Summer 2020

CS 332-450: Principles of Operating Systems

Larry Lay

CS332 Operating System

Instructor: **Dr. Lay**
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Office Hours: By appointment only (EMAIL).

Course Content: *Organization of operating systems covering structure, process management and scheduling; interaction of concurrent processes; interrupts; I/O, device handling; memory and virtual memory management.*

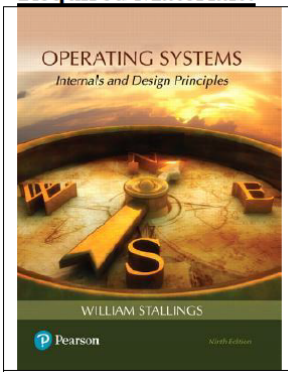
This course does not talk about how to use WINDOWS and its associated applications.
This course will talk about how an operating system is programmed, and how a modern OS will facilitate an application program.
You should NOT take this course

1. *If you are not interested in writing computer programs using any coding language*
2. *If you do not want to read any programming code*

Students are expected to know all fundamentals of computer programming.
And this course is NOT designed for students who are only interested in business management.

- **The NJIT Honor Code will be upheld, and that any violations will be brought to the immediate attention of the Dean of Students.**
- **Each student has the responsibility to monitor** https://canvas.njit.edu/ **for updates and assignments!**

Required Materials:



Text: **Operating Systems: Internals and Design Principles (9th Edition)**

- **Publisher:** Prentice Hall;
- **ISBN-10:** 013-380591-3
- **ISBN-13:** 9780-380591-8

Attendance & Class Participation:
This is one of the core courses for CS program. Students are strongly encouraged to attend every class. Significant constructive class participation will heavily impact assignment of final grades.

Ethics and Integrity:
Each student is expected to write her/his own assignments. Students may work in groups to discuss the issues, but when it comes time to write, students MUST submit their own work product.

Cell Phone and Laptop PC Policy

1. Do not use your laptop PC during the quizzes and exams.
2. Turn cell phone to silent mode or vibration mode during the class
3. Turn off the cell phone during the quizzes and exams.

Quizzes:
In each class, a quiz may be given for the materials taught last week and before. There is no make-up for quizzes. There will be 10 quizzes, and 3 lowest grades (including absence) will be excluded from calculating the final grade. Types of questions: True/False, Multiple choices, Fill in the blanks, and calculations.

All quizzes are closed note and closed book, only scientific/engineer calculator is allowed.

NO makeup for any reason. If your absence is legitimate, you will need approval from the Dean of the Students. And only so I will waive the quiz to be counted into total grades.

How to prepare quizzes:
To prepare the quizzes and exams you will need to read textbook, at least once. Power-point slides and the notes below slides are good summaries of textbook. Make sure you go over the definition of "Key Terms" at the end of each chapter.

Grading:
The final grade will be calculated based upon the following points:
Grading:
QUIZZES: 15%
Homework: 10%
Exam One: 25%
Exam Two: 25%
Exam Three: 25%

Class Participation: 10% extra credit

Week	Date	Content
1	Tuesday, June 30, 2020	Chapter 1: Computer System Overview
2	Thursday, July 2, 2020	Chapter 2: Operating System Overview
3	Friday, July 3, 2020	Chapter 3: Process Description and Control
4	Tuesday, July 7, 2020	Chapter 3: Continued
5	Thursday, July 9, 2020	Chapter 4: Threads, SMP, and Microkernels
6	Friday, July 10, 2020	Exam One + Chapter 7: Memory Management
7	Tuesday, July 14, 2020	Ch7 + Chapter 8: Virtual Memory
8	Thursday, July 16, 2020	Chapter 8: Continued
9	Friday, July 17, 2020	Chapter 5: Concurrency: Mutual Exclusion and Synchronization
10	Tuesday, July 21, 2020	Exam Two + Chapter 6: Concurrency: Deadlock and Starvation
11	Thursday, July 23, 2020	Chapter 6: Concurrency: Deadlock and Starvation
12	Friday, July 24, 2020	Chapter 9: Uniprocessor Scheduling
13	Tuesday, July 28, 2020	Chapter 10: Multiprocessor and Real-Time Scheduling
14	Thursday, July 30, 2020	Chapter 14: Virtual Machines
15	Friday, July 31, 2020	Exam Three

P.S. The schedule is subject to change without prior notice.

Teaching philosophy:
The lecture is to add values to the textbook, not just repeating the textbook. I will try to:
1. Enhance the concepts already covered in the textbook and PPT slides by adding new materials
2. Point out key concepts

It will be your responsibility to read the textbook and go over all the slides I post in https://canvas.njit.edu/. You may find I added some slides during lecture, which I will make another Appendix PPT file after the lecture.

All prepared materials (other than textbook) and communications are posted on https://canvas.njit.edu/. You should visit the web site often.