Overview

Software engineering has become one of the most complex of human activities. It deeply integrates both social and technological processes. Socially, software engineering can be performed by individuals or by diverse communities of millions or more spanning the globe. Technologically, software engineering can involve a few hundred lines of code to run as a script on a user’s own computer, or hundreds of millions of lines of code that provide fundamental control and communications infrastructure. The quality of any software system ultimately depends on how well it satisfies human wants and needs with minimal failure.

This course introduces the theory and practice of software engineering, with a focus on planning and design processes. Topics include methods and tools for software specification, design, and documentation; software development processes; and professional ethics, responsibility, and liability in the software lifecycle. You will learn about current software engineering practices and tools, and complete the first half of a year-long team project. Interaction with project sponsors from industry, government, and academia will provide realistic experience with software engineering from a professional (rather than just a casual coder) perspective.

The general/overall learning objectives for this course include: ability to apply knowledge of mathematics, science, and engineering (ABET Outcome A); ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired standards (ABET Outcome C); ability to function effectively on teams to accomplish a common goal (ABET Outcome D); an understanding of professional and ethical issues and responsibilities (ABET Outcomes E1 and E2); ability to communicate effectively with a range of audiences (ABET Outcome F); demonstrate a recognition of the need for and an ability to engage in continuing professional development (ABET Outcome H); ability to use the techniques, skills, and modern engineering tools necessary for engineering (ABET Outcome I); ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices (ABET Outcome J); ability to apply design and development principles in the construction of software systems of varying complexity (ABET Outcome K).

General Information

Place: 225 Carnegie (CARN)
Days: Tuesday+Thursday
Time: 3:00pm–4:15pm
Instructor: Chris Weaver
Office: 241 Devon Energy Hall
Email: weaver {at} cs {dot} ou {dot} edu
Phone: 405.325.3380 (email preferred)
Office Hours: Tuesday+Thursday 1:45pm–2:45pm, Friday 11:00am–12:00pm, and by appointment.
Prerequisites: CS 3323 and COMM 2613 and ENGL 3153 or BC 2813, and Computer Science major or minor. No student may obtain credit for CS 4263 and CS 5213.

Materials

Class Web Pages:
Required Textbooks:


Evaluation

In this course you will be learning and applying software engineering theory and practice. The interrelatedness of software engineering topics makes it essential that you attend class consistently and engage in discussion diligently. What you get out of this course will depend on what you put into it. The contributions to your grade are as follows:

• Team project, writing: 35%, consisting of the following components ([1.00] total)
  • [0.05] Challenge Statement (1.0 pages, single-spaced)
  • [0.10] Proposal (2–3 pages, single-spaced)
  • [0.10] Discovery Report (3+ pages, single-spaced)
  • [0.10] Milestones & Timeline (2–3 pages, appropriately formatted with lists, charts, and figures)
  • [0.20] Plan (6-8 pages, single-spaced, as text with judicious lists, charts, and figures)
  • [0.10] Design Specification (3+ pages, single-spaced)
  • [0.10] Progress Report (3+ pages, single-spaced)
  • [0.25] Midway Report (8–10 pages, single-spaced, plus appropriate appendices and attachments)

• Team project, presentation: 25%, consisting of the following components ([1.00] total)
  • [0.10] Proposal Pitch (approximately 3 minutes + 3 minutes Q&A)
  • [0.10] Plan Pitch (approximately 3 minutes + 3 minutes Q&A)
  • [0.10] Design Pitch (approximately 3 minutes + 3 minutes Q&A)
  • [0.45] Midway Presentation (approximately 20 minutes + 10 minutes Q&A)
  • [0.25] Poster (presented at the CS poster session on Friday, December 5, 2014 in the DEH atrium)

• Team project, individual: 20%, consisting of the following components ([1.00] total)
  • [0.20] Evaluation (of other teams’ pitches; written; ~1/4 pages per team per pitch)
  • [0.40] Journal (divided evenly amongst 10 assignments in weeks 5-14)
  • [0.40] Contribution (based on input from your teammates on a peer evaluation questionnaire)

• Final exam: 10% (see below for details)
• In-class participation: 10% (based on quality and quantity of participation in discussion and in-class exercises)

Grade Questions: To maintain fairness in grading, I prefer that any disagreement be brought to me within a week of the item being returned.

Grade Summary: I will store all of your grades in the Desire2Learn online grade book. It is your responsibility to verify that the grades on Desire2Learn are correct. If an error is found, bring the graded item to me and I will correct the online entry.

Borderline Grades: Borderline final grades will be decided by your in-class participation. This means that being an active participant in class can push you over a grade boundary.

Final Examination: The final examination is Monday, December 8, 2014 from 04:30pm–06:30pm. No final examinations can be given early, except as required by University policy.
Due Dates: Homeworks and projects are due at the exact beginning of class (3:00pm sharp) regardless of whether you hand them in electronically in Desire2Learn or physically on paper. The grade of any late assignment will be lowered by 10% per day late. No assignment will be accepted more than 72 hours after the original due date and time.

Course Policies

The following set of rules will help keep us all on the same page all semester and help to ensure fair treatment for all students.

Academic Misconduct: All work submitted for an individual grade (or group grade), such as a homework or project assignment, should be the work of that single individual (or group), not their friends or a tutor. Students who fail to do their own work not only violate the Code of Conduct for the University of Oklahoma, but also may fail to learn critical learning objectives for the class.

1. Do not show another student (or group) a copy of your homework before the submission deadline.
2. Do not email your project to another student (or group), even if they promise they will not copy it.
3. Make sure that your computer account is properly protected. Use a good password, and do not give your friends access to your account or your computer system.
4. Do not leave thumb drives around a laboratory where others might access them.
5. The penalties for knowingly permitting your work to be copied are the same as the penalties for copying someone else’s work.

Upon the first documented occurrence of collaborative work, I will report the academic misconduct to the Campus Judicial Coordinator. The procedure to be followed is documented in the University of Oklahoma Academic Misconduct Code. In the unlikely event that I elect to admonish the student, the appeals process is described here: [http://integrity.ou.edu/summary_of_the_process.html](http://integrity.ou.edu/summary_of_the_process.html).

Project Code: Your project code and writeups must be written exclusively by you or your group. Use of any downloaded code or code taken from a book (whether documented or undocumented) is considered academic misconduct and will be treated as such. Exceptions from this policy (such as a course project that builds on an existing open-source project) may be granted but you MUST obtain approval from me first.

Classroom Conduct: Disruptions of class will not be permitted. I STRONGLY prefer that no electronic devices be used during class except to take notes or as a direct part of class exercises. Examples of disruptive behavior include:

- Allowing a cell phone or pager to repeatedly beep audibly.
- Browsing, listening to music, or playing computer games during class, regardless of whether they are visible or audible to other class members. (Such activities disrupt YOUR ability to pay attention and participate.)
- Exhibiting erratic or irrational behavior.
- Behavior that distracts the class from the subject matter or discussion.
- Making physical or verbal threats to a faculty member, teaching assistant, or class member.
- Refusal to comply with faculty direction.

In the case of disruptive behavior, I may ask that you leave the classroom and may charge you with a violation of the Student Code of Responsibilities and Conduct.

Class Web Page: Login to the Desire2Learn website using your 4+4 (first four letters of your last name followed by the last four digits of your student number), using your standard OU password. If you have
difficulty logging in, call 325-HELP. This software provides a number of useful features, including a list of assignments and announcements, an electronic mailing list, newsgroups, and grade book. All handouts are available from Desire2Learn. You should check the site daily. When I update the site, I will post an announcement telling you what has been added and where it is located. You are responsible for things posted on the site after a 24 hour delay or the end of the first following class meeting, whichever occurs first.

Class Email Alias: Urgent announcements will be sent through email. It is your responsibility to:

- Have your university supplied email account properly forwarded to the location where you read email.
- Make sure that your email address in Desire2Learn is correct, and forwards email to the place where you read it. I’ll send out a test message during the first week of class. If you do not receive this message, it is your responsibility to get the problem resolved immediately.
- Have your email program set up properly so that replying to your email will work correctly the first time. You can send email to yourself and reply to yourself to test this.

If you need assistance in accomplishing any of these tasks, contact 325-HELP.

Newsgroups and Email: The newsgroup on Desire2Learn should be the primary method of communication, outside of class. This allows everyone in the class to benefit from the answer to your question. If you email me a question of general interest, I may post your question and my answer to the newsgroup. Matters of personal interest should be directed to email instead of to the newsgroup, e.g. informing me of an extended personal illness. Posting guidelines for the newsgroup are available on Desire2Learn.

Religious Holidays: It is the policy of the University to excuse the absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required classwork that may fall on religious holidays.

Incompletes: The grade of I is intended for the rare circumstance when a student who has been successful in a course has an unexpected event occur shortly before the end of the course. I will not consider giving a student a grade of I unless all three of the following conditions have been met: (1) it is within two weeks of the end of the semester; (2) the student has a grade of C or better in the class; (3) the reason that the student cannot complete the class is properly documented and compelling.

Accommodation of Disabilities: The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone 405/325-3852 or TDD only 405/325-4173.

Evaluating the Course: The College of Engineering utilizes student ratings as one of the bases for evaluating the teaching effectiveness of each of its faculty members. The results of these forms are important data used in the process of awarding tenure, making promotions, and giving salary increases. In addition, the faculty uses these forms to improve their own teaching effectiveness. The original request for the use of these forms came from students, and it is students who eventually benefit most from their use. Please take this task seriously and respond as honestly and precisely as possible, both to the machine-scored items and to the open-ended questions.

I reserve the right to add, remove, or change any element or policy of this course, including evaluation percentages, at any time and for any reason, within the limits of University policy.