

COSC2667E: Operating Systems

Instructor: Dr. Haibin Zhu

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Office Hours: Mon. & Thur.: 3:00pm-6:00pm, or by appointment, Teams, and email

Course Description:

Operating systems are a fundamental component of modern computing, serving as the bridge between hardware and software to manage resources effectively. This course provides a comprehensive introduction to the essential concepts and principles of operating systems, enabling students to understand their role in ensuring system functionality and efficiency.

Students will explore the architecture and structure of operating systems, focusing on key topics such as process management, including processes and threads, CPU scheduling strategies, and techniques for process synchronization. The course will delve into memory management, addressing paging, segmentation, and virtual memory, as well as storage management concepts, including file systems and disk scheduling.

By the end of this course, students will have a solid understanding of how operating systems function, their role in computer systems, and their impact on application performance and resource management.

Prerequisite: COSC 1557, COSC 1567

Recommended Textbook:

A. Silberschatz, G. Gagne, P. B. Galvin, Operating System Concepts (10th ed.), Wiley, (Feb. 9, 2021)

ISBN-10: 1119800366, ISBN-13: 978-1119800361

Course Objectives:

- By the end of the course students should be able to:
- Understand the basic concepts and history of Operating Systems,
- Demonstrate an understanding of the batch OS and its problems,
- Understand the time-sharing OS and its interactivity,
- Demonstrate an understanding of the multiprogramming and multiprocessing,
- Understand the processes and threads,
- Demonstrate understanding the CPU scheduling and process synchronization,
- Demonstrate an understanding of the real time OS,
- Understand memory management,
- Understand the file system,
- Understand the I/O system, and
- Demonstrate a practical understanding of Windows, Linux and Mac OS.

Grading:

- Projects: 30%
- Test: 30%
- Final Exam: 40%
- A: 100-80
- B: 79-70
- C: 69-60
- D: 59-50
- F: 49

COSC2667: Operating Systems (2025WI) (Lecture: R306, Mon. 6:00pm-9:00pm)

No.	Date	Topic	Title (Pages of Slides)
Week 1	01/6	1	Introduction (48),
Week 2	01/13	2	Operating-System Structures (57)
Week 3	01/20	3	Processes (51)
Week 4	01/27	4	Threads (31), Test 1 (7:00pm-8:50pm) , Project 1
Week 5	02/03	5	CPU Scheduling (51),
Week 6	02/10	6	Process Synchronization (57)
	02/17	No class	Study week
Week 7	02/24	7	Deadlocks (40) and Memory Management (1: 17), Project 1 due
Week 8	03/03	8	Memory Management (41), Test 2 (7:00pm-8:50pm) , Project 2
Week 9	03/10	9	Virtual Memory (59)
Week 10	03/17	10	File System (67)
Week 11	03/24	11	Mass-Storage Systems (56),
	03/31	12	I/O Systems (37) + Review, Project 2 Due
Week 12	04/??	Final Exam	

Everything may be subject to change, please pay attention to the class declarations.