

CS 471 – Operating Systems (Call# 21590)
Course Outline
Spring 2008

Instructor: Ravi Mukkamala
Office: E&CS 3317
Phone: (757) 683-3901
e-mail: mukka@cs.odu.edu
Home-page: <http://www.cs.odu.edu/~mukka>
Course Hours 1330-1445 Tuesday, Thursday (Hughes 1117)
Office Hours: Tuesday 1200-1300 PM (E&CS 3317)

Prerequisites: CS270, CS361

Texts: A. Silberschatz, P.B. Galvin, and G. Gagne, **Operating System Concepts**, 7th Ed., John Wiley & Sons, Inc, 2005. ISBN: 0-471-69466-5

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:

Midterm Examination	150 points	March 4/March 6
Final Examination	150 points	May 1 (12:30-3:30 pm)
Project	100 points	Due April 18
Non-programming Assignments	100 points	8 Home works (7 out-of 8 considered)
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.

The following text should appear on all assignments: "I pledge that I have neither given nor received help from anyone other than the instructor for all program components included here." The student should sign his or her name under the pledge. Any deviation from this policy is an honor code violation and will be treated as such if detected.

7. Tentative Lecture and Homework Schedule

Day	Topics covered	Assignments
January 15	Chapter 3: Processes	
January 17	Chapter 4: Threads	HW#1 assigned (1/17)
January 22/24	Chapter 5: CPU Scheduling	HW#1 due (1/24); HW#2 assigned (1/24)
January 29/31	Chapter 6: Process Synchronization	HW#2 due (1/31);
February 5	Chapter 6 (Cont.)	HW#3 assigned (2/5)
February 7/12	Chapter 7: Deadlocks	HW#3 Due (2/12)
February 14/19	Chapter 8: Main memory	HW#4 assigned (2/19)
February 21/26	Chapter 9: Virtual Memory	HW#4 due (2/26)
February 28	Chapter 12: Mass Storage Structures	
March 4/March 6	Exam I	Exam I (Covers Ch. 3-9, 12)
March 11/13	NO CLASS	SPRING BREAK
March 18	Chapter 10: File System Interface	
March 20	Chapter 11: File System Implementation	HW#5 assigned (3/20)
March 25	Chapter 16: Distributed System Structures	
March 27/April 1	Chapter 17: Distributed File Systems	HW#5 due (3/27); HW#6 assigned (4/1)
April 3/April 8/April 10	Chapter 18: Distributed Coordination	HW#6 due (4/8); HW#7 assigned (4/10)
April 15/17	NO CLASS (PROJECT)	Project due (4/18);
April 22	Chapter 15: Security	HW#7 due (4/22); HW#8 assigned (4/22)
April 24	Chapter 16: Protection	
April 29	Review	HW#8 due (4/29)
May 1 (1230-1530)	Final Exam	Final Exam (Covers Ch. 3-18)