

Ph.D. course in Mathematics

20th January 2025

General information

- Duration: 3 years (no extension!)
- Admission: evaluation of CV and oral interview
Call for applications: in Spring 2025 (March? April? May?)
- Choice of the supervisor: within the first year

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- Scholarship: around 1200 € per month (which increase to 1800 € when spending research periods abroad).
- Around 1600 € per year (maybe more) for attending conferences.

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In 2024, we had thematic scholarships on Mathematical Physics, Mathematics Education, Applied IA.

This year, we expect at least 2 thematic scholarships (Arroyo-Rabasa's ERC grant on calculus of variations, geometric measure theory, harmonic analysis, and partial differential equations).

Topics: General Mathematics

- Mathematical Logic
- Algebra
- Geometry
- Mathematics Education
- Mathematical Analysis
- Probability
- Mathematical Physics
- Numerical Analysis

Courses

This year:

- An introduction to micro- and nanomagnetics
- An introduction to stochastic PDEs
- Combinatorics and representations of 0-Hecke algebras
- Derived categories and applications to Geometric Representation Theory
- Elements of Geometric Analysis in finite and infinite dimensions
- Ergodic theory of geodesic flows
- Harmonic maps and applications
- Heegaard Floer Homology: recent developments and applications
- High-performance solution of partial differential equations
- Mathematical methods of quantum mechanics
- Nonlinear dispersive PDEs
- Polyhedral geometry: at the intersection of combinatorics, geometry, algebra and optimization

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Students may attend also the courses offered by **Scuola Normale Superiore**.

Our Department

Our Department won an important grant as a “Dipartimento di Eccellenza” .

This grant gives extra money to our Ph.D. school, which can be used to:

- Invite visiting professors from abroad
- Support Ph.D. students in organizing seminars
- Organize these Ph.D. days!