

# MATHEMATICS, M.SC.

Mathematics

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**Academic Staff:** Please refer to the Mathematics website (<https://umanitoba.ca/science/directory/mathematics/>) for current staff listing.

## Mathematics Program Information

The department offers programs leading to Master of Science and Doctor of Philosophy degrees.

## Admission Information

### Admission to the Faculty of Graduate Studies

Application and Admission Procedures are found in the Academic Guide (<https://catalog.umanitoba.ca/graduate-studies/academic-guide/application-admission-registration-policies/>).

Admission requirements for Master's students are found in the Master's Degrees General Regulations ([https://catalog.umanitoba.ca/graduate-studies/academic-guide/masters-degrees-general-regulations/#Admission\\_FGSMasters](https://catalog.umanitoba.ca/graduate-studies/academic-guide/masters-degrees-general-regulations/#Admission_FGSMasters)) section of the Guide.

### Mathematics M.Sc. Admission Requirements

Students should generally have a strong background in Mathematics with courses leading to an Honours or four-year Major in Mathematics in a B.Sc., B.A., or equivalent degree. The department's Graduate Studies Committee will evaluate the student's background. Admission to the program will be based on this evaluation.

Students with other degrees or backgrounds may be eligible for admission to a pre-Master's program to the satisfaction of the department. Courses will be prescribed on an individual basis to help the student qualify for graduate work in Mathematics.

### Pre-Master's Option

This unit offers a Pre-Master's program of study (<https://catalog.umanitoba.ca/graduate-studies/academic-guide/general-regulations-pre-masters/>). The Pre-Master's program of study is intended to bring a student's background up to the equivalent of the required 4-year degree in the major department/unit, and to provide the student with any necessary prerequisites for courses to be taken in the Master's program. Completing the Pre-Master's program does not guarantee acceptance to the Master's program.

## Application Information

Students should complete and submit their online application with supporting documentation by the date indicated on the Mathematics M.Sc. program of study (<https://umanitoba.ca/explore/programs-of-study/mathematics-msc/>) page.

## Degree Requirements

**Thesis Route:** Students are required to complete at least 15 credit hours of course work, of which at least 9 credit hours must be from courses designated MATH 7000 or above and at least 6 credit hours in an area of mathematical sciences clearly different from the area of specialization of the thesis (as approved by the Department Head or designate). Each student in the thesis-based M.Sc. program must write a thesis.

**Coursework Route:** Students are required to complete at least 24 credit hours of course work at the 3000/7000/8000 level. At most 6 credit hours can be at the 3000 level. 4000 level courses do not count toward the degree requirement. Courses outside the Department of Mathematics (at most 9 credit hours) are also possible, subject to approval by the Department Head or designate. At least 6 credit hours must be in an area of mathematical sciences clearly different from the area of specialization of the report (see below). The minimum GPA of all courses must be at least 3.25.

Certain programs of study within mathematics may require courses outside the Department of Mathematics. A student may take at most two 3 credit hour reading courses from any one instructor for credit in this degree program.

Every M.Sc. student must make at least one presentation in a venue approved by the department; possible venues may include approved Department seminar series, external seminars, or conferences.

Presentations given to fulfill course requirements, or other program requirements, are not eligible for this requirement.

**Expected Time to Graduate:** 2 years

## Progression Chart

### THESIS PROGRAM

Course	Title	Hours
<b>Year 1</b>		
GRAD 7300	Research Integrity Tutorial	0
GRAD 7500	Academic Integrity Tutorial	0
MATH 7XXX	Courses designated MATH 7000 or above	9
Select two courses in an area of mathematical sciences		6
<b>Hours</b>		<b>15</b>
<b>Year 2</b>		
GRAD 7000	Master's Thesis <sup>1,2</sup>	0
<b>Hours</b>		<b>0</b>
<b>Total Hours</b>		<b>15</b>

<sup>1</sup> Students must demonstrate their mastery of the field and that they are fully conversant with the relevant literature through their thesis/practicum.

<sup>2</sup> The M.Sc. thesis proposal must include a literature review, description of the proposed work, and a schedule for completion. The proposal should normally be completed within 10 months following the start of the program and must be approved by the student's advisor.

### Coursework Program

Course	Title	Hours
<b>Years 1-2</b>		
GRAD 7500	Academic Integrity Tutorial	0
GRAD 7300	Research Integrity Tutorial	0

MATH XXXX	Courses designated MATH 3000/4000/7000 or above <sup>1</sup>	12
Select two courses in the area of mathematical sciences		6
MATH 8996 or MATH 8998	MSc project 1 (A project, or work done in industry, together with a report OR report on teaching an undergraduate course.) or MSc project 2	6
<b>Hours</b>		<b>24</b>
<b>Total Hours</b>		<b>24</b>

<sup>1</sup> At most 6 credit hours can be at the 3000 level. 4000 level courses do not count toward the degree requirement. Courses outside the Department of Mathematics (at most 9 credit hours) are also possible, subject to approval.

#### Notes:

- Certain programs of study within mathematics may require courses outside the Department of Mathematics.
- A student may take at most two 3 credit hour reading courses from any one instructor for credit in this degree program.

## Registration Information

Students should familiarize themselves with the Faculty of Graduate Studies 'GRAD' courses applicable to their program (<https://catalog.umanitoba.ca/graduate-studies/registration-information/>). If you have questions about which GRAD course(s) to register in, please consult your home department/unit.

All new and returning students are required to consult with a department advisor prior to registration.

## Regulations

Students must meet the requirements as outlined in both Supplementary Regulation and BFAR documents as approved by Senate.

### Supplementary Regulations

Individual units may require specific requirements above and beyond those of the Faculty of Graduate Studies, and students should consult unit supplementary regulations (<https://umanitoba.ca/graduate-studies/supplementary-regulations/>) for these specific regulations.

### Bona Fide Academic Requirements (BFAR)

Bona Fide Academic Requirements (BFAR) (<https://catalog.umanitoba.ca/graduate-studies/academic-guide/academic-performance-general/#BFAR>) represent the core academic requirements a graduate student must acquire in order to gain, and demonstrate acquisition of, essential knowledge and skills.

All students must successfully complete:

- GRAD 7300 prior to applying to any ethics boards which are appropriate to the student's research or within the student's first year, whichever comes first; and
- GRAD 7500 within the first term of registration;

unless these courses have been completed previously, as per Mandatory Academic Integrity Course (<https://catalog.umanitoba.ca/graduate-studies/academic-guide/academic-performance-general/#GRAD7500>) and Mandatory Research Integrity Online Course (<https://>

[catalog.umanitoba.ca/graduate-studies/academic-guide/academic-performance-general/#GRAD7300](https://catalog.umanitoba.ca/graduate-studies/academic-guide/academic-performance-general/#GRAD7300)).

Students must also meet additional BFAR requirements (<https://umanitoba.ca/graduate-studies/student-experience/core-academic-requirements/#additional-requirements-by-program>) that may be specified for their program.

## General Regulations

All students must:

- maintain a minimum degree grade point average of 3.0 with no grade below C+,
- meet the minimum and not exceed the maximum course requirements, and
- meet the minimum and not exceed the maximum time requirements (in terms of time in program and lapse or expiration of credit of courses).