

CSCI 237: Computer Organization

Syllabus for Fall 2018

General Info

Instructor: Bill Jannen
Office: TCL 306
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Lectures: MoWeFr 10–10:50am in Shapiro Hall 129
Labs: Tu 1–2:25pm, 2:35–4pm
Due Sunday at 11:00pm

Web Page: <http://www.cs.williams.edu/~cs237/>
Textbooks: *Computer Systems: A Programmers Perspective (3rd Edition)*,
by Randal E. Bryant and David R. OHallaron (required)
The C Programming Language (2nd Edition),
by Brian W. Kernighan and Dennis M. Ritchie (recommended)

Course Objectives

This course provides a programmer's view of how computer systems execute programs, store information, and communicate. The course will enable students to become more effective programmers, especially in dealing with issues of performance, portability and robustness. The course material also serves as the foundation for courses on compilers, networks, operating systems, distributed systems, storage systems, and graphics, where a deeper understanding of systems-level issues is required. At the same time, the course develops a model of computer hardware organization from the gate level upward.

Topics covered include: machine-level code and its generation; performance evaluation and optimization; computer arithmetic; memory hierarchies, organization and management; and (maybe) networking protocols and supporting concurrent computation.

Course Work

Beyond the scheduled lectures and weekly lab meetings, you should expect to:

- read the assigned textbook readings before each class,
- prepare for the weekly programming labs,
- complete the weekly labs,
- complete a modest number of written questions, and
- study for the mid-term and final exam.

Some students program quickly but read slowly, some do the opposite. The typical student should expect to spend at least 10 hours a week beyond the scheduled lecture and lab hours. If you find yourself spending substantially more time than that on a regular basis, discuss the issue with your instructor.

Labs. On most weeks, there will be lab programming assignments. **Attendance in lab is mandatory:** there are valid reasons to miss lab, but *unexcused lab absences or latenesses will result in course failure.*

All programs will be graded on correctness, efficiency, design, documentation, and style. Programs should be turned in electronically by 11pm on the due date, typically the Sunday following lab. Each student may use a maximum of **three free late days** during the semester. A late day permits you to hand in an assignment up to 24 hours late, without penalty. Once late days are exhausted, late work will not be accepted; the most recent on-time submission will, however, be graded so that partial credit may still be obtained.

To use a late day, you must:

- Email the instructor in advance.
- By the regular submission deadline, submit the work you have completed so far, with a comment at the top of your `README.md` file that says: “Incomplete assignment, late day requested.”.
- When you have submitted the completed assignment, email your instructor and remove the “Incomplete assignment” comment from the `README.md` file.

Late days are provided to help students deal with unforeseen circumstances and to allow some balancing of occasional uneven work demands. They should be used judiciously; if you find yourself struggling with the workload of this (or any other) course, we encourage you to reach out to your instructor.

Exams. There will be one midterm and one final exam. The midterm will be scheduled on Tuesday, October 16, and it will replace the lab for that week. The final exam will be a scheduled exam during the exam period. The exams are closed book, closed notes, and stress conceptual understanding of the material. Details regarding the specific format of the exams will be discussed in class, and a sample exam will be provided to help prepare.

Engagement. Lectures are mandatory and you are expected to attend regularly. One goal of this course is to promote discussion of the assigned topics among all class members. As such, you are encouraged to ask questions, point out problems, and make observations during class. Engagement is a subjective evaluation of how you interact with the material and the class. We will use the full range from 0 (e.g., submits required work, attends some classes) to 5 (e.g., attends all sessions, participates in class, refers to the readings, raises new topics, shares knowledge with other students). Learning is collaborative; this is our way to reward students who positively affect the experience of fellow class members.

Grading. Grades will be determined as follows:

Final exam:	30%
Midterm exam:	25%
Labs and assignments:	40%
Engagement:	5%

Honor Code

Homework and lab assignments are to be the sole work of each student unless the assignment explicitly states otherwise. Students may discuss issues related to an assignment, provided that such discussions are cited in the material turned in. However, students may not collaborate on writing code. This includes using others’ code found online. Sources like StackOverflow are only appropriate for diagnostic purposes, like identifying cryptic error messages. You should never search out code on StackOverflow or similar forums.

One way to be sure you are not violating the honor code is to refrain from writing/typing/crafting your answers when talking with others—have all discussions away from any keyboard, and cite your discussions in your work.

Uncredited collaborations or code will be considered a violation of the honor code and will be handled appropriately. If in doubt of what is appropriate, do not hesitate to ask your instructor. For a full description of the Computer Science Honor Code, please see

<https://csci.williams.edu/the-cs-honor-code-and-computer-usage-policy/>.

Help!!!

Help. We all need it. 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 instructor. In addition, TAs are available to help you with challenges you might face as you work through the course material and lab assignments. If you find yourself facing challenges beyond the typical, we encourage you to reach out. Talk to your instructor, a friendly face from the Dean's Office, or some of the many professionals across campus who stand ready to help, including

- The Peer Tutor Program: Tutors can be arranged when 1-1 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: Some students with documented disabilities may require accommodations in certain situations. If that's you, take advantage of the options available. <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>

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 me or a college administrator to share your concern.