Course Syllabus

CSCI530-01B
OPERATING SYSTEMS

Fall, 2024

Department of Computer Science
Texas A&M University-Commerce

Instructor:

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Preferred form of communication: Email
Communication response time: 48 hours

Class Meetings: Thursdays 2:00PM-3:15PM (Jour 102), 8/26/2024-12/13/2024

Course Objectives:

The course objectives are two-fold:

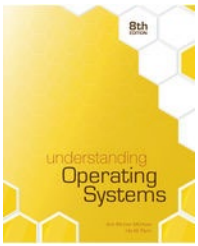
- To learn general theory, concept, and techniques related to the design of operating systems,
- To practice the design of an operating system by performing UNIX programming exercises.

Course Description:

The course objectives are two-fold: (1) to learn general theory, concept, and techniques related to the design of operating systems; (2) to practice the design of an operating system by performing a design project.

General theory and concept behind operating system design are discussed in this course. Topics include operating system structures, memory management, process scheduling, process synchronization and communication,deadlocks, and case studies of other commercially available operating systems. Moderate-size programming project will be used to demonstrate the understanding of design concept of operating systems.

Textbooks:



Understanding Operating Systems, 8th Edition
by Ann McHoes and Ida M. Flynn
Cengage Learning, 2017, ISBN-13: 978-1-305-67425-7

Operating System Concepts, now in its *8th edition*, continues to provide a solid theoretical foundation for understanding operating systems. The eighth edition includes more coverage of the most current topics in the rapidly changing fields of operating systems and networking, including open-source operating systems. The text also includes improved conceptual coverage and additional content to bridge the gap between concepts and actual implementations. New end-of-chapter exercises and advanced exercises help to further reinforce important concepts, while *CengageBrain* continues to motivate students and offer comprehensive support for the material in an interactive format.

Recommended Reading:

Operating System Concepts, 7th Edition  by A. Silberschatz and P. Galvin, John Wiley & Sons, Inc., 2006, 0-471-69466-5 ISBN

Topics and chapters to be covered:

Part One: Overview (Chapters 1)
Part Two: Memory Management (Chapers 2 and 3)
Part Three: Process Management (Chapters 4, 5, and 6)
Part Four: Device and File Management (Chapters 7 and 8)

Course Requirements:

There will be regularly assigned homework problems. There will be programming projects, which will require the students to spend time in the computer laboratory. To plan a minimum of three hours of outside preparation for each hour of class is a safe time allocation for successfully completing the course. Due dates for all assigned materials will be announced in class in advance. It is the student's responsibility to have all assignments ready on time. Any student who has to be absent on an assignment due date must arrange to have the assignment submitted early. Late assignment may not be accepted. Additional requirements of the course include a number of quizzes, tests, a term paper, and/or a project report.

Student Learning Outcomes (SLO):

Students will be able to:

1) Explain the objectives and functions of modern operating systems
2) Describe how computing resources are used by application software and managed by system software.
3) Describe the need for concurrency within the framework of an operating system
4) Demonstrate the potential run-time problems arising from the concurrent operation of many separate tasks
5) Analyze processes, threads, and concurrency issues and process synchronization
6) Explain simple memory management, virtual memory
7) Describe the reason for and use of cache memory
8) Explain file management, mass storage, and I/O systems
9) Analyze basic OS security issues

Relationship between the assessments and course-level student learning outcomes:

Student Learning Outcomes	SLO1	SLO2	SLO3	SLO4	SLO5
Assessment Methods Used	Assignment, Quizzes	Assignment Quizzes	Assignment, Exam,	Midterm Exam	Midterm Exam

Student Learning Outcomes	SLO6	SLO7	SLO8	SLO9	SLO5
Assessment Methods Used	Assignment, Quizzes	Assignment, Quizzes	Final Exam	Final Exam	Course Project

MAKE-UP POLICIES

Assignments/Projects/Reports: Assignments are to be completed and turned in *by the due date without exception*. No late work will be accepted unless there is compelling evidence for failure for on-time submission.

Exams: No make-up exams will be given. In case of emergencies, proven and certified copy of the emergencies should be provided to the instructor to discuss an alternative solution.

Quizzes: No Make-ups for quizzes unless there is compelling evidence for failure to take as scheduled. All missed grades will be recorded as zeros.

TECHNOLOGY REQUIREMENTS (LMS)

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

Brightspace Support

Need Help?

Student Support

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

System Maintenance

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Policies:

Attendance/Lateness: Students are expected to be present at all class lectures. The maximum number of excused absences allowed per semester will be 3. 3 or more absences will automatically result in F as course grade.

Late Work: Under no circumstances will the late work be accepted. If a student is absent from class on the due date of any assignment, they are expected to make alternative arrangements to assure that the assignment is turned in ON TIME. Credit will be given for ONLY those assignments, programs, and/or projects turned in no later than the deadline as announced by the instructor of this class.

Missed Exams and Quizzes: Missed exams and quizzes will result in 0 in all circumstances.

Extra Credit: No extra credit work will be given under any circumstances.

Withdrawal: Any student wishing to withdraw from the course must do so officially as outlined in the class schedule. THE INSTRUCTOR CANNOT DROP OR WITHDRAW ANY STUDENT.

Syllabus Change Policy:

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

UNIVERSITY SPECIFIC PROCEDURES

Student Conduct:

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook. http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette http://www.albion.com/netiquette/corerules.html

TAMUC Attendance:

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity:

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course. Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

ADA STATEMENT

Students with Disabilities:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services:

Texas A&M University-Commerce
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: Rebecca.Tuerk@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice:

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the

basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement:

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.
For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903- 886-5868 or 9-1-1.

Smoke, Vapor & Tobacco Free Environment:

University Procedure 34.05.99.R1 now prohibits the use of vapor/electronic cigarettes, smokeless tobacco, snuff and chewing tobacco inside and adjacent to any building owned, leased, or operated by A&M – Commerce.

Course Requirement Deadlines:

Credit will be given for ONLY those exam(s), assignment(s), quiz(es), program(s), and/or project(s) turned in no later than the deadline(s) as announced by the instructor of this class unless prior arrangement has been made with the instructor.

Method of Evaluation (Tentative):

Assignments/Quizzes	(10%)
Midterm Exam	(30%)
Class Project	(20%)
Final Exam	(40%)

Final average	Letter grade
90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

COURSE OUTLINE/CALENDAR*:

WEEKS	**SUBJECTS TO BE COVRED**
1 (8/29)	Introduction to Course
2 (9/5)	Chapter 1 (Introduction to Operating Systems)
3 (9/12)	Chapter 2 (Memory Management)
4 (9/19)	Chapter 3 (Virtual Memory)
5 (9/26)	Chapter 4 (Processor Management)
6 (10/3)	Project Phase I
7 (10/10)	Review (Chapters 1-4) & Quiz (Chapters 1-4)
8 (10/17)	Midterm Exam (Chapters 1-4)
9 (10/24)	Chapter 5 (Process Synchronization)
10 (10/31)	Chapter 6 (Concurrent Processses)
11 (11/7)	Chapter 7 (Device Management)
12 (11/14)	Chapter 8 (File Management)
13 (11/21)	Project Phase II
14 (11/28)	Review (Chapters 5-8) & Quiz (Chapters 5-8)
15 (12/5)	Final Exam (Chapters 1-8)
16 (12/12)	Project Presentation and Submission

* The course outline/calendar may be subject to change.