

CS 307 - Operating Systems

Spring 2021

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 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: 14:00 – 16:00, Friday (by appointment)
Zoom: <https://sabanciuniv.zoom.us/j/9894421535>

TAs: Berkant Deniz Aktaş, berkantdeniz@sabanciuniv.edu
Office Hours: 17:40 – 19:30, Wednesday (by appointment)
Zoom: TBA

Fırat Kızıllırmak, fkizilirmak@sabanciuniv.edu
Office Hours: 13:00 – 15:00, Tuesday (by appointment)
Zoom: TBA

Özgün Özerk, ozgunozerk@sabanciuniv.edu
Office Hours: 12:30 – 14:30, Monday (by appointment)
Zoom: <https://sabanciuniv.zoom.us/j/93107758850>

Schedule: Lecture: 12:40 – 14:30, Thursday (over [Zoom](#))
Lecture: 16:40 – 17:30, Friday (over [Zoom](#))
Recitation: 17:40 – 18:30, Tuesday (not every week) (over Zoom: TBA)
NOTE: You must Join Zoom with your Sabanciuniv accounts.

Textbook: (Primary Source) Andrew S. Tanenbaum. Modern Operating Systems, 3rd Edition, Published by Pearson, 2007, ISBN: 978-0136006633 (not required to buy one, see IC reserve options).
(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 onnline access: <https://pages.cs.wisc.edu/~remzi/OSTEP/>

Tentative Outline

- Introduction to Operating Systems
- Processes and Threads
- Interprocess Communication
- Scheduling
- Deadlock Detection, Prevention and Recovery
- Memory Management
- Page Replacement Algorithms
- Segmentation with Paging
- File Directories and File Systems

Student Responsibilities

- **Projects / Programming Assignments:** There will be 4-6 assignments. You will be required to write programs.
- **Take-Home Exams:** There will be 8-10 take home exams. Exams might require pen and paper solutions and/or videos explaining a concept or a solution.
- **Final Exam:** 3 hour exam that will be held during the finals week.
- **Oral Exams:** For each of the items above, some students will be randomly called for an oral examination to clarify their work.

Grading (tentative)

Take-Home Exams	%40 - %50
Final exam	%30
Programming Assignments	%20 - %30

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

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 and take-home exam deadlines (except Take Home exams 1a and 1b of which deadlines had already passed by far as this procedure gets in action). 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 10-hour extension and save 4 days 14 hours for later. The student does not have to present any excuse or document for using his/her grace days. However, he/she must request an extension before the deadline passes. Requests must be made to your TA Özgün Özerk (ozgunozerk@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.

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