PhD in STATISTICS AND COMPUTER SCIENCE

CYCLE XXXX - COHORT 2025-2026
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. 2025-26

12 compulsory courses (according to the curriculum):
Computer Science - CS curriculum: 6 out of 10 courses shared with Stat (to be chosen by July before the start of the 1st year) + 2 CS courses (compulsory for both) + 4 CS specific courses;
Statistics - STAT curriculum: 10 courses shared with CS + 2 CS courses (compulsory for both);

+ Research Ethics course (self-managed online course, compulsory for both) + statistics seminars organized by the Decision Sciences Department / seminars organized by the Computing Sciences Department according to the chosen curriculum

SEM.	COURSE TITLE	HOURS	COURSE DIRECTOR	CURRICULUM
1	INTRODUCTION TO REAL ANALYSIS I	28	Lavenant	STAT (compulsory) / CS (to be chosen)
1	INTRODUCTION TO REAL ANALYSIS II	28	Savarè	STAT (compulsory) / CS (to be chosen)
1	PROBABILITY THEORY I	28	Fortini	STAT (compulsory) / CS (to be chosen)
1	PROBABILITY THEORY II	24	Lijoi	STAT (compulsory) / CS (to be chosen)
1	COMPUTER SCIENCE I	30	Baldassi	STAT - CS (compulsory for both)
1	COMPUTER SCIENCE II	24	Rosen	STAT - CS (compulsory for both)
2	STATISTICAL THEORY I	30	Szabo	STAT (compulsory) / CS (to be chosen)
2	STATISTICAL THEORY II	30	Szabo	STAT (compulsory) / CS (to be chosen)
2	STOCHASTIC PROCESSES I	24	Fortini	STAT (compulsory) / CS (to be chosen)
2	STOCHASTIC PROCESSES II	24	Pruenster	STAT (compulsory) / CS (to be chosen)
2	BAYESIAN STATISTICAL THEORY I	24	Lijoi	STAT (compulsory) / CS (to be chosen)
2	BAYESIAN STATISTICAL THEORY II	24	Petrone	STAT (compulsory) / CS (to be chosen)
2	OPTIMIZATION	24	Celli	CS
2	GRAPH THEORY	24	Sanità	CS
2	MODERN APPLIED MACHINE LEARNING	30	Lucibello	CS
2	STATISTICAL MECHANICS AND METHODS FOR COMPLEX SYSTEMS	24	Mezard	CS
1-2	PRINCIPLES OF RESEARCH ETHICS	2	ONLINE - SELF MANAGED	STAT - CS (compulsory for both)

Requirements to pass to the next year

Exam for each course.

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Second year - a.y. 2026-27

Summer School (end of 1st year)

STAT curriculum: 8 courses + ourses taught by VP + Statistics seminars organized by Decision Sciences Department

CS Curriculum: Reading groups + courses taught by VP * CS seminars organized by the Computing Scinces Department

SEM.	COURSE TITLE	HOURS	COURSE DIRECTOR	CURRICULUM
Summer 1st year	SUMMER SCHOOL in ADVANCED STATISTICS AND PROBABILITY (at Lake Como School of Advanced Studies)			STAT - CS*
Summer 1st year	SUMMER SCHOOL AT OTHER INSTITUTIONS			CS*
1	BAYESIAN NONPARAMETRICS	30	Pruenster	STAT
1	APPLIED MULTIVARIATE ANALYSIS	24	Piccarreta	STAT
1	COMPUTATIONAL STATISTICS	24	Papaspiliopoulos	STAT
2	APPLIED SURVIVAL DATA ANALYSIS	24	Bonetti	STAT
1	STATISTICAL MACHINE LEARNING	24	Durante	STAT
1	STATISTICS FOR EXTREMES	24	Padoan	STAT
2	DESIGN AND ANALYSIS OF COMPUTER EXPERIMENTS	24	Borgonovo	STAT
2	ADVANCED COMPUTATIONAL STATISTICS	24	Zanella	STAT
1-2	SPECIAL TOPICS IN STATISTICS 1	14	VP	STAT
1-2	SPECIAL TOPICS IN STATISTICS 2	14	VP	STAT
1-2	SPECIAL TOPICS IN COMPUTER SCIENCE 1	14	VP	CS
1-2	SPECIAL TOPICS IN COMPUTER SCIENCE 2	14	VP	CS
1-2	READING GROUP ON MOST ADVANCED TOPICS	60	CS Faculty	CS

*CS students may choose a Summer School from other institutions in place of the SUMMER SCHOOL in ADVANCED STATISTICS AND PROBABILITY offered by Bocconi

Requirements to pass to the next year

Exam for each course (STAT).

Submission of thesis project and presentation to the PhD faculty (end of 2nd year, both STAT and CS)

Third and Fourth year - a.y. 2027-28 and 2028-29

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.