CS 106A: Programming Methodology
Course Information

Stanford University
Spring 2017

Instructor

name: Marty Stepp
email: stepp [at] cs [dot] stanford [dot] edu
office: Gates B24
office phone: (650) 723-6602
office hours: *see course web site*

Head TA

Nick Troccoli
troccoli[at] stanford [dot] edu
TBA
see course web site
see course web site

Beyond the instructor and head TA, an important part of our course staff is our set of undergraduate **section leaders**. Section leader contact information can be found on the class web site.

Course Overview

CS 106A is a first course in computer programming and software development. You will learn techniques, programming constructs, and design strategies that form the basis for modern software. When you complete the course, you will be comfortable writing programs that interact with the user, process and manipulate data, and report information to the user textually and graphically. More importantly, you will learn how to approach problem solving from a computational perspective and gain exposure to different areas in computer science and how programming is applicable across all sorts of domains.

- undergraduate students: 5 units (required)
- graduate students: 3 to 5 units, depending on what best fits into your schedule

Regardless of how many units you are enrolled for, the course content and requirements will be the same.

Course Web Site: http://cs106a.stanford.edu/

All resources from class will be posted here. Check the web site often for any important course-related announcements. We also require you to have a Stanford email account. If necessary, get one at http://email.stanford.edu/ .

Lectures: MWF 1:30 PM - 2:20 PM, Hewlett 200

Lecture attendance is not mandatory, and no graded activities will be given in lecture other than the midterm and final exams. All slides, program code files, and other resources from lecture will be posted on the class web site. But we still recommend attending lecture as your basis for learning the material and to help you prepare for the homework assignments.

Grades

Your overall course grade will be determined as a weighted average of the following categories:

40%	homework assignments	
5%	section participation	
25%	midterm exam	(**Thu, May 11, 2017, 7:00pm - 9:00pm**, *location TBA*)
30%	final exam	(**Fri, Jun 9, 2017, 8:30am - 11:30am**, *location TBA*)

Textbooks

1) Roberts, Eric. *The Art & Science of Java*. ISBN 978-0321486127. Required.
2) Roberts, Eric. *Karel the Robot Learns Java*. (course reader). Optional. *(Also available as online PDF.)*

Ensure that you either own a copy or have access to a copy of them. Optional readings for each lecture will be posted on our lecture calendar. We may choose to give out weekly problems from the book. It also contains practice problems and supporting materials you can use to study. Our exams are **open-book**. NOTE: You will *not* be able to use any digital book version on your exams (PDF, e-book, iPad, Kindle, Nook, etc).

Discussion Sections: http://cs198.stanford.edu/section

In addition to lecture, you must also **sign up for a weekly 50-minute discussion section**, held on various times/places on Wed-Fri. Your section will be run by an undergraduate section leader who will also grade your homework. In section we answer questions, go over common errors in homework solutions, and discuss sample problems in more detail than we can in lecture. Part of your course grade comes from attending and participating in your section on a regular basis.

Section sign-ups are done online in the first week of the quarter at the URL above. After a matching process, your section will be e-mailed to you in Week 2, and sections begin that week. Although Axess lists sections for this course, we don't look at Axess when assigning sections. You *must* sign up through our system to make sure someone will grade your assignments.

Computer Access and Software

The department operates a student computer cluster/lab called the "**LaIR**" located on the first floor of Tresidder Union. Section leaders will be available at the LaIR to help students with problems. The LaIR is open from Sun-Thu at the hours of roughly 6pm - midnight. The course web site contains a link to an up-to-date list of current LaIR helper hours.

The recommended software for the course is called **Eclipse**, as well as some supporting software such as the Java Development Kit (JDK). If you want to work on homework on your own machine, the course web site contains links to download the software free of charge. The software runs on Windows, Mac, and Linux. It is your responsibility to ensure that your program works in Eclipse, since that is how you will be graded. If you do not own a computer, please speak to us and we will do our best to accommodate your needs.

Due-date extensions will not be granted for outages unless they encompass a majority of the time for a given assignment.

Exams

Our exams are **open-book** for the two course textbooks listed above, but **closed-notes** and closed for all other resources. You may not bring or use any other printed materials such as handouts, slides, or practice exams. (A syntax reference sheet will be given to you at each exam.) No electronic devices may be used, such as calculators, iPads, or e-books.

In general, NO MAKE-UP EXAMS are granted. Make-up exams will be given only in rare cases of emergency or student athlete conflicts. If an emergency occurs on the exam day, you must contact the instructor *before* the exam (or arrange for someone else to do so). We will not approve any exam rescheduling requests based on personal reasons such as travel, leisure, or to ease exam week schedules. We will not approve any exam rescheduling requests for students who take another class whose lectures or final exams occur at the same time as those of CS 106A. No make-up exams will be granted to a student who contacts us after the exam is over, except in cases of dire emergency. No special accommodations will be made for students who arrive late to exams, regardless of the reason (missing a bus; overslept; sick; etc.). No make-up exams will be granted to students with a conflict arising from taking a course for which CS 106A is a prerequisite. Students who require special **OAE accommodations** must contact us at least 1 week before the exam in order to receive those accommodations.

If you need to miss an exam due to a sudden severe illness, injury, traumatic event, etc., after consultation with the instructor it is possible that you will be given an **Incomplete (I)** in the course and asked to complete the course in a future quarter.

The instructor reserves the right to fail a student who does not take the final exam or scores under 10% on the final exam.

Incompletes

An "incomplete" ("I") will be granted only in rare specific circumstances. The student must have completed the midterm and over half of the assignments at a passing level, and must have a valid extenuating circumstance. The student will complete the remaining work later but may not resubmit previous work to try to earn a higher score. The student may be asked to complete a final exam in a later quarter. Terms of dates and work to be completed must be agreed upon between the instructor and student. Incompletes will not be given for frivolous reasons such as low performance or to ease your schedule.

Homework

Homework consists of programming assignments, approximately 7 in total, with roughly one week to work on each. Each assignment has a specific due date/time listed on its handout or the web site. You will submit homework assignments electronically using the special Stanford submission feature built into our version of the Eclipse program.

Working in Pairs

A few of the assignments must be completed on an individual basis, but the majority of them allow you to optionally work in a **pair** with a partner. Working in pairs can improve student learning by giving you someone to talk to when they are stuck, or by letting you see a different way of approaching the same problem. Submitting work in pairs also reduces our staff grading workload which is important given our current rapidly increasing enrollments in CS.

If you choose to work with a partner, you must pair with another student who is currently taking the course and **in your section**. If you have a friend you want to work with, request the same section or request a section swap if necessary.

Students working in a pair must be taking the course for the same **grading basis**. That is, a student taking the course Credit / No Credit may not pair with one taking it for a letter grade. Students **auditing** or sitting in on the course may not work in a pair with a student who is taking the course. No person who is not enrolled in the course may be part of any pair.

If you submit as a pair, each of you are expected to make a **significant contribution** toward solving that assignment. You should not claim to be part of a pair submission if you did not contribute significantly to help solve that program.

Regardless of pairs, every student is still responsible for learning all course material. All exams are completed **individually**.

Many details about working in pairs are answered on the class web site on the **Pair Programming** link. Please read that page and make sure that you follow its guidelines.

Homework Grading

Programs will be graded on "**functionality**" (is the program's behavior correct?) and "**style**" (is the code well written and elegant?). A pair submits a single solution to a given assignment with both students' names attached. If you submit as a pair, both members of the pair will receive the same grade.

Rather than being scored on a direct point-based scoring system, we map homework scores into the following "buckets". From past experience, **most grades will be ✓ or ✓+**.

0 *Zero:* No credit. Typically this is only given if you do not submit the assignment or it shows no effort whatsoever.

– – *Minus-Minus:* Has extremely serious issues; shows almost no understanding

– *Minus:* Has very serious issues and does not demonstrate significant effort and understanding.

✓– *Check-Minus:* Has problems serious enough to fall short of the expectations/requirements for the assignment.

✓ *Check:* Meets the requirements for the assignment, with a few small problems or areas of improvement.

✓+ *Check-Plus:* Satisfies all the requirements for the assignment, showing very solid functionality as well as good style. It reflects a job well done. It is rare to receive a mark above ✓+, so this is generally the score to aim for.

+, ++ *Plus, Plus-Plus:* Excellent; significantly exceeds our expectations for the assignment. To receive these grades, a program often reflects additional work beyond the requirements and/or solves the problem in a particularly elegant way. A mark of + or ++ will be given out only on rare occasions and should not be considered a standard goal for each assignment you submit. It is more of a way of congratulating the rare submission that goes above and beyond.

An assignment's style score may be **capped** at a given maximum if its functionality score is particularly low.

Interactive Grading

For each assignment, you must **make an appointment for an interactive-grading session** ("IG") with your section leader. Your section leader will explain in section how to schedule these sessions and go over the grading process in more detail. At your IG, you and/or your partner might also be asked to explain some details about your program to verify both of your understanding of the work that was submitted. The IG must be scheduled within two weeks of the assignment due date.

Disputes about homework grading must be made within 1 week of your interactive grading session with your SL, or within 2 weeks of receiving the score, whichever comes sooner.

Homework Lateness

Each student begins the course with **4 "late days"** for use on homework assignments. A late day allows you to submit a program up to one lecture late without penalty. For example, if a program is due on Monday at 2pm, using a late day allows you to submit it on Wednesday at 2pm without penalty. Or if a program is due on Friday at noon, using a late day allows you to submit it up to the following Monday at noon without penalty.

Once you are out of late days, each successive lecture's worth of lateness on a program submission incurs a penalty of one grade "bucket" (a ✓+ turns into a ✓, or a ✓ turns into a ✓–, and so on).

Regardless of how many late days you have left, **you may not submit a program more than 2 lectures after it is due** or after the last lecture day. To be specific, **you may use at most 2 late days on any given assignment; you may not use more than 2 on the same program.** Note that late days may not be used on the very last assignment, as it comes due during the finals period normally reserved for this course. More specifically, unless otherwise specified, **we will not accept any late submissions for the final assignment**, even if you have remaining late days.

If you are working in a **pair** and submit your assignment late, each member of the pair is evaluated individually for lateness; that is, each person will consume one late day or will face a bucket deduction independently of the other.

You should think of these "late days" as due-date extensions you have been granted ahead of time, and use them when you might have otherwise tried to ask for a due date extension. As a result, extensions beyond the provided free "late days" will generally not be granted. In *very special* circumstances (primarily extended medical problems or other emergencies), extensions might be granted beyond the late days, but this is very rare. **Only the head TA will be able to approve due-date extensions**. In particular, please do not ask your section leader for an extension, since they cannot grant you one. All extension requests must be directed to the head TA no later than 12 hours before the program is due.

If you ever want us to delete and discard your submission to a given assignment for any reason, you have the option to **retract your submission**, no questions asked. If you feel a need to exercise this option, contact the course head TA and indicate which submission(s) you would like to retract. In general you should not ever need to do this, except in rare cases where you feel you have submitted improper work. See the Honor Code handout on the class web site for more information.

Honor Code

Academic conduct for students at Stanford is governed by the Honor Code. Part of the Honor Code is a pledge and expectation to participate in class without seeking inappropriate help on graded work such as assignments and exams.

A **separate Honor Code handout** is posted on the course web site. Please read that handout and familiarize yourself with the rules and guidelines in it. You are responsible for following the Honor Code in this course.