

MATHEMATICS 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

The B.Sc.; Major in Mathematics and Computer Science emphasizes fundamental skills in mathematics and computer science, while exploring the interaction between the two fields.

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 Mathematics 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 courses in the program specification.

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

Required Courses (54 credits)

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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 310	Operating Systems.	3
COMP 330	Theory of Computation.	3
COMP 360	Algorithm Design.	3
MATH 222	Calculus 3.	3
MATH 235	Algebra 1.	3
MATH 236	Algebra 2.	3
MATH 242	Analysis 1.	3
MATH 315	Ordinary Differential Equations. ²	3
MATH 317	Numerical Analysis.	3
MATH 318	Mathematical Logic.	3
MATH 323	Probability.	3
MATH 340	Discrete Mathematics.	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

Student cannot replace MATH 317 Numerical Analysis. with COMP 350 Numerical Computing..

Complementary Courses (18 credits)

9 credits from the following.

Other MATH courses, at the undergraduate level, not included in this list may be chosen in consultation with an adviser.

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Course	Title	Credits
MATH 204	Principles of Statistics 2.	3
MATH 208	Introduction to Statistical Computing.	3
MATH 308	Fundamentals of Statistical Learning.	3
MATH 319	Partial Differential Equations .	3
MATH 324	Statistics.	3
MATH 326	Nonlinear Dynamics and Chaos.	3
MATH 327	Matrix Numerical Analysis.	3
MATH 329	Theory of Interest.	3
MATH 338	History and Philosophy of Mathematics.	3
MATH 346	Number Theory.	3
MATH 348	Euclidean Geometry.	3
MATH 378	Nonlinear Optimization .	3
MATH 410	Majors Project.	3
MATH 417	Linear Optimization.	3
MATH 423	Applied Regression.	3
MATH 427	Statistical Quality Control.	3

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MATH 430	Mathematical Finance.	3
MATH 447	Introduction to Stochastic Processes.	3
MATH 463	Convex Optimization.	3
MATH 478	Computational Methods in Applied Mathematics .	3

9 credits selected from Computer Science courses at the 300 level or above (except COMP 364 Computer Tools for Life Sciences. and COMP 396 Undergraduate Research Project.) and ECSE 508 Multi-Agent Systems..