



## **CSCI530-01W Operating Systems**

COURSE SYLLABUS: Spring 2024

### **INSTRUCTOR INFORMATION**

<b>Instructor:</b>	<b>Kwang Lee, Ph.D.</b>
<b>Office Location:</b>	Online, must login eCollege
<b>Office Hours:</b>	<b>Mon 10:00 AM ~ 12:00 PM</b>
<b>Office Phone:</b>	<b>571-275-0959</b>
<b>Office Fax:</b>	<b>None</b>
<b>University Email Address:</b>	<b>Kwang.Lee@tamu.edu</b>
<b>Preferred Form of Communication:</b>	<b>For all Email contacts make sure - THE Email Subject Is: "CSCI530"</b>
<b>Communication Response Time:</b>	<b>Email or Online Discuss</b>

### **COURSE INFORMATION**

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) Required: Stallings, W. Operating systems: internals and design principles. 9th Edition. Pearson, ISBN: 978-013-4670959

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

### **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

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systems. Moderate-size programming project will be used to demonstrate the understanding of design concept of operating systems.

**Student Learning Outcomes** (Should be measurable; observable; use action verbs)

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

## **COURSE REQUIREMENTS**

### **Minimal Technical Skills Needed**

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.

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## Instructional Methods

This is a web-based course which will require you to have a PC and access to the internet. You can also access this course in any computer lab on campus.

## Student Responsibilities or Tips for Success in the Course

### Instructor Availability:

To communicate with me about this course you are to use the email address on this syllabus. Please include the course number/name in the beginning of the subject field for every email message (**THE Email Subject Is: "CSCI530~~"**). Email messages that are missing this information are likely to be automatically redirected to a folder the instructor will seldom check, or will possibly be deleted. During the week, you can generally expect a response to your emails within a day, though sometimes it may take longer. I do not normally log on over the weekends. If you email me a question on Friday afternoon, I may not read that email until Monday morning. You can also call me at my office (prefer an email) or stop by my office during office hours.

**Unless otherwise specified**, all assignments are individual assignments, and thus must be completely the original work of the student submitting them.

### Sharing Your Work:

All work produced by students may be shared by the instructor with the class for purposes of example and training. Such work will be as anonymous as possible. Finally, the instructor may share your work anonymously with future classes or in his own writing and research.

### Submitting Assignments:

Unless special instructions are provided, assignments are NOT to be posted on any discussion board. Your completed work must be placed in the appropriate Dropbox in D2L Online. **DO NOT EMAIL ME ANY ASSIGNMENTS AS THEY WILL BE DELETED.** Please follow the rules for naming and posting assignments.

All assignments and project must be completed and submitted into "**Dropbox**" on due date. Work must be complete. I will not accept a partially completed assignment. Your work must be your own. Cheating will result in a grade of 0 for the applicable assignment; further disciplinary action, including assigning a failing grade (F) for the entire course may also be taken. Missed work will result in a grade of 0 for the assignment. Exceptional circumstances should be discussed with the instructor in advance.

Assignments must be printed out (when appropriate) and properly identified. Each must include:

- Your Name and ID
- The Assignment and/or File Name

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## Exams:

**You will have a midterm exam during this course. Material over which the exam will be tested will be available on line. The Exam will be online.** The exam is not a team assignment and there will be no make-up for this exam. It is the student's responsibility to arrange for an excused absence before the exam. A grade of zero will be assigned for an exam missed without an excused absence. If an emergency arises the week of the midterm exam, contact the instructor immediately.

## Late Assignment and Project Policy:

**In general, late work will not be accepted** unless it is an unavoidable officially excused and documented emergency absence. Work that is submitted after the announced deadline will be considered late. Expect you may encounter problems and allocate enough time to complete your work early so that you will not be penalized.

Under special condition, late work can gain partial credit upon the following policy. As per University requirements, assignments submitted within **7 days** after the deadline can receive up to **50% deduction**.

- No assignments and project will be accepted **7 days** after the assigned due date
- Final assignment will not be accepted after the term end day
- Exceptions to this policy will only be made in extraordinary circumstances. Please let me know your circumstances.

## Late Discussion Policy:

I decided **NOT to accept any late discussion**. The discussion has a different purpose from the written assignment. As you know, the main purpose of discussion is to exchange idea and opinions with other colleagues. If you are late to participate in the discussion, you cannot archive this purpose via the discussion. I would not keep track of when the late discussions were turned in.

## Cheating on Exams:

Students who share information about answers on the exams or receive assistance from external sources during the exam will receive a zero grade for the exam.

## GRADING

Final grades in this course will be based on the following scale:

Your grade for the course will be based on the following percentages (tentative):

- Midterm Test            100 (10%)
- Final Test                200 (20%)
- 4 Assignments          200 (20% each-50%)

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- 6 Quizzes                    300 (20% each-50%)
- 10 Discussions            200 (20% each-20%)
- Total                        1,000 (100%)**

You should do your own work on exams/projects and for computer assignments. Copying another student's work is not acceptable. Any indication of cheating and/or plagiarism on an exam/assignment/project will be an automatic 0 (zero) for the exam/assignment/project for all students involved. Yet, based on cheating and plagiarism activity in any section of class, instructor holds the right to give F grade to the identified student(s). Regarding codes in assignments / projects, you may be required to explain the code you submitted. In case of discursive explanation, the instructor holds the right to lower your grade.

Letter grades will be assigned according to the following scale:

- A - at least 900 (90%) of the total points
- B - at least 800 (80%) of the total points
- C - at least 700 (70%) of the total points
- F - less than 700 (70%) of the total points

## **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](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

Zoom Video Conferencing Tool

[https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom\\_Account.aspx?source=universalmenu](https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu)

## **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](mailto:helpdesk@tamuc.edu).

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**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**

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>

### **Interaction with Instructor Statement**

**See Above**

## **COURSE AND UNIVERSITY PROCEDURES/POLICIES**

### **Course Specific Procedures/Policies**

**See Above**

### **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/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

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## **TAMUC Attendance**

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedures 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**

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](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

[Graduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/academics/graduateschool/faculty/GraduateStudentAcademicDishonestyFormold.pdf>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

## **Students with Disabilities-- ADA Statement**

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

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](#)

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<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.

### **A&M-Commerce Supports Students' Mental Health**

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit [www.tamuc.edu/counsel](http://www.tamuc.edu/counsel)

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## AI use policy [Draft 2, May 25, 2023]

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.

**13.99.99.R0.03 Undergraduate Academic Dishonesty**

**3.99.99.R0.10 Graduate Student Academic Dishonesty**

### Department or Accrediting Agency Required Content

### COURSE OUTLINE / CALENDAR

DATE	TOPIC	READING	ASSIGNMENTS
Week 1 1/10 – 1/14	Computer System Overview	Chapter 1	Meet Your Classmates Discussion Introduce Yourself Due: No later than 11:59 pm Sun
Week 2 1/15 – 1/21	Operating System Overview	Chapter 2	Quiz 1   Discussion 1 Due: No later than 11:59 pm Sun

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Week 3 <b>1/22 – 1/28</b>	Process Description and Control	Chapter 3	Assignment 1   Discussion 2 Due: No later than 11:59 pm Sun
Week 4 <b>1/29 – 2/04</b>	Process Description and Control	Chapter 3	Quiz 2   Discussion 3 Due: No later than 11:59 pm Sun
Week 5 <b>2/05 – 2/11</b>	Threads	Chapter 4	Quiz 3   Discussion 4 Due: No later than 11:59 pm Sun
Week 6 <b>2/12 – 2/18</b>	Concurrency: Mutual Exclusion & Synchronization	Chapter 5	Assignment 2   Discussion 5 Due: No later than 11:59 pm Sun
Week 7 <b>2/19 – 2/25</b>	Concurrency: Mutual Exclusion & Synchronization	Chapter 5	<b>Midterm Exam (Ch 1 – 5)</b>
Week 8 <b>2/26 – 3/03</b>	Concurrency: Deadlock & Starvation	Chapter 6	Discussion 6 Due: No later than 11:59 pm Sun
Week 9 <b>3/04 – 3/10</b>	Concurrency: Deadlock & Starvation	Chapter 6	Quiz 4 Due: No later than 11:59 pm Sun
Week 10 <b>3/11 – 3/17</b>	Review Class		<b>Spring Break</b>
Week 11 <b>3/18 – 3/24</b>	Memory Management	Chapter 7	Assignment 3   Discussion 7 Due: No later than 11:59 pm Sun
Week 12 <b>3/25 – 3/31</b>	Memory Management	Chapter 7	Quiz 5 Due: No later than 11:59 pm Sun
Week 13 <b>4/01 – 4/07</b>	Virtual Memory	Chapter 8	Discussion 8 Due: No later than 11:59 pm Sun
Week 14 <b>4/08 – 4/14</b>	Uniprocessor Scheduling	Chapter 9	Discussion 9 Due: No later than 11:59 pm Sun
Week 15 <b>4/15 – 4/21</b>	Uniprocessor Scheduling	Chapter 9	Assignment 4   Quiz 6 Due: No later than 11:59 pm Sun
Week 16 <b>4/22 – 4/28</b>	Multiprocessor, Multicore, and Real-Time Scheduling	Chapter 10	Discussion 10 Due: No later than 11:59 pm Sun
Week 17 <b>4/29 – 5/03</b>	Review Class		Class Evaluation
	<b>Final Exam</b>		<b>Final Exam (Ch 6 – 10)</b>

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