Boston University Metropolitan College

Operating Systems

MET CS 575
Course Format -> On Campus
Wednesdays 6:00 PM – 8:45 PM
Spring 2019

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** – Attendance is expected at all class meetings and it is part of class participation grade. The student is responsible for all materials discussed in class.
2) **Assignment Completion & Late Work** – All coursework for this class have due dates and are to be submitted paperless via Blackboard on or before their due dates. *Late work, paper or email submissions will be graded as zero.*
3) **Assessments** – No make-up quizzes or exams will be scheduled except in emergency cases. *Missed quizzes or exams will be graded as zero.*
4) **Incomplete and withdrawal** – An incomplete grade is rarely given, and the instructor reserves all the rights for its consideration. If student is unable to complete the course requirements, it is student's responsibility to file withdrawal form with the registrar office by the deadline specified in the academic calendar.
5) **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.
6) **Academic Conduct Code** – It is your responsibility to comply with the Academic Conduct Code policy. The following is an important message from the MET Dean:

"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, students are expected to:

- Understand the fundamental concepts of operating systems, including OS structures, processes/threads management, synchronization, deadlocks, memory management, filesystems, disk, 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
- Term-Project & Presentation
- Assessments
- Additional reading materials (if assigned)

Strategies for Learning

We will cover many materials that require careful thinking and practice to master. The following are strategies for learning all the materials:

- Attend class and take notes.
- Read the textbook and any additional materials covered in class.
- Explore online resources, e.g., articles, tutorials, source code, documentation, etc.
- Form a study group.
- Participate in class discussions.
- The more time and effort you expend, the more benefits you will receive.

Grade Calculation:
Grades will be weighed as follows.

Item	Percentage of Grade
Assignments & Class Participation	10
Term-Project & Presentation	15
Quiz 1	20
Quiz 2	20
Final Exam	35
Total	100

The number grade calculated will be converted to a letter grade using the following table.

Calculated Grade (G)	Letter Grade	Calculated Grade (G)	Letter Grade
$95 \le G \le 100$	A	$70 \le G < 75$	C+
$90 \le G < 95$	A-	$65 \le G < 70$	C
$85 \le G < 90$	B+	$60 \le G < 65$	C-
$80 \le G < 85$	B	$50 \le G < 60$	D
$75 \le G < 80$	B-	$0 \le G < 50$	F

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Class Meetings, Lectures & Assignments:

This is a tentative schedule & a live document. The instructor reserves the rights to make changes.

Date	Topic	Readings Due	Assignments Due
January 23	OS Introduction, Virtual Machines	Chapters 1, 16	
January 30	OS Structures	Chapter 2	
February 6	Processes	Chapter 3	Assignment 1
February 13	Threads	Chapter 4	
February 20	Quiz 1		**(Chapters 1, 2, 3, 4)**
February 27	CPU Scheduling	Chapter 6	**Survey paper topic Due (Deliverable 1)**
March 6	Process Synchronization, Deadlocks	Chapters 5, 7	Assignment 2
March 13	Spring Recess		
March 20	Main Memory	Chapter 8	**Annotated Bibliography Due (Deliverable 2)**
March 27	Quiz 2		**(Chapters 5, 6, 7, 8)**
April 3	Virtual Memory, Mass-Storage Structure	Chapters 9, 10	Assignment 3
April 10	Filesystems, I/O Systems	Chapters 11-13	
April 17	Substitute Monday schedule of classes		
April 24	Protection & Security	Chapters 14, 15	Assignment 4
May 1	Project Presentations		**Final Paper Due (Deliverable 3)**
May 8	Final Exam		**All covered materials**