**Measure theory**

Prof. Alessandro Giacomini

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

To acquire knowledge of the basic notions of modern measure theory. At the end of the course, the student will master the fundamental notions of Measure Theory and will be able to use them in different contexts of mathematics and employ them when dealing with problems arising in applied mathematics.

***COURSE CONTENT***

Review of the theory of external measures. Abstract positive, signed and vector measures. Decomposition of measures and the Radon-Nikodym theorem. Riesz representation theorems. Coverings and derivation of measures. Lebesgue points. Dual of Lebesgue spaces. Radon measures as a dual space. Weak convergences for functions and measures.

***READING LIST***

Lecture notes will be provided about the course topics.

***TEACHING METHOD***

Lectures.

***ASSESSMENT METHOD AND CRITERIA***

Interviews. The interview is designed to ascertain the extent to which the students have assimilated the concepts, results and procedures illustrated during the course.

The grading of the interview will take into account the accuracy of the illustrated concepts, their logical and methodological rigour, and the effectiveness and accuracy in explanation, with a focus on the assimilation of concepts and the reworking thereof by the student.

***NOTES AND PREREQUISITES***

The student must know the basic concepts of mathematical analysis.

*Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG, or on the Faculty notice board.*