

CSE 303 OPERATING SYSTEM DESIGN

Spring 2011 • 10:10 am – 11:00 am MWF • Maginnes 480

Instructor **Professor Daniel Lopresti**
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 Office Hours 2:00 – 4:00 Tu (or by appointment) in Packard Lab 350

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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 to CourseSite by 9:00 am on Mondays and due by 5:00 pm on Fridays. Submit your work electronically using the CourseSite Assignment feature.
- Late penalty is -5 points per day or fraction thereof, not including weekends. 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 available throughout the semester.

Date	Class Meeting	Readings	Other Activities
M 1/17	Introduction; OS History	1.1-1.2, 1.4	HW #1 out
W 1/19	Hardware; OS Concepts	1.3, 1.5	
F 1/21	System Calls; OS Structure (Prof. Hillman)	1.6-1.7	HW #1 due
Supplemental reading: 10.1-10.2			
M 1/24	Processes	2.1	HW #2 out
W 1/26	Threads: Usage, Models (Prof. Spear)	2.2.1-2.2.2	
F 1/28	Threads: Implementation (Prof. Spear)	2.2.3-2.2.9	HW #2 due
Supplemental reading: 10.3 (pp. 739-752)			
M 1/31	Interprocess Communication Intro	2.3.1-2.3.5	HW #3 out, Unix Help Session @ 5:00 pm
W 2/2	IPC: Mutexes, Message Passing	2.3.6-2.3.9	
F 2/4	Scheduling Intro	2.4.1-2.4.2	HW #3 due
M 2/7	Scheduling: Interactive, Real-Time, etc.	2.4.3-2.4.6	HW #4 out
W 2/9	Interprocess Communication Problems	2.5	
F 2/11	Basic Memory Management; Swapping	3.1-3.2	HW #4 due
Supplemental reading: 10.3 (pp. 752-757)			
M 2/14	Virtual Memory	3.3	
W 2/16	Page Replacement Algorithms	3.4	Quiz #1 Review @ 5:00 pm
F 2/18	***** Quiz #1 *****		
M 2/21	<i>Return & discussion of Quiz #1</i>		HW #5 out
W 2/23	Design Issues for Paging Systems	3.5	
F 2/25	Implementation Issues for Paging	3.6	HW #5 due
Supplemental reading: 10.4			

Date	Class Meeting	Readings	Other Activities
M 2/28	Segmentation	3.7	HW #6 out
W 3/2	Files, Directories	4.1-4.2	
F 3/4	File System Implementation	4.3	HW #6 due
M 3/7	No class	Spring Break	
W 3/9	No class	Spring Break	
F 3/11	No class	Spring Break	
M 3/14	File System Management & Optimization	4.4	HW #7 out
W 3/16	Examples of File Systems	4.5	
F 3/18	I/O Hardware & Software	5.1-5.2.2	HW #7 due
Supplemental reading: 10.6			
M 3/21	Interrupt-Driven I/O, Software Layers	5.2.3-5.3.4	HW #8 out
W 3/23	Disk Hardware	5.4.1-5.4.2	
F 3/25	Disk Arm Scheduling; Clocks	5.4.3-5.5.3	HW #8 due
Supplemental reading: 10.5			
M 3/28	Deadlocks: Intro, Detection, Recovery	6.1-6.4	
W 3/30	Deadlocks: Avoidance, Prevention	6.5-6.7	Quiz #2 Review @ 5:00 pm
F 4/1	***** Quiz #2 *****		
M 4/4	<i>Return & discussion of Quiz #2</i>		HW #9 out
W 4/6	Multiprocessors	8.1	
F 4/8	Multicomputers	8.2	
M 4/11	Virtualization	8.3	
W 4/13	Distributed Systems	8.4	
F 4/15	Beowulf		HW #9 due
M 4/18	Security Basics	9.1-9.2	HW #10 out
W 4/20	User Authentication	9.4	
F 4/22	Protection Mechanisms	9.3	
Supplemental reading: 10.7			
M 4/25	Insider Attacks, Software Bug Exploits	9.5-9.6	
W 4/27	Malware, Antivirus Techniques	9.7-9.8.2	
F 4/29	<i>Course Review and Wrap Up</i>		HW #10 due

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.