

# CS 2810: Computer Organization and Architecture

Fall 2024	Topics
Aug 19-23	binary, 2s complement, binary logic (ch1), linux, cli, ssh
Aug 26-30	ch6: instructions, operands, memory, constants, logical/shift, mul/div, branch & jumps, conditionals & loops
Sep 2-6 ( <i>Labor Day</i> )	gdb basics, floats intro, ch6: arrays, function calls, stack
Sep 9-13	gdb memory, endianness, float conversions both ways
Sep 16-20	functions, stack frames, memory map
Sep 23-27	more debugger: ch7: microarchitecture, single-cycle processor
Sep 30-Oct 4	ch7: multi-cycle processor, pipelining
Oct 7-11	ch7: advanced microarchitecture
Oct 14-18 ( <i>Fall Break</i> )	
Oct 21-25 ( <i>Fall Break</i> )	-
Oct 28-Nov 1	appx C: C overview, compilation
Nov 4-8	appx C: variables, operators
Nov 11-15	appx C: function calls, control flow
Nov 18-22	appx C: pointers, arrays, characters, strings, structs, typedef
Nov 25-29 ( <i>Thanksgiving</i> )	appx C: dynamic memory allocation, linked lists, standard library
Dec 2-6 ( <i>Thursday last day</i> )	cpu history

Note: Substantial changes to this schedule are likely and will be announced in class.

## Resources

- [Syllabus](#)
- [Adventure](#) by Warren Robinett
- [Examples from class](#)

## Getting started with Linux, CodeGrinder, GDB

- [Installing Linux on Windows](#)
- [Installing RISC-V tools on MacOS](#)
- [Setting up CodeGrinder](#)
- [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](#)

## Number conversion practice problems

- [Binary/decimal/hex practice problems](#)
- [Two's complement practice problems](#)

- [Float practice problems](#)