CS354 Course Information Spring 2024

Description

An introduction to fundamental structures of computer systems and the C programming language with a focus on the low-level interrelationships and impacts on performance. Topics include the virtual address space and virtual memory, the heap and dynamic memory management, the memory hierarchy and caching, assembly language and the stack, communication and interrupts/signals, assemblers/linkers and compiling.

Instructor: Deb Deppeler**,** 5376 CS, deppeler@cs.wisc.edu

- https://canvas.wisc.edu/courses/382145/pages/lectures-information-and-policies
- https://pages.cs.wisc.edu/~deppeler/cs354/outlines/syllabus.pdf

Lectures are held in-person

- **Lecture 001 TR 9:30-10:45 AM 1220 Microbial Sciences**
  Livestream link: http://go.wisc.edu/trr2fk
- **Lecture 002 TR 2:30-3:45 PM 125 Agriculture Hall**
  Livestream link: http://go.wisc.edu/t9w3tf

Textbooks

- The C Programming Language, Kernighan & Ritchie, 2nd Ed., 1988
- Computer Systems: A Programmer's Perspective, Bryant & O'Hallaron, 2nd Ed, 2010
  Note: 3rd edition is fine until assembly language and registers are covered.
  Finding an online pdf for each book is also fine.

Piazza

- is used for online course discussions and questions with classmates and the TAs about homeworks, projects, and course concepts as well as course logistics

CS Account, See: https://apps.cs.wisc.edu/accountapp/

- provides a CS login for access to your CSL account and computers with dev tools
- Linux workstations in rooms: 1366, 1355, 1358, 1368

TAs: Teaching Assistants

- graduate students with backgrounds in computer architecture and systems
- help with course concepts, Linux, C tools and language, homeworks, and projects
- TA consulting is held in 1366 CS during scheduled hours, see **TA Consulting**

PMs: Peer Mentors (available for in-person support for students)

- undergraduate students that have recently completed CS 354
- hold drop-in hours (in 1333) and do a variety of activities to help students succeed, which are posted on course's **PM Activities** page

Coursework

Canvas will have and enforce all coursework hand-in deadlines.

Exams (60%)

- Midterm (15%): Thursday, Feb 22nd, 7:30-9:30pm
- Midterm (20%): Thursday, April 4th, 7:30-9:30pm
- Final (25%): Friday, 12/16 5:05-7:05pm

If you have direct exam conflict or McBurney accommodation request, complete the form at: http://tiny.cc/cs354-conflicts by the end of Week 2

Project Learning Objectives (30%): (tentative desc) (no project drops)

- p1 Learn and describe each steps in the process to make an executable program from C source code
- p2A read data from a file, use stdlib functions and address-arithmetic to build a dynamically allocated array from the data, analyze it for correctness, and produce output with those results.
- p2B create pseudocode to implement an algorithm described in English, build a dynamically allocated array using address-arithmetic and write to a file
- p3A implement allocation operation for a dynamic memory manager
- p3B implement free and coalesce for your dynamic memory manager
- p4a write several small programs to run analyze and learn the effects of
- p4b implement a program that simulates the state of a cache and tracks a given sequence of reads and write to determine the number of hits and misses for given sized cache.
- p5 dissasemble a program and try to crack the safe's code
- p6 send and recieve signals and handle exceptional events.

Canvas enforces Program due dates and availability dates.
Submit all assignment work on or before Canvas Due Date for **6 ONTIME points**
Submit on or before Availability date for full credit except for the ONTIME points.

CAUTION: Assignment pages that have been left open become "stale" and the submit form button may no longer work. If you have a submit button that does not appear to work, be sure close and reopen the assignment page, browser, and then refresh the browser page to get a working submission form again.

PROGRAM WORK MARKED 'Late' by CANVAS is ACCEPTED.

PROGRAM WORK THAT YOU CANNOT SUBMIT TO CANVAS IS NOT ACCEPTED.
If you really mess up and do not submit your project p2A, p2B, p3A, p3B, p4B, work before the assignment's availability period ends, you may elect to use your OOPS point (if you have earned it). See the OOPs assignment for more details on how to use this for a single miss on submitting your programming project.

Homeworks (8%): 9 "weekly" homework quizzes (drop lowest score)