CSc 552 Advanced Unix Programming

Section 401 **Fall 2022**

This course is taught in the real-time virtual classroom. See reverse for more info.

All sessions are recorded. Contact the instructor at once if you have any issue with this.

Meeting Time & Place: 6-8:50 Th in 158 OM and also via Zoom https://kutztown.zoom.us/j/94259914104

Instructor: Daniel Spiegel

Office: 251 Old Main; Phone: (610) 683-4423 via Zoom: https://kutztown.zoom.us/j/938432776

e-mail: spiegel@kutztown.edu

WWW: http://faculty.kutztown.edu/spiegel

Office Hours: (All are also on Zoom) 3-6 W, 4:20-5:50 TH. Email answered 24/7/365

Prerequisites: Grad standing and a 3.0 GPA; good programming ability, or permission.

Text:

Required: None.

Previous: *Operating Systems: Internals and Design Principles (4th Edition), William Stallings (Operating Systems text)*

Recommended: A text on Unix Internals. Suggested titles:

Advanced Programming in the Unix Environment, Richard Stevens

Unix Network Programming, Richard Stevens

Practical Unix Programming: A guide to Concurrency, Communication, and Multithreading, Robbins & Robbins

Interprocess Communications in Unix – The Nooks and Crannies, John S. Gray

Exams: There will be 1 midterm(s) and a final exam during TBD. You must get a passing (60%+) grade on exams, collectively, to pass this course.

Attendance: Optional. You are responsible for material covered in class and the corresponding material in the text. If you do not attend class, the material is assumed to be understood.

Make-ups: You will not be permitted to make up an exam without a documentable excuse for your absence. You must obtain approval in advance, if possible, or no make-up will be permitted.

Programs: Programming assignments will be issued in class. Each assignment will state the due date. There will be at least four programming assignments. You must earn at least 60% of the possible points on *all* programs, collectively, to pass this course. Programs are to be submitted electronically (info under separate cover) at the designated time on the date due. **Late assignments will not be accepted** (this is not a typo).

Your work is to be at graduate level. Your files are to be well-documented, appropriately modular, and easy to read. Substandard submissions will be heavily penalized or not accepted at all; seriously deficient programs will receive an irrevocable grade of 0.

Grading: Grading is on a straight 90 80 70 60 scale. Individual exams may be curved, only if necessary. Weights of grades are:

Programs:	60%
Midterm(s):	15%
Forum/Participation:	5%
Final Exam:	20%

Grade	Scale
A-	[90,93)
B+	[87,90)
B-	[80,83)
C+	[77,80)

COVID The safety of everyone is of paramount importance. Compliance with requests in this area is expected.

Academic Dishonesty:

General Statement: I am against it. Violators will receive the maximum allowable penalty for any infraction.

Programs: Your programs are to be, unless the assignment or instructor directs you, your own work. If you use any code that you did not write, omitting credit to the author constitutes academic dishonesty. Using the code of a classmate or providing your code to a classmate(s) is most definitely academic dishonesty. Feel free to discuss and exchange ideas with your peers but do your own work.

Classroom Etiquette:

Consideration for your classmates, instructor, and the class is expected. Please come to class on time and prepared to learn. No sleeping or noisy eating. If you can't whisper quietly, don't carry on private conversations. Coming and going during class should only occur in unavoidable situations. And, last but not least, **your cell phone is to be neither seen nor heard.**

Real-Time Virtual Classroom (RTVC) Info: Pertinent links, including quick-start access are found here: http://faculty.kutztown.edu/spiegel/RTVC.pdf

Online Only Sessions

It is possible that we will meet online only some weeks, or be forced to it by circumstances. Ample notice will be provided to the greatest extent possible.

Collaborative Course Notes

A discussion named **Class Notes** has been created on D2L for your use in posting questions and answers regarding course material. There will likely be a new topic created for each week that will contain the scratchpad notes. You are encouraged to participate. The course instructor will engage at his discretion.

Tentative Class Schedule:

The following is a(n extremely) **tentative** class schedule. It is subject to change. Reading assignments are only listed for the required course text. You should read about the Unix topics in your supplemental text or find info elsewhere (www is a good place).

CIS 552 Tentative Schedule

Week	*Topics*
1	Introduction
2	Unix Fundamentals
3	Unix Fundamentals (con't) Interprocess Communication: Pipes
4	Pipes (con't.)
5	File Descriptor Duplication and the System File Table
6	File Descriptor Duplication and the System File Table (con't)
7	Process Execution in the Shell with pipes and redirection Midterm Exam
8	Unix IPC: Message Queues
9	Intro to Unix Sockets: UDP & TCP/IP
10	Critical Section Problems
11	Shared Memory & Semaphores
12	Concurrency
13	Concurrency (con't.)
14	Deadlock & Starvation
15	Deadlock & Starvation (con't): Algorithms

Final Exam: TBD