UAB
Universitat Autònoma de Barcelona

2018/2019

Computer tools for mathematics

Code: 100091
ECTS Credits: 9

Degree	Type	Year	Semester
2500149 Mathematics	FB	1	A

Contact

Name: Aureli Alabert Romero

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Use of languages

Principal working language: catalan (cat)

Some groups entirely in English: No

Some groups entirely in Catalan: Yes

Some groups entirely in Spanish: No

Teachers

Gregori Guasp Balaguer

Francesc Xavier Xarles Ribas

Joaquim Roe Vellve

Magdalena Caubergh

Ramon Antoine Riolobos

Prerequisites

None.

Objectives and Contextualisation

.

Content

1. SAGE (3 credits).

Numeric and algebraic computations.

Graphs of functions.

Equation solving.

Vectors and matrices.

Funtions and programs.

Basic infinitesimal calculus.

Integers and congruencies.

Linera Algebra.

2. Typestting with LaTeX (1 credit).

LaTeX foundations.

Structure of the document.

Pictures. Definition of new commands.

Presentations with Beamer.

3. Programació en C (3 credits).

What is a program. Source code. Compilation.

Data and constant types. Operators.

Iterative, repetitive and conditional structures.

Functions, variables and pointers.

Vectors and matrices.

Character strings.

Dynamic memory management.

Input/Output. Formats and files.

Preprocessor and macros.

Parameters and output of the main() function.

4. Introduction to computer science (2 credits).

Algorithms.

Information coding.

Hardware.

Operating systems.

Languages and compilation.

Object Oriented Programming.