

# Syllabus

CSCI 136: Spring 2022  
Handout 1  
7 February

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## Data Structures and Advanced Programming

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Section 1 Instructor	Prof. Daniel Barowy
Office	TCL 307
Email	dbarowy@cs.williams.edu
Section 2 & 3 Instructor	Prof. Samuel McCauley
Office	TCL 306
Email	sam@cs.williams.edu
Lab Instructor	Lida Doret
Office	TCL 205
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Lectures	MWF 9:00-9:50am (Section 1; Barowy) in Schow 30b MWF 10:00-10:50am (Section 2; McCauley) in Schow 30b MWF 11:00-11:50am (Section 3; McCauley) in Schow 30b
Labs	Th 9:55-11:10am, 1:10-2:25pm, 2:35-3:50pm (Due Tuesday <u>before</u> 10pm)
Web Page	<a href="https://www.cs.williams.edu/~cs136">https://www.cs.williams.edu/~cs136</a>

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## Texts

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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.

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## Course Objectives

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**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 a “good” program 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.

**Java.** Although it may be unfamiliar to you, we will be using the Java programming language for this course. Unlike Python, Java is augmented with a number of features intended simplify the challenges of writing large-scale programs (e.g., static types). Learning these features will require some effort. However, developing a fluency in Java will benefit not just your performance in this class, but your abilities as a programmer in the future, whether you ultimately use Java or not in your professional life.

**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 using the lab environment.

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## Typical Course Activities

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**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 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 opposite. 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 Monday, while graded quizzes will typically be on Friday. There will be no make-up quizzes.

**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 10:00pm on the due date, typically the Tuesday following your lab meeting.

**Exams.** There will be one midterm and one final exam. The midterm is scheduled during your lab period on **Thursday, March 17**, 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.

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## Gitlab

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All assignments for this course will be submitted using Gitlab. Prior to an assignment, a Gitlab repository will be created for you. Repository names generally conform to the following pattern: `https://evolene.cs.williams.edu/cs136-labs/<yourcsusername>/lab<n>-<labname>.git`. You will be notified by email when your Gitlab repository is created.

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## Late Days and Resubmissions

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The material and assignments in this course are designed to challenge students and cover a wide variety of material. Most students occasionally struggle with the course material, or with finding time to finish assignments during an otherwise-busy week. The policies in this section are designed to give students flexibility with the course while ensuring that they do not fall behind.

**Late Days.** Each student may use a total of **three late days** on assignments throughout the semester. **No more than two late days may be used on a single assignment.** Students who wish to take a late day should fill out the following form: <https://forms.gle/n6JiwY63V4952LRG6>.

Once all late days are exhausted, late assignments will be penalized at a rate of **20% per day**.

**Resubmissions.** We also allow **up to two assignment resubmissions** during the semester. This policy includes labs 1–9 and the midterm exam, but not the final lab or final exam.

A resubmission 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.

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## Grades

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Grades will be determined as follows:

Final exam:	25%
Midterm exam:	25%
Programs/Labs:	40%
Attendance and Quizzes:	10%

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## COVID-19

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All of us face the possibility that we will become ill—perhaps gravely so—during the COVID-19 pandemic. We want you to know that we consider **your health to be your top priority**. Falling ill is not your fault, and your grade should not suffer as a result. We ask that if you contract the virus, that you inform us as soon as possible; we will be happy to communicate your situation back to the Dean of Students Office on your behalf. Should you fall ill, you are welcome to continue participating in the class if you 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, we will revisit your academic plan once you regain your health.

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## Help!!!

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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, Sam, 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. You do not need to share your private lives with us. But if you find that some aspect of your life prevents you from succeeding in this course, we ask that you reach out to us before you resort to desperate acts. If you are uncomfortable speaking with us, we recommend that you seek out 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 their 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 never be penalized for seeking help!

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## Inclusivity

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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 even welcome them. Please let us know how we can support you!