Boston University Metropolitan College

Operating Systems

MET CS 575
Charles River Campus - Boston
Thursdays 6:00 PM – 8:45 PM
Fall 2018

Instructor: Dr. Mehrdad (Mike) Nourai
Email: mnourai@bu.edu
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 for the entire class period is expected at all class meetings and it is part of your class participation grade. Lecture topics may include additional course materials that will be covered in class. In addition, most announcements will 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 will subsequently increase 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 graded as zero. Exceptions may be made in case of an illness or an emergency condition 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 have backups of coursework submitted.
3) **Assessments** – No makeup exams would be given. Any missed exams would be graded as zero. Exceptions may be made in case of an illness or an emergency condition 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 would result in academic conduct code consequences and grade of zero for the exam (see the Academic Conduct Code item 5).

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, ask questions, and interact with your professor.
5) **Academic Conduct Code** – The following is 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 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.
- One submission per assignment would be accepted.

- An incomplete grade is rarely given, and it is at the discretion of the faculty for approval. At least 80% or more of the coursework must be completed and request with compelling documentation must be submitted to the faculty two weeks before official end of the semester. Each incomplete coursework would earn 80% of the original points.

Grading Criteria

The grade that a student receives in this class will be based on components shown below. All percentages are approximate and the instructor reserves the right to make changes.

- 5% on Class Participation
- 10% on Homework Assignments
- 20% on Semester-long Term-Project
- 30% on Quizzes
- 35% on Final Exam

Letter grade

The following is the letter-grade numerical-grade conversion table. The table is approximate and the instructor reserves the right to make change.

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)		

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Class Meetings, Lectures & Assignments:

Note: This is a tentative schedule and a live document. Instructor reserves the right to make changes to the Lectures, Readings, Assignments, and Assessments. Changes will be announced in class as applicable within a reasonable time frame.

Date	Topic	Readings Due	Assignments Due
September 6	OS Introduction, Virtual Machines	Chapters 1, 16	
September 13	OS Structures	Chapter 2	
September 20	Processes	Chapter 3	Assignment 1
September 27	Threads	Chapter 4	**Term-Project Deliverable 1**
October 4	Quiz 1		**Quiz 1 (Chapters 1, 2, 3, 4)**
October 11	CPU Scheduling	Chapter 6	Assignment 2
October 18	Process Synchronization, Deadlocks	Chapters 5, 7	
October 25	Main Memory	Chapter 8	Assignment 3
November 1	Quiz 2		**Quiz 2 (Chapters 5, 6, 7, 8)**
November 8	Virtual Memory	Chapter 9	**Term-Project Deliverable 2**
November 15	Mass-Storage Structure, Filesystems, I/O Systems	Chapters 10-13	Assignment 4
November 22	Thanksgiving Recess		
November 29	Protection & Security	Chapters 14, 15	Assignment 5
December 6	Project Presentations		**Term-Project Deliverable 3**
December 13	Reading day		
December 20	Final Exam		**All covered materials**