Syllabus, Revised

Handout 18
CSCI 334: Spring 2020

Principles of Programming Languages

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Office Hours	Thursdays, 4–5pm (EST) and Fridays, 7am–8am (EST) on Zoom
Lectures	Posted by 10am (EST), Tuesday and Thursday
Web Page	http://williams-cs.github.io/cs334-s20-www

Readings

- **(Required)** CSCI 334 Course Packet (use the college VPN to access)
- **(Required)** Additional readings may be posted on the course web site.
- **(Optional)** *Concepts in Programming Languages*, John C. Mitchell.
- **(Optional)** *Practical C Programming*, Steve Oualline.
- **(Optional)** *The C Programming Language*, Brian Kernighan and Dennis Ritchie.

Course Objectives

Why do we have so many darned programming languages? Many of them, like Java and C#, do more or less the same thing. Others, like C and Prolog, are wildly different. A key insight is that programming languages are designed for humans, not for computers. In this class, we will explore language designs, and why and how they might have an effect on productivity and program correctness. You will also be given the opportunity to "get under the hood" of a programming language, gaining deep insights into how they work.

At the end of this course, you should be able

1. to quickly learn an unfamiliar programming language;
2. to know, at a deep level, how a programming language works;
3. and finally, to be able to speak the "language of languages," such that you can talk about computing problems independently of a given programming language.

As in other CS courses, we will discuss alternative approaches for solving the same problem. Because programming languages are intrinsically tied up in (and motivated by) programming problems, we will not only investigate their features, but also the engineering problems that led to their development.

Time Commitment

Expect to spend at least 10 hours per week working on assignments outside of class meetings. Students in previous sections tell me that 10 hours per week is an accurate estimate of the time they spent. I strongly encourage you to block out time to work on CS334 problem sets. Starting early will also significantly reduce your stress level.

Lectures

Lectures will be pre-recorded and posted in GLOW. You can either stream these videos or download them to review offline in case your internet is unreliable or slow. You may watch them as many times as you like.

Schedule

The class schedule is posted on the course website. I will add links to assignments and readings as they are assigned. You should get in the habit of checking the schedule regularly.

Homework

There are three kinds of assignments in this class:

1. "collaborative assignments," which ask you to work through a problem with a partner and are required but not graded (due Sunday evenings by 11:59PM),
2. "quizzes," which are graded, collaborative quizzes that draw topics from the readings (due Sunday evenings by 11:59PM), and
3. "labs," which are a combination of problem sets with written answers and programming assignments (due Sunday evenings by 11:59PM).

Assignments are assigned weekly, typically by the Sunday before the due date.

Labs should:

- be completed and pushed to Github no later than 11:59PM on the due date;
- include source code for questions involving programming;
- be typeset using LaTeX for non-programming questions (e.g., proofs); and
- list any students with whom you discussed the problems (see Honor Code handout).

Labs will not be accepted on paper or via email.

Weekly Quizzes

Unlike the first half of the class, the second half of the class will feature weekly collaborative quizzes. You may work with any partner you wish—or by yourself—but you must submit answers individually. These quizzes are open book, and you may work on all aspects of the quiz with your partner. Quizzes will be posted Wednesdays and will be due by Sunday night. There will be no make-up quizzes, but as before, the two lowest quiz scores will be dropped from your final grade.

Due Dates and Resubmissions

The due date for all labs is now the last day of class, Friday, May 15 by 11:59pm. Labs will only be eligible for resubmission if they are submitted by the "feedback date." All labs will receive a grade, but only those submitted before the feedback date will receive timely feedback. The purpose of this change

is to allow you the flexibility to submit a lab later, with the understanding that receiving feedback requires coordination with graders that is hard to do when you miss a deadline.

As before, you may resubmit **up to three** assignments during the semester. This policy includes the first nine labs and the midterm exam, but not the final lab or final project.

A resubmission will be accepted at the discretion of the course instructor and allows you to earn back **up to 50% of the missing points**. For example, if you received a 75% on an assignment, you may earn up to 87.5% upon resubmission.

Resubmissions must be submitted in the following manner:

1. They must be submitted before the end of the final exam reading period.
2. They must include both the original work and the new submission.
3. They must be accompanied with a typed document, written in plain language, that explains, for every misunderstanding:
   (a) what the error is in the original work,
   (b) how you fixed the error, and
   (c) why the new version is correct.

Please note that resubmissions must be typed or they will not be accepted.

Lab Resources for Homework Assignments

Although you may find your own computer more convenient, be aware that the the Computer Science Department's Unix "lab" computers are still available for completing programming problems in this class. These computers are preconfigured with all of the required software.

Accessing computers on the CS network requires that you connect to the campus either using

1. the campus virtual private network (VPN), or
2. by using `ssh` to "tunnel" into our network.

Instructions for both options are described our Resources for Remote Work page.

If you are not familiar with the Unix computing environment, please speak with me or the TAs as soon as possible so we can bring you up to speed on what you need to know. You may also contact Mary Bailey to get your Unix password if you have forgotten it.

Piazza

Now that we have switched to remote learning, we will be relying more heavily on Piazza for course communication. Piazza accounts are free and secure, and links are provided on the course website. The advantages of Piazza are many, including:

- all students benefit from answers to other student's questions;
- posts appear anonymously to other students;
- anyone can answer a question as soon as it is posted, decreasing the wait time for an answer; and
- course instructors' posts are labeled as such, but instructors can also "endorse" excellent student posts.

To incentivize good citizenship, I will consider awarding bonus points for exceptionally helpful questions and answers. However, I remind you that all communications must follow the honor code—do not post solutions!

TAs will also be active on Piazza to answer course-related questions.

Exam and Final Project

There will be a midterm exam covering both lectures and readings. Your final evaluation will be a group programming project and presentation.

Grading

Although your grade will continue to be computed using a formula (cf. this formula has changed),

Midterm: 20%
Final Project: 25%
Homework assignments: 35%
Weekly reading responses: 10%
Weekly quizzes: 10%

your final grade will be recorded as pass/fail. In order to pass this course, you must earn a D- or higher. Note that this means that a grade of P does not adequately reflect mastery of this course. If you plan to continue studying computer science, I strongly encourage you to interpret your numeric grades as an indication of topic mastery, and work to reinforce any topics that you struggled with this semester. Subsequent courses will assume that you have mastered the material in this course.

COVID-19

I appreciate that there will be many challenges when resuming our class work from home, in a less-than-ideal setting, during a time of great uncertainty. All of us face the possibility that we will become ill—perhaps gravely so—during the COVID-19 pandemic. I want you to know that I consider **your health to be your top priority**. Falling ill is not your fault, and your grade should not suffer as a result. If you should contract the coronavirus, please inform me as soon as possible; I will be happy to communicate your situation back to the Dean of Students Office on your behalf. Ill students are welcome to continue participating remotely in the class provided that they feel healthy enough to do so. If you do not feel healthy, consider your semester as "on hold" with no negative consequences. In coordination with the college deans, I will revisit your academic plan once you regain your health.

Help!!!

There are many resources available when you need it. You are encouraged to discuss any questions, concerns, difficulties, or thoughts about the course with me. In addition, TAs are available to help you with challenges you face as you work through the course material and lab assignments. You are welcome at any time to approach course staff to ask for clarification of the assignments, and to discuss your problem-solving process. You do not need to wait until you are stuck and frustrated to speak with us!

If you find yourself facing challenges beyond the typical, please do not stay silent. Reach out to your instructor, a friendly face from the Dean's Office, or one of the many professionals across campus who stand ready to help. All faculty and staff at Williams are bound by the Family Educational Rights and Privacy Act (FERPA) to maintain the privacy of your educational records. I understand that difficulties arise, and I am prepared to help you.

You will never be penalized for seeking help!

Inclusivity

The Williams community embraces diversity of age, background, beliefs, ethnicity, gender, gender identity, gender expression, national origin, religious affiliation, sexual orientation, and other visible and nonvisible categories. We welcome all students in this course and expect that all students contribute to a respectful, welcoming and inclusive environment. If you feel that you are not being welcomed, included, or accepted in this class, please come to us or a college administrator to share your concerns. You may be surprised to learn that I both have these conversations with students regularly and very much welcome them. Please let me know how I can support you!