

CSE 303 OPERATING SYSTEM DESIGN

Spring 2012 • 2:35 pm – 3:50 pm TuTh • Packard Lab 416

- Instructor** **Professor Daniel Lopresti**
 Email dal9@lehigh.edu ~ Ext 85782
 Office Hours 1:00 pm – 2:30 pm Tu (or by appointment) in Packard Lab 350
- Grader** **Rob Tryson**
 Email robert.tryson@gmail.com
- Text** *Modern Operating Systems*, 3rd Ed., Andrew S. Tanenbaum,
 Prentice-Hall, 2008, ISBN 0-13-600663-9
- CourseSite** Lecture slides, assignments, etc. will be available @ <http://coursesite.lehigh.edu/>
- Grading** • 10 homework assignment = 300 points (50%)
 8 one-week assignments @ 25 points
 2 two-week assignments @ 50 points
 • 2 quizzes @ 75 points = 150 points (25%)
 • Final exam = 150 points (25%)
- Notes** • Homework and programming assignments will generally be posted on CourseSite by 9:00 am on Mondays. Your work will generally be due by 9:00 am on Mondays as well. Submit your work electronically using the CourseSite Assignment feature.
 • The late penalty is -5 points per day or fraction thereof. The maximum penalty for one-week assignments is -20 points; for two-week assignments it is -40 points. Extensions must be approved by Professor Lopresti.
 • Extra credit will be offered throughout the semester.

Week	Topics	Readings	Other Activities
Jan. 16	Introduction; OS History Hardware; OS Concepts System Calls; OS Structure	1.1-1.2, 1.4 1.3, 1.5 1.6-1.7	HW #1 out
		Supplemental reading: 10.1-10.2	
Jan. 23	Processes Threads: Usage, Models Threads: Implementation	2.1 2.2.1-2.2.2 2.2.3-2.2.9	HW #1 due, HW #2 out
		Supplemental reading: 10.3 (pp. 739-752)	
Jan. 30	Interprocess Communication Intro IPC: Mutexes, Message Passing Scheduling Intro	2.3.1-2.3.5 2.3.6-2.3.9 2.4.1-2.4.2	HW #2 due, HW #3 out Unix Refresher: Jan. 30 @ 5 pm
Feb. 6	Scheduling: Interactive, Real-Time, etc. Interprocess Communication Problems Basic Memory Management; Swapping	2.4.3-2.4.6 2.5 3.1-3.2	HW #3 due, HW #4 out
		Supplemental reading: 10.3 (pp. 752-757)	
Feb. 13	Virtual Memory Page Replacement Algorithms ***** Quiz #1 ***** (Feb. 16)	3.3 3.4	HW #4 due Quiz #1 Review: Feb. 14 @ 4 pm
	<i>Return & discussion of Quiz #1</i>		HW #5 out
Feb. 20	Design Issues for Paging Systems Implementation Issues for Paging	3.5 3.6	
		Supplemental reading: 10.4	
Feb. 27	Segmentation Files, Directories File System Implementation	3.7 4.1-4.2 4.3	HW #5 due, HW #6 out

Week	Topics	Readings	Other Activities
Mar. 5	No class / Spring Break		
Mar. 12	File System Management & Optimization Examples of File Systems I/O Hardware & Software	4.4 4.5 5.1-5.2.2	HW #6 due, HW #7 out
Mar. 19	Interrupt-Driven I/O, Software Layers Disk Hardware Disk Arm Scheduling; Clocks	5.2.3-5.3.4 5.4.1-5.4.2 5.4.3-5.5.3	HW #7 due, HW #8 out Quiz #2 Review: Mar. 22 @ 5 pm
Mar. 26	Deadlocks: Intro, Detection, Recovery Deadlocks: Avoidance, Prevention ***** Quiz #2 ***** (Mar. 29)	6.1-6.4 6.5-6.7	HW #8 due
Apr. 2	<i>Return & discussion of Quiz #2</i> Multiprocessors Multicomputers	8.1 8.2	HW #9 out
Apr. 9	Virtualization Distributed Systems MPI Programming	8.3 8.4	
Apr. 16	Security Basics User Authentication Protection Mechanisms	9.1-9.2 9.4 9.3	HW #9 due, HW #10 out
Apr. 23	Insider Attacks, Software Bug Exploits Malware, Antivirus Techniques <i>Course Review and Wrap Up</i>	9.5-9.6 9.7-9.8.2	HW #10 due: Apr. 27 @ 5 pm

Accommodations for Students with Disabilities

If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center C212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

Academic Integrity

The work you submit in CSE 303 must be entirely your own. While we encourage you to discuss basic concepts and strategies with friends and classmates, the copying or sharing of solutions to homework or programming assignments, in whole or in part, is never acceptable. Such cases will be referred to the University Committee on Discipline and, if found guilty, you may be given the failing grade WF in the course.

You should keep in mind that computer programs exhibit an individual's "style" just as much as other forms of authorship. Changing variable names, editing comments, or making other trivial updates in an attempt to hide plagiarism is rarely effective.

If you have questions about this policy at any point throughout the semester, ask. It is far better to be safe than sorry when your academic career may be on the line.

Learning Outcomes

After taking CSE 303, you will:
 (i) be able to apply the principles of operating systems effectively,
 (ii) achieve additional fluency in a computer language.