

CSI 4500: Fundamentals of Operating Systems

Credits Hours: 4 credits, 3.57 contact hours/week.

Instructor: Hany Othman, Ph.D.

Text book: Operating Systems Concepts, 9th Ed., by Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, John Wiley Sons (Comment: 7th, 8th Ed. will also work.) ISBN 978-0-470-12872-5

Specific course information

This course will introduce the concepts and design of multi-programming operating systems. The operating system provides a convenient and efficient interface between user programs and the bare hardware of the computer on which they run. The operating system is responsible for resources (e.g., CPU, memory, I/O, disks, and networks) sharing, providing common services needed by many different programs (e.g., access to I/O devices, the ability to start/stop a process), and protecting an individual program from interfering with one another. Particular emphasis will be given to three crucial OS components: process, memory, and file system management.

Prerequisites: CSI 3610 and CSI 3640 and major standing

Required course for CS major

Course Objectives: Upon successful completion of this course, students should be able to

- Describe concepts and functions of operating systems [ABET CS: (j)]
- Describe OS process management concepts [ABET CS: (b, j)]
- Analyze different CPU scheduling algorithms [ABET CS: (a, b)]
- Describe concepts of memory management [ABET CS: (a, b)]
- Describe concepts of file systems [ABET CS: (j)]

List of Topics:

- Design of operating systems
- Sequential processes
- Concurrent processes
- Processor management
- Memory management
- Scheduling
- File management
- Resource protection