CS 250: Computer Architecture
Spring 2025
TTH 9:00-10:15, Lab Monday 3:00-5:45, both in MLH310

Instructor Information

Name: S. Seth Long, Ph.D
Office: TJH 210
Email: sslong@lcsc.edu
Office Hours: Monday 1:30-3:00, Thursday 10:30-12:00

Course Website

The course website is located at `https://isoptera.lcsc.edu/~seth/cs250`. This is where assignments, lecture notes, and examples will be posted.

Course Goals

At the end of the course, students should understand computer architecture including:

- Binary and Hexdecimal numbering systems
- Basic capabilities of a computer.
- Logic and Gates
- Parts of a Computer
- Assembly programming
- The relationship between higher languages such as C and assembly language
- Parallel processing issues on a hardware level

Textbook

Primary: Programming from the Ground Up, available online for free
Recommended: "Structured Computer Organization", Andrew S. Tanenbaum. Any edition is acceptable.

Grading

Your grade will be calculated based on the following items:

Item	Percentage of grade
Midterm 1	10%
Midterm 2	20%
Final	30%
Lab assignments	10% total
5 Projects	20% total
Active Learning	10% total

Lab assignments will be due at the beginning of the next lab session, thus providing a week to finish them.
Grades will be assigned according to a standard curve, that is:

A: 90% +
B: 80%- 90%
C: 70%- 80%
D: 60%- 70%
F: less than 60%

Use of + or - grades (such as B+ or A-) and curves will be at the instructor's discretion.

Deadlines and late work

Late work will not be accepted except by instructor discretion. However, partial credit will be given for partially-completed work. It is better to turn in an unfinished assignment for partial credit than to not turn in something on time and receive a 0.

Attendance

Attendance will not be taken in this class except as required for fiancial aid purposes. However, all material presented during lecture is "fair game" for the midterm and final, and information which is useful to complete projects may be given at any time. Therefore I recommend that you always attend class.

Academic Dishonesty

Cheating on any assignment will result in failing the class. Some things which constitute cheating in this class are:

- Copying another student's homework
- Turning in homework created by another student
- Reading another student's answers on a test
- Sharing all or part of your completed homework with another student before the assignment is due

In this class, collaboration is allowed on labs. Appropriate collaboration involves collaborative development of a solution, not copying of a friend's solution! This does not include projects, which are to be an individual effort. Sharing of ideas or discussing concepts is allowed for projects, but not sharing of source code. Other students should not see your source code or answers for projects, and they should not see yours.

Tentative Course Calendar

Spring 2025 CS250			
Week Of	**Course Content**	**Relevant Reading**	**Assignments**
Jan 13	Binary, basic computer capabilities	Chapters 1 and 10	
Jan 20	Basic capabilities continued		
Jan 27	Parts of a computer, logic		
Feb 3	Gates and Logic		
Feb 10	Stack, Registers, CPU, instruction sets		
Feb 17	Midterm 1		Project 1 due
Feb 24	Assembly Programming and system calls	Chapters 3, 4	
Mar 3	Files, Records, more with memory	Chapters 5, 6, 7, 8, 9	
Mar 10	Files and Records		Project 2 due
Mar 17	Midterm 2		
Mar 24	Spring Break		
Mar 31	Integrating assembly with C, C calling conventions	Online (TBA)	
Apr 7	Integrating assembly with C, continuation and demos		Project 3 due
Apr 14	Floating point and assembly		Project 4 due
Apr 21	Parallel Processing		
Apr 28	Topics of Interest (maybe GPUs or other architectures)		Project 5 due
May 5	Final Exam Thursday, May 8, at 9:00 in MLH 310		