CS 2810: Computer Organization and Architecture

Spring 2024	Topics
Jan 8–12	binary, 2s complement, binary logic (ch1), linux, cli, ssh
Jan 15–19 (*MLK Day*)	ch6: instructions, operands, memory, constants, logical/shift, mul/div, branch & jumps, conditionals & loops
Jan 22–26	gdb basics, floats intro, ch6: arrays, function calls, stack
Jan 29–Feb 2	gdb memory, endianness, float conversions both ways
Feb 5–9	functions, stack frames, memory map
Feb 12–16	more debugger: ch7: microarchitecture, single-cycle processor
Feb 19–23 (*President's Day*)	ch7: multi-cycle processor, pipelining
Feb 26–Mar 1	ch7: advanced microarchitecture
Mar 4–8	
Mar 11–15 (*Spring Break*)	-
Mar 18–22	appx C: C overview, compilation
Mar 25–29	appx C: variables, operators
Apr 1–5	appx C: function calls, control flow
Apr 8–12	appx C: pointers, arrays, characters, strings, structs, typedef
Apr 15–19	appx C: dynamic memory allocation, linked lists, standard library
Apr 22–26 (*Thursday last day*)	8-bit computers

Changes to the schedule will be announced in class.

Resources

- Syllabus
- Examples from class
- Adventure by Warren Robinett

Getting started with Linux, CodeGrinder, GDB

- Installing Linux on Windows
- Installing Linux on Mac OS
- Setting up Linux for CodeGrinder assignments
- Intro to gdb for assembly language
- Command-line tutorial
- The missing semester of your CS education

Assembly, C, and architecture resources

- RISC-V cheat sheet
- Modern Microprocessors: A 90-minute Guide
- Beej's Guide to C Programming

Number conversions

- Binary and hexadecimal number systems (Khan Academy)
- Two's complement review (11:44)
- Float review (13:47)
- Converting numbers to floats (10:23)
- Python script to convert 9-bit floats into decimal fractions

Midterm exam practice

- Binary/decimal/hex practice problems
- Two's complement practice problems

- Float practice problems