
 COURSE: ADVANCED MATHEMATICAL ANALYSIS (ANALISI SUPERIORE)

ACADEMIC YEAR: 2017/2018

TYPE OF EDUCATIONAL ACTIVITY: FREE CHOICE

PROFESSOR: SORIN DRAGOMIR

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mobile (optional):

Language: ITALIAN

ECTS: 6

n. of hours: 48

 Campus: POTENZA
 Dept. DIPARTIMENTO DI
 MATEMATICA, INFORMATICA
 ED ECONOMIA
 Program: L.M. IN
 MATHEMATICS

Semester: II

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

A solid understanding, both theoretical and practical, of the classical aspects of the theory of partial differential equations (Laplace, heat and wave equations).

PRE-REQUIREMENTS Differential and integral calculus in several real variables (at the level of the first three years of study), elements of complex analysis in one complex variable (e.g. the Cauchy formula), and elements of functional analysis (e.g. distribution theory).

SYLLABUS

- 1 - [6 hours] The single first order equation. Second order equations: hyperbolic equations for functions of two independent variables.
 - 2 - [8 hours] Characteristic manifolds and the Cauchy problem.
 - 3 - [8 hours] The Laplace equation.
 - 4 - [8 hours] Hyperbolic equations in higher dimensions.
 - 5 - [7 hours] Higher order elliptic equations with constant coefficients.
 - 6 - [8 hours] Parabolic equations.
 - 7 - [3 hours] H. Lewy's example of a linear equation without solutions.
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TEACHING METHODS

Theoretical lessons

EVALUATION METHODS

Written examination

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

- F. John, "Partial Differential Equations", Applied Mathematical Sciences, Vol. 1, Springer-Verlag, New York-Heidelberg-Berlin, 1982 (fourth edition).

- lecture notes, furnished by e-mail, immediately after each lesson.

INTERACTION WITH STUDENTS

The students will be received within the scheduled office hours. Also they may contact the professor by e-mail or telephone, on an individual basis, as the need for professor's support may occur.

Office hours: Tuesday, 15:00 -17:00 and Thursday 15:00 - 17:00, Dipartimento di Matematica, Informatica ed Economia.

EXAMINATION SESSIONS

Thursday February 8, 2018; Thursday April 12, 2018; Thursday June 28, 2018; Thursday September 20, 2018; Tuesday November 20, 2018.

SEMINARS BY EXTERNAL EXPERTS

NO

LOGO DELLA STRUTTURA PRIMARIA

FURTHER INFORMATION
