

CS 351 Syllabus

Course Overview

This course focuses on the programming facilities, mechanisms, and abstractions supported by modern operating systems and related low-level libraries and software. In short, we'll be looking at what sorts of things can be done via services provided by operating systems and how to go about doing them in a robust and efficient manner.

To a lesser extent, and only to the degree necessary to enable us to go about our programming tasks effectively, we'll also explore how certain abstractions presented by the operating system work "under-the-hood". For instance, when looking at how to perform low-level I/O it helps to understand some of the relevant data structures used by the operating system to fully appreciate how much time is spent, say, "opening" a file.

Topics we'll be covering include:

- signals, processes, and exceptional control flow
- time measurement
- virtual memory
- dynamic memory allocation
- system-level I/O
- interprocess communication
- networking
- threads and concurrent programming

Textbooks

The following textbook is required for this course:

- Bryant, Randal E., and David O'Hallaron. *Computer Systems: A Programmer's Perspective*, Second Edition. Prentice Hall, 2011.

The following are recommended (i.e., not strictly required) texts. The first is highly recommended if you've never worked with the C programming language before, and the second is useful if you'd like more in-depth information on material covered by the primary course text (and in lecture).

- Kernighan, Brian W., and Dennis M. Ritchie. *The C Programming Language*, 2nd Edition. Prentice Hall, 1988.
- Kerrisk, Michael. *The Linux Programming Interface: A Linux and UNIX System Programming Handbook*. No Starch Press, 2010.

Grading

Your grade will be computed as follows:

- 50% : Labs
- 25% : Midterm exam
- 25% : Final exam

And here's the grade scale:

- A: 90%-100%
- B: 80-89%
- C: 70-79%
- D: 60-69%
- E: 0-59%

Grades are never curved, but exam scores may be uniformly raised so that the class average is at least 70%. Note that you must score at least 50% on both exams (after normalization) in order to pass the class.

Labs

You will be assigned 4-6 labs, each asking you to apply concepts presented in class to develop working programs. All labs are *individual assignments*. Submission will be electronic.

Accounts will be created on the CS teaching server (`linux1.cs.iit.edu`) for you to work on the labs. While it is possible for you to work on the labs on your own computer, final testing must be performed on the course server.

Exams

The midterm exam date will be published on the course calendar and the final exam date/time will be set by the official IIT final exam schedule. Makeup exams should be cleared in advance, and will only be administered at my discretion. Both exams will be closed-book, closed-notes — calculators will not be permitted.

Late Policy

An assignment is late if it is not turned in by 11:59PM of the due date. Late assignments, unless cleared in advance with the instructor, are subject to a 30% reduction in points. After 1 week (7 days) past the due date, an assignment will not receive any points at all.

If you intend to submit a lab assignment late, *you must let me know in advance*, as it requires that I explicitly pull your work from the handin server after I've already done so for everyone else.

Academic Integrity

You are welcome to discuss assignments and labs with classmates, but all final work must be your own. Plagiarism will result, at the very least, in the plagiarized assignment receiving a zero – other disciplinary actions may be taken at my discretion. You should take care to attribute any ideas incorporated into your work to their original source, if that source is not yourself.

The IIT code of Academic Honesty may be found in the [undergraduate handbook](#).

Disability Accommodations

Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources. The

Center for Disability Resources (CDR) is located in Life Sciences Room 218, telephone 312-567-5744 or disabilities@iit.edu.

Last updated: Jan 10 2019