

# COMP 322/L: Introduction to Operating System and System Architecture and Lab

## Summer 2020

**Instructor:** Mahdi Ebrahimi ([mahdi.ebrahimi@csun.edu](mailto:mahdi.ebrahimi@csun.edu))

**Office:** online via Zoom

**Office Hours:** M/W 12:15 PM - 1:15 PM (via Zoom) or by appointment

### Class Details:

Section	Class Title	Days & Times	Room	Class Dates
<a href="#">COMP 322-01 (10489)</a>	INTRO OPRTNG SYST (Lecture)	MoTuWeTh 9:00AM - 10:30AM	Zoom	May 26, 2020- Jul 7, 2020
<a href="#">COMP 322L-01 (10490)</a>	OPRTNG SYSTMS LAB (Laboratory)	MoTuWeTh 10:45AM - 12:15PM	Zoom	May 26, 2020- Jul 7, 2020

### Final Exam:

Section	Class Title	Exam Date	Exam Room
<a href="#">COMP 322-01 (10489)</a>	INTRO OPRTNG SYST (Lecture)	Monday 07/06 via Zoom	Zoom

### Zoom Lecture Policy:

In the event the course is held online, students will be required to appear on **webcam** during lectures and exams. For students who feel this is a violation of their privacy, they can take steps to create a neutral background, either physically or electronically. For any student who still objects, the instructor may be able to grant exceptions if the student provides the instructor with a reasonable justification for why the policy is not acceptable. Requests for exceptions will be considered on a per student basis.

### Communication:

Please use email rather than telephone voice mail for messages. Please keep emails short and focused, and use a clear subject line beginning with "COMP 322 Question". Many technical questions are better handled in person during lecture and lab rather than email since the class as a whole might benefit from the discussion.

You may email me ([mahdi.ebrahimi@csun.edu](mailto:mahdi.ebrahimi@csun.edu)) at any time; I will generally respond within 24 hours (during the academic days). Always include your name, course, and CSUN email address in your messages to me; an email address like [meqwik@love.com](mailto:meqwik@love.com) leaves me clueless about who you are!

### Course Description (from the catalog):

Examination of the principal types of systems, including batch, multi-programming and time-sharing. Discusses networked system. Considers the salient problems associated with implementing systems, including interrupt of event-driven systems, multitasking, storage and database management, and input-output. Emphasizes some of the simple algorithms used to solve common problems encountered, such as deadlocks, queue service, and multiple access to data.

**Prerequisite:** [COMP 222](#), or [ECE 422](#) and [ECE 425/L](#).

**Corequisite:** COMP 322L.

**Recommended Prerequisite:** COMP 105C or knowledge of “C” Language.

**Course Outline:**

- Chapter 1: Introduction
- Chapter 2: Operating-System Structures
- Chapter 3: Processes
- Chapter 4: Threads and Concurrency
- Chapter 5: CPU Scheduling
- Chapter 6: Synchronization Tools
- Chapter 7: Synchronization Examples
- Chapter 8: Deadlocks
- Chapter 9: Main Memory
- Chapter 10: Virtual Memory
- Chapter 11: Mass-Storage Structure
- Chapter 13: File-System Interface
- Chapter 14: File-System Implementation

**Course Material:**

Course material is available on Canvas ( <https://canvas.csun.edu> ) as well as the GitHub ( <https://mebrahimii.github.io/comp322-summer2020/> )

Labs, Homeworks, Exams, and grades will be posted on canvas ( <https://canvas.csun.edu> )

Any questions about a homework/exam grade should be addressed within **two** days of posting. After two days, all grades are final.

**Textbooks:**

[1] **Operating System Concepts, 10<sup>th</sup> Edition** ( <https://www.os-book.com/OS10/> )

Avi Silberschatz Peter Baer Galvin Greg Gagne  
ISBN: 978-1-118-06333-0

[2] **Operating Systems: Internals and Design Principles, 9<sup>th</sup> Edition**

William Stallings  
ISBN: 978-0-134-67095-9

[3] **Operating Systems: Three Easy Pieces**, version 1.00 ( <http://pages.cs.wisc.edu/~remzi/OSTEP/> )

Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau  
<http://pages.cs.wisc.edu/~remzi/Classes/537/Spring2018/>

[4] Class Hand-outs

**Grading:**

Course grades will be determined based on the following:

Component	Weight
Discussions/HWs	20%
Labs	30%
Quizzes	10%
Midterm Exam	20%
Final Exam	20%
<b>Total:</b>	<b>100%</b>

**Assignment:**

**Note:** All assignments submitted in “digital file” format (.zip, .rar, .pdf, .docx, etc.) must be submitted using Canvas. An “Assignment” area will be created for each assignment.

Assignments submitted via email **will not be accepted unless explicitly approved by the instructor prior to email submission.**

Homework/Projects will be assigned with due dates. Students are expected to:

- a) Complete the assignments on time to the best of their ability.
  - o **Students are expected to submit their own original work.**
- b) **ASK QUESTIONS** if problems are encountered or if more information is required (**BEFORE** the due date!).

In the event that there is a problem with Canvas, you may email your assignments and projects to me ([mahdi.ebrahimi@csun.edu](mailto:mahdi.ebrahimi@csun.edu)), though this should be considered a last resort.

**Grading Policy:** Exam questions will relate to the contents of both the textbooks **and material discussed in class**. To do well, you should attend class regularly, participate in discussions, do all assignments and projects, and take notes. If you miss a class, please arrange with someone to get notes and go over the important points with them.

- Exams are closed book/closed note
- The total category grade is calculated based on the sum of all grades for the category.

**Plus/minus grading is used**, according to the scale below. The left column shows the minimum score necessary to receive the grade in the right column. The highest letter grade possible given the score is chosen; e.g., if you receive an 88.2, you’d receive a ‘B+’ for the course, which corresponds to being  $\geq 86.5$ .

If your score is $\geq$ ...	...you will receive...
92.5	A
89.5	A-
86.5	B+
82.5	B
79.5	B-
76.5	C+
72.5	C
69.5	C-
66.5	D+
62.5	D
59.5	D-
0	F

- **NOTE: Failure to take the Final Exam will result in a grade of “WU” which is equivalent to a grade of “F”**
- An important part of this course is the operating system terminology, concepts, and definitions; therefore, I do not answer questions during examinations.
- In fairness to all, I don't give make-up for any missed projects, homework, or exams.
- An incomplete (I) grade is given for genuine medical and other certified emergencies only; it is never given to catch up with missed assignments. Furthermore, to receive an Incomplete grade, you must have successfully completed at least two-thirds of the semester with a passing grade.

**Plagiarism and Academic Honesty:**

***Plagiarism in any assignment or cheating in the examinations will result in a grade of F in the entire course.***

On an exam, you are expected to submit only your own work. On a programming project, it is permissible to discuss solution approaches in a general sense with other students. But when submitting a project for a grade, the project must represent your own work. It cannot be a copy of another teams' project.

**Penalties for academic dishonesty on a single exam or programming project may result in a grade of "F" for the entire course.** A report will also be made to the Office of the Vice President for Student Affairs. Students who repeatedly violate this policy across multiple courses may be suspended or even expelled.

If you have any doubts about what is considered dishonest, please ask the instructors for guidance before taking such a serious risk. In general, **full disclosure is the best policy** on any submission. In other words, if a friend helped you to complete a project, **state this fact in writing at the beginning of the submission.** Such submission may not earn full points.

**Late Policy / Exam Scheduling:**

Late assignments will be accepted without penalty if prior arrangements have been made or there is some sort of legitimate emergency (at my discretion). If you must be absent from an exam, contact me ASAP to see if alternative accommodations can be made. Note that all exams have been scheduled ahead of time (see the Class Schedule and List of Topics).

If an assignment is otherwise submitted late, it will be penalized according to the following scale:

<b>If your assignment is late by &lt;= this many days...</b>	<b>...it will be deducted by...</b>
1	10%
2	30%
3	60%
4+	100%

To be clear, assignments that are submitted four or more days beyond the deadline will not receive credit.

**Attendance:**

Students are expected to be present and on time for each class meeting since tardiness and absenteeism creates problems for both the students and the class. Missing more than 2-weeks' worth of material could seriously jeopardize a student's grade.

**Disabled Students**

"If you have a disability and need accommodations, please register with the Disability Resources and Educational Services (DRES) office or the National Center on Deafness (NCOD). The DRES office is located in Bayramian Hall, room 110 and can be reached at (818) 677-2684. NCOD is located on Bertrand Street in Jeanne Chisholm Hall and can be reached at (818) 677-2611. If you would like to discuss your need for accommodations with me, please contact me to set up an appointment."

**Changes to Syllabus**

Changes may be needed to this syllabus and to the course plan. All such changes will be announced in class and will be announced via email. Students are responsible for this information.

## Class Schedule and List of Topics (subject to change)

Exactly which topics are covered and when is subject to change.

Wk	Dates	Topics	Notes (exam dates subject to change)
1	05/26 - 05/28	Course overview Introduction to Operating System	Ch 1
2-1	06/01 - 06/02	Operating System Structures Processes – Part 1	Ch 2 Ch 3
2-2	06/03 - 06/04	Processes – Part 2 Threads	Ch 3 Ch 4
3-1	06/08 - 06/09	CPU Scheduling – Part 1	<b>Quiz: 06/08 via Zoom (ch 1- 4)</b> Ch 5
3-2	06/10 - 06/11	CPU Scheduling – Part 2 Process Synchronization – Part 1	Ch 5 Ch 6
4-1	06/15 - 06/16	Process Synchronization – Part 2	Ch 6 & 7
4-2	06/17 - 06/18	Process Synchronization – Part 3	Ch 7
5-1	06/22 - 06/23	Deadlock – Part 1 Deadlock – Part 2	Ch 8 <b>Midterm Exam: 06/22 via Zoom (ch 1- 7)</b>
5-2	06/24 - 06/25	Deadlock – Part 3 Memory Management – Part 1	Ch 8 Ch 9
6-1	06/29 - 06/30	Memory Management – Part 2 Memory Management – Part 3	Ch 9 Ch 9
6-2	07/01 - 07/02	Virtual Memory – Part 1 Virtual Memory – Part 2	Ch 10
7-1	07/06 - 07/07	Review Final Exam	<b>Final Exam: Tuesday 07/07 via Zoom (Ch 1 - 10)</b>