PhD in MATHEMATICS AND APPLICATIONS

CYCLE 43rd - COHORT 2027-2028
Please note that the study plan might be subject to minor changes.
Lessons start in early September.
The program requires full-time commitment with compulsory attendance.

First year - a.y. 2027-28

4 compulsory courses + 2 electives
+ Research Ethics course (compulsory self-managed online course)
+ Analysis and Applied Mathematics seminars and related Research activities organized by the Decision Sciences Department

Compulsory courses:

SEM.	COURSE TITLE	HOURS	COURSE DIRECTOR
1	GEOMETRIC AND FUNCTIONAL ANALYSIS I	24	DE ROSA
1	PARTIAL DIFFERENTIAL EQUATIONS I	24	BECKER
2	GEOMETRIC AND FUNCTIONAL ANALYSIS II	24	PIGATI
2	PARTIAL DIFFERENTIAL EQUATIONS II	24	BRUE'

Elective courses:

Two elective courses selected from a shortlist of courses offered within the PhD programs in ECFIN, STAT-ML, and CS-AI, covering topics in statistics, stochastic calculus, machine learning, artificial intelligence, theoretical computer science, decision sciences, and mathematical finance.

Requirements to pass to the next year

Exam for each course (max 1 retake).

Second year - a.y. 2028-29

4 compulsory courses + 1 reading group
+ Analysis and Applied Mathematics seminars and related Research activities organized by the Decision Sciences Department

SEM.	COURSE TITLE	HOURS	COURSE DIRECTOR
1	MATHEMATICAL ECONOMY	24	MACCHERONI
1	MATHEMATICAL FINANCE	24	TEBALDI
1	MATHEMATICAL MODELS OF APPLIED SCIENCES/ MATHEMATICAL FOUNDATION OF MACHINE LEARNING	24	BRUNEL
1 or 2	FRONTIERS OF MODERN ANALYSIS	24	Visiting Professor
1 or 2	SELECTED TOPICS IN MATHEMATICAL ANALYSIS (reading group)	24	TBA

Requirements to pass to the next year

Exam for each course (no retakes).
Research project.

Third and Fourth year - a.y. 2029-30 and 2030-31

- Study/research period at other Universities (optional);
- Teaching/Teaching Assistantship/Research Assistantship activities (optional);
- conferences (as a listener and as a speaker);
- Analysis and Applied Mathematics seminars and related Research activities organized by the Decision Sciences Department;
- mid-term doctoral thesis (3rd year);
- thesis submission to external reviewers (4th year);
- thesis defense.