DOCTORATE IN PHILOSOPHY
MATHEMATICS AND
STATISTICS

Summary
- Degree offered: Doctorate in Philosophy (PhD)
- Registration status option: Full-time
- Language of instruction: English
- Program option (expected duration of the program):
  - with thesis (12 full-time terms; 48 consecutive months)

Program Description
Ottawa-Carleton Joint Program
The University of Ottawa offers a rich academic environment to study mathematics and statistics under the supervision of professors who have gained an international reputation for their research. Most major fields of research in mathematics and statistics are represented within the Department of Mathematics and Statistics. Moreover, the Department is a participating unit in the master's level collaborative programs in bioinformatics and in biostatistics. Additional information about the Department and its programs is posted on the departmental website at www.mathstat.uottawa.ca.

Since 1984, the graduate programs in mathematics and statistics have been under the umbrella of the Ottawa-Carleton Institute of Mathematics and Statistics (OCIMS). The OCIMS consists of the School of Mathematics and Statistics at Carleton University and the Department of Mathematics and Statistics at the University of Ottawa. The two units have pooled together their resources to offer each year a large selection of graduate courses.

Other Programs Offered Within the Same Discipline or in a Related Area
- Doctorate in Mathematics and Statistics Specialization in in Bioinformatics (PhD)
- Master of Science Mathematics and Statistics Concentration in Mathematics (MSc)
- Master of Science Mathematics and Statistics Concentration in Statistics (MSc)
- Master of Science Mathematics and Statistics Specialization in Bioinformatics (MSc)
- Master of Science Mathematics and Statistics Specialization in Biostatistics (MSc)

Fees and Funding
- Program fees:
  - The estimated amount for university fees (https://www.uottawa.ca/university-fees/) associated with this program are available under the section Finance your studies (http://www.uottawa.ca/graduate-studies/programs-admission/finance-studies/).
  - International students enrolled in a French-language program of study may be eligible for a differential tuition fee exemption (https://www.uottawa.ca/university-fees/differential-tuition-fee-exemption/).
  - To learn about possibilities for financing your graduate studies, consult the Awards and financial support (https://www.uottawa.ca/graduate-studies/students/awards/) section.

Notes
- Programs are governed by the general regulations (http://www.uottawa.ca/graduate-studies/students/general-regulations/) in effect for graduate studies at both universities.
- In accordance with the University of Ottawa regulation, students have the right to complete their assignments, examinations, research papers, and theses in French or in English.
- Research activities can be conducted in English or French or both depending on the language used by the professor and the members of the research group.

Program Contact Information
Graduate Studies Office, Faculty of Science (https://science.uottawa.ca/en/faculty-services/graduate-studies/)
30 Marie-Curie Street, Gendron Hall, Room 181
Ottawa, Ontario, Canada K1N 6N5
Tel.: 613-562-5800 x3145
Email: gradsci@uOttawa.ca
Twitter | Faculty of Science (https://twitter.com/uOttawaScience/?lang=en)
Facebook | Faculty of Science (https://www.facebook.com/uOttawaScience/)

Admission Requirements
For the most accurate and up to date information on application deadlines, language tests and other admission requirements, please visit http://catalogue.uottawa.ca/en/graduate/doctorate-philosophy-mathematics-statistics/index.html
the specific requirements (https://www.uottawa.ca/graduate-studies/programs-admission/apply/specific-requirements/) webpage.

**To be eligible, candidates must:**

- Have a master’s degree in mathematics and statistics (or equivalent) with a minimum average of 75% (B+).

  Note: International candidates must check the admission equivalencies (https://www.uottawa.ca/graduate-studies/international/apply/specific-requirements/) for the diploma they received in their country of origin.

- Demonstrate a good academic performance in previous studies as shown by official transcripts, research reports, abstracts or any other documents demonstrating research skills.

- Meet the funding requirements.

- Identify at least one professor who is willing to supervise your research and thesis.

  • We recommend that you contact potential thesis supervisors as soon as possible.
  • To register, you need to have been accepted by a thesis supervisor.
  • The supervisor’s name is required at the time of application.
  • The choice of supervisor will determine the primary campus location of the student. It will also determine which university awards the degree.

- **Language Requirements**

  Applicants must be able to understand and fluently speak the language of instruction (French or English) in the program to which they are applying. Proof of linguistic proficiency may be required.

  Applicants whose first language is neither French nor English must provide proof of proficiency in the language of instruction.

  Note: Candidates are responsible for any fees associated with the language tests.

**Notes**

- The admission requirements listed above are minimum requirements and do not guarantee admission to the program.

- Admissions are governed by the general regulations (http://www.uottawa.ca/graduate-studies/students/general-regulations/) in effect for graduate studies and by the general regulations of the Ottawa-Carleton Institute of Mathematics and Statistics (OCIMS).

**Fast-Track from Master’s to PhD**

Students enrolled in the master’s program in mathematics and statistics at the University of Ottawa may be eligible to fast-track directly into the doctoral program without writing a master’s thesis, provided the following conditions are met:

- Completion of two graduate courses (six units) with a grade of A- or better in each.
- Having completed with success one of the basic comprehensive exam.
- Satisfactory progress in the research program.

- Written recommendation by the supervisor and the advisory committee;

- Approval by the graduate studies committee.

**Notes:**

- The transfer must take place within sixteen months of initial enrollment in the master’s.

- Following the transfer, all of the requirements of the doctoral program must be met: a total of 18 course units (including the units completed at the master’s); the comprehensive exams; and a thesis.

**Program Requirements**

**Doctorate**

Requirements for this program have been modified. Please consult the 2018-2019 calendars (http://catalogue.uottawa.ca/en/archives/) for the previous requirements.

The Department may require students to take additional courses, depending on their backgrounds.

Students must meet the following requirements:

**Compulsory Courses:**

<table>
<thead>
<tr>
<th>18 optional course units in mathematics (MAT) at the graduate level</th>
<th>18 Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Two options from the following:</strong></td>
<td>2, 3</td>
</tr>
<tr>
<td>Option 1: Real Analysis</td>
<td></td>
</tr>
<tr>
<td>MAT 9900 Comprehensive Exam: Real Analysis I</td>
<td></td>
</tr>
<tr>
<td>MAT 9901 Comprehensive Exam: Real Analysis II</td>
<td></td>
</tr>
<tr>
<td>Option 2: Algebra</td>
<td></td>
</tr>
<tr>
<td>MAT 9902 Comprehensive Exam: Algebra I</td>
<td></td>
</tr>
<tr>
<td>MAT 9903 Comprehensive Exam: Algebra II</td>
<td></td>
</tr>
<tr>
<td>Option 3: Topology</td>
<td></td>
</tr>
<tr>
<td>MAT 9904 Comprehensive Exam: Topology I</td>
<td></td>
</tr>
<tr>
<td>MAT 9905 Comprehensive Exam: Topology II</td>
<td></td>
</tr>
<tr>
<td>Option 4: Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MAT 9906 Comprehensive Exam: Differential Equations I</td>
<td></td>
</tr>
<tr>
<td>MAT 9907 Comprehensive Exam: Differential Equations II</td>
<td></td>
</tr>
<tr>
<td>Option 5: Discrete Mathematics</td>
<td></td>
</tr>
<tr>
<td>MAT 9908 Comprehensive Exam: Discrete Mathematics I</td>
<td></td>
</tr>
<tr>
<td>MAT 9909 Comprehensive Exam: Discrete Mathematics II</td>
<td></td>
</tr>
<tr>
<td>Option 6: Probability Theory</td>
<td></td>
</tr>
<tr>
<td>MAT 9910 Comprehensive Exam: Probability Theory I</td>
<td></td>
</tr>
<tr>
<td>MAT 9911 Comprehensive Exam: Probability Theory II</td>
<td></td>
</tr>
<tr>
<td>Option 7: Mathematical Statistics</td>
<td></td>
</tr>
<tr>
<td>MAT 9912 Comprehensive Exam: Mathematical Statistics I</td>
<td></td>
</tr>
<tr>
<td>MAT 9913 Comprehensive Exam: Mathematical Statistics II</td>
<td></td>
</tr>
<tr>
<td><strong>Comprehensive Examination:</strong></td>
<td></td>
</tr>
<tr>
<td>MAT 9998 Advanced Comprehensive Examination</td>
<td></td>
</tr>
</tbody>
</table>

Thesis:

THD 9999  Doctoral Thesis 4, 5

Note(s)

1. The optional course units may be selected in related disciplines approved by the Department of Mathematics and Statistics.
2. A student changing his area of specialization is required to complete the advanced comprehensive examination in the new area within a time period specified by the thesis advisory committee.
3. Successful completion of all the advanced comprehensive examinations within 20 months from the initial registration.
4. Presentation and successful defense of a thesis based on original research carried out under the direct supervision of a faculty member of the Institute.
5. Students are responsible for ensuring they have met all of the thesis requirements (http://www.uottawa.ca/graduate-studies/students/theses/).

Minimum Requirements

The passing grade in all courses is B.

Students who fail two courses (equivalent to 6 units), or the thesis proposal, or the comprehensive exam, or whose research progress is deemed unsatisfactory are required to withdraw.

Research

Research Fields & Facilities

Located in the heart of Canada’s capital, a few steps away from Parliament Hill, the University of Ottawa is among Canada’s top 10 research universities.

uOttawa focuses research strengths and efforts in four Strategic Areas of Development in Research (SADRs):

- Canada and the World
- Health
- e-Society
- Molecular and Environmental Sciences

With cutting-edge research, our graduate students, researchers and educators strongly influence national and international priorities.

Research at the Faculty of Science

The Faculty of Science has become a true centre of excellence in research through its world-class professors as well as its programs and infrastructure in Biology, Chemistry, Earth Sciences, Mathematics and Statistics, and Physics.

The research accomplished by its 140 internationally recognized professors, its approximately 400 graduate students and its dozens of postdoctoral researchers and visiting scientists has positioned the Faculty of Science as one of the most research intensive science faculties in Canada. Our professors have received many international and national awards including three NSERC Gerhard Herzberg Gold Medal winners and numerous Fellows of the Royal Society of Canada.

The Faculty of Science, through its strategic use of infrastructure programs, hosts world-class Core Facilities and is at the leading edge for the study of Catalysis, Experimental and Computational Chemistry, Environmental Toxins, Nuclear Magnetic Resonance, Isotope Analysis, Molecular Biology and Genomics, X-Ray Spectrometry/Diffractionmetry, Geochemistry, Mass Spectrometry, Physiology and Genetics of Aquatic Organisms, and Photonics. The Faculty is also associated with the Fields Institute for research in mathematical science and the Centre de recherche mathématiques (CRM) at the Université de Montréal, providing a unique setting for mathematical research.

For more information, refer to the list of faculty members and their research fields on Uniweb.

IMPORTANT: Candidates and students looking for professors to supervise their thesis or research project can also consult the website of the faculty or department (https://www.uottawa.ca/graduate-studies/students/academic-unit-contact-information/) of their program of choice. Uniweb does not list all professors authorized to supervise research projects at the University of Ottawa.

Courses