CS301 – Algorithms
2023-2024 Spring
Syllabus

Version 3

Lectures : Wednesday 16:40-17:30 @ FENS G077
Friday 14:40-16:30 @ FENS G077

Recitations : Wednesday 18:40-19:30 @ FASS G062 & UC G030

Instructor

Name : Hüsnü Yenigün
Office Hours : Monday 09:40-10:30, Monday 19:40-20:30 @ Online

TAs

Name : Atakan Saraçyakupoğlu
Office Hours : Tuesday 17:40-18:30, Thursday 14:40-15:30 @ Online

Name : Ayşegül Rana Erdemli
Office Hours : Thursday 16:40-17:30, Thursday 19:40-20:30 @ Online

Name : Baturay Yılmaz
Office Hours : Tuesday 18:40-20:30 @ Online & FENS L068

Name : Mohammad Yusaf Azimi @ Online
Office Hours : Thursday 15:40-16:30, Thursday 17:40-18:30

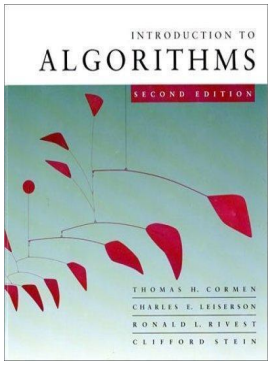
LAs

Name : Hasan Berkay Kürkçü
Office Hours : Wednesday 19:40-20:30, Thursday 11:40-12:30 @ Online

Name : Yasin Albayrak
Office Hours : Monday 11.40-13.30 @ Online

Textbook

Introduction to Algorithms
Thomas H. Cormen,
Charles E. Leiserson,
Ronald L. Rivest
Clifford Stein



Grading

- Midterm (30%) Date: Sunday April 21, 2024 12:15-14:15
- Final (40%) Date: Sunday, June 09, 2024, 16:00 **<<<<<<< MUST SCORE AT LEAST 30**
- Homeworks (15%) 4-5 homeworks
- Project (15%) group project
- Make-up Date: Tuesday, June 11, 2024, 10:00
- Policy: If you miss the midterm or final exam (but not both), and if you have a valid excuse (e.g. a medical condition, an official university event participation, etc.), then you can take the make-up exam. The make-up exam grade is used as the grade of the exam you missed. **Hence it has to be at least 30, if it is substituting the final exam**. The make-up exam may be an oral exam, or may have an oral part (to be decided at the end of the semester).

Tentative Outline

Week 01: Introduction, Algorithm Design Techniques, Growth of Functions

Week 02: Background, Recurrences, Substitution Method, Iteration Method, Master Method, Lower Bounds, Sorting in Linear Time

Week 03: Stability of Sorting Algorithms, Radix Sort, Medians and Order Statistics, Dynamic Sets on Binary Search Trees

Week 04: Dynamic Sets, on Binary Search Trees, Red-Black Trees

Week 05: Augmenting Data Structures, Dynamic Programming

Week 06: Dynamic Programming, Greedy Algorithms

Week 07: Amortized Analysis, Graphs

Week 08: Minimum Spanning Tree, Shortest Path Problems

Week 09: NP-Completeness, Test Design (Functional and Performance Tests)

Week 10: Approximation Algorithms, Flow Networks

Week 11: Maximum Bipartite Matching

Week 12: Sorting Networks

Week 13: Computational Geometry

Week 14: Randomized Algorithm