

CS 307 - Operating Systems

Spring 2022

This is a 3-credit course that aims to get students familiar with the operating systems concepts and design principles. Students will have some experience through theoretical lectures and practical projects.

Catalogue Data: This course covers fundamental aspects of operating systems: management of resources such as CPU, memory space and peripheral devices. Topics include concurrent processes, mutual exclusion, process communication, cooperation, deadlocks, semaphores, scheduling and protection. The course will also highlight important aspects of operating systems such as UNIX, Windows, etc.

Prerequisite: The class is open to any graduate and undergraduate students, who have previously taken CS 204 – Advanced Programming (or an equivalent course) and scored minimum grade of D.

Instructor: Süha Orhun Mutluergil
FENS 1098, x9606, suha.mutluergil@sabanciuniv.edu
Office Hours: 13:40 – 15:30, Fridays (on [Zoom](#), by appointment)

TAs: Emre Koçer
kocer@sabanciuniv.edu
Office Hours: 11:40 – 13:30, Mondays (on [Zoom](#), by appointment)

Baran Deniz Karahan
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Office Hours: 15:40 – 17:30, Wednesdays (on [Zoom](#), by appointment)

LAs: Tacettin Emre Bök
tacettinemre@sabanciuniv.edu
Office Hours: 14:40 – 16:30, Mondays (on [Zoom](#), by appointment)

Berke Ceylan
berkeceylan@sabanciuniv.edu
Office Hours: 12:40 – 14:30, Thursdays (on [Zoom](#), by appointment)

Bariş Ulaş Çukur
barisc@sabanciuniv.edu
Office Hours: 10:40 – 12:30, Tuesdays (on [Zoom](#), by appointment)

Yiğit Karamanlı
yigitkaramanli@sabanciuniv.edu
Office Hours: 14:40 – 16:30, Tuesdays (on [Zoom](#), by appointment)

Schedule: Lecture: 13:40 – 14:30, Wednesdays (at FENS G077, [online](#))
Lecture: 10:40 – 12:30, Fridays (at FENS G077, [online](#))
Recitation: 17:40 – 18:30, Tuesdays (at FENS G077, [online](#))

Textbook: (Primary Online Source) Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau. Operating Systems: Three Easy Pieces, 1.00 Edition, Published by CreateSpace Independent Publishing Platform, 2018, ISBN: 978-1985086593. Free online access: <https://pages.cs.wisc.edu/~remzi/OSTEP/>

Tentative Outline

- Introduction to Computer Systems
- Processes and Program Virtualization
- Scheduling
- Memory Virtualization
- Paging and Swapping
- Concurrency
- Synchronization Mechanisms
- I/O Management
- Persistent Storage

Student Responsibilities

- **Programming Assignments:** There will be 4 programming assignments. You will be required to write C/C++ programs. Your programs should compile and run properly on UNIX-based operating systems. Weights of programming assignments might be different.
- **Quizzes:** There will be 4 quizzes in total. Each quiz will weigh %5 of the total score. Quizzes will be held during the recitation hours, and they will span 10-15 minutes. Students are expected to be online at the Zoom room arranged for the recitation. Quiz dates will be announced at least 1 week before each quiz and they will cover particular topics from the course. There will be a single makeup quiz at the end of the term which will cover all the topics.
- **Final Exam:** 2-3 hours exam that will be held during the finals week. It will be scheduled and announced by SR. The final exam will cover all the topics in the course.

Grading (tentative)

Programming Assignments	%32
Quizzes	%20
Final Exam	%48

IMPORTANT NOTE: Students whose total grade is less than 35 or final exam grade (or the make-up exam grade that will replace the final exam) is less than 25 will automatically fail the course (get an F).

IMPORTANT NOTE 2: If the average score of programming assignments or quizzes is more than 1.6 times the final exam score, then it will be replaced by 1.6 times the final exam score.

Example Scenarios: 1) Assume that your final exam score is 50, quiz average is 90 and PA average is 60. Then, your quiz average will be replaced by $1.6 * 50 = 80$.

2) Assume that your final exam score is 40, quiz average is 85 and PA average is 90. Then, your both quiz and PA averages will be replaced by $1.6 * 40 = 64$.

IMPORTANT NOTE 3: If your quiz average is lower than your final exam/make-up exam, we will replace your quiz average with your final/make-up score. For instance, if your quiz scores are 55, 65, 95 and 45, then your quiz average is 65. If your final score is greater than 65, then your final score will weigh %68 towards your total course score and it will include the quiz weight.

Office Hour Policy: This semester office hours will be online in order to provide equal opportunity to students who cannot come to campus. To attend the office hours of LAs, TAs and the instructor (course staff), students must email to the corresponding course staff few hours ago. **Last minute appointment requests will not be accepted.** Each member of the course staff will reserve 2 hours per week for conducting office hours. Office hours are divided into 30-minute slots. Students can request at most one slot per week. Slots will be booked in a first come first served manner. After all the slots become full, course staff **does not guarantee** to open new slots.

Email Policy: Course staff are expected to reply student emails within 48 hours. Course staff might not always provide immediate responses. It is advised that students do not wait until the submission deadline for doing their assignments. Course staff try to be more responsive during the deadline period but last-minute questions might not be answered due to the heavy email traffic. Students are advised to post their course related questions to the discussion forum in SUCourse since other students might answer them quickly. Course staff has the freedom of not answering a student question if the answer already exists in the course material (syllabus, discussion forums, course book or any other material in SUCourse) or if the student is expected to find the answer herself/himself.

Grace Day Policy: Each student has **5 grace days** in total that can be used throughout the semester for extending missed deadlines. It can only be used for extending **programming assignment project** deadlines. The student might use all grace days at once for one assignment or partition it among distinct assignments. Granularity of using grace days is 1-day. For instance, the student cannot ask for a 2 day 10-hour extension and save 2 days 14 hours for later.

The student does not have to present any excuse or document for using his/her grace days. However, s/he must request an extension before the deadline passes. Requests must be addressed to **Emre Koçer** (kocer@sabanciuniv.edu). If the student finishes all of his/her grace days, no further extension will be given to him/her even if he/she has a valid excuse and documentation.

Make-up Policy: There will be a make-up exam for the final. The exam date will be decided and announced after the final. Only students with a valid excuse (SU health-center approved health report or any other official document) for the final exam are eligible for the make-up.

For quizzes, there will be a single make-up quiz. The make-up quiz can be counted for at most one quiz. If you had a problem that prevented you to attend a regular quiz or if you had a problem during the quiz, you can take the make-up quiz. The make-up quiz is planned to be held 1-2 days after the final examination. Like the final and make-up examinations, the make-up quiz will cover all the topics of the course.

Academic Integrity / Plagiarism: Cheating and plagiarism will not be tolerated, see [Sabanci University's statement on academic integrity](#) for more information.

Students' programming assignment submissions will be compared with other submissions from both the current and previous terms by the course staff using JPLAG tool. If the similarity score exceeds a predetermined threshold, penalties will be applied. If the JPLAG test fails for the first time, student's score might be reduced until 0 depending on the degree of similarity. For the second JPLAG failure, the obtained score will be -100 for both submissions and for the third failure the student's case will be directly forwarded to the disciplinary committee for further investigation. It will **not** be possible to regain scores of failed tests back through extra assignments, resubmissions, and oral exams.

Note: The instructor holds the right to decide a policy concerning issues not already covered here.