

CS 416 and CS 518: Operating Systems Design (Fall 2024)

people.cs.rutgers.edu/~sk2113/cs416/index.html

CS Department, Rutgers -- The State University of New Jersey

Welcome to CS 416 and CS 518 OS Design Course! This course will introduce you to the principles of Operating system design. The course will be a project-intensive course.

Basic Information

- Lecture: Mon, Wed; Time: 5:40pm - 7pm
- Location: TIL-257 (Livingston)
- Instructor: Sudarsun Kannan
- Office: CoRE 311
- Office Hours Monday 2pm - 3pm (tentative)

Book

Operating Systems

Overview

- This course is project-intensive, focusing on system programming.
- We will use C and assembly language. The course covers advanced topics, for which you should have some prior knowledge.
- **Topics:** See the syllabus for details.
- **Exams:** Two exams will be given during the semester.
- **Projects:** Four projects will be assigned. You are welcome to work in groups of up to 2 students. You will receive feedback on your projects.
- **Assignment:** Regular assignments will be given, ranging from simple programming exercises to more complex system programming tasks.
- **Lectures:** Regular lectures will be given, covering the theoretical aspects of operating systems.
- **Piazza:** We will use Piazza for online discussions and questions.
- **Communication:** Please email all TAs for faster response. Please add a [CS 416] or [CS 518] prefix to your email's subject.
- **CS 416 vs. CS 518** The course content and the syllabus is same for both classes. CS 518 (graduate) students would likely have additional components for exams, projects, and quizzes. In addition, CS 518 students will only have full letter grades (A, B, C, D, F).

FAQs

- Students are welcome to attend any of the three recitations.
- We will update FAQs as we encounter more questions.

Class News

Syllabus and Tentative Scheduler

Topic

Virtualization	Intro [code]	CPU virtualization (Chapters 4, 5).
CPU Virtualization	CPU virtualization (chapters 5, 6, 7).	Warmup Project 1
Schedulers	Schedulers (chapters 7-11).	Schedulers Continued (chapters 7-11).

[Short Online Quiz](#) [Virtualization and Schedulers](#)

Virtual Memory	Virtual memory.	Paging
Virtual Memory		
Virtual Memory		

[Short Online Quiz](#)

Synchronization		
Synchronization		

[Midterm Exam \(TBA\)](#)

I/O		
-----	--	--

File System	File System Basics	File System Impl.
File System	Fast File System	

Crash Consistency	Journaling	LFS
-------------------	----------------------------	---------------------

Distributed
Systems

MapReduce

Google File System

Accelerators and
Trends

TBA

TBA

Final Exam

