide some suitable background to CSE416. Depending on how many of these courses you have completed, you may need to spend more time working on the course project to understand the related database technologies, user interface principles, and programming languages.

Course Objectives

The outcomes for the course are:

1. An ability to perform project planning, requirements analysis, and system/test design.
2. An ability to work effectively as a member of a software development team.
3. An ability to produce software systems that meet specifications while satisfying an implementation schedule.
4. An ability to produce professional quality oral/written presentations of system designs, reviews, and project demonstrations.

Interaction

For in-person class sessions, class interaction will be through questions raised in class. For Zoom sessions, class interaction will be provided using the interaction features of Zoom. For example, during a Zoom session, students are encouraged to enter any questions using the chat feature. Appropriate questions will be reviewed by the instructor at suitable times during the session, read to the class, and answered. An on-line grade sheet is available during the semester that contains scores for all graded assignments and exams. Oral communications scores are also included. Grades are updated frequently so that students know their up-to-date class status. The grade sheet also contains a ranking so that students know their ranking in the class according to the grading formula during the semester. All graded reviews (e.g., code reviews) include frequent feedback during the review. Following the session, the comments are summarized and available to the students on request.

Assignment Information

Students are expected to work on the project as part of a small group (maximum of 4 students in a group). Students can form their own team, but students without a team will be assigned to work with other students.

The semester project includes several deliverables during the semester. Some of these are intended to ensure that students stay on track, while others are meant to provide feedback during the semester. A few project components are major milestones and will be graded, with the grade counting towards a student's final project grade.

Each group of 3-4 students use a shared repository, accessed by members of the group along with the TAs. However, most of the grading is done through a series of project reviews. Some ungraded assignments are required, submitted either directly to the instructor or submitted through the shared repository.

Students are required to have access to a suitable computer system, compatible with the minimum Zoom audio/video requirements, including camera and microphone. Access to special project hardware and software (e.g., database server and SeaWulf high performance computer) if required, will be provided.

Grades and Exams

This is a 3-credit graded course. The final grade is based primarily on the project, but the grade is also influenced by performance on the mid-term exam, as well as oral and written communications during class.

The components of the grade are:

- Mid-term exam - 25%
- Oral communications - 15%
- Project - 60%

The Pass/No Credit (P/NC) option is not available for this course.

Oral communications score

The oral component of the grade is designed to reflect oral communications skills for students as a member of a software engineering development or research team. An important consideration in this part of the grade is that a student's grade cannot be reduced by any of his/her oral communication in class. A student starts at 0 points in this category, and that grade is increased when the student shows evidence of effective oral communications. These points are typically earned through "volunteer" presentations in class, class interactions, and graded project reviews. The classroom is meant to be a safe way for a student to learn the skills necessary for software team communications. Students receive feedback on oral communications, so that he/she can improve these skills. After any class interaction, a student can request additional feedback.

Project score

The project score is calculated as the weighted average of scores for 1) GUI prototype (10%), 2) client-server prototype (5%), 3) DB access prototype (5%), 4) design review (25%), 5) code review (20%), and 6) final project presentation (35%). The DB access prototype might be removed from the project score calculation, and if it is, the other score components will be adjusted accordingly.

Graded project sessions (i.e., GUI review, client/server prototype, DB access prototype, design review, code review, and final presentation) will be scheduled for each team primarily outside of class hours. Students must have an audio and video connection to any such session. These sessions will be recorded to ensure student access and participation.

Mid-term exam

The mid-term is closed book and conducted as a 15-minute oral exam through a Zoom video session scheduled primarily outside of normal class hours. The exam will be designed to assess your skills in requirements analysis, teamwork, project management, and design. Depending on class size, there may be no regular class hours during the week of the mid-term exam. The exam will be recorded,

and a student's identity will be validated against his/her official Stony Brook photo. There will be no make-up exams.

Students participating in University-sponsored activities will be offered options for make-up of exams and assignments consistent with the University policy as stated in the Undergraduate Bulletin. Similarly, accommodations to students concerning syllabus assignment and exam policies for religious reasons will be granted consistent with Undergraduate Bulletin policies.

TA

The class TAs are available to help students understand the material in many ways. They will provide hints and suggestions when they respond to the submission of a homework assignment. They may also be available in teaching sessions conducted in special video sessions.

The TAs and the instructor will be coordinating hints and instructions concerning the project components through Piazza. Piazza is a Q&A platform designed to get answers from classmates and instructors. It serves as a forum to allow students to collaborate and solve common challenges. Students can post questions, and the instructor and/or TAs will post answers on Piazza shortly thereafter. Students are also encouraged to answer questions posted by classmates.

We will also be posting assignment-specific instructions or notices on Piazza. For the sake of academic integrity, students should avoid posting actual code in the discussion forums.

Academic Integrity & Behavior

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, and Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html.

Students are expected to attend every class, report for examinations, and submit major graded coursework as scheduled. If a student is unable to attend lecture(s), report for any exams or complete major graded coursework as scheduled due to extenuating circumstances, the student must contact the instructor as soon as possible. Students may be requested to provide documentation to support their absence and/or may be referred to the Student Support Team for assistance. Students will be provided reasonable accommodations for missed exams, assignments, or projects due to significant illness, tragedy, or other personal emergencies. In the instance of missed lectures or labs, the student is responsible for review of posted slides, participation in Piazza interaction, and seeking additional information from classmates, TAs, and the instructor. Please note, all students must follow Stony Brook, local, state and Centers for Disease Control and Prevention (CDC) guidelines to reduce the risk of transmission of COVID.

Special Assistance

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation are confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Student Accessibility Support Center. For procedures and information go to the following website: https://ehs.stonybrook.edu/programs/fire-safety/emergency-evacuation/evacuation-guide-people-physical-disabilities

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.