

Syllabus

CS201 - Operating Systems - Fall 2018

Meeting times

CS201A: Monday/Wednesday/Friday, 12:00 - 12:50, Stafford 101

CS201B: Monday/Wednesday/Friday, 9:40 - 10:30, Rowell 118

Instructor

Jason Hibbeler - Votey 351-B

Office hours:

Monday/Wednesday/Friday 3:30 - 5:00 pm

Tuesday/Thursday 1:00 - 2:30 pm

Graduate Teaching Assistant

Sandhya [contact info tbd]

Prerequisites

CS121 Computer Organization

CS124 Data Structures and Algorithms

Course Description

CS201 will present a broad overview of the software system that is responsible for making a computer run efficiently, correctly, and securely (the operating system). We will cover concurrency, multithreaded programming, allocation and access to shared resources, memory hierarchy, I/O operations, and security and protection. Students will learn these concepts by creating several programs in C, on a Linux system, as well as a larger programming project: a discrete-event simulation of operating system functions. In addition, there will be a midterm exam and a final exam.

Course Learning Objectives

Students will learn to write and debug system-level programs written in C, on a Linux server. These programs will make use of fundamental data structures such as lists and queues and will use the native threading library, synchronization primitives, and interprocess communication mechanisms. Students will also create programs to perform software simulations of memory access, I/O access, and CPU scheduling. After completing this course, students will be proficient in C and Linux and be able to create efficient and error-free software systems that use machine resources effectively. Students will also be able to

write efficient and correct parallel programs.

Course Format

Material will be presented primarily through in-class lectures. All teaching material will be available on Blackboard.

Required Course Materials

The text for the class is Operating System Concepts, 10th Edition, by Silberschatz, Galvin, and Gagne (available in the UVM bookstore). Students will do their programming assignments on a CEMS Linux server (kaladin.cems.uvm.edu). No special software will be required. We will use iClickers in the class.

Blackboard

I will post all lecture material and assignments on Blackboard. We will use Blackboard for submitting all class work, and I will maintain all grades on Blackboard.

Attendance Policy and Classroom Environment Expectations

Attendance for class meetings is mandatory and will count for 5% of the final grade. I strongly discourage cell-phone use during class.

Grading

Material will be due at the time indicated when the assignment is given. Late material that will be subject to a small grade penalty.

The final grade for CS205 will consist of these components:

| | |
|----------------------------|-----|
| Final Exam | 25% |
| Midterm Exam | 15% |
| Large Programming Project | 25% |
| Small Programming Projects | 30% |
| Class Attendance | 5% |

Students taking CS201 for graduate credit will have additional responsibilities.

At the end of the semester, I will total up all of the work and the attendance for the course and assign letter grades as follows: 96.67% to 100%: A+; 93.34% to 96.66%: A; 90.0% to 93.33%: A-; and analogously for B-/B/B+ and C-/C/C+.

Assessments

There will be several shorter programming projects in C, on Linux, and a larger programming project (also in C/Linux).

There will be a common midterm: Thursday, Oct. 18th, 6:00 - 9:00 pm, in Votey 105.

The day and time for the common final exam is TBD.

Both exams will be a combination of short answer and multiple choice.

Course Evaluation

All students will be expected to complete a CEMS course evaluation towards the end of the semester. These evaluations are anonymous and confidential and will give students the opportunity to provide feedback and constructive criticism, with the goal of helping to improve the course.

Course Schedule

Aug. 27th - Aug. 31st: Overview of Operating Systems

Friday, Aug. 31st: last day to add class without instructor permission

Sept. 3rd - Sept. 7th: Operating System Structures

Monday, Sept. 3rd: Labor Day Holiday

Sept. 10th - Sept. 14th: Processes

Monday, Sept. 10th: Add/Drop Pass/No Pass, Audit deadline

Sept. 17th - Sept. 21st: Threads and Concurrency

Sept. 24th - Sept. 28th: CPU Scheduling

Oct. 1st - Oct. 5th: Process Synchronization

Oct. 8th - Oct. 12th: Deadlocks

Monday, Oct. 8th: Fall Recess

Oct. 15th - Oct. 19th: Main Memory

Thursday, Oct. 18th, 6:00 - 9:00 pm: Midterm exam

Oct. 22nd - Oct. 26th: Virtual Memory

Oct. 29th - Nov. 2nd: Mass Storage

Monday, Oct. 29th: Last day to withdraw

Nov. 5th - Nov. 9th: I/O Systems

Nov. 12th - Nov. 16th: File Systems

Nov 19th - Nov. 23rd: Thanksgiving Recess

Nov. 26th - Nov. 30th: File Systems, continued

Monday, Oct. 29th: Last day to withdraw

Dec. 3rd - Dec. 7th: Security and Protection

Friday, Dec. 7th: Last day of classes

Student Learning Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact SAS, the office of Disability Services on campus. SAS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter. All students are strongly encouraged to meet with their faculty to discuss the accommodations they plan to use in each course. A student's accommodation letter lists those accommodations that will not be implemented until the student meets with their faculty to create a plan.

Contact SAS:

A170 Living/Learning Center;

802-656-7753;

access@uvm.edu

www.uvm.edu/access

Religious Holidays: Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time. <https://www.uvm.edu/registrar/religious-holidays>

Academic Integrity: The policy addresses plagiarism, fabrication, collusion, and cheating. <https://www.uvm.edu/policies/student/acadintegrity.pdf>

Grade Appeals: If you would like to contest a grade, please follow the procedures outlined in this policy: <https://www.uvm.edu/policies/student/acadintegrity.pdf>

Grading: For information on grading and GPA calculation, go to <https://www.uvm.edu/registrar/grades>

Code of Student Rights and Responsibilities: <https://www.uvm.edu/~uvmppg/ppg/student/studentcode.pdf>

FERPA Rights Disclosure: The purpose of this policy is to communicate the rights of students regarding access to, and privacy of their student educational records as provided for in the Family Educational Rights and Privacy Act (FERPA) of 1974. <https://www.uvm.edu/~uvmppg/ppg/student/ferpa.pdf>

Promoting Health & Safety:

The University of Vermont's number one priority is to support a healthy and safe community:

Center for Health and Wellbeing <https://www.uvm.edu/health>

Counseling & Psychiatry Services (CAPS) Phone: (802) 656-3340

C.A.R.E. If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380). If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website at <https://www.uvm.edu/studentaffairs>

Final exam policy: The University final exam policy outlines expectations during final exams and explains timing and process of examination period. <https://www.uvm.edu/registrar/final-exams>