Course Syllabus
Department
COMP 203 Data Structures and Algorithms
Fall 2021

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Office Hours: TBA

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Course days and hours: Monday 15:10-6:00
Labs: Friday 15:00-17:00
Location: LB 213-R-102 | LB 213-R-102 | LB 213-R-102 (Courses)- BA009; COMP LAB | BA009; COMP LAB (Labs)
Course Credit: 4 credits (3 Theoretical+2 Practical)
Prerequisites: COMP 112 Object Oriented Programming

Course Description: The purpose of this course is to provide the students with solid foundations in the basic concepts of programming: data structures and algorithms. The main objective of the course is to teach the students how to select and design data structures and algorithms that are appropriate for problems that they might encounter. This course is also about comparing algorithms and studying their correctness and computational complexity. This course offers the students a mixture of theoretical knowledge and practical experience using Java.

Required Textbook/s: Data Structures and Algorithms in Java
Michael T. Goodrich; Roberto Tamassia; Michael H. Goldwasser

Learning Objectives and Outcomes:
By the end of this course, students will be able:
1. To understand complex data structures.
2. To analyze the performance of algorithms
3. To design and implement new data structures.

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**
Exams (2 total)	50%
Lab assignments	10%
Homework (7-8)	40%
	Total: 100%

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

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.
- Eating or drinking is not permitted in the class.
- English should be used at all times to communicate with one another during instruction hours.
- Please, respect the allotted times provided for breaks.
- 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.

Attendance Policy:

- Be in the class on time (being late for class is an extreme annoyance to the entire class).
- Class attendance is strongly recommended and will count toward your participation grade. Regular class time will include informal assessment activities for which points will be assigned. Participation in these activities will help you get prepared for exams and homework and also provide me with feedback on your progress.
- For a detailed description of AGU attendance policy, please refer to the website at https://goo.gl/HbPM2y section 25.

Email Policy:

When contacting the instructor or the course assistant, please use the Canvas email feature. Use the e-mail address given above until I have my AGU e-mail. I will announce when I get it. Include in the subject line the class (COMP203). If this information is not included, your email may not be answered. Any announcements or warnings will be sent to your AGU e-mail. Therefore, it is your responsibility to check your AGU and CANVAS e-mails regularly. AGU webmail can be accessed through *https://mail.agu.edu.tr*

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) Copying 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 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 someone 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

Course Outline: Tentative

Week	Date	Topic	Lab	Description
1st	Sep 18-20	Fundamental Data Structures	-	Arrays, Singly Linked Lists, Doubly Linked Lists,
2nd	Sep 23-27	Algorithm Analysis	Linked List Operations	Time Measuring and Big-Oh Notation
3rd	Sep 30 – Oct 4	Stacks	Big-Oh Measuring	Stack Implementation
4th	Oct 7-11	Queues, Double-Ended Queues	Stack Operations	Queue and Deque Implementation
5th	Oct 14-18	List and Iterator	Queue and Deque Operations	Array Lists, Positional Lists, Iterators
6th	Oct 21-25	Trees	List and Iterator Operations	General Trees, Binary Trees
7th	*Oct 28 – Nov 1*	*Lecture-Free Week*	*Recursive*	*Implementing & Analyzing Recursive Algs.*
8th	Nov 4-8	Priority Queues	Binary Tree ex.	Priority Queues
9th	**Nov 11-15**	**Fall Break**	**Fall Break**	**Fall Break**
10th	Nov 18-22	Heaps	Priority Queue Operations	Heaps
11th	Nov 25-29	Maps, Skip Lists	Heap Operations	Maps, Skip Lists
12th	Dec 2-6	Hash Tables	Map and Skip List Operations	Hash Tables
13th	Dec 9-13	Search Trees	Sorted Maps	Binary Search Tree, Balanced Src. Tree, etc.
14th	Dec 16-20	Sorting	Advanced Tree Operations	Insertion Sort, Quick-Sort, and Merge-Sort
15th	Dec 23-27	Graph Algorithms – Week 1	Sorting Operations	Graphs and Graph Traversals
16th	Dec 30-31	Graph Algorithms – Week 2	MST, BFS, DFS, and Shortest Path Operations	Shortest Paths and Minimum Spanning Trees
17th	**Jan 2-11, 2020**	**Final Exam Week**	**Final Exam**	**Final Exam**