Oregon State University
Ecampus

Course Name: Software Engineering I
Course Number: CS 361
Credits: 4
Instructor Name: Lara Letaw
Instructor Email: letawl@oregonstate.edu

Course Description
Our world is full of problems like war, poverty, addiction, and pollution. Software has played and will continue to play a vital role in promoting peace, education, health, and the renewal of our planet. But software doesn't just grow on trees. Somebody has to carefully design and create the software in a way that addresses the problem without making it worse, without incurring excessive costs, and without creating troublesome new problems. This course will give you the skills needed to analyze big problems, discover the requirements for a solution, design a solution, and manage the solution's implementation.

Course Credits
This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits.

Course Restrictions

- Prerequisite: CS 261
- A minimum grade of C is required in CS 261.
- Enrollment is limited to students with a program in Computer Science Double Degree (297) or Computer Science (307).
- Enrollment limited to students in the College of Engineering college.

Textbooks (Optional)

- There are **no required textbooks**
- However, for a more in-depth look at some of the topics in this course, these are the books I recommend you read (this term, or in the future):
  - Clean Code (Robert C. Martin)
  - Clean Architecture (Robert C. Martin)
  - Design Patterns (Erich Gamma et al.)

Technical Assistance
If you experience any errors or problems while in your online course, contact 24-7 Canvas Support through the Help link within Canvas. If you experience computer difficulties, need help downloading a browser or plug-in, or need assistance logging into a course, contact the IS Service Desk for assistance. You can call (541) 737-8787 or visit the IS Service Desk online.

Syllabus

1 What To Expect **3**
1.1 Course Learning Outcomes (CLOs) . . . 3
1.2 Topics Covered . . . 3
1.3 Weekly Tasks . . . 4
1.4 Agile Programming Project . . . 4
1.5 Teamwork . . . 4
1.6 Pair Programming . . . 4
1.7 Project Management . . . 4
1.8 Course Tools . . . 5
1.9 Exams, Assignments, Quizzes, and Grading . . . 5

2 Communication **6**
2.1 Getting Your Questions Answered . . . 6
2.2 Establishing a Positive Community . . . 6
2.3 Ground Rules for Online Communication & Participation . . . 6
2.4 Guidelines for a Productive and Effective Online Classroom . . . 6
2.5 What to Do About Harassment . . . 7

3 Course Policies **7**
3.1 Project Code . . . 7
3.2 Turning in Coursework . . . 7
3.3 Late Work Policy . . . 8
3.4 Grading Disputes . . . 8
3.5 Incompletes . . . 8
3.6 Expectations for Student Conduct . . . 8
3.7 Academic Integrity . . . 8

4 Statement Regarding Students with Disabilities **9**

5 Accessibility of Course Materials **9**

6 Tutoring and Writing Assistance **10**

7 Ecampus Reach Out for Success **10**
7.1 For mental health . . . 10
7.2 For financial hardship . . . 10

8 Student Evaluation of Courses **11**

1 What To Expect

1.1 Course Learning Outcomes (CLOs)

- Select the most appropriate software process model to use in a particular situation
- Synthesize requirements for a realistic software system and write a requirements specification document
- Produce professional-quality software-related documents
- Model system requirements using one or more semi-formal notations such as UML, dataflow diagrams, entity-relationship diagrams, or state diagrams
- Design software systems at an architectural level and at lower levels, using one or more techniques, such as object-oriented design or agile methods, and express these designs in design specification documents
- Validate designs and adjust the specification or design as necessary
- Describe several methods of estimating the cost and developing a schedule for a programming project
- Participate effectively in a team environment

1.2 Topics Covered

- Software Process Models
- Requirements Elicitation
- Requirements Review
- Evaluating Requirements
- Diagram Notations
- Software Architecture
- Software Architecture Decomposition
- Software Architecture Evaluation
- Object Oriented Design
- Object Oriented Design Patterns
- Agile Process Overview
- Agile Teamwork
- Agile Scrum
- Pair Programming
- Effort Estimation
- Project Scheduling
- Risk Analysis
- Software Testing
- Refactoring
- Professionalism

1.3 Weekly Tasks

- Expect to spend an average of **15 hours per week** on this course.
- You will have **homework, a quiz, and team check-in assignments due most weeks**. Please plan accordingly. Some of these assignments will be related to a team project and the others will be individual.
- You will have **weekly readings**.

1.4 Agile Programming Project

- This is primarily a **project-based course**. Your team will be working on a **term-long Agile Scrum programming** project.
- The project will include 1 setup Sprint and 3 development Sprints (**4 Sprints total**). Sprints will be **2 weeks long**.
- Your team will be asked to select the project from a pre-defined list of ideas. The list will be provided through Canvas.
- You will get to **choose your own technology stack** with your team, and **your own development tools** (e.g., IDEs).
- A teaching assistant will act as both your "customer" and your grader.
- Your team will be expected to produce a **working piece of software**, but it does **NOT have to be production-ready**, pretty, or jaw-droppingly amazing and innovative. Aim to create a **semi-polished portfolio piece** that all your team members will feel comfortable sharing in a professional portfolio.
- Your team will use the **Asana work management platform** to keep track of the project.

1.5 Teamwork

- You will be working in a **team of 5 students** (including yourself).
- You will get to **choose your own teams**.
- Each Sprint, someone on your team will be Product Owner, and another person will be Scrum Master. These roles can change each Sprint.

1.6 Pair Programming

- You will be **working in a pair with another student** for programming tasks.
- You will **NOT be required to do synchronous pair programming**. However, all code must **at least undergo a code review** by the team member you're paired with.

1.7 Project Management

- There will be **many tasks/assignments/people to keep track of** for this course and you may find that challenging.
- Your team will use the **Asana project management app** to keep track of your project.

1.8 Course Tools

So that you will get a sense of what you might encounter as a software professional, you will be required to use several online software tools for managing and implementing your project:

- **GitHub/Git**: Git is a version control system for collaborative, distributive projects. GitHub hosts Git projects. You'll need to create a GitHub account (if you haven't already).
- **Asana**: A web-based application your team will use for project management.

In addition, I will provide multiple communication tools through which you can get your questions answered and talk with TAs, other students, and with me:

- **Piazza**: A discussion board for questions about the course material and project requirements, general course questions, providing course feedback/suggestions, etc. Piazza should be one of the first places you look if you have a course question; if you are wondering something, another student may also be wondering the same thing.
- **Slack**: A text/voice/video chat app for talking synchronously with TAs, other students, and with me. Slack will be used for office hours.

1.9 Exams, Assignments, Quizzes, and Grading

- This course has **no exams**.
- There will be **9 quizzes**, each worth **1%** of your overall grade (**9% total**). The quizzes will help you check your knowledge of the course material.
- There will be **3 individual assignments**, each worth **13%** of your overall grade (**39% total**). These assignments are meant to help you learn the course material and contribute to your team's current Sprint. Also, part of the grade for these assignments will be based on your GitHub and Asana participation, and other evidence of your team participation.
- There will be **5 team report assignments**, each worth **9%** of your overall grade (**45% total**).
- There will be **12 team check-ins** and **2 course-wide discussions**, each worth **0.5%** of your overall grade (**7% total**).
- I will strive to return your assignments and grades for course activities to you within one week of the due date.
- Your letter grade for the course will be assigned as follows:

Grade:	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Low %:	93	90	87	83	80	77	73	70	67	63	60	0
High %:	100	92	89	86	82	79	76	72	69	66	62	59

- Final scores will be rounded to the nearest integer (e.g., if your overall grade is 89.2%, that will be rounded to 89%, which is a B+. If your overall grade is a 89.5%, that will be rounded to 90%, which is an A-).
- A passing grade for core courses in CS is a C or above.

2 Communication

2.1 Getting Your Questions Answered

- Please **post all course-related questions on Piazza** so the whole class may benefit from the conversation.
- Please contact me privately for matters of a personal nature.
- I will strive to reply to course-related questions within 48 hours.
- The TAs will hold weekly office hours on Slack.
- I will hold office hours by appointment.

2.2 Establishing a Positive Community

Every student should feel safe and welcome to contribute in this course. As the instructor, I will try to establish this tone whenever possible, but ultimately the responsibility for cultivating a safe and welcoming community belongs to the students—that means you!

Fortunately, being part of a safe and welcoming community is not too hard. A good place to start is to recognize (and continually remind yourself) of the following facts:

1. Each of your classmates is an individual. Although you will have things in common with them, their life, and their way of experiencing and interpreting life, is different from your own. Given the same information, you and your classmates might come to different conclusions.
2. Your classmates are here to learn. They have the right to pursue their education without being distracted by others' disruptive behavior, or made uncomfortable by inappropriate jokes or unwanted sexual interest.

If each of us remembers these facts and acts with corresponding decency, respect, and professionalism, the course will certainly be better for everyone.

2.3 Ground Rules for Online Communication & Participation

- Observation of "Netiquette": All your online communications need to be composed with fairness, honesty and tact. Spelling and grammar are very important in an online course. What you put into an online course reflects on your level of professionalism. Here is a reference: http://www.albion.com/netiquette/corerules.html.
- Posting of personal contact information is discouraged (e.g. telephone numbers, address, personal website address).

2.4 Guidelines for a Productive and Effective Online Classroom

Students are expected to conduct themselves in the course (e.g., on discussion boards, email) in compliance with the university's regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and

approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this online course, paying particular attention to the following:

- Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
- Read your posts carefully before submitting them.
- Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
- Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

2.5 What to Do About Harassment

If you become a victim of harassment, there are several resources available to you:

- You may schedule a meeting to talk with me.
- You may contact the University Ombuds Office for confidential guidance and advice.
- You may contact the Office of Equal Opportunity and Access to file an informal or formal complaint.

3 Course Policies

3.1 Project Code

- Your team MAY use libraries and frameworks for your programming project.
- Other than that, all code your team uses in the project must be written by people on the team, this term.
- If everyone on your team agrees, you MAY make your GitHub repository public.

3.2 Turning in Coursework

- Team reports, individual assignments, and quizzes will all **need to be submitted through Canvas before 23:59 (Pacific Time Zone)** on the date they are due, otherwise they will be considered late.
- In addition to Canvas turn-ins, you will be **assessed based on your team/project performance**, as judged by your GitHub and Asana activity and other evidence observed by your grader.

3.3 Late Work Policy

- You **may turn in one non-team assignment or quiz up to 48 hours late** without penalty. This 2-day grace period can **only be used on ONE non-team assignment**.
- Otherwise, the late policy is -20% per each day late.

3.4 Grading Disputes

- **If you believe you have been incorrectly graded**, you must **contact your grader or the instructor within 7 days** of receiving the grade in question. Late disputes will not be considered.

3.5 Incompletes

- Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in 80% of the points possible (in other words, usually everything but the final week's work). If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term; let me know right away. Please remember that you cannot make up a group project on your own.

3.6 Expectations for Student Conduct

Student conduct is governed by the university's policies, as explained in the Student Conduct Code. Students are expected to conduct themselves in the course (e.g., on discussion boards, email postings) in compliance with the university's regulations regarding civility.

3.7 Academic Integrity

The Code of Student Conduct prohibits Academic Misconduct and defines it as:

Any action that misrepresents a student or group's work, knowledge, or achievement, provides a potential or actual inequitable advantage, or compromises the integrity of the educational process.

To support understanding of what can be included in this definition, the Code further classifies and describes examples of Academic Misconduct, as follows.

Prohibited behaviors include, but are not limited to doing or attempting the following actions:

- Cheating. Unauthorized assistance, or access to or use of unauthorized materials, information, tools, or study aids. Examples include, but are not limited to, unauthorized collaboration or copying on a test or assignment, using prohibited materials and texts, unapproved use of cell phones, internet, or other electronic devices, etc.
- Plagiarism. Representing the words or ideas of another person or presenting someone else's words, data, expressed ideas, or artistry as one's own. Examples include, but are not limited to, presenting someone else's opinions and theories as one's own, using another person's work or words (including unpublished material) without

appropriate source documentation or citation, working jointly on a project and then submitting it as one's own, etc.

- Falsification. Fabrication or invention of any information. Examples include, but are not limited to, falsifying research, inventing or falsely altering data, citing fictitious references, falsely recording or reporting attendance, hours, or engagement in activities such as internships, externships, field experiences, clinical activities, etc.
- Assisting. Any action that helps another engage in academic misconduct. Examples include, but are not limited to, providing materials or assistance without approval, altering someone's work, grades or academic records, taking a test/doing an assignment for someone else, compelling acquisition, selling, bribing, paying or accepting payment for academic work or assistance that contributes to academic misconduct, etc.
- Tampering. Interfering with an instructor's evaluation of work by altering materials or documents, tampering with evaluation tools, or other means of interfering.
- Multiple submissions of work. Using or submitting work completed for another or previous class or requirement, without appropriate disclosure, citation, and instructor approval.
- Unauthorized recording and use. Recording and/or dissemination of instructional content without the express permission of the instructor(s), or an approved accommodation coordinated via Disability Access Services.

4 Statement Regarding Students with Disabilities

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval, please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

5 Accessibility of Course Materials

All materials used in this course are accessible. If you require accommodations please contact Disability Access Services (DAS).

Additionally, Canvas, the learning management system through which this course is offered, provides a vendor statement certifying how the platform is accessible to students with disabilities.

6 Tutoring and Writing Assistance

NetTutor is a leading provider of online tutoring and learner support services fully staffed by experienced, trained and monitored tutors. Students connect to live tutors from any computer that has Internet access. NetTutor provides a virtual whiteboard that allows tutors and students to work on problems in a real time environment. They also have an online writing suite where tutors critique and return essays within 24 to 48 hours. Access NetTutor from the Canvas navigation bar for this course.

The Oregon State Online Writing Suite is also available for students enrolled in Ecampus courses.

7 Ecampus Reach Out for Success

University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success.

Ecampus students are always encouraged to discuss issues that impact your academic success with the Ecampus Success Team. Email ecampus.success@oregonstate.edu to identify strategies and resources that can support you in your educational goals.

If you feel comfortable sharing how a hardship may impact your performance in this course, please reach out to me as your instructor. There are many things I can do to address whatever the hardship is. Contact me as soon as possible as it's easier to make changes sooner rather than later.

7.1 For mental health

Learn about counseling and psychological resources for Ecampus students. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255).

7.2 For financial hardship

Any student whose academic performance is impacted due to financial stress or the inability to afford groceries, housing, and other necessities for any reason is urged to contact the Director of Care for support (studentassistance@oregonstate.edu or 541-737-8748).

8 Student Evaluation of Courses

During Fall, Winter, and Spring term the online Student Evaluation of Teaching system opens to students the Wednesday of week 8 and closes the Sunday before Finals Week. Students receive notification, instructions and the link through their ONID. They may also log into the system via Online Services. Course evaluation results are extremely important and used to help improve courses and the hybrid learning experience for future students. Responses are anonymous (unless a student chooses to "sign" their comments, agreeing to relinquish anonymity) and unavailable to instructors until after grades have been posted. The results of scaled questions and signed comments go to both the instructor and their unit head/supervisor. Anonymous (unsigned) comments go to the instructor only.