COURSE: Introduction to Mathematics

ACADEMIC YEAR: 2019/2020

TYPE OF EDUCATIONAL ACTIVITY: Basic

TEACHER: Carmelina Frammartino

e-mail: carmfra@yahoo.it  web: 
phone: mobile (optional): Language: Italian

ECTS: 9  n. of hours: 60 lessons and 30 practice  Campus: Potenza  Dept./School: Scuola di Ingegneria  Program: 237  Semester: first

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES
The general learning outcome is to develop the students’ abstract thought, to provide them with basic mathematical concepts, tools and rigorous language, together with problem solving abilities and the capacity to read and understand simple mathematical texts.

To this purpose, the methods of calculus will be illustrated and applied to the analysis of real valued functions in one variable. The matrix methods for solving systems of linear equations will be presented, the basic methods of descriptive statistics in the context of life sciences and the numerical methods in order to solve some numerical problems. In this way the students will become skillful at differential and integral calculus, matrix Operations, statistical data analysis and numerical problems.

PRE-REQUIREMENTS
Knowledge and skill in the following arguments: equations and inequalities of first and second degrees; the equation of a line; trigonometric functions and main identities; properties of powers and logarithms.

SYLLABUS
- Elements of calculus (30 hours lessons and 15 practice): sets, number sets, numerical sequences, functions, limits, continuity, differential calculus in one variable, analysis of a function, integral calculus in one variable.
- Elements of numerical analysis and linear programming (10 hours lessons and 5 practice): Newton method, interpolation, spline, numerical differential calculus and numerical integral calculus.

TEACHING METHODS
Theoretical lessons and classroom tutorials.

EVALUATION METHODS
Written examination and oral examination in case of a close to sufficient result obtained in the written examination (18/30 is the sufficient grade).

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL
J. Stewart: Calcolo. Funzioni di una variabile, Apogeo Education 2013
P. Marcellini e C. Sbordone: Elementi di Calcolo, Liguori Editore 2004
E. Sernesi: Geometria Vol. 1, 2a edizione, Bollati Boringhieri 1989
G. Monegato: Fondamenti di Calcolo Numerico, CLUT 1998
V. Comincioli: Analisi numerica, McGraw-Hill 1995
Lecture notes written by the professor.
INTERACTION WITH STUDENTS
Further information about the course may be requested to the professor by the institutional email. Office hours: Tuesday from 18:00 to 19:00 at Dipartimento di Matematica, Informatica ed Economia.

Examination Sessions (Forecast)

Seminars by External Experts
YES □ NO x

Further Information
Subject to possible changes: check the web site of the Teacher or the Department/School for updates.