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

Offered by: Mathematics and Statistics (Faculty of Science)
Degree: Bachelor of Arts
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.A. students

To be eligible for a B.A. degree, a student must fulfil all Faculty and program requirements as indicated in Degree Requirements for the Faculty of Arts.

We recommend that students consult an Arts OASIS advisor for degree planning.

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 (45 credits)

Expand allContract all

Course	Title	Credits
MATH 222	Calculus 3.[1]	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 357	Honours Statistics.	3
MATH 358	Honours Advanced Calculus.	3
MATH 454	Honours Analysis 3.[2]	3
MATH 455	Honours Analysis 4.	3
MATH 456	Honours Algebra 3.	3
MATH 457	Honours Algebra 4.	3
MATH 458	Honours Differential Geometry.	3
MATH 466	Honours Complex Analysis.	3
MATH 470	Honours Research Project.	3
MATH 475	Honours Partial Differential Equations.	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..

[2] Not open to students who have taken MATH 354 .

Complementary Courses (15 credits)

3 credits selected from:

Expand allContract all

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

[1] It is strongly recommended that students take MATH 254 Honours Analysis 1..

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..

0-6 credits from the following courses for which no Honours equivalent exists:

Expand allContract all

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 329	Theory of Interest.	3
MATH 338	History and Philosophy of Mathematics.	3
MATH 378	Nonlinear Optimization .	3
MATH 430	Mathematical Finance.	3
MATH 462	Machine Learning .	3
MATH 463	Convex Optimization.	3

6-12 credits selected from:

Expand allContract all

Course	Title	Credits
COMP 250	Introduction to Computer Science.[1]	3
COMP 252	Honours Algorithms and Data Structures.	3
MATH 350	Honours Discrete Mathematics .	3
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 397	Honours Matrix Numerical Analysis.	3
MATH 398	Honours Euclidean Geometry .	3
MATH 462	Machine Learning .	3
MATH 480	Honours Independent Study.	3
MATH 488	Honours Set Theory.	3

[1] Students with limited programming experience should take COMP 202 Foundations of Programming. or COMP 204 Computer Programming for Life Sciences. or COMP 208 Computer Programming for Physical Sciences and Engineering . or equivalent before COMP 250 Introduction to Computer Science..

all MATH 500-level courses

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