



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP23_DIP_MAT

Visiting Professor Program Academic year 2020/2021

DEPARTMENT OF MATHEMATICS "GIUSEPPE PEANO"

TEACHING COMMITMENT: 16 hours

COURSE TITLE

Variational Methods

TEACHING PERIOD

2nd term

SCIENTIFIC AREA

Mathematical Analysis

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

The major part of mathematical models foresee the realization of stationary or equilibrium configurations with respect to energy or cost functions. Geodesics minimize the length of a curve connecting two points, in the same manner that trajectories minimize the Lagrangian action, eigenvalues are stationary values of the Rayleigh quotient and many other significant examples can be found in Mathematics and its applications.

LEARNING OBJECTIVES

This course is intended to make the students acquainted with the techniques of the Calculus of Variations and minimax methods and to illustrate some relevant and non trivial applications (like geodesic problem, semilinear elliptic problems, nonlinear Schrödinger equation, functional inequalities, etc.) to the aim of constructing non trivial solutions, more and more complex of nonlinear problems of interest in different areas.

The natural context of this course is Nonlinear Analysis.

TUTORSHIP ACTIVITIES (IF APPLICABLE)

LAB ACTIVITIES (IF APPLICABLE)

OTHER ACTIVITIES (IF APPLICABLE)

VISITING PROFESSOR PROFILE DESCRIPTION

The Visiting Professor should be an expert of nonlinear differential equations, variational and perturbative methods with applications to partial differential equations of Mathematical Physics.

CONTACT PERSON AT THE DEPARTMENT

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