# CS 361, Software Engineering I – Syllabus

**Credits:** 4

**Instructor Name:** Lara Letaw

**Instructor Email:** letawl@oregonstate.edu

**Teaching Assistant Name and Contact Info:** See Canvas

## Course Description

Introduction to the "front end" of the software engineering lifecycle; requirements analysis and specification; design techniques; project management.

## Prerequisites

* Prerequisite: CS 261.
* A minimum grade of C is required in CS 261.
* Enrollment is limited to students with a program in Computer Science (307) or Mechanical Engineering (321).
* Enrollment limited to students in the College of Engineering college.

## Instructor Communication

* Please post all course-related questions in Ed Discussion so that the whole class may benefit from our conversation.
* Please contact the instructor(s) privately via OSU Email for matters of a personal nature. **Put “[CS361]” at the beginning of the subject line**.
* Please **do not use Canvas Inbox or Canvas submission comments to send important messages to the instructional team**, as we might not see your message.
* You can expect a reply to your questions within 48 hours on business days (Monday-Friday) that are not university holidays.
* Grading and providing feedback on your assignments and activities may take up to one week. If we need more time, we will let you know when to expect a response via Canvas Announcements.
* We will also send other important information via Canvas Announcements. **Configure Canvas so that you receive announcements via email**, or check the announcements regularly.
* See Canvas for TA and instructor homework help schedules.

## Expectations for Time and Participation

This course combines approximately 120 hours of instruction, online activities, and assignments for 4 credits. This course is asynchronous and somewhat flexible, but not self-paced. Our schedule of Course Content and the due dates that appear in Canvas provide guidelines for how you’ll interact and with what frequency. I recommend that you create your own workload schedule and set reminders for assignment due dates.

## Learning Resources

## This course provides all required materials at no cost to you.

## All materials are available within Canvas.

## The textbook is a free, open educational resource: “Handbook of Software Engineering Methods” (2nd ed.) (Letaw, 2023): <https://open.oregonstate.education/setextbook/>

## Establishing a Positive Community

It is important you feel safe and welcome in this course. If somebody is making discriminatory comments against you, sexually harassing you, or excluding you in other ways, contact the instructor, your academic advisor, and/or report what happened at <https://studentlife.oregonstate.edu/studentconduct/reporting> so we can connect you with resources.

## 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](https://counseling.oregonstate.edu/reach-out-success); you can also access the **Resources** tab in Canvas’ global navigation menu for additional information.

Ecampus students are always encouraged to discuss issues that impact your academic success with the [Ecampus Success Team](https://ecampus.oregonstate.edu/services/student-services/). Email [ecampus.success@oregonstate.edu](mailto:ecampus.success@oregonstate.edu) to identify strategies and resources that can support you in your educational goals.

### For mental health:

Learn about [counseling and psychological resources for Ecampus students](https://counseling.oregonstate.edu/main/ecampus-students). If you are in immediate crisis, please call or text the Suicide and Crisis Lifeline at 988 or Crisis Text Line by texting 741-741.

### 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 (541-737-8748).

## 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 [Service Desk](https://oregonstate.teamdynamix.com/TDClient/Requests/TicketRequests/NewForm?ID=Dr9c0T7BaSI_) online.

## Measurable Course Learning Outcomes

* [CLO 1] Select the most appropriate software process model to use in a particular situation
* [CLO 2] Synthesize requirements for a realistic software system and write a requirements specification document
* [CLO 3] Produce professional-quality software-related documents
* [CLO 4] Model system requirements using one or more semi-formal notations such as UML, dataflow diagrams, entity-relationship diagrams, or state diagrams
* [CLO 5] 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
* [CLO 6] Validate designs and adjust the specification or design as necessary
* [CLO 7] Describe several methods of estimating the cost and developing a schedule for a programming project
* [CLO 8] Participate effectively in a team environment

## Evaluation of Student Performance

* Assignments – 800 points
* Discussions – 100 points
* Learning Quizzes – 100 points
* Total – 1000 points

## Letter Grade

Your letter grade for the course will be assigned as follows.

| Grade | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | F |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Percent Range | *95-*  *100* | *91-*  *94* | *88-*  *90* | *85- 87* | *81- 84* | *78- 80* | *75- 77* | *71- 74* | *68- 70* | *65- 67* | *62- 64* | *0- 61* |

* We will strive to return your assignments and grades for course activities to you within one week of the due date.
* Grades will be rounded to the nearest percent.
* A passing grade for core courses in CS is a C or above.

## Course Policies

### Late Work Policy

* **Late quizzes, discussion board posts, and extra credit will not be accepted** except if approved by the instructor.
* Only these assignments can be turned in late for credit: Assignment 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12
* The late penalty is **20% of the maximum possible points per day**. For example, if an assignment has 100 points, then a late submission that is more than 24 hours and up to 48 hours late will be deducted 40 points.
* Besides those listed above, **you may turn in one assignment up to 48 hours late without penalty**. This 2-day grace period **can only be used on ONE of these assignments: Assignment 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12**. We will apply the grace period to your first late assignment, in grading order. For example, if you first submit Assignment 4 late and then submit Assignment 3 late, the grace period will be applied to Assignment 3 so long as Assignments 1 and 2 were submitted on time. The grace period cannot be moved to a different assignment.

### Rubrics & Assignment Revisions

* Assignments will be graded against a rubric.
* You will be able to revise some assignments (see assignment rubric—if you see “Revise” next to each criterion, you can revise it).
* Most rubrics will be binary: For each criterion, you will receive either full points or zero points.
* If the grader selects “Accept” for a criterion, you receive full points for that part of the assignment
* If the grader selects “Revise”, you receive no points for that criterion initially but will usually have a week to modify and re-submit your assignment to get those points back.
* If, after you do a revision, the grader selects “Did Not Revise / Revision Not Accepted”, that means your revision wasn’t accepted and you received no points for that criterion.
* If you do not attempt part of an assignment, the grader will select “Did not attempt” and you will NOT be able to get points for that part of the assignment.
* There will be only one round of revisions allowed per assignment.
* Some assignments cannot be revised because their due date is close to the end of the term. If you don’t see a “Revise” item in the rubric, you can’t submit a revised version for that assignment.
* Revise-by dates will be sent via Canvas announcements. **Configure Canvas to send you announcements** or check the announcements frequently.

### Extra Credit

Extra credit opportunities may or may not be available this term; see Canvas.

### Grading Disputes

If you believe you have been incorrectly graded, you must **email your grader or the instructor within 7 days** of receiving the grade in question. Late disputes will not be considered. Do not communicate about grading disputes through Canvas comments as they do not generate notifications and we are likely to miss them.

### Exams

This course has no exams.

### Incompletes

When a requirement of a course has not been completed for reasons acceptable to the instructor and the rest of the academic work is passing, a report of “I” (incomplete) may be made and additional time granted, according to Academic Regulation 17 of [OSU Academic Regulations](https://catalog.oregonstate.edu/regulations/).

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.

### Statement Regarding Religious Accommodation

Oregon State University is required to provide reasonable accommodations for employee and student sincerely held religious beliefs.  It is incumbent on the student making the request to make the faculty member aware of the request as soon as possible prior to the need for the accommodation. See the [Religious Accommodation Process for Students](http://eoa.oregonstate.edu/religious-accommodation-policy).

### **Class Participation and Building Community**

Active interaction with peers and your instructor is essential to everyone’s success in this online course. I encourage you to please practice the following:

* Value the diversity of the class. Recognize and respect the experiences, abilities, and knowledge each person brings to our learning environment.
* Challenge others’ ideas with the intent of facilitating growth. Acknowledge your peers' contributions and highlight areas of further inquiry.
* Be open to being challenged on your ideas or prejudices.
* Practice self-awareness in your communication with peers and consider that your comments may hurt others unintentionally.
* Assume the best of your classmates and instructor and expect the best from them.

### Expectations for Student Conduct

Student conduct is governed by the university’s policies, as explained in the Student Conduct Code (<https://beav.es/codeofconduct>). 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.

### Academic Integrity

It is important that you understand what student actions are defined as academic misconduct at Oregon State University.  The OSU Libraries offer a [tutorial on academic misconduct](https://guides.library.oregonstate.edu/c.php?g=286121&p=3896378), and you can also refer to the [OSU Student Code of Conduct](https://beav.es/codeofconduct) and [the Office of Student Conduct and Community Standards](https://studentlife.oregonstate.edu/studentconduct/student-info) for more information.  More importantly, if you are unsure if something will violate our academic integrity policy, ask your professors, GTAs, academic advisors, or academic integrity officers.

Academic misconduct, or violations of academic integrity, can fall into seven broad areas, including but not limited to: cheating; plagiarism; falsification; assisting; tampering; multiple submissions of work; and unauthorized recording and use.

### Code & Code Reuse

All code you write for this course's assignments must be written only by you, this term, for only this course. However, your code may call published libraries/modules.

### Use of Artificial Intelligence (AI) Tools

Minor Uses Permitted: For this course, you must be the author of all work. You may use AI in some minor ways. For example, unless otherwise specified in the assignment, you may use AI to generate ideas, generate images for use in your project (with appropriate attribution if required by tool), quiz yourself, or for other studying purposes. You may NOT use AI to write code, assignment responses, video scripts, or discussion posts. Do NOT rely on AI to provide correct information; Always confirm AI claims using a reputable source. Always review individual assignments for specific instructions. Contact the instructor(s) if you are unsure whether or not you can use AI for a specific purpose.

## 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](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.

## Accessibility of Course Materials

All materials used in this course are accessible. If you require accommodations please contact [Disability Access Services (DAS)](http://ds.oregonstate.edu/home/).

Additionally, Canvas, the learning management system through which this course is offered, provides a[vendor statement](https://www.canvaslms.com/accessibility)certifying how the platform is accessible to students with disabilities.

## Tutoring and Writing Assistance

# You can connect live with experienced online tutors by accessing TutorMe in the side navigation bar of your Canvas course. You are eligible for up to 5 hours of tutoring each week. To learn more, go to [Online Tutoring - Overview](https://ecampus.oregonstate.edu/services/student-services/online-tutoring/).

To get help with any form of writing, you can contact [Oregon State Online Writing Support](https://writingcenter.oregonstate.edu/ows) for feedback via email or live Zoom appointment.

## Academic Calendar

All students are subject to the registration and refund deadlines as stated in the Academic Calendar: <https://registrar.oregonstate.edu/osu-academic-calendar>.

## Student Bill of Rights

OSU has twelve established student rights. They include due process in all university disciplinary processes, an equal opportunity to learn, and grading in accordance with the course syllabus: <https://asosu.oregonstate.edu/advocacy/rights>.

## Student Learning Experience Survey

During Fall, Winter, and Spring term the online Student Learning Experience surveys open to students the Wednesday of week 9 and close the Sunday before Finals Week. Students will receive notification, instructions, and the link through their ONID email. They may also log into the survey via MyOregonState or directly at <https://beav.es/Student-Learning-Survey>. Survey results are extremely important and are used to help improve courses and the learning experience of future students. Responses are anonymous (unless a student chooses to “sign” their comments, agreeing to relinquish anonymity of written comments) and are not available 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.

## Topics Covered

Software requirements specification, functional requirements, non-functional requirements, quality attributes, microservices architecture, software process models, UML diagramming, use cases, user stories, project management, usability, paper prototyping, inclusivity heuristics, software design validation, Agile methods, code smells, refactoring, software development lifecycle, teamwork

## Teamwork

* You will work with a partner. You can choose your partner if you wish or I can choose one for you.
* However, you will write software individually and you will mostly be graded individually.
* You can write your software in any language.
* Your software will need to communicate and use data from your partner's software.

## Course Content

| **Week/**  **Sprint** | **Topic** | **Learning Materials** | **Assignments** |
| --- | --- | --- | --- |
| Week 1 | Introduction Microservices | • Start Here  • Textbook Introduction  • Chapter 5  • Video | Syllabus Quiz  Week 1 Learning Quiz  Task Scheduling  Assignment 1: Microservices Warm-Up |
| Week 2 | Agile  Project Management & Teamwork  Requirements  Git/GitHub | • Chapter 1  • Chapter 2  • Chapter 3  • Scrum Guide  • Git/GitHub  • Videos | Week 2 Learning Quiz  Follow-up on Task Scheduling  Assignment 2: Environment Setup  Assignment 3: Project Plan & Sprint 1 Plan |
| Week 3 | Paper Prototyping  Inclusivity Heuristics | • Chapter 6  • Chapter 7  • Video | Week 3 Learning Quiz  Assignment 4: UI Design with Inclusivity Heuristics |
| Sprint 1 (Weeks 4 and 5) | Project Milestone #1 |  | Assignment 5: Microservices Case Study & Pipe Spike  Introductions & Ground Rules  Assignment 6: Individual Project Milestone #1  Assignment 7: Sprint 2 Plan |
| Sprint 2 (Weeks 6 and 7) | UML  Project Milestone #2 | • Chapter 4  • Video | Sprint 1 Retrospective  Sprint 2 Learning Quiz  Assignment 8: Software Process Models  Assignment 9: Microservices Implementation + Publish Communication Contract to Partner  Assignment 10: Publish Sprint 3 Mitigation Plan to Partner |
| Sprint 3 (Weeks 8 and 9) | Code Smells & Refactoring  Project Milestone #3 | • Chapter 8 | Sprint 2 Retrospective  Sprint 3 Learning Quiz  Discussion: Engineering Jobs  Approve Partner’s Communication Contract  Assignment 11: Integration |
| Week 10 | Project Milestone #4 |  | Sprint 3 Retrospective  Assignment 12: Portfolio  Discussion: Project Showcase |