



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Laboratorio di Informatica I

1920-1-E3001Q074

Aims

Acquire the conceptual basis of computer programming.

Acquire the ability to design and implement data structures and algorithms for solving problems in scientific fields, and in a more general setting.

Contents

The notions of algorithm, and of computational cost of an algorithm.

Basics of imperative programming: data structures and algorithms.

Basic notions on the functional structure of computers and on operating systems.

The representation of data; errors and approximations in numerical computations.

Strategies for algorithm design.

Detailed program

The notions of algorithm, and of computational cost of an algorithm.

The functional structure of digital computers. Nature and functions of operating systems.

Principles of imperative programming. Variables and types, primitive instructions, control structures (sequence, choice, iteration). Examples in C.

Structured types: arrays, matrices, records. Dynamic data types: linked lists, trees. Examples in C.

Representation of data. The binary notation. Representation of integers and of real numbers. Floating-point representation. Approximation and errors.

Strategies for the design of data structures and algorithms.

Prerequisites

Basic notions of propositional logic.

Teaching form

Lectures (2 CFU), laboratory activity (2 CFU).

Textbook and teaching resource

Notes prepared by the teacher, exercises with commented solutions.

1. JG Brookshear, SG Kochan, *Fondamenti di informatica e programmazione in C*, Pearson, 2014.
2. BW Kernighan, DM Ritchie, *Il linguaggio C*, seconda edizione, Pearson, 2004.

Semester

Second semester.

Assessment method

Written exam: the student will have to write a program in C, which solves a given problem.

Oral exam: discussion about the written exam, and questions on the content of the course.

Office hours

Every Tuesday, 10:30-12:00, or by appointment.

