

Oper Sys and Sys Software
CS 7343 400
Computer Science Department
Spring 2023



Instructor Information

Instructor: Mohamed Rayes

Email: mrayes@smu.edu

Office Hours:

Thursday 9:30 PM - 10:30 PM, or by appointment via zoom or in-person.

Preferred Method of Contact:

Email. Email. Please don't use Canvas to send messages. Please email instead.

Course Details

Meeting Days/Times/Locations:

Start Date	End Date	Location	Meeting Day	Start Time	End Time
01/17/2023	05/02/2023	DISTANCE	ARR		

Credit Hours: 3.00

Course Description: Theoretical and practical aspects of operating systems, including an overview of system software, time-sharing, and multiprogramming operating systems. Also, network operating systems and the Internet, virtual memory management, interprocess communication and synchronization, file organization, and case studies. Prerequisite: Knowledge equivalent to material taught in CS 2341.

Student Learning Outcomes

1. To give an general overview of operating systems, their functionalities and how they designed.\
2. To discuss in great detail Process management: what a process is, methods for process scheduling and inter-process communication, a detailed discussion of threads.

3. To go over in a great detail how processes are synchronized and scheduled, deadlock handling.
4. To understand different approaches for memory management and the different memory-management schemes, reflecting the advantages and disadvantage of each scheme.
5. To describe how mass storage and I/O are handled in a modern computer system.
6. All of these topics are augmented with homework exercises and programming assignments.

Required Texts and Materials

Operating System Concepts

ISBN: 978-1-119-32091-3

Authors: Abraham Silberschatz, Peter B. Galvin, Greg Gagne

Publisher: Wiley

Edition: 10th Edition

Grading Policies/Grading Scale

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|--------------------------------------|-----|
| • Homework & Programming Assignments | 50% |
| • Midterm Exam | 20% |
| • Final Exam | 30% |

Homework Assignment Documentation

All homework and lab reports should be readily readable, and should not presuppose that I already know what you are trying to say. Use full English sentences where appropriate (namely almost everywhere) and clear diagrams, programs, etc. Remember that your goal is to communicate clearly, and that the appearance of these technical items plays a role in this communication process. In particular, the following points must be observed when submitting your homework.

1. Include a front page with course title, your name, Student ID, your e-mail address, course number (Cs 5343 or CS7343).
2. Each answer should begin in a new page.
3. Late Homework submission must be sent directly to the grader via email.

4. **Note: There will be 10 points deduction if information in step 1 is missing.**

Late submitted homework and programs:

Late programs and homework will be penalized 5 points per day (including weekends and holidays). No programs or homework assignments will be accepted after one week from the date in which they are due or after they have been already returned.

Midterm and Final Exam:

Students may bring as many notes as they would like. All notes must be in paper form. No digital notes or digital textbooks (including the course textbook) are allowed. No electronic devices are allowed.

Grade Scale:

93 - 100 A
90 - 92 A-
87 - 89 B+
83 - 86 B
80 - 82 B-
77 - 79 C+
73 - 76 C
70 - 72 C-
67 - 69 D+
63 - 66 D
60 - 62 D-
00 - 59 F

Course Policies

Make Ups:

NO MAKE UPS will be given without an official Excuse. **NO EXCEPTIONS.**

Incomplete Grades:

No incomplete grades will be given without VERY legitimate reasons. Again, no **EXCEPTIONS.**

Remote Instruction (Zoom):

Using Zoom from Canvas has proven to be sometimes technically unreliable. It may/maynot work at times. Therefore, live classes via Zoom will not be provided.

Title IX and Disability Accommodations

Disability Accommodations

Students who need academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214-768-1470 or visit smu.edu/DASS to begin the process. Once they are registered and approved, students then submit a DASS Accommodation Letter through the electronic portal, *DASS Link*, and then communicate directly with each of their instructors to make appropriate arrangements. Please note that accommodations are not retroactive, but rather require advance notice in order to implement.

Sexual Harassment

All forms of sexual harassment, including sexual assault, dating violence, domestic violence and stalking, are violations of SMU's Title IX Sexual Harassment Policy and may also violate Texas law. Students who wish to file a complaint or to receive more information about the grievance process may contact Samantha Thomas, SMU's Title IX Coordinator, at accessequity@smu.edu or 214-768-3601. Please note that faculty and staff are mandatory reporters. If students notify faculty or staff of sexual harassment, they must report it to the Title IX Coordinator. For more information about sexual harassment, including resources available to assist students, please visit smu.edu/sexualmisconduct.

Pregnant and Parenting Students

Under Title IX, students who are pregnant or parenting may request academic adjustments by contacting the Office of Student Advocacy and Support by calling 214-768-4564. Students seeking assistance must schedule an appointment with their professors as early as possible, present a letter from the Office of the Dean of Students, and make appropriate arrangements. Please note that academic adjustments are not retroactive and, when feasible, require advance notice to implement.

Academic Policies

Religious Observance

Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. [Click here for a list of holidays.](#)

Medical-Related Absences

To ensure academic continuity and avoid any course penalties, students should follow procedures described by their instructors in order to be provided with appropriate modifications to assignments, deadlines, and exams.

Excused Absences for University Extracurricular Activities

Students participating in an officially sanctioned, scheduled university extracurricular activity should be given the opportunity to make up class assignments or other graded assignments that were missed as a result of their participation. It is the responsibility of the student to make arrangements for make-up work with the instructor prior to any missed scheduled examinations or other missed assignments. (See current [Catalog](#) under heading of "Academic Records/Excused Absences.")

Final Exams

Final course examinations shall be given in all courses where appropriate, and some form of final assessment is essential. Final exams and assessments must be administered as specified in the official examination schedule. Exams cannot be administered or due during the last week of classes or during the Reading Period. Syllabi must state clearly the form of the final exam or assessment, and the due date and time must match the official SMU exam schedule. Final exams are not required to be provided online.

Academic Dishonesty

Students are expected to embrace and uphold the [SMU Honor Code](#). Violations of the Honor Code will be acted upon in accordance with the policies and procedures outlined in the [Mustang Student Handbook](#).

Student Support Services

Student Academic Success Programs

Students needing assistance with writing assignments for SMU courses may schedule an appointment with the Writing Center through Canvas. Students who would like support for

subject-specific tutoring or success strategies should contact SASP, Loyd All Sports Center, Suite 202; 214-768-3648; smu.edu/sasp.

Caring Community Connections Program

CCC is a resource for anyone in the SMU community to refer students of concern to the Office of the Dean of Students. The online referral form can be found at smu.edu/deanofstudentsccc. After a referral form is submitted, students will be contacted to discuss the concern, strategize options, and be connected to appropriate resources. Anyone who is unclear about what steps to take if they have concerns about students should contact the Office of the Dean of Students at 214-768-4564.

Mental Health Resources: On-Call and Ongoing Counseling Services

Throughout the academic year, students may encounter different stressors or go through life experiences which impact their mental health and academic performance. Students who are in distress or have concerns about their mental health can schedule a same-day or next-day appointment to speak with a counselor by calling [Counseling Services](#). Counselors are available at any time, day or night for students in crisis at this number: 214-768-2277 (then select option 2) They will be connected with a counselor immediately. Students seeking ongoing counseling should call the same number (214-768-2277, then select option 1) during normal business hours to schedule an initial appointment.

Campus Carry Law

In accordance with Texas Senate Bill 11, also known as the 'campus carry' law, and following consultation with entire University community, SMU chooses to remain a weapons-free campus. Specifically, SMU prohibits possession of weapons (either openly or in a concealed manner) on campus. For more information, please see: smu.edu/campuscarrylaw.

Course Schedule

I. OVERVIEW

- **Chapter 2: Operating-System Structures**

II. PROCESS MANAGEMENT

- **Chapter 3 Processes**
- **Chapter 4 Threads & Concurrency**
- **Chapter 5 CPU Scheduling**

III. PROCESS SYNCHRONIZATION

- Chapter 6 Synchronization Tools
- Chapter 7 Synchronization Examples
- Chapter 8 Deadlocks

IV. MEMORY MANAGEMENT

1. Chapter 9 Main Memory
2. Chapter 10 Virtual Memory

V. STORAGE MANAGEMENT

- Chapter 11 Mass-Storage Structure
- Chapter 12 I/O Systems