

DESCRIPTION OF THE EDUCATIONAL ACTIVITY

Academic year: **2010-2011**

Course title: **Calculus II**

Course number: **16534**

Type of educational activity: **basic subject**

Subject Group: **Mat/05**

Year of study: **1st year "Laurea I Livello"**

Semester: **2nd**

Total number of credits: **9**

Global workload (n. of hours) : **210**

Number of hours allocated to: lectures, tutorials, laboratory, individual study: **60, 30, 0, 120**

Name of lecturer: **Elvira Zappale**

Objectives of the course: **Provide basic tools of Calculus II**

Prerequisites: **Calculus I**

Course contents: ***Antiderivative, Indefinite Integration. Definite Integral. Numerical Series. Sequences and Series of Functions, notions of convergence for sequences of functions. Topology of \mathbb{R}^n . Functions of several variables. Limits. Continuity. Differentiability and higher order derivatives. Gradient, Jacobian, Hessian. Extremal points. Functions with range in \mathbb{R}^n . Quadratic forms. Ordinary differential equations: solutions. Cauchy Problem: theorem for existence and local uniqueness of a solution. Prolongability of a solution. Global solutions. First order differential equations. Linear ODE's. Curves. Linear Differential forms. Integrals along curves.. Multiple integrals. Surface and surface integrals. Gauss-Green formulae. Stokes Theorem. Divergence Theorem.***

Recommended reading: ***N. Fusco, P. Marcellini, C. Sbordone. Analisi Matematica II. Liguori Editore.***

C. D'Apice, T. Durante, R. Manzo. Verso l'esame di Matematica 2. Cues (2008). Lecture notes

Teaching methods: **lectures**

Assessment methods: **a written test and an oral examination**

Language of instruction: **Italian (during office hours: available in English)**

Additional information: **further information can be requested via e-mail: ezappale@unisa.it**