CSE 303 OPERATING SYSTEM DESIGN
Fall Semester 2005

Instructors   **Professor Donald J. Hillman** ~ Section 10 ~ 9:10 – 10:00 MWF ~ PL 360
Office PL 218 ~ Ext 83063 ~ Email djh3@lehigh.edu
Office Hours 3:00 – 5:00 MW (or by appointment)

Professor Daniel Lopresti ~ Section 11 ~ 10:45 – 12:00 TuTh ~ PL 258
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Office Hours 4:00 – 6:00 Tu (or by appointment)

Teaching Assistant   **Scott Frees**
Office PL 112A ~ Email sef3@lehigh.edu
Office Hours 2:35 – 4:00 Th (or by appointment)

Text   Modern Operating Systems, 2nd Ed., Andrew S. Tanenbaum,
Prentice-Hall, 2001, ISBN 0-13-031358-0

Blackboard   Lecture slides, assignments, etc. will be available @ http://ci.lehigh.edu

Grading
- 10 homework assignment =   300 points   (30%)
  - 8 one-week assignments @ 25 points
  - 2 two-week assignments @ 50 points
- 2 quizzes @ 150 points =   300 points   (30%)
- Final exam =   300 points   (30%)
- Class participation =   100 points   (10%)

Notes
- Homework assignments will generally be posted to Blackboard by 9:00 am on Mondays and due by 5:00 pm on Fridays. If possible, submit your assignments electronically using Blackboard Dropbox. If not, hand in neat hardcopy to your instructor or the TA. If you cannot do this in person, drop your homework off in the CSE department office (PL 350), keeping in mind it may be locked before 5:00 pm.
- Late penalty is -5 points per day or fraction thereof (not including weekends). The maximum penalty is -20 points (one-week HW's) or -45 points (two-week HW's).
- Extra credit will be available throughout the semester.

Date	Topics	Readings	Activities
Week 1	Introduction; OS History	1.1-1.3	M: HW #1 out
8/29 – 9/2	Hardware; OS Concepts	1.4-1.5	
	System Calls; OS Structure	1.6-1.7	F: HW #1 due
Supplemental reading: 10.1-10.2			
Week 2	Processes	2.1	M: HW #2 out
9/5 – 9/9	Threads: Models, Usage	2.2.1-2.2.2	
	Threads: Implementation	2.2.3-2.2.8	F: HW #2 due
Supplemental reading: 10.3 (pp. 690-704)			
Week 3	Interprocess Communication Intro	2.3.1-2.3.5	M: HW #3 out
9/12 – 9/16	IPC: Mutexes, Message Passing	2.3.6-2.3.9	**W: Unix Help Session**
	IPC Problems	2.4	F: HW #3 due
Week 4	Scheduling Intro	2.5.1-2.5.2	M: HW #4 out
9/19 – 9/23	Scheduling: Interactive, Real-Time	2.5.3-2.5.6	
	Deadlocks: Intro, Detection, Recovery	3.1-3.4	F: HW #4 due
Supplemental reading: 10.3 (pp. 704-710)			
Week 5	Deadlocks: Avoidance, Prevention	3.5-3.7	
9/26 – 9/30	*Review Prior to Quiz #1*		**Tu: Quiz #1 (4:00 pm)**
	Basic Memory Management; Swapping	4.1-4.2	

Date	Topics	Readings	Activities
Week 6 10/3 – 10/7	*Return & discussion of Quiz #1* Virtual Memory Page Replacement Algorithms (1)	 4.3 4.4.1-4.4.7	M: HW #5 out F: HW #5 due
Week 7 10/10 – 10/14 Supplemental reading: 10.4	Page Replacement Algorithms (2) Design Issues for Paging Systems	4.4.8-4.5 4.6	**M-Tu: Pacing Break** W: HW #6 out
Week 8 10/17 – 10/21	Implementation Issues for Paging Segmentation I/O Hardware & Software	4.7 4.8 5.1-5.2.2	M: HW #6 due, #7 out F: HW #7 due
Week 9 10/24 – 10/28 Supplemental reading: 10.5	Interrupt-Driven I/O Disk Hardware Disk Arm Scheduling; Clocks	5.2.3-5.3.4 5.4.1-5.4.2 5.4.3-5.5.3	M: HW #8 out F: HW #8 due
Week 10 10/31 – 11/4	Character-Oriented Terminals; GUI's *Review prior to Quiz #2* Files, Directories	5.6-5.7 6.1-6.2	 **Tu: Quiz #2 (4:00 pm)**
Week 11 11/7 – 11/11 Supplemental reading: 10.6	*Return & discussion of Quiz #2* File System Implementation File System Performance & Reliability	 6.3.1-6.3.5 6.3.6-6.3.8	M: HW #9 out
Week 12 11/14 – 11/18	Examples of File Systems Multiprocessors Multicomputers	6.4 8.1 8.2	 F: HW #9 due
Week 13 11/21 – 11/25	Distributed Systems	8.3	 **W-F: Thanksgiving**
Week 14 11/28 – 12/2 Supplemental reading: 10.7	Beowulf Security Basics User Authentication	 9.1-9.2 9.3	M: HW #10 out
Week 15 12/5 – 12/9	Attacks from Inside the System Attacks from Outside the System *Course Review and Wrap Up*	9.4 9.5	 F: HW #10 due