



Course Information

Course Code	5670441								
Course Section	1								
Course Title	DATA STRUCTURES								
Course Credit	3								
Course ECTS	5.0								
Course Catalog Description	Arrays, stacks, queues, linked lists, trees, hash tables, graphs: Algorithms and efficiency of access. Searching and sorting algorithms. Problem complexity, computational complexity								
Prerequisites	Students must complete one of the following sets to take this course. <table><thead><tr><th>Set</th><th>Prerequisites</th></tr></thead><tbody><tr><td>1</td><td>5710230</td></tr><tr><td>2</td><td>5710229</td></tr><tr><td>3</td><td>5710240</td></tr></tbody></table>	Set	Prerequisites	1	5710230	2	5710229	3	5710240
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1	5710230								
2	5710229								
3	5710240								
Schedule	Tuesday , 09:40 - 11:30, EA207 Thursday , 11:40 - 12:30, EA209								

Instructor Information

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Course Assistants

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Course Objectives

This course primarily aims to acquaint the student with basic data structures frequently used in software engineering and programming practices. Concepts of object-oriented programming, abstract data types, dynamic memory management and algorithm complexity are given. Searching and sorting algorithms are also discussed.

Tentative Weekly Outline

Week	Topic	Relevant Reading	Assignments
1	Course Introduction and C++ Programming		



Week	Topic	Relevant Reading	Assignments
2	Definition and usage of pointers in C++		
3	Functions and Recursion		
4	Algorithmic Complexity and Dynamic Programming		
5	Object-Oriented Programming Basics		
6	OOP and Memory Management		
7	Linked lists		
8	Stacks and Queues		
9	Trees		
10	Graphs and Traversal Algorithms		
11	Heaps and Sorting Algorithms		
12	Hashing and Dictionary Implementations		
13	Introduction to Computational Complexity		

Course Textbook(s)

Reference books:

- (1) Preiss, B.R., Data Structures and Algorithms with Object-Oriented Design Patterns in C++, Wiley, 1999;
- (2) Ford&Topp, Data Structures with C++, Prentice-Hall, 1999;
- (3) Shaffer, C., Data Structures & Algorithm Analysis in C++, Dover Publications, 2012 (<http://www.e-booksdirectory.com/details.php?ebook=7307>).

Course Grading

Deliverable	Grade Points
3 Programming assignments	20
4 Quizzes	20
Midterm exam	25
Final Exam	35
Attendance Bonus	5
Total	105



Course Policies

Late Submission of Assignments

Late submissions of assignments will be penalized according to the following policy:

- 1 day late submission: HW will be evaluated out of 70.
- 2 days late submission: HW will be evaluated out of 50.
- 3 days late submission: HW will be evaluated out of 30.
- 4 or more days late submission: HW will not be evaluated.

It is **NOT** allowed to prepare homeworks as groups. METU honor code is essential.

To **COPY** or **BEING COPIED** will result in grade **ZERO**.

Make up for Exams and Assignments

Make-ups are to be given to those having medical report approved by METU medical center.

Final Exam Entrance Conditions

Students who miss all the exams, or who do not submit any HW will be graded as NA.