



Syllabus

Algorithms - 67504

Last update 26-12-2023

HU Credits: 5

Responsible Department: Computer Sciences

Academic year: 0

Semester: 1st and/or 2nd Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Alex Samorodnitsky

Coordinator Email: salex@cs.huji.ac.il

Coordinator Office Hours: TUESday 16:00-17:00

Teaching Staff:

Prof Alex Samorodnitsky,
Dr. Alon Eden,
Mr. Yoav Feinsein,
Mr. Daniel Deygin,
Mr. Rhea Chowders,

Ms. Daniela Horan,
Prof Yuval Rabani,
Mr. Eytan Slotnik,
Ms. Lola Rapoport

Course/Module description:

The course describes a wide array of basic and advanced algorithms.

Course/Module aims:

Developing "algorithmic thinking" by presenting a wide array of algorithmic problems and their solutions.

Learning outcomes - On successful completion of this module, students should be able to:

know and apply the main algorithmic techniques

understand and apply the mathematical tools and ideas which underlie the algorithmic techniques

apply main algorithm analysis techniques to assess the complexity of an algorithm

recognize (some) problems to be computationally hard and design an approximation algorithm in this case

analyze an algorithmic problem and decide on an appropriate algorithmic technique for its solution

Attendance requirements(%):

0

Teaching arrangement and method of instruction: Lectures + tutorials

Course/Module Content:

Design and analysis of efficient algorithms for basic and advanced algorithmic problems. This includes greedy algorithms, dynamic programming, approximation algorithms, network flow, fast Fourier transform and applications, number theoretical algorithms, cryptography, and computational linear algebra

Required Reading:

none

Additional Reading Material:

Introduction to Algorithms, by T. Cormen, C. Leiserson, R. Rivest, and C. Stein.
Second Edition.

Algorithm Design, by J. Kleinberg and E. Tardos

Algorithms, by S. Dasgupta, C.H. Papadimitriou, and U.V. Vazirani

Grading Scheme:

Written / Oral / Practical Exam 80 %

*Submission assignments during the semester: Exercises / Essays / Audits / Reports
/ Forum / Simulation / others 20 %*

Additional information:

midterm is a 10% Magen for the final grade