CS108: Course Information

Dr. Patrick Young
Winter 2024

Class Objectives

The course objectives are as follows:

- To substantially strengthen students' programming ability by requiring them to program a number of large, interesting projects.

- To teach students to find information on their own and solve problems on their own using available documentation; to give them the confidence in their own abilities they will need when programming in industry or as grad students.

- To solidify students understanding of object-oriented principles.

- To provide exposure to a broad range of programming areas including multi-threaded programs, communication between processes, and interacting with databases.

- To provide team programming experience.

Course Staff & Office Hours

Lecturer: Dr. Patrick Young
e-mail: patrick.young at
Please do **not** leave me voice mail—use e-mail instead.

Teaching Assistants:
Pete Rushton, prushton at
Katherine Chen, kathchen at

Office Hours may vary from week to week, changing depending on assignment due dates. Please check Canvas for the latest information.

All e-mail addresses are @stanford.edu.

About Getting Help via Email and Ed Discussion

Please note that we will not debug code via Ed Discussion or email. Learning to debug is a critical skill for software programmers, and email and Ed Discussion requests for help with code usually end up with us giving you the answer rather than you learning how to find the answer. Therefore, we will not look at code longer than a few lines via Ed Discussion or email. If you're having trouble finding errors in your code, you need to come into office hours where we can teach you how to debug. Check the office hours ahead of time and plan accordingly. These rules hold whether or not any additional office hours are available before the assignment is due.

If you are having problems figuring out where an error is, any requests for any assistance must include:

1) A detailed description of the problem
2) A description of three different conjectures as to what might cause that problem
3) A list of concrete steps taken to try to confirm or eliminate the conjectures.

If we believe that you did not spend time in a careful analysis of the problem or have came up with a list of nonsensical conjectures simply to fill out your list, we may tell you to come up with additional conjectures.

If you're having trouble coming up with conjectures, think about what the symptom you are seeing is, then consider what parts of the code are related to the issue you are seeing. Think about what might be going wrong that might result in your symptoms. Try to get more detailed information on the error. Go into the debugger or put in some print statements. Try to isolate the problem.

You really need to learn to dig in and wrestle with the code and your bugs. This is the only way you will strengthen your debugging skills and become strong programmers.

Grading

Homework Assignments	66.6%
Class Project	33.3%

Your grade will be based two-thirds on individual assignments done during weeks 1-7 and a third on a group project at the end of the quarter. There is no midterm and no final for this class.

Note: In order to earn an A+, students will need strong performance on both their individual assignments and on the group project.

Course Assignments

There will be five regular homework assignments.

Late Policy
For all regular assignments except for the last one, assignments turned in late will be penalized 10% for each 24-hour period which has passed since the original due date and time. No assignment may be turned in more than a week after its original due date.

I realize that you do have other classes. You have a late allowance of three late days which can be used to excuse late assignments. This allowance may be used for a single assignment or it may be divided for use on multiple assignments. For example, if you turn in one assignment three days late, you've just used up your entire late allowance. However, if instead you turn in the assignment two days late you still have one additional late day which you can use for another assignment.

<u>The last assignment before the project begins must be turned in on time</u>. You may not use any late days on it, and it will not be accepted late. This is to ensure that all students are ready to begin work on the team project at the end of the quarter, instead of having some members of the team working on the final project, while others are trying to finish up their late last assignments.

Collaboration Rules

You should not receive assistance on your assignments from anyone other than a member of the CS108 teaching staff. While I certainly expect students to discuss the class amongst themselves, please be very careful about providing assistance with the assignments. *For the purposes of this class, if someone looks at your code, or if you look at another student's code, you have received too much assistance.*

If you have concerns that you received too much help from another person or any other source, explicitly document the help received with your assignment. Any help that is explicitly documented will not be considered an Honor Code issue – although it may result in a grade reduction.

Please note that CS108 submissions may be run through automated plagiarism detection tools.

Submission Errors

Please properly submit your assignments. Submission errors on professional projects lead to "breaking the build" which is considered a very serious mistake. Because of this, we want you to pay careful attention to properly submitting and will heavily penalize students who have submission errors.

Grades on Canvas

We will be posting your grades on the Canvas website (see below). Please make sure you check your grades as soon as they are posted. Any missing grades or grading errors must be reported within one week of the posting date. *All grades will become final, one week after they are posted.*

Final Project

In addition to the homework assignments, you will also have a large group project at the end of the quarter. While we will provide more information on the project much later in the quarter, you will need to form 3-5 person teams. We may add additional team members to any teams which are not 5-person teams, so if you want to make sure that your team will only consist of students you have selected on your own, make sure it has 5 people on it.

If possible, get to know your fellow classmates now, so you'll be able to form a team with students you are comfortable with. However, if you don't know anyone in class, we will automatically place you on a team, so don't stress too much, if you're having trouble meeting anyone in class.

Incomplete Policy

If you have a serious medical or family emergency and cannot complete the work in this course, you may contact me to request an incomplete. I reserve incompletes only for emergencies, so I do not grant incomplete grades for poor performance on the assignments or exams, nor do I offer incompletes for busy work schedules.

In order to be eligible for an incomplete, you must have completed all of the assignments (with the possible exception of the most-recently-due assignment) and must have shown satisfactory academic progress in the class.

Please note that because CS108 requires a group project for successful completion, if you request an incomplete but do not carry out the group project in the current quarter, you may not be able to complete the class until the next time CS108 is offered when you can join a team of CS108 students in carrying out the group project.
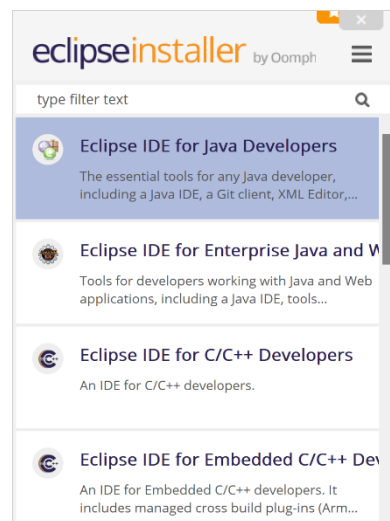
Software

We will be using Java with the Eclipse and Android Studio IDE (Integrated Development Environments).

Eclipse
Download a copy of the Eclipse from:

> http://www.eclipse.org/downloads/

When you run the downloaded installer, you will be given the option to install different configurations. You want to choose the options for Eclipse IDE for Java Developers.

Android Studio
In addition, we will be using Android Studio. We'll talk about that in a separate Android handout coming out the 2nd week of the quarter.

Java Versions
We will be using the OpenJDK version of Java, as Stanford does not have a license for the Oracle version. This version of Java will be automatically installed when installing Eclipse. Go ahead and use whatever version of Java Eclipse installs but be aware that Android has a tendency to be behind on Java versions, so I don't recommend getting in the habit of using bleeding edge Java features if you are primarily planning to use it as an Android programmer.

Use of Artificial Intelligence

We have a separate handout outlining CS108 policy on using Artificial Intelligence. Please read it both to get some ideas what is allowed and what you consider before deciding whether or not to use AI for assistance in CS108.

Course Materials

There is no textbook for this class. We will be using Canvas for our course website:

> http://canvas.stanford.edu/

Ed Discussion System

We will be using the Ed Discussion system, which should be integrated into our Canvas website by Canvas support sometime during the first week of the quarter.

Tentative Course Schedule

All due dates are subject to change. Check the individual assignment handouts for the actual due dates. All times listed refer to the time on Stanford campus.

Week One (1/8)
- Java Review, Collections, Unit Testing

Week Two (1/15)
- Basic Android Programming
- HW1 due 11:59pm Wednesday Evening 1/17

Week Three (1/22)
- Encapsulation and Inheritance
- HW2 due 11:59pm Wednesday Evening 1/24

Week Four (1/29)
- Exploring Android Programming
- Databases
- HW3 due 11:59pm Sunday Evening 2/4

Week Five (2/5)
- Programming with Threads

Week Six (2/12)
- More Android Programming
- HW4 due 11:59pm Wednesday Evening 2/14

Week Seven (2/19)
- Software Development
- HW5 due 11:59pm Wednesday Evening 2/21

Week Eight (2/26)
- Software Development

Week Nine (3/4)
- TBD

Week Ten (3/11)
- TBD
- Final Project due at 9pm Friday 3/17

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Student Disability Resource Center (SDRC) located within the Office of Accessible Education (OAE). SDRC staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the SDRC as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 650-723-1066)

The Stanford Honor Code

The Honor Code is an undertaking of the Stanford academic community, individually and collectively. Its purpose is to uphold a culture of academic honesty.

Students will support this culture of academic honesty by neither giving nor accepting unpermitted academic aid in any work that serves as a component of grading or evaluation, including assignments, examinations, and research.

Instructors will support this culture of academic honesty by providing clear guidance, both in their course syllabi and in response to student questions, on what constitutes permitted and unpermitted aid. Instructors will also not take unusual or unreasonable precautions to prevent academic dishonesty.

Students and instructors will also cultivate an environment conducive to academic integrity. While instructors alone set academic requirements, the Honor Code is a community undertaking that requires students and instructors to work together to ensure conditions that support academic integrity.