

## CS461 (& CS461L) - Software Engineering 2

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### Catalog Course Description:

Emphasizes teamwork in small groups to develop real-world software applications. Teams and individual members will participate in all activities of software development, including project planning, requirements analysis, design, coding, testing, configuration management, quality assurance, documentation, and deployment. Topics in CS461 will focus on software lifecycle processes, software design, software construction, and engineering management concepts expanding on material from CS460. This course provides a capstone experience that integrates knowledge gained in rest of the CS curriculum through work on both team and individual projects. The second term of a 3-term sequence (CS460, CS461, CS462). **Requires co-enrollment in CS461L, which is the team project component of the course. Prerequisites: CS460**

### Credits and contact hours:

CS461: 4cr, 4 contact hours

CS461L: 0cr, 1 contact hour

### Prerequisites:

CS460 and co-enrollment in CS 461L

### Instructor, contact and office hours:

TBD for each term offered.

### Textbook and course materials:

TBD for each term offered. Course requires that students provision cloud resources (Microsoft Azure). These resources require a credit card and may incur charges. Students who manage their account properly will experience only small charges, certainly less than typical textbook costs.

### Course Meeting Time:

TBD for each term offered.

### Indicate required, elective, or selected elective course:

Required for CS majors

### Course Objectives:

At the completion of the course, students will be able to:

- Design, plan, organize, and synthesize a significant group and individual software project; apply all aspects of contemporary software engineering activities, including planning, requirements analysis, software design, coding, testing, documentation, and deployment\* (ABET Outcomes: A, B, C, E, I, J, K)

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- Demonstrate group and individual communication skills by participating in stand up meetings, weekly reviews, project talks, posters, and final project presentations; Participate effectively in a team development environment (ABET Outcomes: F, D)
- Demonstrate the ability to independently learn and master new technologies as demonstrated by implementing an individual software project using technologies not used or instructed in coursework (ABET Outcomes: H)

### ABET Student Outcome(s):

- (a) An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline
- (b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- (c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- (d) An ability to function effectively on teams to accomplish a common goal
- (e) An understanding of professional, ethical, legal, security and social 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) Recognition of the need for and an ability to engage in continuing professional development
- (i) An ability to use current techniques, skills, and tools necessary for computing practice.
- (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. [CS]
- (k) An ability to apply design and development principles in the construction of software systems of varying complexity. [CS]

### Course Topics/Outline:

1. Introduction to Agile SDLC methods, and the Scrum process. 461/462 team group assignment.
2. Writing vision statements and user stories; software engineering construction tools.
3. Engineering process tools; Scrum process management
4. Individual and group project definition refinement
5. Class project: scrum sprint practice cycles
6. Tech talks; additional scrum sprint practice cycles
7. Tech talks, first group and individual project sprint cycle
8. Tech talks, second group and individual project sprint cycle
9. Tech talks, third group and individual project sprint cycle
10. Tech talks, fourth group and individual project sprint cycle

Note: see the "academic calendar" at: <http://wou.edu/provost/registrar/calendar.php> for all important academic dates for the term and holidays.

### Course Grading and requirements:

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Grade weighting for course requirements

<b>Exams</b>		
Midterm	10%	
Hands-on Tools Exam	10%	
Final Exam	10%	
<b>Exams Total:</b>		30%
<b>Assignments and Labs</b>		
Milestones	20%	
Stand up meeting reports	5%	
Team technical talk	5%	
<b>Assignments &amp; Labs Total</b>		30%
<b>Scrum Team Project</b>		20%
<b>Scrum Individual Project</b>		20%

Notes:

**Milestones:** Milestones require groups to complete work products that are part of the course in addition to completing the actual projects that are part of the course.

**Stand up meetings:** Scrum stand up meetings will be held at the beginning of most class sessions. To receive credit you must be present. This means attendance will be part of your course grade.

**Grading Scale,** Your final grade is based on this scale:

100% - 92% A, 91% - 90% A-, 89% - 88% B+, 87% - 82% B, 81% - 80% B-, 79% - 78% C+, 77% - 72% C, 71% - 70% C-, 69% - 68% D+, 67% - 62% D, 61% - 60% D-, 59% - 0% F

## Course Policies

### Student Conduct

Code of Student Responsibility 574-031-0030 Specific Standards and Policies

The following list of prohibited forms of conduct is not all inclusive since it is not possible to list all potential violations. The University requires that all students behave in a manner congruent with established community standards and in a manner conducive to the development of the individual. Actions detrimental to the mission of the University and the legitimate activities of the academic community which constitute the University are in violation of this Code and may be subject to judicial procedures.

Academic dishonesty, which includes but is not limited to:

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- **Cheating:** intentional use or attempted use of artifice, deception, fraud, and/or misrepresentations of one's academic work;
- **Fabrication:** unauthorized falsification and/or invention of any information of citation in any academic exercise;
- **Facilitating dishonesty:** helping or attempting to help another person commit an act of academic dishonesty. This includes students who substitute for other persons in examinations or represent as their own papers, reports, or any other academic work of others;
- **Plagiarism:** representing without giving credit the words, data, or ideas of another person as one's own work in any academic exercise. This includes submitting, in whole or in part, prewritten term papers of another of research of another, including but not limited product of commercial vendor who sell or distribute such materials. And the appropriation of and/or use of electronic data of another person or persons as one's own, or using such data without giving proper credit for it
- Any use or attempted use of electronic devices in gaining an illegal advantage in academic work in which use of these devices is prohibited, and such devices include but are not limited to cell phones, pdas, laptops, programmable calculators, etc.

Academic dishonesty refers to cheating: a serious ethical issue. You are encouraged to work cooperatively with other students in the class. However, each student is expected to do his or her own assignments. Written work that appears to be copies of each other will not be given credit. Helping or being helped by, another student or the appearance of helping, or being helped by, another student during a quiz or an exam will be considered academic dishonesty. This will be grounds for a zero on the quiz or the exam.

### Division Policies

It is the policy of the Computer Science department that you must receive a passing grade on the final exam (60% or higher) in order to pass the class.

A student who is participating in an official college activity for example, a member of an athletic team or a member of a performing arts organization may have an exception made to a deadline with a signed, written request from the sponsoring organization before the deadline. It is the student's responsibility to obtain the written request.

Student work that has not been returned will be kept for one quarter.

A grade of I may be assigned when the quality of work is satisfactory but an essential requirement of the course has not been completed for reasons acceptable to the instructor. Incomplete grades will not be given for poor scores on exams or homework or for other reasons that might result in a poor course grade.

### ADA Disability Accommodation Information

Any student who feels s/he may need an accommodation based on the impact of a disability should your instructor privately to discuss your specific needs. Please contact the Office of Disability Services at 503-838-8250 to coordinate accommodations. Students needing medical or mental health care can access the Student Health and Counseling Center by calling 503-838-8313, emailing at [health@wou.edu](mailto:health@wou.edu), or by walking in to schedule an appointment.

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## Veterans

"Veterans and active duty military personnel with special circumstances are welcome and encouraged to communicate these, in advance if possible, to the instructor."

## Diversity

By providing a multicultural campus community, WOU offers students the knowledge, attitudes, and skills to function effectively within and beyond their cultural boundaries as required in today's global society. To accomplish this WOU has developed active communities of learning representing diverse populations and perspectives. We provide access to an array of diverse and inclusive populations to foster a quality workforce and well-educated citizens

## Student Success

Students in this class may be referred to the WOU Student Success Specialist (SSS) if the instructor determines their performance in the class is placing them at academic risk. The SSS will offer to work with referred students to address issues and develop a student success strategy. Irrespective of whether a referral has or has not been made, you are ultimately responsible for tracking your own progress in this course.

## Other Course Policies

**Attendance:** Worked missed due to absence cannot be made up and will receive a zero score. In some situations assignment scores may be dropped.

**Assignments & Reading:** It is important finish the reading/tutorials PRIOR to attending the lectures & doing the labs. The topics covered in this course are difficult and may be hard to understand otherwise. Assignment due dates in this class are FIRM, late work will not be accepted.

**Electronics:** "Electronic items such as cell phones, laptops, iPads, iPods and e-book readers should not distract you or your classmates during class. If you are distracting yourself or others, in any way, with an electronic item in class, you will be asked to step into the hall until you are done with the item.

**Syllabus:** Remember that the syllabus is a guideline to this course, it is not a legal contract. Situations may arise that could require modifications to this guide. Any changes will be announced in class or posted on the class web site. No student will be given a grade lower than the calculated grade. However, your instructor reserves the right to assign a final grade higher than the calculated grade if it is warranted. This is a matter only between the specific student and instructor.

**Technical support issues:** Students taking CS courses will be expected to have regular access to a suitable computer capable of running the software specified for the given term. There are systems available on campus if that is your only alternative, but you should then expect to spend a substantial amount of time in the labs. You need to already possess the computer skills necessary to operate and maintain your own computer system, access and effectively use the

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Internet, use e-mail, participate in discussion rooms and threads, take on-line exams, create files, save files, open different file types, rename files, upload files, download files, transfer files using FTP, and install and update software. You will also need a current Web Browser and Office Suite Software. This is NOT an introductory course in regards to using or maintaining a computer system or computer software.

I do not provide technical support for accessing either my Class Web Page or WOU Online, or WOU e-mail. If you have issues with your computer call your computer manufacturer or retailer for help. If you have issues logging onto WOU Online, or with your WOU e-mail call the help desk at WOU 503-838-8925 or [ucshelpdesk@wou.edu](mailto:ucshelpdesk@wou.edu). If you have not previously used WOU Online, go to [online.wou.edu](http://online.wou.edu) and do the online class orientation.

**Class communication:** Communication on all class content related issues (unless they are of a personal nature) are to be done in the class discussion board in WOU Online; do not use email for class related questions unless they are of a personal nature (health, missing class, etc.). I receive a huge amount of email each day so email is just not practical for class content related questions; any questions that I get via email I will post and answer in the discussion board. I monitor the board regularly during the week and even occasionally on the weekend if I have the time. If you read a question from another student on the discussion board, and you think that you can help, please do so! I will generally let questions sit for a day or so before I respond as I want to encourage student collaboration and supporting each other in the learning process.

### **Discussion board and email "netiquette":**

- Make a personal commitment to learning about, understanding, and supporting your peers.
- Assume the best of others in the class and expect the best from them.
- Acknowledge the impact of sexism, racism, ethnocentrism, classism, heterosexism, ageism, and ableism on the lives of class members.
- Recognize and value the experiences, abilities, and knowledge each person brings to class. Value the diversity of the class.
- Participate actively in the discussions, having completed the readings and thought about the issues.
- Pay close attention to what your classmates write in their online comments. Ask clarifying questions, when appropriate. These questions are meant to probe and shed new light, not to minimize or devalue comments.
- Think through and re-read your comments before you post them.
- Never make derogatory comments toward another person in the class.
- Do not make sexist, racist, homophobic, or victim-blaming comments at all.
- Disagree with ideas, but do not make personal attacks.
- Be open to be challenged or confronted on your ideas or prejudices.
- Challenge others with the intent of facilitating growth. Do not demean or embarrass others.
- Encourage others to develop and share their ideas.
- Be willing to change.

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