

## PhD in MATHEMATICS AND APPLICATIONS

### **CYCLE 42nd - COHORT 2026-2027**

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. 2026-27**

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	SAVARÉ
1	PARTIAL DIFFERENTIAL EQUATIONS I	24	BRUÉ
2	GEOMETRIC AND FUNCTIONAL ANALYSIS II	24	PIGATI
2	PARTIAL DIFFERENTIAL EQUATIONS II	24	DE ROSA
1-2	PRINCIPLES OF RESEARCH ETHICS	2	

#### **2 electives chosen among the following courses belonging to other PhD programs:**

SEM.	COURSE TITLE	HOURS	PhD Program	COURSE DIRECTOR
1	FINANCE 2	36	ECFIN	ORTU
2	CONTINUOUS TIME FINANCE	24	ECFIN	BATTAUZ
1	MICROECONOMICS 2	36	ECFIN	BATTIGALLI
1	OPTIMIZATION	24	STAT-CS	CELLI
2	GRAPH THEORY	24	STAT-CS	SANITÀ
2	MODERN APPLIED MACHINE LEARNING	30	STAT-CS	LUCIBELLO
1	PROBABILITY THEORY I	28	STAT-CS	FORTINI
1	PROBABILITY THEORY II	24	STAT-CS	LIJOI
2	STOCHASTIC PROCESSES I	24	STAT-CS	FORTINI
2	DESIGN AND ANALYSIS OF COMPUTER EXPERIMENTS	24	STAT-CS	BORGONOVO
1	INTRODUCTION TO REAL ANALYSIS I	28	STAT-CS	LAVENANT
1	INTRODUCTION TO REAL ANALYSIS II	28	STAT-CS	SAVARÉ

#### *Requirements to pass to the next year*

Exam for each course (max 1 retake).

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**Second year - a.y. 2027-28**

4 compulsory courses + 1 reading group

+ Open Science For Researchers Workshop (Elective offered by Bocconi Library)

+ 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	

*Requirements to pass to the next year*

Exam for each course (no retakes).

Research project.

**Third and Fourth year - a.y. 2028-29 and 2029-30**

- Study/research period at other Universities;

- 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 dissertation.