Boston University Metropolitan College

Operating Systems

MET CS 575
Course Format -> ~~On Campus~~ Remote via Blackboard
Tuesdays 6:00 PM – 9:20 PM
Summer 2020

Instructor: Dr. Mehrdad 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 equivalent.

Text Book
Operating System Concepts 10th Edition, Silberschatz, Galvin, and Gagne - Wiley

Courseware
Blackboard website: https://learn.bu.edu/

Class Policies

1) **Attendance & Class participation** – Attendance and class participation are expected at all class meetings. Coming to class late, leaving early, or being absent can adversely affect your final grade. You are responsible for all announcements and materials discussed in class.
2) **Coursework Late Policy** – Each coursework (assignments and term-project deliverables) have due dates with generous timeframe to complete them. Do Not Wait to the last day and hour of the due date. No extensions or exceptions will be scheduled. Please complete the coursework as soon as it is listed on the Blackboard. Late coursework will be reduced by 20% per day, accumulative, upto 4 days. Five or more days late will be graded as zero.
3) **Coursework Submission Policy** – All coursework will be listed on the Blackboard and must be submitted on the Blackboard to be considered for grading. It is your responsibility for submitting the correct coursework under its designated item on the Blackboard to earn credit. To avoid any submission issues, it is required to download your submission after every coursework submission AND double-check to ensure it is the correct file and it has been submitted correctly. Email, paper, blank file, wrong or missing submissions without

prior written authorization from the instructor, will be graded as zero. Submission of any coursework after the Final Exam will be graded as zero.

4) **Tests and Exams** – No make-up tests and exams will be given unless compelling and verifiable reason is given in advance. The instructor reserves all the rights not to accept it.
5) **Assessments and Grading** – Grades are earned and the instructor reserves all the rights for his assessments. No regrading will be scheduled except in case of error.
6) **Bonus or Redo of Coursework** – There are No Bonus coursework, and No redo of any assignments, projects, tests, or exams. There is No additional coursework after the Final Exam to improve your grade, as this arrangement would then by fairness have to be extended to the rest of the class (an impossible situation).
7) **Incomplete and withdrawal** – An incomplete grade is rarely given. The student must meet the university's requirements plus the instructor's requirements as follows: student must have actively attended and participated throughout the semester, and successfully completed coursework with good grades, completed majority of the coursework but due to unforeseen circumstances toward the end of the semester, is unable to complete the last coursework. The instructor must be notified in writing before the due date of the last coursework with compelling and verifiable reason, and file for incomplete before the Final Exam week. It is student's responsibility to observe the university's guidelines, policies, and file an official withdrawal from the class to avoid earning a failing grade.
8) **Backup of Coursework** – It is your responsibility to keep secure backups of all coursework. Make sure that you have two backup medium, and backup often. Saving data locally does not constitute as a good backup strategy.
9) **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.
10) **Academic Conduct Code** – Students are held responsible for complying 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 in 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
- Research Project
- Assessments
- Additional reading materials

Strategies for Learning

We will cover many materials that require critical thinking and practice to master. The following are strategies for in-depth learning of the materials:

- Attend class, participate in class discussions, 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.
- The more time and effort you expend, the more benefits you will receive.

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

- 20% on assignments and research project
- 20% on test1
- 20% on test2
- 40% on final exam

Letter grade/numerical grade conversion is shown below (9 means 9 repeats):

A (95-100) A- (90-94.9)
B+ (85-89.9) B (80-84.9) B- (77-79.9)
C+ (74-76.9) C (70-73.9) C- (65-69.9)
D (60-64.9) F (0 – 59.9)

Boston University Metropolitan College

Class Meetings, Lectures & Assignments:

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

Date	Topic	Readings Due	Assignments Due
May 26	Introduction	Chapter 1	
June 2	Operating-System Structures	Chapter 2	Assignment 1
June 9	Processes Threads	Chapters 3, 4	
June 16	Test 1		**Test 1** **(Chapters 1, 2, 3, 4)**
June 23	CPU Scheduling	Chapter 5	Assignment 2
June 30	Synchronization Deadlocks	Chapters 6-8	
July 7	Main Memory	Chapter 9	Assignment 3
July 14	Test 2		**Test 2** **(Chapters 5, 6, 7, 8, 9)**
July 21	Virtual Memory, Mass-Storage Structure	Chapters 10, 11	Assignment 4
July 28	I/O Systems Filesystems	Chapters 12-15	
August 4	Security & Protection Research Project Discussions	Chapters 16, 17	**Research Project**
August 11	Final Exam		**All covered materials**