

Software Engineering Principles I

Class Meeting Times and Location:

Mon, Wed, Fri 12:10pm- 1:00pm, SPRK 339 (Aug 20—Dec 7)

Instructor:

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Teaching Assistants:

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Homepage and Course Commutations:

- The course syllabus is available at: <http://www.eecs.wsu.edu/~arslanay/CptS322/>
- The course announcements, lecture notes, and homeworks, will be posted on **Blackboard**.
- All project code and deliverables will be submitted on EECS GitLab (<https://gitlab.eecs.wsu.edu/>)
- You may post your project related questions at: <https://goo.gl/wE91XT>
(or <https://groups.google.com/forum/#!forum/wsucpts322-fall18>)

Text Book and Reading Materials:

Recommended Textbooks:

[CODE] Steve McConnell, Code Complete: A Practical Handbook of Software Construction, 2nd Edition. ISBN-10: 0735619670

[SEPA] R. Pressman, Software Engineering: A Practitioner's Approach, 8th edition, McGraw-Hill. 2014. ISBN-10: 0078022126.

There will also be reading assignments throughout the semester that will be posted to the course web site to print or read online. For many of the reading assignments, we will assign questions posted online for you to answer about the reading.

Course Overview:

Building large software systems is hard, but experience shows that building large software systems that actually work is even harder. This course covers techniques for dealing with the complexity of software systems. We will

focus on the technology of software engineering for the individual and small team, rather than business or management issues. Topics will include, among others, specifications, principles of design and software architecture, testing, debugging, static analysis, and version control. You are expected to actively participate in the classes.

Prerequisites: "Cpts 223/233 Advanced Data Structures"

Course Format:

The CptS322 class meets three times a week for lectures. Lecture notes will be made available online at Blackboard (<https://learn.wsu.edu>). While the lectures are designed to be clear and self-contained, you should also read the assigned “reading materials” and chapters in the course textbooks.

Outline:

Topics	Reading Material
Introduction (Overview of Software Engineering)	[SEPA] Ch 1,2
Web Development (HTML,CSS, JavaScript/JQuery, Flask)	
Software Lifecycle, Software Development Process	[SEPA] Ch 4
Agile Process; Scrum Project Management	[SEPA] Ch 5
Version Control - Git	
Requirements	[SEPA] Ch 8
Use Cases	[SEPA] Ch 9
User Interfaces	[SEPA] Ch 15
Software Architectures	[SEPA] Ch 12,13
Component Level Design, UML Class/Sequence Diagrams	[SEPA] Ch 14
Software Testing and Testing Techniques	[SEPA] Ch 22,23
Design Patterns	

Grading Scale:

The below percentages are subject to change as circumstances dictate.

Overall Grading:

- 1. Midterm..... 15%
 - 2. Final..... 15%
 - 3. Warm-up project..... 17%
 - 3. Term Project 40%
 - 4. Reading and programming assignments..... 8%
 - 5. In class attendance.....5%
- 100%

Project Grading:

The team project grade is 40% of the course grade. For most elements the whole team will get the same score, with the exception of the individual stages (e.g., presentation). Each component is scored to 100 points and the points are then totaled using the provided overall grade percentages:

- 1. **Requirements document: 6%**
- 2. **Iteration 1: 8%** (design document: 5%; (working) code: 3%)
- 3. **Iteration 2: 8%** (document updates (including a test plan): 3% ; (working) code : 5%,)
- 4. **Iteration 3: 16%** ((working) code and final demo: 13%; testing support: 3%)
- 5. **Presentation: 2%**

For each team member we will compute a factor (e.g., 0.95 or 1.05) based on the performance evaluations (instructor and peer evaluations). The average of the factors for a team will be 1.0. We use this factor as a multiplier for the overall project grade when assigning individual project grades.

Letter Grades:

Letter grades will be assigned based on the scale shown below. **The assignment and exam scores will be adjusted (curved) according to the class averages.** The below scale assumes class average is 80%.

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Total Score	93% - 100%	90% - 93%	86% - 90%	83% - 86%	80% - 83%	76% - 80%	73% - 76%	70% - 73%	66% - 70%	60% - 66%	0% - 60%

Reading and Programming Assignments:

For some major topics, you will be assigned to read articles or work on short coding assignments related to the topic. All assignments will be posted on Blackboard at “assignments” page. You will be asked to write summaries and answer questions to indicate your comprehension of the key ideas in the reading. There will be total 4 reading/programming assignments.

All assignments will be completed as a team (your project team). All team members should read the assigned material, discuss the solutions to the questions, and submit their answers as a team. There will be questions in the exams related to the material assigned in these assignments. **You should not share your solutions with another team,** otherwise you will be reported to the WSU Office of Student Conduct for plagiarism and you will receive 0 for all HW and project assignments (60% of your grade). If you attempt a second time (i.e., cheat in any other course deliverable), you will receive “F” for the course.

Late submissions for reading assignments won’t be accepted.

Projects:

The goal of the course projects is to provide you with hands-on software engineering experience, involving a team of students.

1. You will start the semester with a relatively simpler **individual** warm-up project, where you will build a web application (both frontend and backend). The goal is to have you learn the basics of HTML/CSS/JavaScript (frontend) and Flask (backend) backed by a SQLAlchemy database.
The warm-up project will be done individually.
2. For the main class project you will work on a project idea that the instructor will provide to you OR you choose your own project idea. We want to maximize the interest and enthusiasm students have for the projects they work on therefore you are strongly encouraged to bring your own project idea. However, the instructor needs to review and confirm your proposed idea. Please see the project description on Blackboard for more details.

Project Teams: You will work on the project as teams of 3. At the end of the semester, each student will fill out and submit a “peer review form” and evaluate his/her team member.

All project work must be done by the team members. If your code is substantially similar to another team’s submission or the submissions from prior years, you will be reported to the WSU Office of Student Conduct for plagiarism and you will receive 0 for all assignments and project (60% of your grade). We will process all programming assignment submissions (including prior years’ submissions) using Stanford's free plagiarism detection software called MOSS (<https://theory.stanford.edu/~aiken/moss/>).

Project Submission: Unless posted, project documents shall be submitted electronically on Blackboard (one submission per team). You will also maintain the latest version of your code in your private repo on the EECS GitLab server (see project description for more information). **Late penalty is 10% point deduction per day.** Late project deliverables may be turned up to 5 days after the original due date. Exceptions/extensions can be given to students with valid excuse. Students need to provide evidence for their excuse and must notify the instructor beforehand for the late submission.

Exams:

There will be one midterm and one final. Midterm will cover all material covered until the midterm date. The tentative midterm date is **October 17th** 2017 (see the schedule). The Final Exam will be comprehensive and cover all of the course material. The majority (80%+) of this exam will focus on the material presented after the mid-term exam. In the exam, there will be questions related to the material covered in the lectures, the warm-up project, the reading material you read in the “reading assignments”, and the term project.

Both exams will be given in SPRK 339.

Attendance:

Attendance is expected at all lectures. Lecture notes will be posted on Blackboard, but reading the notes is not an adequate substitute for attendance. You are also expected to participate in class discussions to a reasonable extent. This aids learning and provides valuable feedback on the lecture.

In all lectures, you will complete an online survey on Blackboard. You need to bring your laptop or web-capable phone or tablet to each class session to complete the attendance survey. Each survey will typically include 2 questions: first question will ask you to enter the “attendance code” for the day and the second question will be about the lecture topic. The quiz will be given some random time during the lecture. If you need to leave the lecture early, please let me know ahead of time.

5% of your course grade will be based on the attendance survey. Each survey will worth 0.16% points and the survey will be given in 38 lectures. If you attended 84% of the lectures (32 out of 38) and answered the survey questions correctly, you will get full attendance credit (i.e., $0.15 \times 34 = 5.12\%$). Above 84% will be considered for extra credit.

I will record lectures (audio + videos of the computer screen) and make them available on Blackboard. Technical difficulties sometimes arise and occasionally, so don't count on these!

Attendance and assignment/project submissions on time is a strong indication that you care about this class and you put effort to succeed. I will look at your attendance scores and assignment/project submission dates before finalizing letter grades.

Student Work Load for CptS 322:

CptS 322 is a 3-credit course. The 3-credit designation normally implies that on average the student is expected to spend 3hrs ("lectures") + 6hrs ("assignment+projects+exams") = 9 hours per week working on this course.

Academic Integrity:

Learning difficult or complicated material is often facilitated by discussions between students and I encourage you to form study groups to try to solve difficult problems together.

However, work you submit must be your own. Exams, quizzes, homeworks, programming projects, and attendance are subject to the WSU academic integrity policy. Do not cheat in any way: do your own work! Doing your own work means that you must turn in your own, original work. I define CHEATING to be any attempt to avoid any required obligation for the course, i.e.,:

- Sharing solutions during exams or using any additional material in addition to the allowed (a sheet) notes sheet.
- Sharing solutions or code with your classmates or copying code from solutions/programs of prior semesters' students. It means you do not turn part of a solution you found on the web, nor do you copy code from an assignment solution (you obtained from a friend) from prior semesters. We will process all programming assignment submissions using Stanford's free plagiarism detection software called MOSS. In programming projects, working together may extend to figuring out overall strategies for solution but you may not work together to write the actual code that you submit.

- Having your friend mark you as present in class or signing in as present in class when you are actually elsewhere.

Students who violate these rules or WSU's Standards of Conduct for Students (WAC 504-26-010 (3)) will fail the assignment (receive 0 for that assignment or exam) and be reported to the Office of Student Standards and Accountability. A second violation will result in failing the course without having the option to withdraw. A pattern of academic integrity violations may result in your being decertified from the major. Note that penalties for cheating apply to both a person who turns in copied work and to a person who allows their work to be copied. WSU definitions and procedures for cases of academic dishonesty are given at the URL:

<https://deanofstudents.wsu.edu/default.asp?PageID=4295> If you have any questions about what is and is not allowed in this course, you should ask course instructors before proceeding.

If you wish to appeal a faculty member's decision relating to academic integrity, please use the form available at conduct.wsu.edu.

Students with Disabilities:

Students with Disabilities: Reasonable accommodations are available for students with documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Access Center (Washington Building 217) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. Additional information can be viewed at the URL

<http://drc.wsu.edu>

Campus Safety:

The Campus Safety Plan, which can be found at <http://safetyplan.wsu.edu>, contains a comprehensive listing of university policies, procedures, statistics, and information relating to campus safety, emergency management, and the health and welfare of the campus community. The left side bar at this safety plan homepage contains many important links to safety information.