

Syllabus

CSCI 136: Spring 2020
Handout 1
7 February

Data Structures and Advanced Programming

Section 1 Instructor Prof. Daniel Barowy
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Section 2 Instructor Prof. Bill Jannen
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Lab Instructor Lida Doret
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Lectures MWF 9:00-9:50am (Section 1; Barowy) in Schow 030B
MWF 10:00-10:50am (Section 2; Jannen) in Schow 030B
Labs W 12–2pm, 2–4pm (Due Monday before 8pm)

Web Page <https://www.cs.williams.edu/~cs136>

Texts

We will be using the $\sqrt{7}$ edition the following text book:

- *Java Structures: Data Structures in Java for the Principled Programmer, $\sqrt{7}$ Edition*, by Duane Bailey.

Do not use earlier editions! A PDF version is available on the course website. We have also printed copies of the text book as a course reader. We encourage you to take a copy of the course reader; your term bill will be charged whether you take a copy or not, but we will reuse unclaimed books for future courses.

Course Objectives

Goal. The goal of this course is to enable you to write good programs, and to instill both an intuitive and an analytical understanding of what we mean by “good” in computer science. Throughout the semester, you will design, analyze, code, and verify that your programs work as expected.

Data structures. The primary vehicle for learning the above skills will be through the study of data structures, which are principled methods for storing and manipulating data. Data structures and algorithms, which you will study in CS256, are two sides of the same coin. Both are essential for the construction of the kinds of large, reliable computer programs used by billions of computers users on a daily basis.

The elements of style. In addition to correctness and performance, this course will help you learn how to write programs in a clear and modular manner. Programs written and documented clearly are easier to maintain and result in fewer bugs. Modular code substantially reduces coding effort and also results in fewer bugs. Don’t be surprised if you receive feedback that your program needs work even if it correctly implements an assignment’s specification.

Lab resources. This course will primarily use the MacOS computers in TCL 216 & 217 for programming assignments. You will be given door codes to access these rooms once the semester begins. While you are permitted to use your own computer if you wish, we only guarantee support for the lab environment, and all submitted assignments will be graded against the lab environment.

Typical Course Activities

Workload. The work that you should expect to engage with, beyond the scheduled lectures and weekly lab meetings, will involve

- Reading the text: 12-15 pages, on average, per lecture
- Preparing for weekly quizzes
- Preparing for the weekly programming labs
- Completing the weekly labs
- Studying for the mid-term and final exam

Some students program quickly but read slowly, and some do the converse. You should expect to spend at least 10 hours a week beyond the scheduled lecture and lab hours on this course. If you find yourself spending substantially more time than that on a regular basis, please see a course instructor.

Quizzes. There will be two quizzes per week: an ungraded quiz and a graded quiz. The purpose of the ungraded quiz is to give you practice with an important concept that you will then be evaluated on in the subsequent quiz. The goal of these quizzes is to gently prepare you for the labs and exams and to provide additional feedback. Ungraded quizzes will typically be on Mondays, while graded quizzes will typically be on Fridays. There will be no make-up quizzes (even if you miss class), however the two lowest quiz scores will be dropped from your final grade.

Labs. On most weeks, there will be lab programming assignments. **Attendance in lab is mandatory:** there are valid reasons to miss lab, but **any unexcused lab absence is grounds for course failure**. All programs will be graded on the basis of design, documentation, style, correctness, and efficiency. Programs should be turned in electronically by 8:00pm on the due date, typically the Monday following your lab.

Exams. There will be one midterm and one final exam. The midterm is scheduled during your lab period on **Wednesday, March 18**, and it will replace the lab for that week. The final exam is a scheduled exam during the college's exam period. The registrar will notify us with a date once they finalize the exam schedule.

Github

All assignments for this course will be submitted using Github. Prior to an assignment, a Github repository will be created for you. Repository names generally conform to the following pattern: `https://github.com/williams-cs/cs136_lab<n>-<your github username>`. You will be notified by email when your Github repository is created.

Piazza

In the interest of building a helpful community, we will be using Piazza for course communication. Piazza accounts are free and secure, and links will be 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, we will consider awarding bonus points for exceptionally helpful questions and answers. Bonus points will contribute to the attendance component of your grade. However, we remind you that all communications must follow the honor code—do not post solutions!

Resubmissions

Due dates for this class are firm—there are no “late days” for assignment submissions. Nevertheless, even well-intentioned students occasionally struggle with course material and fail to finish an assignment. In such cases, we always at least give partial credit. However, we want you to know that such an event is not the end of the world, and to incentivize you to engage in self-reflection, we allow **up to two** assignment resubmissions during the semester. This policy includes the first nine labs and the midterm exam, but not the final lab or final exam.

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.

Code Reviews

You will participate in at least one code review during the semester with our lab instructor, Lida Doret. Code reviews are one-on-one meetings where you have the opportunity to get personalized feedback on your code. In addition to aspects like correctness, code reviews are a good way to learn how to achieve better clarity or elegance from an experienced programmer.

You can find the scheduled code review times on the course website. You may proactively sign up to meet with Lida during any open review slot. To ensure that everyone is seen throughout the semester, we may reach out to you to schedule a time to meet with her.

Grades

Grades will be determined as follows:

Quizzes:	10%
Final exam:	20%
Midterm exam:	20%
Programs/Labs:	35%
Code reviews:	5%
Attendance:	10%

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 your instructors (Dan, Bill, and Lida). 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. Talk 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. We understand that difficulties arise, and we are prepared to help you.

Contrary to popular belief, the most successful students are not “effortlessly successful.” Instead, they get to know course staff early on and they familiarize themselves with an institution’s academic support resources. Williams has ample support resources, including

- The Peer Tutor Program: Tutors can be arranged when 1-on-1 help is required beyond that available from your instructor and TAs. <https://academic-resources.williams.edu/peer-tutor-program/>
- Math & Science Resource Center: Support is available for students grappling with the more quantitative aspects of their coursework. <https://academic-resources.williams.edu/math-science/>
- Accessible Education and Disability Support Center: Students with documented disabilities may require accommodations in certain situations. <https://academic-resources.williams.edu/disabilities/>
- The Health Center: Sometimes your challenges are not course-related. The Health Center provides a range of medical, psychological, and health/wellness services. <https://health.williams.edu>

You will not 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 concern. You may be surprised to learn that we both have these conversations with students regularly and very much welcome them. Please let us know how we can support you!