# CS 430: Operating Systems
## Spring 2024, TTH 9:00
## 3 Credits, Prerequisite is CS253

## Instructor Information

Name: S. Seth Long, Ph.D
Office: TJH 204
Email: sslong@lcsc.edu
Office Hours: Monday 1:30-3:00, Thursday 10:30-12:00
Course Website: `http://isoptera.lcsc.edu/~seth/cs430`

## Course Goals

At the end of the course, students should understand operating functions including:

- Filesystems
- Virtual memory and memory management
- Device drivers and the hardware/software interface
- Process scheduling
- Bootup process

Additionally, students should be capable of writing Linux kernel modules in order to add to the operating system.

## Textbook

"Linux Kernel Development", by Robert Love, Third Edition.

## Grading

Your grade will be calculated based on the following items:

| Item | Percentage of grade |
|---|---|
| Midterm | 15% |
| Final | 15% |
| Homework | 10% total |
| 5 Projects | 60% total (12% each) |

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 financial 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 homework. 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 for projects, and they should not see yours.

## Course Calendar

| Spring 2024 CS430 Tentative Schedule | | | |
|---|---|---|---|
| **Week Of** | **Course Content** | **Reading Chapters** | **Assignments** |
| Jan 15 | Introduction and Role of the OS, kernel C programming | | |
| Jan 22 | Pointers, function pointers, dynamic memory management, C conventions | | |
| Jan 29 | Labor Day Monday, module interfaces, sample module, debugging | | |
| Feb 5 | Process Management | 3,4 | Project 1 due |
| Feb 12 | System Calls, Data Structures | 5,6 | |
| Feb 19 | Interrupts, Device Driver demo | 7 | |
| Feb 26 | Deferring and Synchronization | 8,9 | |
| Mar 4 | Midterm and Answers | | |
| Mar 11 | Synchronization, Timers | 10, 11 | Project 2 due |
| Mar 18 | Memory Management | 12 | |
| Mar 25 | Spring Break | | |
| Apr 1 | Filesystems | 13 | |
| Apr 8 | Block I/O | 14 | Project 3 due |
| Apr 15 | Process address space, Page Cache | 15,16 | |
| Apr 22 | Microkernels and Other OS Organization | | Project 4 due |
| Apr 29 | Finishing Projects and anything else we need to cover | | Project 5 due |
| May 6 | Final Exam will be on Thursday, May 9, at 9:00 AM, or as listed on the official LCSC final exam schedule. | | |