MATHEMATICS HONOURS (B.SC.) (63 CREDITS)

Offered by: Mathematics and Statistics (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 63

Program Description

The B.Sc.; Honours in Mathematics provides an in-depth training, at the honours level, in mathematics. It gives the foundations and tools needed to explore diverse areas of mathematics such as analysis, number theory, geometry, geometric group theory, and probability. This program may be completed with a minimum of 60 credits or a maximum of 63 credits.

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

The minimum requirement for entry into the Honours program is that the student has completed with high standing the following courses below or their equivalents.

Expand allContract all

Course	Title	Credits
MATH 133	Linear Algebra and Geometry.	3
MATH 150	Calculus A.	4
MATH 151	Calculus B.	4

In particular, MATH 150 Calculus A./MATH 151 Calculus B. and MATH 140 Calculus 1./MATH 141 Calculus 2./MATH 222 Calculus 3. are considered equivalent.

Students who have not completed an equivalent of MATH 222 Calculus 3. on entering the program must consult an academic adviser and take MATH 222 Calculus 3. as a required course in the first semester, increasing the total number of program credits from 60 to 63. Students who have successfully completed MATH 150 Calculus A./MATH 151 Calculus B. are not required to take MATH 222 Calculus 3..

Students who transfer to Honours in Mathematics from other programs will have credits for previous courses assigned, as appropriate, by the Department.

To be awarded the Honours degree, the student must have, at time of graduation, a CGPA of at least 3.00 in the required and complementary Mathematics courses of the program, as well as an overall CGPA of at least 3.00.

Required Courses (33-36 credits)

Expand allContract all

Course	Title	Credits
MATH 222	Calculus 3.[1]	3
MATH 249	Honours Complex Variables.	3
MATH 251	Honours Algebra 2.	3
MATH 255	Honours Analysis 2.	3
MATH 325	Honours Ordinary Differential Equations.	3
MATH 356	Honours Probability.	3
MATH 358	Honours Advanced Calculus.	3
MATH 454	Honours Analysis 3.	3
MATH 455	Honours Analysis 4.	3
MATH 456	Honours Algebra 3.	3
MATH 457	Honours Algebra 4.	3
MATH 470	Honours Research Project.	3

[1] Students who have successfully completed MATH 150 Calculus A./MATH 151 Calculus B. or an equivalent of MATH 222 Calculus 3. on entering the program are not required to take MATH 222 Calculus 3..

Complementary Courses (27 credits)

3 credits selected from:

Expand allContract all

Course	Title	Credits
MATH 242	Analysis 1.	3
MATH 254	Honours Analysis 1.[1]	3

3 credits selected from:

Expand allContract all

Course	Title	Credits
MATH 235	Algebra 1.	3
MATH 245	Honours Algebra 1.[1]	3

[1] It is strongly recommended that students take both MATH 245 Honours Algebra 1. and MATH 254 Honours Analysis 1..

12-21 credits selected from:

Expand allContract all

Course	Title	Credits
MATH 350	Honours Discrete Mathematics .	3
MATH 357	Honours Statistics.	3
MATH 458	Honours Differential Geometry.	3
MATH 475	Honours Partial Differential Equations.	3
MATH 488	Honours Set Theory.[1]	3
MATH 518	Introduction to Algebraic Geometry.	4
MATH 550	Combinatorics.	4
MATH 552	Combinatorial Optimization.	4
MATH 553	Algorithmic Game Theory.	4
MATH 564	Real Analysis and Measure Theory.	4
MATH 565	Functional Analysis.	4
MATH 566	Advanced Complex Analysis and Riemann Surfaces	4
MATH 570	Higher Algebra 1.	4
MATH 571	Higher Algebra 2.	4
MATH 576	Geometry and Topology 1.	4
MATH 577	Geometry and Topology 2.	4
MATH 580	Advanced Partial Differential Equations 1 .	4
MATH 581	Advanced Partial Differential Equations 2 .	4
MATH 587	Advanced Probability Theory 1.	4
MATH 589	Advanced Probability Theory 2.	4
MATH 590	Advanced Set Theory.[1]	4
MATH 591	Model Theory.	4
MATH 592	Descriptive Set Theory.	4

[1] Students may take only one of MATH 488 or MATH 590.

0-3 credits from the following courses for which no Honours equivalent exists:

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Course	Title	Credits
MATH 318	Mathematical Logic.	3
MATH 378	Nonlinear Optimization .	3
MATH 430	Mathematical Finance.	3
MATH 451	Introduction to General Topology.	3
MATH 462	Machine Learning .	3

0-6 credits selected from:

Expand allContract all

Course	Title	Credits
MATH 352	Problem Seminar.	1
MATH 365	Honours Groups, Tilings and Algorithms.	3
MATH 376	Honours Nonlinear Dynamics.	3
MATH 377	Honours Number Theory.	3
MATH 387	Honours Numerical Analysis.	3
MATH 398	Honours Euclidean Geometry .	3
MATH 480	Honours Independent Study.	3

all MATH 500-level courses not listed above.

Students may select other courses with the permission of the Department.