AGÜ

Course Syllabus

COMP 303 Operating Systems
Fall 2020 - 2021

(NOTE: THIS IS A DRAFT. FOR THE MOST RECENT SYLLABUS SEE
https://docs.google.com/document/d/1J4YXXphJ5PZRDXd_r1XAAPOezHGHIXiNCjdh_N6Dh1o/edit?usp=sharing)

Instructor: Asst. Prof. Kasim Tasdemir
E-mail: kasim.tasdemir **(at)** agu.edu.tr
Office/Phone: B205/7323
Office Hours: TBA

Course Assistant/s: TBA
E-mail: gokhan.uyan (at) agu.edu.tr
Office/Phone:
Office Hours:

Course days and hours: TBA (3 hours)
Labs: -
Location: Online
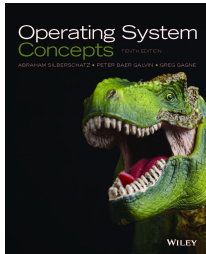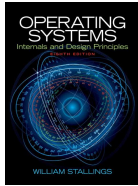**Course Credit:**   3 (6 ECTS)
Prerequisites:
Having a good command of **C programming** is a must for this course. Students who are familiar with Java but not C should make sure that he/she understands the concepts, especially pointers, multidimensional arrays, referencing, dereferencing, malloc, struct, scanf, printf, standard C library operations (stdio.h, stdlib.h http://www.cplusplus.com/reference/clibrary/) and compiling the code and other topics.
Projects will be on a Linux distribution (Possibly **Ubuntu**). Hence getting familiar with Linux environment, learning essential terminal commands are necessary.
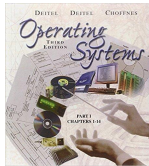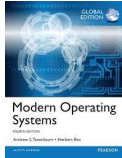To compile the code, you will need to create your own **Makefile.** A basic knowledge of makefiles is necessary. All of them requires considerable amount of time. Start now.

Course Description: This course explains role, purpose, functionality of operating systems, mechanisms used by them and discusses the design issues. Course topics include role and purpose of the operating system, preemptive and non-preemptive scheduling, schedulers and policies, processes and threads, process synchronization, interprocess communication, deadlocks, memory management and virtual memory (e.g. physical memory and memory management hardware, working sets and thrashing), file systems (e.g. data, metadata, operations, organization, buffering, sequential, nonsequential, directories: contents and structure, memory-mapped files , special-purpose file systems, Naming, searching, access, backups, journaling and log-structured file systems, mass-storage structure and management.

Required Textbook/s:

	"Operating System Concepts", A. Silberschatz, P. Galvin, G. Gagne, **10th** edition, Wiley, 2018. Book's webpage: https://www.os-book.com/OS10/
	"Operating System Concepts", A. Silberschatz, P. Galvin, G. Gagne, 9th edition, Wiley, 2012. Book's webpage: http://codex.cs.yale.edu/avi/os-book/OS9/index.html AGÜ Library: Merkez Kütüphane QA76.76 .O63 S55 2014 (2 copies)
	"Operating Systems: Internals and Design Principles (8th Edition)", William Stallings, 2014

Additional Resources:

	"Operating Systems (3rd Edition)", Harvey M. Deitel, Paul J. Deitel, David R. Choffnes, 2003
	"Modern Operating Systems", Andrew S. Tanenbaum, Herbert Bos, 4th Edition AGÜ Library: Merkez Kütüphane QA76.76 .O63 T359 2015 (2 editions)

Learning Objectives and Outcomes:
By the end of this course, students will be able:

1. To summarize principles of Operating Systems,
2. To describe the difference between processes and threads and apply them effectively in projects,
3. To summarize techniques for achieving synchronization in an operating system (e.g., describe how to implement a semaphore using OS primitives),
4. To compare and contrast the common algorithms used for both preemptive and non-preemptive scheduling of tasks in operating systems, such as priority, performance comparison, and fair-share schemes,
5. To discuss physical and virtual memories and memory management systems,

6. To compare and contrast different approaches to file organization, recognizing the strengths and weaknesses of each,

Teaching Methodology:
Learners will be provided with as much opportunities of hands-on practice as possible with the aim of striking a balance between learner-centeredness and sufficient guidance. Various forms of interaction (i.e. pair work and group work) will also be encouraged to cater for learners with different learning styles. Additionally, individuals will be expected to produce both in-class writings and homework assignments in addition to the reading tasks, which will encourage them to reflect and think critically. Technology will also be incorporated into the classroom procedures in order to create a better learning environment.

Grade Distribution: *Final grades are based on the following*

Evaluation Criteria	Percentage
*Assignments (5 total, Not equally weighted)	50%
Midterm (in-class; 1 total)	20%
Final	30%
_____	
	Total: 100%

*Number of assignments might change
**Percentages might be updated after discussing with the class

Grading Scale:

A	4,00	90-l00
A-	3,67	87-89
B+	3,33	83-86
B	3,00	80-82
B-	2,67	77-79
C+	2,33	73-76
C	2,00	70-72
C-	1,67	64-69
D+	1,33	56-63
D	1,00	50-55
F	0,00	0-49

Grading Policy:
- The students with total project grades lower than 50 will automatically fail the course and get F score.
- Each projects or homework might have uneven percentage in grades. Length and difficulty will be the deciding factors.
- The first student who shares screenshot of his/her working project output with me and others on Canvas will get extra points.

For a detailed description of grading policy and scale, please refer to the website
https://goo.gl/HbPM2y section 28.

Course Policies:
- For the AGU Make-up policy, please refer to the website https://goo.gl/HbPM2y section 26.
- Please, no eating in class

- English should be used at all times to communicate with one another during instruction hours.
- Please, respect the allotted times provided for breaks.
- Cell phones must be turned off and put away during class. Personal computers are only to be used during in-class lab times and only for class assignments. Unless it is part of the lecture time activity assigned by the instructor, do not use the computer. When using the computer do not surf on the web or write personal emails, etc. Consequences include but are not limited to loss of participation points, extra assignments, and/or being asked to leave the classroom.
- Please, bring the required materials, including textbooks and notebooks.
- Please be prepared, having read, written and studied the assigned lessons, articles, or passages;
- Please be ready to write assignments in class that will be graded; and most importantly work cooperatively with other students.
- Please share your comments and suggestions on the course with the instructor

Attendance Policy:
- The class will be online this term. There will not be any attendance policy.
- ~~Be in the class on time (being late for class is an extreme annoyance to the entire class).~~
- ~~Class attendance is necessary and will count toward your participation grade.~~
- ~~For a detailed description of AGU attendance policy, please refer to the website at https://goo.gl/HbPM2y section 25.~~

Email and Canvas Policy:
In your projects, when you are stuck at any point, resort to course materials and use this site https://www.google.com. After trying all alternative ways and spending 24 hours on your problem if it is still there you can consult to the course assistant or the instructor.

When contacting the instructor or the course assistant, please use the Canvas email feature. Only use my firstname.lastname@agu.edu.tr if Canvas is not accessible (server down, etc). Any announcements or warnings will be send to your AGU e-mail. Therefore it is the responsibility of every student to read his/her AGU e-mails and CANVAS emails regularly. AGU webmail can be accessed through *https://mail.agu.edu.tr*

You can use Canvas for discussions, comments, questions etc.

Uploading Answers and Solutions:
Unless otherwise stated, upload your answers, solutions etc. via Canvas. Compress your folder in ZIP format only. Rename your final zip file to your name_your sirname with English letters, e.g., kasim_tasdemir.zip

Cheating & Plagiarism:
You are responsible for knowing the University policies on cheating and plagiarism. Not giving credit to a person for their intellectual work and passing it off as your own is stealing.
Specifically:
1) Copying or allowing someone to copy your work on an exam, homework, or in class assignment is cheating.
2) Cutting and pasting material from the web or any other electronic source is plagiarism.
3) Copying and turning in the same assignment as someone else, from this class or from another class, is cheating. Unless explicitly told otherwise, you can discuss and problem-solve on homework together but the final product has to be your own – not just your own handwriting but your own way of explaining and organizing your ideas.
4) Making superficial changes (minor additions, deletions, word changes, tense changes, etc) to material obtained from another person, the web, a book, magazine, song, etc. and not citing the work, is plagiarism. The idea is the intellectual property, not the specific format

in which it appears (e.g., you wouldn't reword Einstein's theory of relativity and imply that relativity was your own idea, would you?)

5) If you find material and it is exactly what you are trying to say, or you want to discuss someone's idea, give the person credit and cite it appropriately. Don't overuse citations and quotes: instructors want to know how you think and reason, not how some one else does.

If you have any questions or concerns about whether your behavior could be interpreted as plagiarism, please ask the assistants or me before you submit the work.

For a detailed description of AGU policies, please refer to the website at **https://goo.gl/FjLhzH**

About This Syllabus
This syllabus has been prepared considering ACM's report on Computer Science Curricula 2013 and inspired by other universities, especially Bilkent University's syllabus.

Course Weekly Outline
https://docs.google.com/spreadsheets/d/1ZESH-qTQe7MRWm_ZEysCTUEIDbcdg-yV35PmZtskUec/edit?usp=sharing