

# Mathematics: Bachelor of Arts Minor

<b>Faculty of Science and Horticulture</b>	kpu.ca/science
<b>Implementation Date</b>	01-Sep-2011
<b>Start Date(s)</b>	September January
<b>Admission Type</b>	Selective entry
<b>Enrolment Type</b>	Open enrolment
<b>Program Type</b>	Undergraduate
<b>Credential Granted</b>	Baccalaureate Degree
<b>Offered At</b>	Langley Richmond Surrey
<b>Format</b>	Full-time Part-time
<b>How to Apply</b>	www.kpu.ca/admission

## DESCRIPTION

The Bachelor of Arts Minor in Mathematics program is primarily intended for students who plan to enter a post-baccalaureate education program, with mathematics as one of their teachable subjects. It has been developed specifically to meet the requirements of admission to the post-baccalaureate Secondary Education Programs at UBC, SFU and UVic. However, it is also intended for students who are planning professional careers for which a sound foundation in formal or mathematical reasoning is required and for students with a specific interest in mathematics.

The primary focus of the Minor in Mathematics is as an expression of human understanding rather than as a science or an aid to science. The courses included in the Minor in Mathematics are designed with the mathematically interested arts student in mind, concentrating on the development of an understanding of the mathematical enterprise and including topics that illuminate and extend those taught in the secondary school curriculum. The scientific applications of mathematics, however, will continue to be addressed in many of the courses offered.

Teaching has consistently been one of the more frequent career choices for secondary school graduates, and these students require education in teachable subjects before proceeding into a professional program of teacher training. The Minor in Mathematics, when paired with minors in English or History, will provide the necessary background for admission to a School of Education and an excellent path to the attainment of students' career goals. As well, the Minor in Mathematics can form part of a B.A. leading students into other professions such as law or technical writing.

Students within the Bachelor of Arts Minor in Mathematics program will take a general academic program in the first and second year, including at least five mathematics courses in the first four semesters. As well, students will select elective courses from the humanities, social sciences, sciences, fine arts, modern languages, music and business, as per the Bachelor of Arts Degree Framework.

Students completing appropriate courses in Years 1 and 2 will be eligible to exit with an Associate of Science in Mathematics.

## PROGRAM ADMISSION REQUIREMENTS

In addition to Kwantlen's General university admission requirements, including the undergraduate-level English Proficiency Requirement, the following program admission requirements apply:

### Year One Admission:

- English 12 with a 'B' (or equivalent)
- Mathematics:
  - Minimum grade of 'C' in Pre-Calculus 11, Principles of Mathematics 11, or Applications of Mathematics 12 (or equivalent); or
  - Minimum grade of 'C+' in Foundations of Mathematics 11 (or equivalent); or
  - Minimum grade of 'C-' in Pre-Calculus 12 or Foundations of Mathematics 12 (or equivalent)

### Year Three Admission:

- 60 credits with a cumulative GPA of 2.00 (including all 1100- and 2000-level major/minor program requirements).
- Grade of 'C' in all required 1000- and 2000-level courses, including the English writing requirement (ENGL 1100 and one of either ENGL 1202 or 1204, or equivalent).
- Two Quantitative courses (total of six or more credits).
- 12 credits of breadth courses
- Mathematics:
  - Minimum grade of 'C' in Pre-Calculus 11, Principles of Mathematics 11, or Applications of Mathematics 12 (or equivalent); or
  - Minimum grade of 'C+' in Foundations of Mathematics 11 (or equivalent); or
  - Minimum grade of 'C-' in Pre-Calculus 12 or Foundations of Mathematics 12 (or equivalent); or
  - Minimum grade of 'C+' in the above Two Quantitative courses (three credits of which must be from the Faculty of Science & Horticulture)
- Second language at the Grade 11 level or 6 credits of post-secondary language courses in the same language. Note: Students need only achieve a passing grade to fulfill this requirement. Beginner's or Introductory Language 11 courses are ineligible to meet this requirement. Students who can demonstrate competency in a second language may request an assessment to have this requirement waived.

### Qualifying Year

Students who do not qualify upon initial application to KPU may be eligible for entry to the Qualifying Year. Students who possess at least a 'C' in English 12 (or equivalent) and a passing grade in either Pre-Calculus 11, Principles of Math 11, Foundations of Mathematics 11, Applications of Math 12 (or equivalents) will be able to apply for entry to the BA Qualifying Year. Students will be admitted to the BA program in the second year provided they have successfully completed appropriate qualifying courses. Other applicants who do not qualify are encouraged to consult an Educational Advisor for the appropriate qualifying courses that satisfy the application criteria.

# CONTINUANCE REQUIREMENTS

Current BA students must meet the following requirements to continue into their 3rd year of study. Registration access to third or fourth year courses is first awarded to students who have completed the following:

- 60 credits with a cumulative GPA of 2.00 (including all 1100- and 2000-level major/minor program requirements).
- Grade of 'C' in all required 1000- and 2000-level courses, including the English writing requirement (ENGL 1100 and one of either ENGL 1202 or 1204, or equivalent).
- Two Quantitative courses (total of six or more credits).
- 12 credits of breadth courses
- Second language at the Grade 11 level or 6 credits of post-secondary language courses in the same language. Note: Students need only achieve a passing grade to fulfill this requirement. Beginner's or Introductory Language 11 courses are ineligible to meet this requirement. Students who can demonstrate competency in a second language may request an assessment to have this requirement waived.

# PROGRAM REQUIREMENTS

Students pursuing a Bachelor of Arts degree must complete all requirements in the Bachelor of Arts framework in addition to their major or minor program requirements.

## Years One and Two

Students are required to complete 15 credits of mathematics courses at the 1000 and 2000 level.

### One course from the following\*:

MATH 1120	Differential Calculus	3 credits
MATH 1130	Calculus for Life Sciences I with a grade of C+ or better	3 credits
MATH 1140	Calculus I (Business Applications) with a grade of B- or better	3 credits

### One course from the following\*:

MATH 1220	Integral Calculus	3 credits
MATH 1230	Calculus for Life Sciences II with a grade of C+ or better	3 credits
MATH 1240	Calculus II (Business Applications) with a grade of B- or better	3 credits

### All of these 2000 level MATH courses:

MATH 2321	Multivariate Calculus (Calculus III)	3 credits
MATH 2232	Linear Algebra	3 credits

### One course from the following:

MATH 2341	Introduction to Statistics for Business†	3 credits
MATH 2335	Statistics for Life Sciences†	3 credits
MATH 2315	Probability and Statistics†	3 credits

### Notes:

\* Credit will not be granted for more than one of these courses.

† Students may substitute MATH 1115 Introductory Statistics, but should be aware that it will not satisfy the statistics requirement for admission into the Secondary Education Program at UBC. Students should not take more than one course from this list as only three credits will be recognized as credits towards the Minor in Mathematics degree. Students who desire another lower division Mathematics course should consider MATH 1116 Mathematical Explorations (3 credits) or MATH 2331 Real Analysis (3 credits).

## Years Three and Four

Students will be required to take 15 credits of mathematics courses numbered 3000 and above.

### A minimum of 12 credits from the following:

MATH 3120	Introduction to Applied Mathematics	3 credits
MATH 3140	Mathematical Computing (under development)	3 credits
MATH 3150	Structure of Mathematics	3 credits
MATH 3160	Group Theory	3 credits
MATH 3170	Complex Variables	3 credits
MATH 3250	Geometry	3 credits
MATH 3315	Inferential Statistics	3 credits
MATH 3322	Vector Calculus	3 credits
MATH 3421	Differential Equations	3 credits
MATH 3431	Partial Differential Equations	3 credits
MATH 3450	History of Mathematics	3 credits
MATH 4130	Theory of Mathematics Education	3 credits
MATH 4150	Number Theory	3 credits
MATH 4190	Introduction to Point-Set Topology	3 credits
MATH 4210	Biomathematics	3 credits
MATH 4220	Numerical Methods (under development)	3 credits
MATH 4240	Mathematical Modelling	3 credits
MATH 4250	Special Topics in Mathematics	3 credits

### Required 4000 Level MATH Course

MATH 4350	Senior Project	3 credits
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**Note:** Students planning to enter the Education program at either UBC or SFU will require an additional 3 credits of MATH courses numbered 3000 or higher. Those choosing UBC must also be sure to include MATH 3250 Geometry, MATH 4150 Number Theory and a Statistics course numbered 2000 or higher, (MATH 2341, MATH 2335, or MATH 2315) in their program.

## CREDENTIAL AWARDED

Upon successful completion of the minor as part of a Bachelor of Arts program, transcripts will indicate a **Minor in Mathematics**.