Applied Mathematics
MSc

Starting in Fall 2009, Ryerson University will be offering a program leading to a Master of Science degree in Applied Mathematics. The program will provide a unique blend of mathematics and applied areas, offering students the opportunity to acquire mathematical expertise and techniques much sought after in industry. These skills will also allow students to begin work in applied mathematical research.

In addition to mathematics, students will learn about other fields of study such as computer science, engineering and finance, and how to apply mathematical theories to problems arising in these areas. The program is also designed to allow students coming from other disciplines to expand their mathematical knowledge and become acquainted with advanced mathematical techniques, theories and their applications.

Program Objectives

The new graduate program, Master of Science in Applied Mathematics at Ryerson University, has been designed to provide quality education for students interested in pursuing a career in applications of mathematics, in research and industry. This program will equip students with advanced mathematical skills and knowledge, which play an indispensable role in a large number of professions in the contemporary marketplace.

Graduates of our program will satisfy a current and growing demand for mathematically trained individuals who are able to move into business and industry. The program will provide students with the background to engage in doctoral studies in applied mathematics or to successfully embark upon a career in industry which demands a high level of quantitative or analytical competency.
Faculty Areas of Research Expertise

Participating faculty members from the Department of Mathematics have wide-ranging research interests in applied and pure mathematics, which include:

- Computer Security
- Financial Mathematics
- Biomathematics
- Signal and Image Processing
- Cryptography
- Foundations of Statistical Mechanics
- Biostatistics
- Software Testing
- Graph Theory
- Fluid Mechanics
- Differential Equations and Operator Theory

More details can be found at www.ryerson.ca/graduate/mathematics/faculty.html.

To obtain more information about the department, please visit www.math.ryerson.ca.
Requirements & Curriculum

The MSc program in Applied Mathematics is a full-time thesis-based program offered over two years. The program is research based and students will work with a faculty advisor who will assist in the preparation of an acceptable thesis. Students should thus be interested in pursuing research collaborations with a faculty member.

Students will be required to participate in a series of departmental graduate student seminars, initially attending and later presenting. Students take a sequence of five courses which will be completed by the end of the fifth term, as detailed in the following table.

<table>
<thead>
<tr>
<th>Year One</th>
<th>Year Two</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Term / Winter Term</strong></td>
<td><strong>Fall Term / Winter Term</strong></td>
</tr>
<tr>
<td>One Foundations Course</td>
<td>One course from the Foundations course list</td>
</tr>
<tr>
<td>Two Core Courses</td>
<td>or Elective course list</td>
</tr>
<tr>
<td>One course from the Foundations course list</td>
<td>Seminar participation</td>
</tr>
<tr>
<td>or Elective course list</td>
<td></td>
</tr>
<tr>
<td>Seminar participation</td>
<td>Seminar participation</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring/Summer Term</strong></td>
<td><strong>Spring/Summer Term</strong></td>
</tr>
<tr>
<td>Thesis work</td>
<td>Thesis work</td>
</tr>
<tr>
<td>Seminar participation</td>
<td>Seminar participation</td>
</tr>
<tr>
<td>Thesis defence</td>
<td></td>
</tr>
</tbody>
</table>

* Courses will not be offered in either Spring/Summer Term.
Foundation Courses

Students are required to take one of the two foundations courses listed below. These courses are designed to bring students from varying mathematical backgrounds to a common level, preparing them for study and research in the field.

- Analysis and Probability
- Algebra and Discrete Mathematical Structures

Core Courses

Two core courses are to be completed by all students in the program. These courses focus on certain well-established principles and techniques that are particularly important in applied mathematics. They also provide essential background for some of the elective courses in the program.

- Principles and Techniques in Applied Mathematics, part I
- Principles and Techniques in Applied Mathematics, part II

Elective Courses

The courses in this group have been designed to either provide the necessary background for students to begin thesis work in a particular subject area or to broaden the students' mathematical knowledge.

- Financial Mathematics
- Digital Signals and Wavelets
- Topics in Functional Analysis
- Topics in Discrete Mathematics
- Applied Statistical Methods
- Partial Differential Equations
- Topics in Biomathematics
Admission requirements include the following:

- Completion of a four-year Bachelor of Science degree in mathematics or a related field involving adequate mathematical course work
- A minimum B average or equivalent in the final half of undergraduate studies
- A statement of interest addressing experience, career objectives and reasons for pursuing this program (800 – 1,000 words)
- Two letters of recommendation, indicating the applicant’s academic capabilities
- A resumé

To encourage students from diverse backgrounds with a significant interest in mathematics, a candidate’s mathematical maturity and other relevant factors may be taken into consideration where the amount of mathematical course work is less than ideal.

English Language Proficiency Requirement

Applicants whose instruction during their undergraduate studies was in a language other than English are required to submit a test of English language proficiency. Applicants may demonstrate facility in English using one of the following methods:

- Test of English as a Foreign Language (TOEFL)
- International English Language Testing System (IELTS)
- Michigan English Language Assessment Battery (MELAB)

Additional Information

For detailed program information visit www.ryerson.ca/graduate/mathematics.

Program Contact Information

Telephone: 416-979-5000 ext. 6966
E-mail: ddelic@ryerson.ca (Dr. Dejan Delic, Program Director)
        ferrando@ryerson.ca (Dr. Sebastian Ferrando, Chair)

Financial Support

Ryerson University provides financial support in the form of scholarships, awards and assistantships for as many full-time students as possible. Financial support is offered on a competitive basis, and the number of scholarships, awards and assistantships in any given year will vary. For more information on available funding, visit www.ryerson.ca/graduate/funding.

How to Apply

Online application instructions are available at www.ryerson.ca/graduate/admissions.

School of Graduate Studies
School of Graduate Studies Admissions
Ryerson University
350 Victoria Street
Toronto, ON M5B 2K3
Telephone: 416-979-5150
Fax: 416-979-5153
E-mail: grdadmit@ryerson.ca