MATHEMATICS MAJOR (B.SC.) (54 CREDITS)

Offered by: Mathematics and Statistics (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 54

Program Description

The B.Sc.; Major in Mathematics provides a general overview of Mathematics including a rigorous foundation and the exploration of the different branches of Mathematics.

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 refer to Visual Schedule Builder. A technical issue is causing the "Terms offered" field to incorrectly report "this course is not currently offered" for many courses in the Course Catalogue.

Program Prerequisites

Students entering the Major program 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 54 credits of required courses.

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

Guidelines for Selection of Courses in the Major Program

The following informal guidelines should be discussed with the student's adviser. Where appropriate, Honours courses may be substituted for equivalent Major courses. Students planning to pursue graduate studies are encouraged to make such substitutions.

Students interested in computer science are advised to choose courses from the following and to complete the Computer Science Minor:

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Course	Title	Credits
MATH 317	Numerical Analysis.	3
MATH 318	Mathematical Logic.	3
MATH 327	Matrix Numerical Analysis.	3
MATH 335	Groups, Tilings and Algorithms.	3
MATH 340	Discrete Mathematics.	3
MATH 417	Linear Optimization.	3

Students interested in probability and statistics are advised to take

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Course	Title	Credits
MATH 204	Principles of Statistics 2.	3
MATH 324	Statistics.	3
MATH 423	Applied Regression.	3
MATH 447	Introduction to Stochastic Processes.	3
MATH 523	Generalized Linear Models.	4
MATH 525	Sampling Theory and Applications.	4

Students interested in applied mathematics should take

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Course	Title	Credits
MATH 317	Numerical Analysis.	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 417	Linear Optimization.	3

Students considering a career in secondary school teaching are advised to take

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Course	Title	Credits
MATH 318	Mathematical Logic.	3
MATH 338	History and Philosophy of Mathematics.	3
MATH 346	Number Theory.	3
MATH 348	Euclidean Geometry.	3

Students interested in careers in business, industry or government are advised to select courses from the following list:

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Course	Title	Credits
MATH 317	Numerical Analysis.	3
MATH 319	Partial Differential Equations .	3
MATH 327	Matrix Numerical Analysis.	3
MATH 329	Theory of Interest.	3
MATH 417	Linear Optimization.	3
MATH 423	Applied Regression.	3
MATH 430	Mathematical Finance.	3

MATH 447	Introduction to Stochastic Processes.	3
MATH 523	Generalized Linear Models.	4
MATH 525	Sampling Theory and Applications.	4

Required Courses (27 credits)

Note: Students who have done well in MATH 235 Algebra 1. and MATH 242 Analysis 1. should consider entering the Honours stream by registering in MATH 251 Honours Algebra 2. and MATH 255 Honours Analysis 2. instead of MATH 236 Algebra 2. and MATH 243 Analysis 2..

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Course	Title	Credits
MATH 222	Calculus 3. [1]	3
MATH 235	Algebra 1.	3
MATH 236	Algebra 2.	3
MATH 242	Analysis 1.	3
MATH 243	Analysis 2.	3
MATH 249	Honours Complex Variables. [2]	3
MATH 314	Advanced Calculus.	3
MATH 315	Ordinary Differential Equations.	3
MATH 316	Complex Variables. [2]	3
MATH 323	Probability.	3

[1] Students who have successfully completed a course equivalent to MATH 222 Calculus 3. with a grade of C or better may omit MATH 222 Calculus 3., but must replace it with 3 credits of complementary courses.

[2] Students may select either MATH 249 Honours Complex Variables. or MATH 316 Complex Variables. but not both.

Complementary Courses (27 credits)

6-12 credits selected from the following:

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Course	Title	Credits
MATH 317	Numerical Analysis.	3
MATH 324	Statistics.	3
MATH 335	Groups, Tilings and Algorithms.	3
MATH 340	Discrete Mathematics.	3

15-21 credits selected from the following: at least 6 credits must be at the 400 or 500 level.

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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 318	Mathematical Logic.	3
MATH 319	Partial Differential Equations .	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 352	Problem Seminar.	1
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
MATH 430	Mathematical Finance.	3
MATH 447	Introduction to Stochastic Processes.	3
MATH 451	Introduction to General Topology.	3
MATH 462	Machine Learning .	3
MATH 463	Convex Optimization.	3
MATH 478	Computational Methods in Applied Mathematics .	3
MATH 510	Quantitative Risk Management.	4
MATH 523	Generalized Linear Models.	4
MATH 525	Sampling Theory and Applications.	4
MATH 545	Introduction to Time Series Analysis.	4

If necessary, 6 additional credits in Mathematics or related disciplines selected in consultation with the Adviser.