COURSE DETAIL

NUMERICAL CALCULUS AND TEACHING SOFTWARE
Country Italy
Host Institution University of Bologna
Program(s) University of Bologna
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mathematics
UCEAP Course Number 179
UCEAP Course Suffix
UCEAP Official Title NUMERICAL CALCULUS AND TEACHING SOFTWARE
UCEAP Transcript Title NUM CALC & SOFTWARE
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description
This is a graduate level course that is part of the Laurea Magistrale program in Mathematics. Enrollment is by consent of the instructor. The course is intended for students who have a strong background in math, especially calculus. The course focuses on the fundamental aspects of scientific calculus. Emphasis is placed on numerical solutions to problems of scientific calculus. A section of the course is devoted to teaching scientific calculus as described by the Italian Educational Mathematics Curriculum in Secondary Schools. This section emphasizes how to face and solve mathematical problems within a uniform, integrated computer algebra environment. Students are also required to prepare lesson plans and exercises. A special section of the course is devoted to the presentation of numerical methods for solving, via computer, certain mathematical problems, and the comparison with corresponding computer algebra methods, wherever appropriate. The course covers the use of computer tools in Math courses in the Secondary School system in Italy. Required readings are assigned from the following sources, available in the Departmental library: NUMERICAL COMPUTING WITH IEEE FLOATING POINT ARITHMETIC by M. Overton, ACCURACY AND STABILITY OF NUMERICAL ALGORITHMS by N. Higham, NUMERICAL ANALYSIS: MATHEMATICS OF SCIENTIFIC COMPUTING by D. Kincaid, E. W. Cheney, NUMERICAL LINEAR ALGEBRA, by D. Bau, N. Trefethen, AFTERNOTES ON NUMERICAL ANALYSIS by G. W. Stewart. Assessment is based on a laboratory test and a short written report and discussion of course materials.

Language(s) of Instruction
Italian

Host Institution Course Number
34739

Host Institution Course Title
CALCOLO NUMERICO E SOFTWARE DIDATTICO (LM)

Host Institution Course Details

Host Institution Campus

SCIENZE
Host Institution Faculty
Host Institution Degree
Host Institution Department Matematica
Course Last Reviewed

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