Computer Science 4263

Software Engineering I - Fall 2017

General Information

Prerequisites:

- CS 3323,
- COMM 2613, ENGL 3153 or BC 2813, and
- Computer Science major or minor.

Time:

MW 12:00pm – 1:15pm, Felgar Hall 0300

Final: December 13, 2017, W 1:30pm – 3:30pm

Instructor: Rafal Jabrzemski, Devon Energy Hall 235

Email: rjabrzemski@ou.edu

Office Hours:

Wednesday and Thursday 3:00 – 4:30; Devon Energy Hall 235

TA: Mrs. Sarah Wu (also, Sarah Crain)

Email: Sarah.J.Wu-1@ou.edu

Required Materials:

This course has no required materials. All resources will be freely available web-sites.

Topical Coverage

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, professional ethics, responsibility, and liability in the software lifecycle. You will learn about current software engineering practices and tools, and complete
team projects in the process. Interaction with project sponsors from industry, government, and academia will provide realistic experience with software engineering from a professional perspective.

The general learning objectives for this course include the following ABET Outcomes:

- A: An ability to apply knowledge of mathematics, science, and engineering.
- C: An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired standards.
- D: An ability to function effectively on teams to accomplish a common goal.
- E: An understanding of professional and ethical issues and responsibilities.
- F: An ability to communicate effectively with a range of audiences.
- G: An ability to analyze the local and global impact of computing on individuals, organizations and society.
- H: Demonstrate a recognition of the need for and an ability to engage in continuing professional development.
- I: An ability to use the techniques, skills, and modern engineering tools necessary for engineering.
- J: An 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.
- K: An ability to apply design and development principles in the construction of software systems of varying complexity.

The primary key to this course is its practicality and direct relationship to the types of things you will be doing in the real world. The goal is to have you equipped with a broad set of tools and ideas that will prepare you for real world software engineering.

Course Policies

Class Email Alias: Critical course information will be sent to your email. It is imperative that you check this email at least daily to stay up-to-date with this information. As a reminder:

- Have your university supplied email account forwarded to the location where you read email.
- Make sure that your email address on the course home page is correct, and forwards email to the place where you read it.
- Have your email program set up so that replying to your email will work correctly. 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. You are responsible for reading emails within 24 hours.

Examinations: There will be one midterm examination and a final examination. Missing an examination without a previously approved excuse will result in a grade of zero for that examination. Makeup examinations are only available when required by University policy, in other words, almost never. The Midterm exam is tentatively scheduled for October 10. Any schedule changes will be announced in class. **Midterm examinations are 50 minutes long.**
**Final Examination:** The final examination date is Monday, December 13. The final is comprehensive, as required by College of Engineering policy. No final examinations can be given early, except as required by University policy. Final examinations are two hours long.

**Adjustments for Pregnancy/Childbirth Related Issues:** Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see [http://www.ou.edu/content/eoo/faqs/pregnancy-faqs.html](http://www.ou.edu/content/eoo/faqs/pregnancy-faqs.html) for answers to commonly asked questions.

**Religious Observances:** It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays. Please check the schedule and inform me of conflicts as soon as possible.

**Title IX Resources:** For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocate on call 24/7, counseling services, and mutual no contact orders, scheduling adjustments and sanctions against the perpetrator. Please contact the Sexual Misconduct Office 405-325-2215 (8-5) or the Sexual Assault Response Team 405-615-0013 (24/7) to learn more or to report an incident.

**Academic Integrity Violations:** The University of Oklahoma defines an integrity violation to be any act that improperly affects the evaluation of a student's academic performance or achievement. The Student's Guide to Academic Integrity ([http://integrity.ou.edu/students_guide.html](http://integrity.ou.edu/students_guide.html)) gives examples: “cheating on examinations with cellphones, notes, or neighbors; plagiarism, improper collaboration on assignments intended for individual completion.”

In this course, all projects will be highly collaborative, so Academic Misconduct is about more than just plagiarism. In this case, Academic Misconduct is a precursor to a “fire-able offense” at an office place. The general rule of thumb remains: Don’t present the work of others as your own and don’t include resources that you are prohibited from using.

On the other hand, homework in this course is still an individual activity. I give you the Wise Words of Dr. Trytten on the subject. If you haven't memorized them yet, now is your chance:

1. “Do not show, give, or email another student a copy of your work before the submission deadline. Every semester I have multiple students submit another student’s work as their own with the other student’s name still on it. Do not trust other students to not do stupid things.
2. The penalties for permitting your work to be copied are usually the same as the penalties for copying someone else’s work because it is not always possible for me to distinguish the person who copied from the person who allowed his or her work to be copied. In cases where I can make the distinction, the person who copied the work will have a more severe sanction.
It is permissible to talk to other students in the class to get help completing or improving your work as long as this help does not interfere with my ability to properly evaluate the quality and quantity of your understanding of computer programming. To understand the distinction, review the examples in the table below. These are typical examples and are not intended to be a comprehensive list of all of the ways in which academic integrity can be or not be violated.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Integrity Violation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students A and B meet and work on their homework together.</td>
<td>Yes</td>
</tr>
<tr>
<td>Students A and B create drafts of their homework assignment independently and get together to compare answers and discuss their understanding of the material. Each person decides independently whether to make changes that are discussed.</td>
<td>No</td>
</tr>
<tr>
<td>Students A and B agree to prepare drafts of their homework assignment independently, but only Student A does. Student A shares his draft to Student B who reviews it and offers suggestions for improvement.</td>
<td>Yes</td>
</tr>
<tr>
<td>Students A and B agree that student A will work the even problems and student B will work the odd problems. They share their work.</td>
<td>Yes</td>
</tr>
<tr>
<td>Student A has completed a project and is helping student B complete the same project. Student A explains to student B what student B’s code actually does, which is different than what student B thinks the code does. Student B determines how to modify the code independently.</td>
<td>No</td>
</tr>
<tr>
<td>Student A has completed a project and is helping student B complete the same project. Student B is having trouble getting one part of the program to work, so student A texts student B three lines of their solution.</td>
<td>Yes</td>
</tr>
<tr>
<td>Student A has completed a project and is helping student B complete the same project. Student B is having difficulty getting the program to work, so student A tells student B exactly what to type for several lines.</td>
<td>Yes</td>
</tr>
<tr>
<td>Student A has completed a project and is helping student B complete the same project. Student B is having difficulty getting the program to work, so student A suggests that student B use a specific debugging strategy (e.g. “Print out the contents of the variable”).</td>
<td>No</td>
</tr>
<tr>
<td>Student A has completed a project and is helping student B complete the same project. Student A shows student B an example program in the textbook that will be helpful in figuring out the solution to the problem.</td>
<td>No</td>
</tr>
<tr>
<td>Students A and B work on a project together. After they have finished it, student A takes the code and modifies it so the programs do not appear to be identical. *</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Please be aware that I have software at my disposal that can detect these kinds of changes, so this strategy is likely to be detected.

If you work with anyone else in completing an assignment, you must include that person’s name on the submitted work. Failure to list a student you worked with on the assignment is a violation of academic integrity. If I find that the submitted work appears to be plagiarized, all students involved will be invited to my office individually to explain the work and/or perform similar work. The instructor will determine whether plagiarism occurred based on the match between the depth of understanding of the material displayed in the assignment and the individual interviews.
I sometimes use automated software to determine when student work is overly similar. The results of using this software are then evaluated manually by the instructor before any academic integrity violations are filed.

Upon the first documented occurrence of academic misconduct, I will report the academic misconduct to the Campus Judicial Coordinator. If you are found to have committed academic misconduct by this process, the least penalty is usually failing the class, often with suspension from college for a semester. The procedure to be followed is documented in the University of Oklahoma Academic Misconduct Code. In the event that I elect to admonish the student, the appeals process is described here: [http://integrity.ou.edu/files/Grade_Appeals_and_Academic_Appeals_Boards.pdf](http://integrity.ou.edu/files/Grade_Appeals_and_Academic_Appeals_Boards.pdf)

**Ownership of Course Materials:** The instructor retains ownership and all rights to original content. This includes but is not limited to exams, lectures, quizzes, handouts, protocols, electronic documents, syllabi, and all other materials. Original or transcribed course content may not be copied, recorded, retransmitted, posted on-line, or sold without the expressed written consent of the instructor. Violation of content ownership will be treated as academic misconduct.

**Tutors:** Before you hire a tutor, remember that the TAs, Action Center Tutor, College of Engineering tutors and I are available and glad to help students learn course material. In addition to regularly scheduled office hours, I’m available at many other times. If you email, I can often make an appointment. And I often answer questions through email or teleconference. In other words, use the resources that the University provides to help you with this course before spending a lot of money getting what may be less effective help elsewhere.

**Tutors and Academic Integrity:** Private tutors can be a source of support for students who are having difficulty in the class, but only if the tutor is aware of the distinction between teaching you the material so that you ultimately can do your own work, and doing work for you. Tutors who do work for you are not only failing to help you learn, they are committing academic misconduct. All of the situations in the table of academic integrity scenarios above apply equally whether student A is a tutor.

If your tutor doesn’t know how to teach properly, please ask them to call or visit me and I will provide training and guidance. If you are tutoring someone else in the class (with or without pay), you can be accused of academic misconduct if you allow this person to copy your work.

**Incomplete:** The grade of I is intended for the rare circumstance when a student who has been successful in a class has an unexpected event occur shortly before the end of the class. I generally will not consider giving a student a grade of I unless the following three 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 and I are committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require
accommodations in this course are requested to speak with me 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.

**Laboratory, Homework, Quizzes, Attendance**

**Late Work:** I do not accept late work. If there is a legitimate reason for missing a deadline, work can be excused. Excused work is given a neutral grade. Legitimate reasons for an excused absence include illness severe enough for a doctor to state that class attendance is not advised, a death or funeral in the immediate family, and sudden illness of a dependent. Excused absences require substantial documentation. Flat tires, parking problems, trips (even if academically related), alarm clock failures, minor personal illness, routine internet outages, general doctor’s appointments, and routine dependent care are not acceptable excuses for submitting late work.

**Attendance:** Attendance in this course is mandatory as it would be in any job. Each day of attendance is worth approximately 1 point, which leaves you with two days that you can miss without a grade penalty—this is your equivalent of “PTO”. If you have a University-Approved absence, it will be deducted from these 2 penalty-free days, so save them for your real emergencies or critical absences.

**Homework Submission:** Homework is due by 11:59 p.m. on the selected due date and submitted on Canvas in a single, well formatted document that contains your name and has the problems in the original order in PDF format.

**Evaluation**

**Grade Corrections:** I spend a lot of time carefully grading student work. Please take the time to review my grading to maximize your learning. This is the way that feedback that we provide improves your conceptual understanding. After graded work been returned, there is a one week period of time when grades can be disputed. After this time, the grades are final even if they are found to be in error.

**Grade Summary:** CANVAS has a grade book that is used to store the raw data that is used to calculate your course grade. It is the responsibility of each student in this class to check their grades periodically and make sure that they are properly recorded. If an error is found, bring the grading document to me, and I will correct it.

**Grading:** There are 7 components to the course grade. They are weighted as follows. Notice that one-quarter of your grade is “just showing up.” This grade simulates the significant portion of your job that will come from the professionalism you show by being present and engaged at a job. Students who arrive late, leave early, are disruptive, or are distracted will forfeit these points, just like they would likely forfeit their job/promotions in the future.
<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation (1 point each day)</td>
<td>25</td>
</tr>
<tr>
<td>Homework (2 points each)</td>
<td>10</td>
</tr>
<tr>
<td>Project Phases (3 points each)</td>
<td>15</td>
</tr>
<tr>
<td>Mid-Term Exam</td>
<td>15</td>
</tr>
<tr>
<td>Final Exam</td>
<td>15</td>
</tr>
<tr>
<td>360-Review</td>
<td>5</td>
</tr>
<tr>
<td>Final Panel</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The grading scale will be no higher than the following. It may be lower at the discretion of the instructor.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90+</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
</tr>
<tr>
<td>D</td>
<td>60-69</td>
</tr>
<tr>
<td>F</td>
<td>Otherwise</td>
</tr>
</tbody>
</table>

**Borderline Grade Decisions:** Although it would be preferable that all grades are cleanly decided, it is usually the case that a few final course grades are decided by only a few points. I have an algorithm for determining grades in these difficult cases. A grade is a borderline grade if it is within two points of the next higher grade. Therefore, grades like 69 and 78 are borderline grades, but grades like 81 and 92 are not. The grade on the final panel will be used to determine borderline grades. If the grade on the final panel is below the threshold for the higher grade, the lower grade will be given. If the grade on the final panel is above the threshold for the higher grade, the higher grade will be given.