STATISTICS AND COMPUTER SCIENCE MAJOR (B.SC.) (72 CREDITS)

Offered by: Mathematics and Statistics (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 72

Program Description

This program provides students with a solid training in both computer science and statistics together with the necessary mathematical background. As statistical endeavours involve ever increasing amounts of data, some students may want training in both disciplines.

Degree Requirements — B.Sc.

This program is offered as part of a Bachelor of Science (B.Sc.) degree.

To graduate, students must satisfy both their program requirements and their degree requirements.

- The program requirements (i.e., the specific courses that make up this program) are listed under the Course Tab (above).
- The degree requirements—including the mandatory Foundation program, appropriate degree structure, and any additional components—are outlined on the Degree Requirements page.

Students are responsible for ensuring that this program fits within the overall structure of their degree and that all degree requirements are met. Consult the Degree Planning Guide on the SOUSA website for additional guidance.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Program Prerequisites

Students entering the Joint Major in Statistics and Computer Science are normally expected to have completed the courses below or their equivalents. Otherwise they will be required to make up any deficiencies in these courses over and above the 72 credits of required courses.

Expand allContract all

Course	Title	Credits
MATH 133	Linear Algebra and Geometry.	3
MATH 140	Calculus 1.	3
MATH 141	Calculus 2.	4

Required Courses (51 credits)

Expand allContract all

Course	Title	Credits
COMP 202	Foundations of Programming.[1]	3
COMP 206	Introduction to Software Systems.	3
COMP 250	Introduction to Computer Science.	3
COMP 251	Algorithms and Data Structures.	3
COMP 273	Introduction to Computer Systems.	3
COMP 302	Programming Languages and Paradigms.	3
COMP 330	Theory of Computation.	3
COMP 350	Numerical Computing.[2]	3
COMP 360	Algorithm Design.	3
MATH 222	Calculus 3.	3
MATH 223	Linear Algebra.[3]	3
MATH 235	Algebra 1.	3
MATH 236	Algebra 2.[3]	3
MATH 242	Analysis 1.	3
MATH 314	Advanced Calculus.	3
MATH 317	Numerical Analysis.[2]	3
MATH 323	Probability.	3
MATH 324	Statistics.	3
MATH 423	Applied Regression.	3

[1] Students who have sufficient knowledge in a programming language do not need to take COMP 202 Foundations of Programming. but can replace it with an additional Computer Science complementary course.

[2] Students take either COMP 350 Numerical Computing. or MATH 317 Numerical Analysis., but not both.

[3] Students take either MATH 223 Linear Algebra. or MATH 236 Algebra 2., but not both.
Both courses are equivalent as prerequisites for required and complementary Computer Science courses listed.

Complementary Courses (21 credits)

12 credits in Mathematics selected from:

Expand allContract all

Course	Title	Credits
MATH 204	Principles of Statistics 2.[1]	3
MATH 208	Introduction to Statistical Computing.	3
MATH 308	Fundamentals of Statistical Learning.	3
MATH 327	Matrix Numerical Analysis.	3
MATH 340	Discrete Mathematics.[2]	3
MATH 350	Honours Discrete Mathematics .[2]	3
MATH 352	Problem Seminar.	1
MATH 410	Majors Project.[3]	3
MATH 427	Statistical Quality Control.	3
MATH 447	Introduction to Stochastic Processes.	3
MATH 523	Generalized Linear Models.	4
MATH 524	Nonparametric Statistics.	4
MATH 525	Sampling Theory and Applications.	4
MATH 527D1	Statistical Data Science Practicum.[3]	3

MATH 527D2	Statistical Data Science Practicum.[3]	3
MATH 545	Introduction to Time Series Analysis.	4
MATH 558	Design of Experiments.	4
MATH 559	Bayesian Theory and Methods.	4
MATH 578	Numerical Analysis 1.[4]	4
MATH 598	Topics in Probability and Statistics.	4

1 In order to receive credit for MATH 204 Principles of Statistics 2., students must take it before MATH 324 Statistics..

2 If chosen, students take either MATH 340 Discrete Mathematics. or MATH 350 Honours Discrete Mathematics ., but not both.

3 If chosen, students can take one of MATH 410 Majors Project., and MATH 527D1 Statistical Data Science Practicum./MATH 527D2 Statistical Data Science Practicum., but not both.

4 MATH 578 Numerical Analysis 1. and COMP 540 Matrix Computations. cannot both be taken for program credit.

9 credits in Computer Science selected as follows:

At least 6 credits selected from:

Expand allContract all

Course	Title	Credits
COMP 424	Artificial Intelligence.	3
COMP 462	Computational Biology Methods.	3
COMP 540	Matrix Computations.[1]	4
COMP 547	Cryptography and Data Security.	4
COMP 551	Applied Machine Learning.	4
COMP 564	Advanced Computational Biology Methods and Research.	3
COMP 566	Discrete Optimization 1.	3
COMP 567	Discrete Optimization 2.	3

1 MATH 578 Numerical Analysis 1. and COMP 540 Matrix Computations. cannot both be taken for program credit.

The remaining Computer Science credits are selected from COMP courses at the 300 level or above (except COMP 396 Undergraduate Research Project.) and ECSE 508 Multi-Agent Systems..