



# *The Hebrew University of Jerusalem*

## *Syllabus*

### *Data Structures - 67109*

*Last update 12-03-2026*

*HU Credits: 4*

*Degree/Cycle: 1st degree (Bachelor)*

*Responsible Department: Computer Science*

*Academic year: 2026*

*Semester: 1st and/or 2nd Semester*

*Teaching Languages: Hebrew*

*Campus: E. Safra*

*Course/Module Coordinator: Prof. Leo Joskowicz, Dr. Ilan Komargodski, Prof. Dorit Aharonov, Dr. Yossi Arjevani*

*Coordinator Email: [doria@cs.huji.ac.il](mailto:doria@cs.huji.ac.il)*

*Coordinator Office Hours: By appointment only*

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Teaching Staff:

Dr. Liat Peterfreund,  
Prof. Dorit Aharonov,  
Inbar Trainin,  
Shahar Blumenfeld,  
Moriah Eldar,  
David Ponarovsky,  
Prof. Leo Joskowicz,  
Iris Burmistrov,  
Neriah Ben David

Course/Module description:

*This course teaches common data structures, such as tree, graphs, and others. The course deals with describing data types, and applying them to efficiently solve various problems.*

*This course is given in parallel to course 67125 (Introduction to Object Oriented Programming), where students will apply the concepts taught here using the Java programming language. Still, this course can be taken without 67125, as a stand-alone course.*

Course/Module aims:

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

*Learn and understand in-depth some basic algorithms and data structures in Computer Science:*

*sorting, graph search, coding schemes, trees, graphs, arrays, heaps.*

*Analyze existing algorithms and data structures.*

*Develop new algorithms and data structures*

*Understand the complexity of computational problems*

Attendance requirements(%):

100

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*Teaching arrangement and method of instruction: Frontal lectures + exercises*

Course/Module Content:

*1. Sorting: insertion-sort, merge-sort and quick-sort. Lower bound for comparison sorting. 2. Asymptotic analysis of running time 3. Recurrence relations, and the divide and conquer paradigm 4. Dynamic data structures: 5. Heaps: implementation with an array. Heapsort algorithm 6. Binary Search Trees: AVL trees 7. Hash tables 8. Graph algorithms: breadth first search (BFS), minimum spanning tree (MST)*

Required Reading:

*Introduction to Algorithms, Third Edition. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest.*

Additional Reading Material:

NA

Grading Scheme:

*Written Exam % 90*

*Mid-terms exams 10 %*

Additional information:

NA