

CSCI 150, Fall 2003

Introduction to the science of computing

www.cburch.com/cs/150/

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Hours: Day 1: 10am-11am
Days 4, 6: 8:30am-9:30am
drop-ins, appointments always welcome

Overview

Welcome to CSB and SJU's computer science program!

This course is a broad introduction to the science of computing, emphasizing varying ways of modeling computation. After taking this course, you should be able to do the following.

- Appreciate the variety of subjects that make up the computer science discipline.
- Describe the basic structures of computer hardware and software systems.
- Read and write simple computer programs.
- Understand simple mathematical models of computation.

Evaluation

There are a total of 1,000 points over the semester.

In-class exercises (5 pts each)	100 pts
Laboratory work (10 pts each)	200 pts
Lab quizzes (50 pts each)	100 pts
Quizzes (30 pts each, lowest dropped)	210 pts
Exams (120 pts each)	240 pts
Final exam	150 pts
Total	1,000 pts

Letter grades will come from the following scale.

A	900 or more	C	700 to 779
AB	880 to 899	CD	680 to 699
B	800 to 879	D	600 to 679
BC	780 to 799	F	less than 600

The instructor reserves the right to make adjustments in the entire grading scheme or in particular cases.

Note that the meanings of grades differ from what you may have experienced in high school. The *A* grade is reserved for outstanding performance; a *B* is more typical

and represents solid preparation for future computer science courses, while a *C* or *D* represents marginal preparation. I assign grades independent of any overall goal, but the average letter grade will likely be near 3.0, the historical average over CSB/SJU computer science classes.

Quizzes and tests

Mon 8 Sep	Quiz 0	Thu 30 Oct	Quiz 5
Tue 16 Sep	Quiz 1	Wed 5 Nov	Exam 1
Fri 26 Sep	Quiz 2	Mon 10 Nov	Lab quiz 1
Wed 8 Oct	Exam 0	Mon 17 Nov	Quiz 6
Mon 13 Oct	Lab quiz 0	Tue 25 Nov	Quiz 7
Wed 22 Oct	Quiz 4	Mon 8 Dec	Quiz 8
		TBA	Final

The date and time of the final, common across all sections of CSCI 150, will be announced later in the semester.

It's common for an average test grade to be 75%. If the class average for a test is below this, the scores will be curved upward so that the average is 75%.

If you must miss a test, you must receive advance permission to make it up. (Naturally dire medical emergencies usually constitute an exception.) Notify me well in advance — 24 hours for midterms and quizzes, and two weeks for the final. *Do not skip an exam without my prior approval!*

Your lowest quiz score will be dropped; if you must miss a quiz, that 0 will be your lowest score. For the second and subsequent *excused* quiz absences, I will administer a make-up quiz. (I will not give a make-up if you have an unexcused absence and an excused absence.)

Note that I may require you to document your reason for absence. Travel arrangements and work schedules are not adequate reasons to skip a test. Note that tests are scheduled just prior to Fall Break and Thanksgiving Break!

In-class exercises

There will often be unannounced in-class assignments on which you can work with your classmates and instructor. Each of these assignments will be worth 5 points. You will typically receive 4 points for being present and putting in a reasonable effort.

Make-ups for these assignments will not be available. If you are absent, you will miss the points regardless of the reason for your absence. Your lowest two exercise grades will be dropped.

Laboratories

As a core natural science course, this course has a laboratory session scheduled twice each cycle. Attendance at the laboratory session is mandatory. Details about laboratory procedures will be distributed at the first laboratory period.

Plagiarism / cheating

You must properly attribute any work or ideas you use in assignments for this course which are quoted or derived from others. Plagiarism includes not only copying the ideas and the written and spoken words of others, but also copying or otherwise appropriating their computer files as well. Interfering with the work of others including their use of computing facilities is also a serious academic offense. I will report all instances of plagiarism, cheating, or other academic misconduct to the appropriate Academic Dean, and I will give an F for that assignment or for the course at my discretion.

While I encourage you to discuss class material and to brainstorm problems with your classmates, you should not discuss the specifics of a solutions with classmates. (Groupwork specifically described by the assignment is an exception to this rule.) A strong correlation between your solution and a classmate's solution constitutes strong evidence of cheating.

Schedule

Section references are to the text for this course, available from the instructor.

Part I: How computers work

date	class agenda
Thu 28 Aug	Introduction (Ch 1) Logic circuits (§2.1)
Mon 1 Sep	Labor Day (no classes)
Tue 2 Sep	Circuit design (§2.2)
Thu 4 Sep	Circuit minimization (§2.3)
Mon 8 Sep	Binary representation (§3.1) Quiz 0
Wed 10 Sep	Integer representation (§3.2)
Fri 12 Sep	Floating-point representation (§3.3)
Tue 16 Sep	Multimedia representation (§3.4) Quiz 1
Thu 18 Sep	Addition circuits (§4.1)
Mon 22 Sep	Memory circuits (§4.2, §4.3)
Wed 24 Sep	Lab preparation
Fri 26 Sep	Machine language (§5.1) Quiz 2

date	class agenda
Tue 30 Sep	Machine language, cont'd (§5.2)
Thu 2 Oct	Assembly language (§5.3)
Mon 6 Oct	TBA
Wed 8 Oct	Exam 0
9–10 Oct	Fall Break (no classes)

Part II: High-level programming

date	class agenda
Mon 13 Oct	Lab quiz 0
Tue 14 Oct	Java overview (Ch J1, J2)
Thu 16 Oct	Java arithmetic (Ch J3)
Mon 20 Oct	Java loops (Ch J4)
Wed 22 Oct	Java conditions (Ch J6) Quiz 3
Fri 24 Oct	Java strings (Ch J5)
Tue 28 Oct	Java arrays (Ch J7)
Thu 30 Oct	Java methods (Ch J8) Quiz 4
Mon 3 Nov	TBA
Wed 5 Nov	Exam 1

Part III: The extent of computational power

date	class agenda
Fri 7 Nov	Operating systems (§6.1)
Mon 10 Nov	Lab quiz 1
Tue 11 Nov	Multiprocess CPU allocation (§6.2.1–2)
Wed 12 Nov	No lab today
Thu 13 Nov	Multiprocess memory allocation (§6.3)
Mon 17 Nov	Game playing AI (§7.1) Quiz 5
Tue 18 Nov	No lab today
Wed 19 Nov	Artificial intelligence (§7.2) Neural networks (§7.3)
Fri 21 Nov	Structural linguistics (§8.1) Context-free grammars (§8.2)
Tue 25 Nov	Regular expressions (§8.3) Quiz 6
26–30 Nov	Thanksgiving (no classes)
Tue 2 Dec	Finite automata (§9.1)
Thu 4 Dec	Turing machines (§9.2.1–2)
Mon 8 Dec	Reductions (§9.2.3) Quiz 7
Wed 10 Dec	Halting problem (§9.3)
Thu 11 Dec	No lab today
Fri 12 Dec	Conclusion (Ch 10) Review
TBA	Final

Note: This schedule is *tentative*. We are likely to follow it closely but not exactly.