



## CS 225 Syllabus

Fall 2019

### Course Description

A study of the use of a high-level language to implement basic data structures such as strings, lists, arrays, objects, and hashes, and their application to searching, sorting, and hashing. Representation of numbers and strings at the machine level. The course will also include an introduction to the concepts of algorithm design and problem solving with an emphasis on algorithm development, analysis, and refinement. Offered every fall.

### Prerequisites

CS 126

### Course Objectives

Students successfully completing this course should:

1. Be able to implement basic data structures in a high level language.
2. Be able to apply data structures to problems of searching and sorting.
3. Understand the machine representation of numbers and structures.
4. Understand basic algorithm analysis.

### Textbooks

If you join the ACM (Association for Computing Machinery) with a student membership (\$40/year) you will get access to Safari, which has hundreds of online books. It is a very valuable and inexpensive resource.

*A Concise Introduction to Data Structures using Java* by Mark Johnson Safari

*Object-Oriented Data Structures Using Java* by Nell Dale, Daniel Joyce, and Chip Weems Safari

*Open Data Structures (in Java)* by Pat Morin. (PDF) (HTML)

*Open DSA CS3 Data Structures & Algorithms* (HTML)

### Grading

Homework	35%
Three Exams	15% Each
Final Exam	20%

In order to get grade of 2.0 or higher, you must have at least a 60% average for homework and a 60% average for exams (separately).

### Academic Honesty

Working together on programs is not allowed. Copying of programs from any source, including classmates and the Internet, is not allowed. You are allowed to talk to classmates and others about programs, but you are not allowed to look at anyone else's code, either to give or receive help, other than the textbook or code provided by the instructor.

For a first offense, your course grade will be reduced by 1.0. For a second offense, your course grade will be 0.

### Help on Programs

If you need help, come to office hours. Make sure that you start programs early enough that you will have time to get help. Coming in for help an hour before a program is due is unlikely to be profitable.

You can email for help, but coming in person is much more likely to be helpful.

The programming in this course will be more substantial than those in previous courses. *Do not expect to be able to start them the day before they are due and finish them.*

### Attendance

Attendance is required. If you have more than three unexcused absences before the last date for dropping you will be dropped from the course. If your fourth unexcused absence occurs after the last date for dropping you will receive a grade of 0.