Introduction to Hamilton-Jacobi equations.

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Timetable: 24 hrs. First Lecture on March 6, 2014, 09:30 (dates already fixed, see the calendar), Torre Archimede, Room 2AB/45.

Course requirements: Standard knowledge of Advanced Calculus.

Examination and grading: Seminar on a subject assigned by the Instructors.

SSD: MAT/05

Aim: The course provides an introduction to nonlinear first order partial differential equations of Hamilton-Jacobi type and to some of their numerous applications.

Course contents:

- Models and motivations.
- The method of characteristics for Hamilton-Jacobi (HJ) equations.
- Links of HJ equations with analytical mechanics and calculus of variations; Hopf-Lax formulas.
- Viscosity solutions: well-posedness of the Dirichlet and Cauchy problems.
- Applications to optimal control theory and differential games.