



CSCI 3753

Operating Systems



University of Colorado
Boulder



"Operating systems are an essential part of every computing system and play a major role in determining the performance and usability of the system. This course covers the fundamental concepts in the design, implementation and evaluation of an operating system. While the field of operating systems has been undergoing rapid change, the fundamental concepts remain firmly clear. This course covers these fundamental concepts comprised of device management, process management and memory management."





Topics

- System Calls, Device Drivers, DMA & I/O
- Processes and Threads
- Interprocess Communication
- Scheduling and Synchronization
- Multi-threading
- Virtual Memory and Paging
- Disk Hardware and Filesystems
- Networking
- Virtual Machines





CJ Herman

- Columbia in NYC, SUNY Stony Brook, CU Boulder
- Embedded Avionics Engineer for ~10 years
 - Grumman Aerospace, Orbit Industries, United Technologies
- Systems, Network and Software Engineer for ~20 years
 - Ball Aerospace, Level 3, Sun Microsystems, Presilient, Startups
- Instructor & Professional Research Assistant for ~10 years
 - Physics, CIRES, Interdisciplinary Telecom, Computer Science
 - Operating Systems, Linux Admin, Network Systems, Database
 - CU Recreation Center





Grading

- Weekly Quizzes - 5%
 - based on lecture and textbook material for the week
 - single attempt, due by 11:59pm on Fridays
 - about 13 or 14 total, lowest grade dropped
- Problem Sets - 5%
 - designed to prepare you for the exams
 - unlimited attempts
 - about 5 or 6 total, lowest grade dropped
- Exams - 40%
 - 2 exams, in-class, non-cumulative
 - 75 minutes, open textbook and notes
 - makeups - comprehensive interview with Prof or TA





Grading

- Programming Assignments - about 10% each
 - two to three weeks between posting and submission due
 - must be written in C, C++ will not be accepted
 - must compile and run in our Linux environment
 - 24 hour, automatic code extension - 20% penalty
 - submit multiple times, we will grade latest submission
 - 50% automated grading / 50% interview grading
 - reschedule missed interviews - 20% penalty
 - come to interview even if your code doesn't work





Effort

- This course requires significant effort and time commitment
 - 4 credits = 4 hours/wk in class + 8 to 12 additional hours/wk
 - there are times where you might need more hours
- The textbook can be dense
 - we read approximately one chapter each week
 - you might need multiple passes to get through the material
- Writing and debugging code can be incredibly time consuming
 - waiting to the last minute is deadly
 - writing all your code and then debugging is risky
 - decomposition into parts and iterative development is key
- No late work accepted without a documented excuse





How to Succeed

- Read the text
 - skim for overview, then read in detail
- Use Piazza when in doubt,
 - be specific in your query, there are 125 other students in OS
 - use private posts sparingly, other students have similar questions
 - please don't post large snippets of code publicly
- Be an active learner, passivity kills motivation
 - come to lecture and ask questions
 - go to recitation and ask questions
 - reach out for help early and don't procrastinate
- Just do it
 - structure your code for change and take small bites
 - be prepared to throw away and start over

