

CS 471 – Operating Systems — Teletechnet Course
Course Outline
Fall 2009

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Course Hours: 9:30-10:45am Tuesday, Thursday
Office Hours: 1-2 PM Tuesday, Thursday
5:00-6:00 PM Monday
(or by appointment)

Prerequisites: CS270, CS361

Texts: A. Silberschatz, P.B. Galvin, and G. Gagne, **Operating System Concepts**, 8th Ed., John Wiley & Sons, Inc, 2009. ISBN: 978-0-470-12872-5

1. Course Objectives

1. To emphasize the need for an operating system
2. To describe the functionality of an operating system
3. To recognize the need for a variety of operating systems - e.g., batch, real-time, multiprogramming, etc.
4. To discuss the components of an operating system
5. To discuss the structure of some of the components in a greater detail - e.g., CPU scheduler, memory management system, secondary memory management, handling concurrent processes.
6. In depth discussion of issues in distributed systems
7. To discuss some existing operating systems with emphasis on Unix operating system
8. To provide a hands-on experience in building Operating systems through a project in C++.

By the end of the course, students are expected to know:

- What is an operating system?
- Why is it necessary?
- How does it control the operations in a computer system?
- What role does it play in the system performance?
- What are distributed systems?
- Why are operating systems for distributed systems more complex?
- How to analyze algorithms for different components of an operating system?
- Some expertise in writing operating system software.

2. Grading Criteria

Your grade will be based on the following:

Examination I	150 points	October 3 (8:30-11:30 am)
Examination II	150 points	November 14 (8:30-11:30 am)
Project	100 points	Due November 3 (Tuesday)
Non-programming Assignments	100 points	5 Homework assignments
Total	500 points	

The final grade will be based on the following distribution. It is tentative in the sense that it is the **minimum grade** that you can expect for the obtained percentage. Depending on the performance of other students as well as other considerations such as the difficulty of the examinations or assignments, the grading criteria may be modified.

Percentage Range	Letter Grade
95-100	A
90-94	A-
87-89	B+
84-86	B
80-83	B-
76-79	C+
72-75	C
69-71	C-
62-68	D+
58-61	D
55-57	D-
0-54	F

3. Make-up Tests and Late Assignments

You are expected to submit all assignments on the due date. **You cannot be assigned a grade unless you submit the project.**

For late assignments, 10% is deducted for each day late for the first week after an assignment is due. Each assignment is due at the end of the day of the date indicated. For computing a lateness penalty, the weekend counts as one day (from 5 p.m. Friday until 5 p.m. Monday). An assignment submitted beyond a week will not be accepted. If you cannot attend an examination at its scheduled time, you should contact me prior to the examination.

4. Academic Honesty

Everything turned in for grading in this course must be your own work. The instructor reserves the right to question a student orally or in writing and to use his evaluation of the student's understanding of the assignment and of the submitted solution as evidence of cheating. Violations will be reported to the Honor Council for consideration for punitive action.

By CS Dept. policy, students found to be in violation of this rule will, at the very least, receive a failing grade in the course and may be subject to stiffer penalties.

5. Honor Code

All students are expected to abide by the ODU Honor Code. This means that *all* exams and assignments are to be the exclusive work of the student. An honor pledge will be required on *all* work which is to be graded.

6. Project

The term project will require a significant amount of programming and several written reports. Descriptions of the term project will be distributed at the beginning of the semester. It will be graded using the following percentages:

Design	10%
Program structure	15%
Project Reports	15%
Correctness	60%

For all project components, the student can receive assistance from individuals other than the instructor **only** to ascertain the **cause** of errors. Thus you can get help if you need it to figure out why something doesn't work. You just can't get help from anyone, other than the instructor, to figure out how to make something work. All solutions turned in for credit are to be your individual work and should demonstrate your problem solving skills, not someone else's.

7. Tentative Lecture and Homework Schedule

Day	Topics covered	Assignments
September 1	Chapter 3: Processes Chapter 4: Threads	
September 3	Chapter 5: CPU Scheduling	HW#1 assigned
September 8	Chapter 6: Process Synchronization	
September 10	Chapter 6 (Cont.)	HW#1 due
September 15	Chapter 7: Deadlocks	
September 17	Chapter 7 (Cont.)	HW#2 assigned
September 22	Chapter 8: Main memory	
September 24	Chapter 8 (Cont.)	HW#2 due
September 29	Chapter 9: Virtual Memory	
October 1	Chapter 9 (Cont.)	HW#3 assigned
October 3		Exam I (Covers Ch. 3-9)
October 6	Chapter 11: File System Implementation	
October 8	Chapter 12 Mass Storage Structures	HW#3 due; HW#4 assigned
October 15	Chapter 12: Cont.	
October 20	Chapter 16: Distributed System Structures	HW#4 due
October 22	Chapter 17: Distributed File Systems	
October 27	Chapter 18: Distributed Coordination	HW#5 assigned
October 29	Chapter 18: Cont.	
November 3	Chapter 14: Protection	Project due
November 5	Chapter 15: Security	HW#5 due; HW#6 assigned
November 10	Chapter 15: Cont.	
November 12	Review Ch. 11-18	HW#6 due
November 14		Exam II (Covers Ch. 11-18)