

Operating Systems

MET CS 575

Charles River Campus - Boston

Tuesdays 6:00 PM – 9:30 PM

Summer 2018

Instructor: Dr. Mehrdad (Mike) Nourai

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Office hours: after class

Course Description

Overview of operating system characteristics, design objectives, and structures. Topics include concurrent processes, coordination of asynchronous events, file systems, resource sharing, memory management, security, scheduling, and deadlock problems. 4 credits.

Prerequisites:

MET CS 472 and MET CS 231 or MET CS 232 or instructor's consent.

Text Book

Operating System Concepts 9th Edition, Silberschatz, Galvin and Gagne - Wiley

Courseware

Blackboard website: <https://learn.bu.edu/>

Class Policies

- 1) Attendance & Absences** – Class attendance is expected at all class meetings. Certain course material will only appear during lectures, and most announcements will only be made in class. You are responsible for ALL the materials covered and discussed in class, whether you are present or not. The likelihood of failing the course is subsequently increased by coming to class late, leaving early, or being absent.
- 2) Assignment Completion & Late Work** – **No late coursework would be accepted.** Any late or missed assignments would be recorded as zero. Exceptions may be made in the case of an illness or an emergency condition but only when a verifiable documentation is submitted within a reasonable timeframe. All assignments must be submitted electronically via the class Blackboard website on or before the published due date. No paper, e-mail, or any other submission types would be accepted. It is students' responsibility to make sure all assignments submissions are successful, they are on time, and make backups of work submitted.
- 3) Assessments** – **No makeup exams would be given.** Any missed exams would be recorded as zero. Exceptions may be made in the case of an illness or an emergency condition but only when a verifiable documentation is submitted within a reasonable timeframe. No electronic or computer devices such as smartphone, smartwatch, tablet, laptop, or

netbook (calculator is OK) can be used during exams. Violations results in no credit for the exams, see Academic Conduct Code.

- 4) **Classroom Expectations** – Please respect your classmates by turning off your phone or other electronic devices before class begins, and do not use them during class. I encourage you to participate in class discussions, and ask questions.
- 5) **Academic Conduct Code** – An important message from the Dean’s Office:
“Cheating and plagiarism will not be tolerated in any Metropolitan College course. They will result in no credit for the assignment or examination and may lead to disciplinary actions. Please take the time to review the Student Academic Conduct Code:
http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html. This should not be understood as a discouragement for discussing the material or your particular approach to a problem with other students in the class. On the contrary – you should share your thoughts, questions and solutions. Naturally, if you choose to work in a group, you will be expected to come up with more than one and highly original solutions rather than the same mistakes.”

Objectives

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

- Understand the fundamental concepts of operating systems, including OS structures, processes/threads management, synchronization, deadlocks, memory management, file systems, disk and I/O, protection and security.
- Develop hands-on experience on Unix/Linux-programming.
- Be introduced to the Linux kernel source code and simple kernel-level programming.

Course Requirements

- Class discussions and participation
- Reading and studying
- Assignments (Homework and Project)
- Assessments

Additional Course Policy

- If due to time constraint, we do not get to cover all the materials from each chapter during lecture, it is expected that students read the entire chapter.
- Additional reading materials may be assigned for each topic. Students are responsible for all the materials covered including any topics not in the textbooks.
- It is student’s responsibility to participate in class, submit all the coursework successfully on the Blackboard by their due dates, and take exams on their scheduled dates.
- Only ONE submission per assignment would be accepted.
- An incomplete grade is rarely given. It is at the discretion of the faculty for consideration only if student completes at least 80% of coursework and submit a request with compelling documentation at least two weeks before the end of the semester. Each incomplete coursework would only earn 80% of the original points.



Grading Criteria

The grade that a student receives in this class would be based on class participation, assignments, project, quizzes and a final exam. The grade breakdown is shown below. All percentages are approximate, and the instructor reserves the right to make necessary changes.

- 3% on class discussions and participation
- 7% on homework
- 20% on projects
- 35% on Mid-term Exam
- 35% on Final Exam

Letter grade/numerical grade conversion is as follows:

A (95-100)	A- (90-94)	
B+ (85-89)	B (80-84)	B- (75-79)
C+ (70-74)	C (65-69)	C- (60-64)
D (50-59)		
F (< 50)		

Class Meetings, Lectures & Assignments:

Note: This is a tentative schedule and a live document. Lectures, Readings, and Assignments subject to change, and will be announced in class as applicable within a reasonable time frame.

Date	Topic	Readings Due	Assignments Due
May 22	OS Introduction, Virtual Machines	Chapters 1, 16	
May 29	OS Structures	Chapter 2	Setup VirtualBox with Linux Ubuntu for desktops
June 5	Processes	Chapter 3	
June 12	Threads	Chapter 4	Project 1 Due
June 19	CPU Scheduling	Chapter 6	
June 26	Mid-term Exam		Mid-term (Chapters 1, 2, 3, 4, 6)
July 3	Process Synchronization	Chapter 5	
July 10	Deadlocks	Chapter 7	
July 17	Main Memory, Virtual Memory	Chapters 8, 9	
July 24	Mass-Storage Structure, I/O Systems	Chapters 10, 13	Project 2 Due
July 31	Protection & Security	Chapters 14, 15	
August 7	Final Exam		All covered materials