

San José State University
College of Science
Department of Compute Science
CS 149-S2 Operating Systems

Fall 2021

Instructor(s):	Dr. Chung-Wen (Albert) Tsao
Email:	chung-wen.tsao@sjsu.edu (Once the class starts, please use Canvas Inbox)
Class Days/Time:	T/TR 3:00-4:15 am
Classroom:	Online only-Synchronous: https://sjsu.zoom.us/j/88010610862?pwd=ZUF2cUZjc2dxVlNtMU1Gd2tVaWN4Zz09
Office Hours:	Office Hour • M/W: 17:20 - 18:00PM https://sjsu.zoom.us/j/86795567911 • T/R : 17:20 - 18:00PM https://sjsu.zoom.us/j/88010610862 • By Appointments
Prerequisites:	CS 146 or SE 146 (with a grade of "C-" or better)
Class Meeting Dates:	Aug 19, 2021- Dec 6, 2021
Units	3 units

Course Description:

Fundamentals: Contiguous and non-contiguous memory management; processor scheduling and interrupts; concurrent, mutually exclusive, synchronized and deadlocked processes; files. Substantial programming project required.

LockDown Browser + Webcam Requirement

This course requires the use of LockDown Browser and a webcam for online quizzes. The webcam can be the type that's built into your computer or one that plugs in with a USB cable. Watch [this](#) brief video to get a basic understanding of LockDown browser and the webcam feature. Download and install LockDown browser from [here](#).

Faculty Web Page and MYSJSU Messaging

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on MySJSU Canvas. You are responsible for regularly checking with the email system through [MySJSU](http://my.sjsu.edu) at <http://my.sjsu.edu> to learn of any updates.

Course Learning Outcomes (CLO) :

Upon successful completion of this course, students should be able to:

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Upon successful completion of this course, students will be able to:

- Know the difference between kernel and user space.
- Know how to manage processes.
Understand virtual memory management.
- Understand CPU scheduling policies.
- Know how to manage threads and the issues associated with them.
- Understand and implement concurrent data structures.
- Know how to observe kernel operation and configuration.
- Understand the issues associated with different storage technologies.
- Understand how virtual file systems work.
- Identify and reason about ethical issues surrounding various operating system concepts.

Required Text:

Operating Systems: Three Easy Pieces: <http://pages.cs.wisc.edu/~remzi/OSTEP/>

Assignments:

- **Late assignments will NOT be accepted for any reason.**
- All homework must clearly indicate each student's name, course, and assignment number.
- Students are allowed (and actively encouraged) to form study groups.
- You may discuss solutions but you **MUST** write up the answers independently.
- If you use a website or reference book, you must cite it.

If there are multiple similar submissions not exhibiting independent thought, or with words obviously lifted from a book or website, ALL such submissions will receive scores of 0.

Pop Quizzes:

Pop quizzes locked with passcode may be given anytime during class. They are usually explained in class and due on the end of the lecture day. The purpose of pop quizzes is to encourage you to study and review the concepts and materials we discussed in the lecture.

Midterm and Final Examinations

There will be one midterm examination, and a cumulative final exam.

- Exams typically include an in-class closed-book quiz and a take-home open-book written test.
- Exams may NOT be taken before or after the scheduled time for any reason. All the students need to attend synchronously.
- No make-up exams for anyone except for the medical emergency with the official medical proof.
- Use of electronic devices during exams is NOT allowed unless stated otherwise.
- All exams include quizzes (closed book) and written test (open book)
- All exams will remain with the instructor.

Grading:

The final grade in the course will be calculated based on the following percentages:

- Pop Quizzes (10%)
- HW + Lab (40%),
- midterm exam 1 (15%),

- midterm exam 2 (15%),
- final exam (20%)

The grading scale is as follows:

Final grades will not be adjusted in any way - so an 89.99% is still a B+.

No incomplete grades will be given.

Grading Scale					
A+	≥ 97%	A	93%	A-	90%
B+	87%	B	83%	B-	80%
C+	77%	C	73%	C-	70%
D+	67%	D	63%	D-	60%
F	below 60.0%				

Classroom Protocol and Other Notes

- **Absences in attending the first two lectures will be dropped out from the class.**
- **No late assignments will be accepted without advanced arrangement with the instructor.**
- Do not ask for special treatment. The rules for this course apply to everyone equally.
- Cheating will not be tolerable; a ZERO will be given to any cheated assignment/exams, and it will be reported to the Department and the University.
- Do NOT share/post online any course materials, PPT slides, or homework solutions.
- Use of electronic devices during exams is NOT allowed unless stated otherwise.
- You are required to check Canvas for reading/assignments.
- The information on this syllabus is subject to change; changes, if any, will be clearly explained in class, and it is your responsibility to become aware of them.
- Once the class starts, use Canvas Inbox to email me for a faster response. I check the Canvas Inbox emails much more often than my school emails.

Attendance

University policy F69-24 at <http://www.sjsu.edu/senate/docs/F69-24.pdf> states that students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at <http://www.sjsu.edu/gup/syllabusinfo/> Make sure to review these policies and resources.

Tentative Course Schedule (This schedule is subject to change with fair notice.)

Week	Date	Topics
1	19-Aug	intro to OS
2	24-Aug	Intro
	26-Aug	virtualization with OS
3	31-Aug	process API:

	2-Sep	direct execution:
4	7-Sep	scheduling
	9-Sep	multi-level scheduling:
5	14-Sep	address spaces:
	16-Sep	address translation
6	21-Sep	Free Space Management
	23-Sep	paging:
7	28-Sep	Review
	30-Sep	Midterm Exam I
8	5-Oct	TLB & paging mechanisms
	7-Oct	Replacement policies
9	12-Oct	threads & thread API:
	14-Oct	locks (with Queue)
10	19-Oct	concurrent data structures:
	21-Oct	condition variables & semaphores:
11	26-Oct	concurrency bugs
	28-Oct	atomic integers
12	2-Nov	Deadlock
	4-Nov	Review
13	9-Nov	Midterm Exam II
	11-Nov	Holiday
14	16-Nov	I/O devices
	18-Nov	Files & Directories
15	23-Nov	RAID
	25-Nov	Thanksgiving
16	30-Nov	file system implementation
Final Exam		Thursday, December 9, 2:45-5:00 PM

[SJSU ACADEMIC YEAR CALENDAR 2021/22](#)