



ALGORITHMS AND DATA STRUCTURES

Course Workload		Assessment form (examination/ graded test/ ungraded test)
ECTS	Hours	
3	108	Exam

The course explores the basic algorithms and data structures that are required to understand more complex specialized algorithms in bioinformatics.

Course structure:

1. COMPLEXITY. SORTING. BASIC DATA STRUCTURES: STACK, QUEUE, HEAP
 - 1.1. Complexity
 - 1.1. Queues, Dequeue, Heap, Amortized time.
 - 1.2. Sorting and Binary Search.
 - 1.3. DigitSort and Stacks.
2. BINARY SEARCH TREES
 - 2.1. Vector continuation, BST, AVL, Treap.
 - 2.2. Treap and Treap with hidden keys.
3. DYNAMIC PROGRAMMING
 - 3.1. Part 1.
 - 3.2. Part 2.
 - 3.3. Part 3.
4. GRAPH ALGORITHMS
 - 4.1. String Hashes.
 - 4.2. Depth-First Search.
 - 4.3. Eulerian cycle, Breadth-First Search, Dijkstra.
 - 4.4. Ford-Bellman, Floyd.