

<b>PhD in STATISTICS AND COMPUTER SCIENCE</b>
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**CYCLE XXXX - COHORT 2024-2025**

Please note that the study plan might be subject to minor changes.

Lessons start in early September.

Attendance is mandatory. The program cannot be attended by distance learning.

The program features **two curricula** (to be chosen when applying):

- **Statistics**

- **Computer Science**

**First year - a.y. 2024-25**

12 compulsory courses (according to the curriculum) + [statistics seminars organized by the Decision Sciences Department](#) / [seminars organized by the Computing Sciences Department according to the chosen curriculum](#)

**Statistics curriculum**

The following 12 courses (shared with the CS curriculum):

SEM.	COURSE TITLE	HOURS	COURSE DIRECTOR
1	INTRODUCTION TO REAL ANALYSIS I	28	Lavenant
1	INTRODUCTION TO REAL ANALYSIS II	28	Savarè
1	PROBABILITY THEORY I	28	Fortini
1	PROBABILITY THEORY II	24	Lijoi
1	COMPUTER SCIENCE I	30	Baldassi
1	COMPUTER SCIENCE II	24	Rosen
2	STATISTICAL THEORY I	30	Szabo
2	STATISTICAL THEORY II	30	Szabo
2	STOCHASTIC PROCESSES I	24	Fortini
2	STOCHASTIC PROCESSES II	24	tbd
2	BAYESIAN STATISTICAL THEORY I	24	Lijoi
2	BAYESIAN STATISTICAL THEORY II	24	Petrone

**Computer Science curriculum**

6 out of the following 10 courses (shared with STAT curriculum):

SEM.	COURSE TITLE	HOURS	COURSE DIRECTOR
1	INTRODUCTION TO REAL ANALYSIS I	28	Lavenant
1	INTRODUCTION TO REAL ANALYSIS II	28	Savarè
1	PROBABILITY THEORY I	28	Fortini
1	PROBABILITY THEORY II	24	Lijoi
2	STATISTICAL THEORY I	30	Szabo
2	STATISTICAL THEORY II	30	Szabo
2	STOCHASTIC PROCESSES I	24	Fortini
2	STOCHASTIC PROCESSES II	24	tbd
2	BAYESIAN STATISTICAL THEORY I	24	Lijoi
2	BAYESIAN STATISTICAL THEORY II	24	Petrone

The following 2 courses (shared with STAT curriculum):

1	COMPUTER SCIENCE I	30	Baldassi
1	COMPUTER SCIENCE II	24	Rosen

The following 4 courses:

1	OPTIMIZATION	24	Celli
2	GRAPH THEORY	24	Trevisan
2	MODERN APPLIED MACHINE LEARNING	30	Lucibello
2	STATISTICAL MECHANICS AND METHODS FOR COMPLEX SYSTEMS	24	Mezard

*Requirements to pass to the next year*

Exam for each course.

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**Second year - a.y. 2025-26**

According to the curriculum:

**STAT:** Bocconi Summer School in Advanced Statistics and Probability (end of 1st year) + 9 compulsory courses + 2 courses taught by Visiting Professors (12h each, topics to be defined each year) + [statistics seminars organized by the Decision Sciences Dept](#)

**CS:** either Bocconi Summer School or any other school whose contents are in line with the qualifying goals of the curriculum (end of 1st year) + 2 reading groups + 2 courses taught by Visiting Professors (12h each, topics to be defined each year) + [seminars organized by the Computing Sciences Dept](#)

**Statistics curriculum**

The following 9 courses:

SEM.	COURSE TITLE	HOURS	COURSE DIRECTOR
1	BAYESIAN NONPARAMETRICS	30	Pruenster
1	APPLIED MULTIVARIATE ANALYSIS	24	Piccarreta
1	BAYESIAN METHODS FOR COMPLEX DATA	24	Petrone
1	COMPUTATIONAL STATISTICS	24	Papaspiliopoulos
1	STATISTICAL MACHINE LEARNING	24	Durante
1	STATISTICS FOR EXTREMES	24	Padoan
2	DESIGN AND ANALYSIS OF COMPUTER EXPERIMENTS	24	Borgonovo
2	ADVANCED COMPUTATIONAL STATISTICS	24	Zanella
2	APPLIED SURVIVAL DATA ANALYSIS	24	Bonetti

*Requirements to pass to the next year*

STAT: Exam for each course + evaluation of courses taught by Visiting Professors.

CS: Reading groups evaluations + evaluation of courses taught by Visiting Professors.

Both: [Submission of thesis project and presentation in front of the PhD faculty \(end of 2nd year\).](#)

**Third and Fourth year - a.y. 2026-27 and 2027-28**

Both curricula:

- [Study/research period at other Universities + TA/RA activities \(optional\);](#)
- [conferences \(as a listener and as a speaker\);](#)
- [statistics seminars organized by the Decision Sciences Department / seminars organized by the Computing Sciences Department according to the chosen curriculum;](#)
- [submission of mid-term doctoral thesis \(at least a first research paper is expected\) \(at the end of 3rd year\);](#)
- [thesis submission to external reviewers \(at end of 4th year\);](#)
- [thesis dissertation.](#)