CS 362 – Software Engineering II Syllabus

Course Description

In this course we will be discussing Software Testing. We will cover what software testing is and where it fits into the software design process. We will also be exploring many different approaches to testing and for which applications each is best suited.

Prerequisites: CS 261

Credits: 4

Terms Offered: Every Term

Instructors

Eric Ianni

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Communication Policy

- **Always use your OSU email to contact us. The Canvas mailbox doesn't work very well.**
- **When you send us an email, you must include the tag "[CS 362]" in your email subject.**

Please use the email addresses above to contact the instructor and TAs. You should expect a response to emails within 48 hours. Emails sent over the weekend sometimes take longer to respond to.

Post all course-related questions on the Ed board so the whole class may benefit from our conversation. Please sign up yourself on Ed. You can use the course Teams channel to ask questions as well.

For grading questions and regrading request, please contact the TA who graded your assignment by posting privately on Ed (private posts are viewable by the entire instructional team) and tagging the TA in the post using the @ in the body of your question. Don't post re-grading request on Teams. You should expect your grade to be posted one week after the due date. If you submit the assignment late, it may take longer for your grade to be released.

The instructional team will be using the class mailing list extensively to communicate with you. We will also frequently post information on Ed. It is your responsibility to keep up-to-date with these communiques and they are considered part of the required learning material.

Course Topics

- Version Control Systems such as Git
- Software Verification
- Unit Testing
- Black Box Testing
- White Box Testing
- Random Testing
- Test Driven Development
- Continuous Integration
- Code Review

Measurable Student Learning Outcomes:

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

1. **Apply** automated tools such as _make_ and CVS in a realistic setting
2. **Describe** the cost-benefit trade-offs inherent in the use of automated tools for building software and configuration management
3. **Describe** several techniques for validating and measuring the quality of software
4. **Apply** testing techniques for validating and measuring the quality of software
5. **Use** appropriate techniques and tools, including a debugger, to locate program faults
6. **Describe** several types of maintenance processes associated with correcting and enhancing software systems
7. **Participate** effectively in a software inspection/code review
8. **Participate** effectively in a team environment

Course Schedule

Topics by Weeks

WEEK	TOPICS	DUE
1	Tool Setup What is Testing	Quiz: Course Policy A1: Git Quiz: Testing
2	Black Box Testing	HW1: Writing Black Box Tests
3	White Box Testing	HW2: Improving Coverage
4	Random Testing	HW3: Random Testing Hands On
5	Test Driven Development	A2: TDD Hands On
6	Continuous Integration Code Review	Group Project: Part 1 A3: Code Review Hands On
7	Stubs, Fakes, and Mocks	Group Project: Part 2 Group Project: Part 3 Quiz: Testing Environments and Mocking
8	Advanced Topics	Practice Final Exam Final Exam

Textbooks

There are no required textbooks for this course

Assignments

This course has 5 types of assignments:

- Activity: These are graded Pass/Fail. They are less about being 100% correct and more about demonstrating understanding. They are also worth the fewest points
- Homework: These are graded for correctness and require more work than an activity. They are also worth more points.
- Quiz: These are straightforward multiple-choice assessments. You have two attempts for each with the highest score kept.
- Project: This is a group effort and will span multiple weeks. It is the assignment worth the most points excluding the final.
- Final Exam: This is an all-encompassing assessment. Any topic discussed in the course materials is eligible. It will consist of multiple-choice, short answer, and simple coding questions.

PLEASE NOTE: If you submit the incorrect files/assignment you WILL NOT be given a chance to resubmit and will receive a 0 for the assignment. It is important that you download your submission after it uploads to verify that everything is as you expected. There will be no exceptions.

Exam

This course has one proctored exam -- the final exam.

The final exam window will run from the **Sunday** at the start of finals week through **Thursday** of finals week. If you are unable to take the exam in that window, you must make arrangements **prior to the end of the 2nd week** of classes. Beyond this deadline, only emergency situations will be considered for alternate testing times.

This course will use an automated online proctoring system called Proctorio, where your exam session is recorded for instructor review. You will **not** need to schedule proctoring appointments, and there is **no cost to you** to use Proctorio.

Please note that a functioning webcam and microphone are required for using Proctorio. If you do not have these, you will need to locate and submit an alternative proctor through the exams and proctoring form and pay for any associated proctoring fees.

Grading Policy

Grade letter	Percentage floor
A	93
A-	90
B+	87
B	83
B-	80
C+	77
C	73
C-	70
D+	67
D	63
D-	60
F	0

Grade Weighting

There are no weighted categories for assignments. Each assignment is assigned a given number of points. The final grade percentage will be determined using $\frac{Total\ points\ received}{Total\ points\ possible} \times 100$

Accommodations

"Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved by DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who

believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098."

Students with documented disabilities who may need accommodations, who have any emergency medical information the instructor should be aware of, or who need special arrangements in the event of an evacuation, should make an appointment with the instructor **as early as possible**, and no later than the first week of the term. Class materials will be made available in an accessible format upon request.

If you have a really tough situation that might affect your progress a lot (illness, job duties, family emergency...), you should contact the instructor immediately. **Don't wait until the due date or even past the due date to explain your personal situations and ask for extensions**. If you are not sure whether to ask for it, better do it.

Late Policy

Requests for extensions are considered on a case by case basis. Non-emergency requests must be submitted **via email at least 72 hours before the due time**. (Not having enough time to get the assignment done does not, by itself constitute an emergency, sorry!). **If you don't know if you will need an extension but might, you should ask for one.**

Time elapsed past due date	Penalty Applied (if no extension is granted)
T < 24 hours	-10%
T < 48 hours	-20%
T < 72 hours	-30%

Extra Credit

At the end of the term, I will give extra credit (1 to 2 maximum points) to those who are active on Ed answering questions and sharing notes with others.

Code Sharing

You will not get in trouble for sharing code with your classmates in order to solve problems. The communication guide actually mandates that you share **portions of your code** if you want to ask a good question. If you are worried that you are posting too much code, mark it private and ask the instructor to review it. Note that this is a more permissive policy than the standard policy for the program.

You will get a great deal of trouble if you copy code without citing it. See the policy on plagiarism. Code from lectures is not your own, code from StackOverflow is not your own, code from the Mozilla documentation is not your own. If it is not your code, you must cite it. If you cite it, you must provide documentation in very great detail of what it is doing so that I know you understand the code you are using.

Fostering Healthy Online Dialogue

The internet is a wonderful tool and has provided immeasurable value to humanity. That said, there are parts of online existence that have made aspects of life harder. One of those is in how we communicate with one another in a purely written form. We sometimes forget how much communication is accomplished via non-verbal cues: tone, body language, and facial expressions. Without these non-verbal cues many of us will find ourselves misunderstanding others and being misunderstood ourselves. It is important that we afford others the benefit of the doubt when it comes to possible misunderstandings. Therefore, if we find ourselves becoming upset by something someone says online, we need to take a step back and try to find a non-offensive way to read the same statements. Even if the person meant to be upsetting, why give them that power over us? In short: be kind to others and assume kindness from others.

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

Academic Misconduct

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, including cheating, plagiarism, assisting and others. See the Code of Student Conduct for details.

You are expected to do your own work and demonstrate academic integrity in every aspect of this course. Familiarize yourself with the standards set forth in the OSU Code of Student Conduct Section 4.2. You must only access sources and resources authorized by the instructor. You may not show your work to any other current or future students without the instructor's authorization. Violations of these expectations or the Code of Student Conduct will be reported to the Office of Student Conduct and Community Standards. If there is any question about whether an act constitutes academic misconduct, it is your responsibility to seek clarification and approval from the instructor prior to acting.

Permission to use your code/submissions

By taking this course you acknowledge that your work may be shared with your peers for educational purposes. These purposes include, but are not limited to, peer review and code samples.