MIDWESTERN STATE UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

CMPS 4103: Introduction to Operating Systems

Fall semester 2025

Instructor:	Dr. Nelson L. Passos
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Office Hours:	MW 10:00 - 12:00 pm
	TR 9:30 - 11:30 pm
	R 2:00 - 4:00 pm
Class Hours:	MWF 9:00 - BO 313

Course Description:

An introduction to operating systems for contemporary multitasking, single processor computers. Topics include processes, process management and scheduling, interprocess synchronization and communication, memory management, and file management. Selected theory and concepts are supplemented with an examination of their implementation in contemporary operating systems. Discussion of legal, social, and ethical issues.

Prerequisites:

Minimum grade of C in CMPS 2084 and CMPS 2143 or CMPS 3013

Text book (recommended):

Modern Operating Systems, by Tanenbaum (4th edition).

Grading:

Tests and Final Exam:	20 %
Homework Assignments:	15 %
Mini projects:	20 %
Class Participation:	5 %

Final grading letter:

90 to 100 pts = A, 80 to 89.99 pts = B, 70 to 79.99 pts = C, 60 to 69.99 pts = D, other = F

Additional and important information:

All students should refer to the current MSU Students Handbook and Activities Calendar for university policies related to class attendance, academic dishonesty, students responsibilities, rights and activities.

Disability needs: Inform the instructor if you are a student with a disability and need accommodations for this class.

Cell phones, etc.: Use of any electronic device is not allowed in the classroom. Exceptions must be approved by the instructor.

Student drops: If you wish to drop this course you must first contact your instructor. All students-initiated drops must be processed by **November 24, 2025.**

Attendance: Students are expected to attend all meetings of the classes in which they are enrolled. Attendance is rewarded by the participation points in the grading criteria.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. The new Constitutional Carry law does not change this process. Concealed carry still requires a License to Carry permit, and openly carrying handguns is not allowed on college campuses. For more information, visit Campus Carry.

Active Shooter: The safety and security of our campus is the responsibility of everyone in our community. Each of us has an obligation to be prepared to appropriately respond to threats to our campus, such as an active aggressor. Please review the information provided by MSU Police Department regarding the options and strategies we can all use to stay safe during difficult situations. For more information, visit Safety / Emergency Procedures. Students are encouraged to watch the video entitled "*Run. Hide. Fight.*" which may be electronically accessed via the University police department's webpage: *"Run. Hide. Fight."*

Assignments: Assignments will be made as scheduled and are expected to be completed by the specified due date. Grades will be given to the assignments handed in on time. Late assignments will be accepted until one class past the due date (except for online assignments), however will have their maximum grade reduced by twenty points. Any assignment turned in after that period or not done will be graded zero points. Students in this course must demonstrate their competency in fundamentals math skills through assignments and tests.

Assistance: Please contact your instructor for extra help during this course. This includes class material clarification, expected absences from class due to any personal problem, etc.

Academic Honesty: The Department of Computer Science had adopted the following policy related to cheating (academic misconduct). The policy will be applied to all instances of cheating on assignments and exams as determined by the instructor of the course.

- 1st instance of cheating in a course: The student will be assigned a non-replaceable grade of zero for the assignment, project or exam. In addition, the student will receive a one-letter grade reduction in course.
- 2nd instance of cheating in a course: The student will receive a grade of F in course & immediately be removed from course.

All instances of cheating will be reported to the Department Chair and, in the case of graduate students, to the Department Graduate Coordinator. The MCOSME website provides information on the process for grade appeals or appeals of academic honesty sanctions. The Grade Appeal Checklist provides the timeline for appealing from the instructor to the next in line (dean of the college). The Academic Honesty Checklist describes the timeline for appealing from the instructor to the next in line (chair of department).

Testing Process: The Department of Computer Science has adopted the following policy related to testing:

- All bags, purses, electronics (turned off), books, etc. will be placed in the front of the room during exams, or in an area designated by the instructor.
- Unless otherwise announced by the instructor, nothing is allowed on the desk but pen/pencil/eraser and test papers.
- No student is allowed to leave the room during an exam and return

Midterm Progress Report: In order to help students keep track of their progress toward course objectives, the instructor for this class will provide a Midterm Progress Report through each student's WebWorld account. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand. Students earning below a C at the midway point should schedule a meeting with their instructor.

RECORDING OF CLASS LECTURES: Permission must be requested in writing & obtained from the instructor before recording of class lectures. If permission is granted, the recording may only be used by the student making the recording. Recordings may NOT be posted on any internet source without written permission of the instructor. Failure to adhere to the policy may result in removal from the course with a grade of F or other appropriate punishment.

Grading system will be discussed in class.

Tentative agenda:

Aug 25-	Introduction
Aug 27-	Basic concepts
Aug 29-	System calls
Sep 1-	**LABOR DAY**
Sep 3-	Processes – states - implementation
Sep 5-	Processes – priorities
Sep 8-	Resources
Sep 10-	Threads
Sep 12-	Scheduling
Sep 15-	Scheduling algorithms
Sep 17-	Scheduling algorithms
Sep 19-	Race conditions
	Homework Assignment # 1
Sep 22-	Race conditions
Sep 24-	Critical region
Sep 26-	Semaphores
	Homework Assignment # 2
Sep 29-	Dining Philosophers problem
Oct 1-	Deadlocks
Oct 3-	Deadlock detection
	Mini project assignment # 1
Oct 6-	Deadlock avoidance
Oct 8-	Deadlock prevention
Oct 10-	**Test # 1**
Oct 13-	Test review
Oct 15-	Memory management
Oct 17-	Paging
	Mini project assignment # 2
Oct 20-	Segmentation
Oct 22-	Inverted Page Table
Oct 24-	Page replacement algorithms - LRU
	Homework Assignment # 3
Oct 27-	Page replacement algorithms – working set
Oct 29-	Shared pages
Oct 31-	Halloween - Page fault
	Mini project assignment # 3 - Homework Assignment # 4
Nov 3-	File systems - directories
Nov 5-	File systems - inodes
Nov 7-	Disk space management
	Homework Assignment # 5
Nov 10-	File System backup
Nov 12-	Examples of file systems - FAT
Nov 14-	NTFS
	Mini project assignment # 4
Nov 17-	Input / Output
Nov 19-	Interrupt handlers - device drivers
Nov 21-	**Test # 2**
Nov 24-	Test review
Nov 26-	**Thanksgiving Holidays**
Nov 28-	**Thanksgiving Holidays**
Dec 1-	Disk arm scheduling
Dec 3-	Clock - keyboard
Dec 5-	Display - power
Dec 8-	**Finals (Monday, 8:00 am)**