# MATHEMATICS MAJOR CONCENTRATION (B.A.) (46 CREDITS)

**Offered by:** Mathematics and Statistics (Faculty of Science)
**Degree:** Bachelor of Arts
**Program credit weight:** 46

## Program Description

The B.A.; Major Concentration in Mathematics aims to provide an overview of the foundations of mathematics.

### 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.

## Guidelines for Course Selection

Students who received advanced standing or the CEGEP equivalent of the 100-level Math courses listed below are no longer required to take them. Whenever an exemption without credits is granted for a 200-level and above required Math course, the latter must be replaced with a complementary course chosen in consultation with a program advisor.

Where appropriate, Honours-level courses may be substituted for their Majors-level counterparts. Students planning to undertake graduate studies in mathematics are urged to make such substitutions. If there is no major counterpart available for a course, please see a departmental advisor to discuss its inclusion into your program as a complementary course in the lower section.

Students interested in computer science should consider the courses MATH 317, MATH 318, MATH 327, MATH 340, MATH 417, and take the Minor Concentration Computer Science.

Students interested in probability and statistics should consider either taking the Minor Concentration Statistics under option C or taking the major concentration in statistics.

Students interested in applied mathematics should consider the courses MATH 317, MATH 319, MATH 324, MATH 326, MATH 327, and MATH 417.

Students interested in careers in business, industry or government should consider the courses MATH 317, MATH 319, MATH 327, MATH 417, MATH 423, and MATH 447.

Students who have done well in MATH 242 and MATH 235 at the end of their first term should consider, in consultation with their adviser and the instructors of the courses involved, the possibility of entering an Honours program in Mathematics, in Applied Mathematics, in Probability and Statistics, or a Joint Honours program in Mathematics and another discipline.

## Required Courses (28 Credits)

Expand allContract all

| Course | Title | Credits |
|---|---|---|
| MATH 133 | Linear Algebra and Geometry. | 3 |
| MATH 140 | Calculus 1. | 3 |
| MATH 141 | Calculus 2. | 4 |
| MATH 222 | Calculus 3. | 3 |
| MATH 235 | Algebra 1. | 3 |
| MATH 236 | Algebra 2. | 3 |
| MATH 242 | Analysis 1. | 3 |
| MATH 243 | Analysis 2. | 3 |
| MATH 323 | Probability. | 3 |

## Complementary Courses (18 Credits)

9-18 credits from:

Expand allContract all

| Course | Title | Credits |
|---|---|---|
| MATH 249 | Honours Complex Variables.[1] | 3 |
| MATH 314 | Advanced Calculus. | 3 |
| MATH 315 | Ordinary Differential Equations. | 3 |
| MATH 316 | Complex Variables.[1] | 3 |
| MATH 317 | Numerical Analysis. | 3 |
| MATH 318 | Mathematical Logic. | 3 |
| MATH 324 | Statistics. | 3 |
| MATH 340 | Discrete Mathematics. | 3 |
| MATH 346 | Number Theory. | 3 |
| MATH 378 | Nonlinear Optimization . | 3 |
| MATH 417 | Linear Optimization. | 3 |
| MATH 451 | Introduction to General Topology. | 3 |

[1] Note: Either MATH 249 Honours Complex Variables. or MATH 316 Complex Variables. may be taken but not both.

0-3 credits from:

Expand allContract all

| Course | Title | Credits |
|---|---|---|
| MATH 329 | Theory of Interest. | 3 |
| MATH 338 | History and Philosophy of Mathematics. | 3 |

0-9 credits from:

Expand allContract all

| Course | Title | Credits |
|---|---|---|
| MATH 208 | Introduction to Statistical Computing. | 3 |
| MATH 308 | Fundamentals of Statistical Learning. | 3 |
| MATH 319 | Partial Differential Equations . | 3 |
| MATH 326 | Nonlinear Dynamics and Chaos. | 3 |
| MATH 327 | Matrix Numerical Analysis. | 3 |
| MATH 335 | Groups, Tilings and Algorithms. | 3 |
| MATH 348 | Euclidean Geometry. | 3 |
| MATH 352 | Problem Seminar. | 1 |
| MATH 410 | Majors Project. | 3 |
| MATH 420 | Independent Study. | 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 463 | Convex Optimization. | 3 |
| MATH 478 | Computational Methods in Applied Mathematics . | 3 |