

Successful candidates of the MSc in Big Data degree will have a solid background in the following Computer Science subjects:

Algorithms and Data Structures

- **Design:** Conception of simple algorithms, building blocks (sequence, selection, and iteration), variables, instructions, functions, procedure, notion of parameters and arguments passing.
- **Algorithm analysis:** *Recommended knowledge in* runtime efficiency, asymptotic complexity, big “O”, Big-omega and Big-theta notations, recursion analysis, worst-case, best-case, and average-case, properties of order of growth, empirical analysis of algorithms
- **Data structures:** Abstract data-type (stacks, queues, heaps), linear data structure (array, vector, matrix, linked lists),
Recommended knowledge in: trees (search trees, B-tree, ...), hashes (hash tables, bloom filter, ...), graphs
- **Graph algorithms:** *Recommended knowledge in* simple graphs algorithms, balanced trees, memory heaps