2015-2016

DCS GRADUATE
STUDENT HANDBOOK:
OVERVIEW OF PROGRAMS
Preface

The purpose of this handbook is to describe the degree requirements, financial support, and other matters that concern graduate students in the Department of Computer Science. This handbook is developed over the summer and updated online as needed. Please check this DCS website regularly. Students will be notified by email of significant changes and upcoming deadlines as necessary.

Information about the Department of Computer Science at the University of Toronto, its graduate program admissions, course descriptions and current timetable is available from the Departmental website: http://web.cs.toronto.edu/.

NOTE: The Graduate Program in the Department of Computer Science is a unit within the School of Graduate Studies. The mission of the School of Graduate Studies is to promote university-wide excellence in graduate education and research and to ensure consistency and high standards across the divisions. Sharing responsibility for graduate studies with graduate units and divisions, and operating through a system of collegial governance, consultation, and decanal leadership, SGS defines and administers university-wide regulations for graduate education.

School of Graduate Studies regulations and procedures, some of which are briefly mentioned in this handbook, are available in the SGS Calendar at www.sgs.utoronto.ca.

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<tbody>
<tr>
<td><strong>M July 13</strong></td>
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<tr>
<td>Registration for fall session begins</td>
</tr>
<tr>
<td><strong>M August 3</strong></td>
</tr>
<tr>
<td>Civic holiday (University Closed)</td>
</tr>
<tr>
<td><strong>F August 28</strong></td>
</tr>
<tr>
<td>Last date for payment of tuition fees to register for the fall session.</td>
</tr>
<tr>
<td><strong>M September 7</strong></td>
</tr>
<tr>
<td>Labour Day (University Closed)</td>
</tr>
<tr>
<td><strong>F September 11</strong></td>
</tr>
<tr>
<td>Coursework must be completed and grades submitted for Summer session courses and</td>
</tr>
<tr>
<td>extended courses</td>
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<tr>
<td><strong>M September 14</strong></td>
</tr>
<tr>
<td>Computer Science graduate courses and seminars begin in the week of September 14</td>
</tr>
<tr>
<td><strong>T September 15</strong></td>
</tr>
<tr>
<td>• Final date to submit final doctoral theses to SGS to avoid fee charges for</td>
</tr>
<tr>
<td>2015–2016</td>
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<tr>
<td>• Students who are required to complete modifications to final thesis must</td>
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<tr>
<td>register for the fall session in order to do so. A pro-rated fee structure will</td>
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<tr>
<td>apply.</td>
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<tr>
<td><strong>W September 16</strong></td>
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<tr>
<td>Summer session grades available for viewing by students on the Student Web Service</td>
</tr>
<tr>
<td><strong>F September 18</strong></td>
</tr>
<tr>
<td>Registration for Fall session ends – after this date a late registration fee will be assessed.</td>
</tr>
<tr>
<td><strong>M September 28</strong></td>
</tr>
<tr>
<td>Final date to add full-year and fall session courses</td>
</tr>
<tr>
<td><strong>F October 2</strong></td>
</tr>
<tr>
<td>• Final date to submit final doctoral thesis for fall convocation</td>
</tr>
<tr>
<td>• Final date for receipt of degree recommendations and submission of any</td>
</tr>
<tr>
<td>required theses for master's degrees for fall convocation without fees being</td>
</tr>
<tr>
<td>charged for the fall session</td>
</tr>
<tr>
<td><strong>F October 9</strong></td>
</tr>
<tr>
<td>Deadline to submit Breadth Evaluation &amp; Plan of study forms for students who started September 2015</td>
</tr>
<tr>
<td><strong>M October 12</strong></td>
</tr>
<tr>
<td>Thanksgiving Day (University Closed)</td>
</tr>
<tr>
<td><strong>M November 2</strong></td>
</tr>
<tr>
<td>Final date to drop fall session full- or half courses without academic penalty</td>
</tr>
<tr>
<td><strong>November</strong></td>
</tr>
<tr>
<td>Fall convocation. Fall convocation information and dates are posted at</td>
</tr>
<tr>
<td><a href="http://www.convocation.utoronto.ca">www.convocation.utoronto.ca</a></td>
</tr>
<tr>
<td><strong>November 1</strong></td>
</tr>
<tr>
<td>Deadline for students to change immigration status or claim exemption from</td>
</tr>
<tr>
<td>international student fees for the Fall session.</td>
</tr>
<tr>
<td><strong>December 23</strong></td>
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<tr>
<td>Winter break begins (Wednesday, December 23 to Friday January 1 inclusive)</td>
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<tr>
<td>Date</td>
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<tr>
<td>------------</td>
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</tbody>
</table>
| **M January 4** | - University re-opens  
- Computer Science graduate courses and seminars begin in the week of January 11 |
| **F January 15** | - Final date for registration of students beginning program in winter session; after this date, a late registration fee will be assessed |
| **F January 15** | - Coursework must be completed and grades submitted for Fall session courses |
| **F January 15** | - Final date to submit doctoral theses without fee payment for winter session |
| **W January 20** | - Fall session grades available for viewing by students on the Student Web Service |
| **F January 22** | - Final date for receipt of degree recommendations and submission of any required theses for March or June graduation for master’s students without fees being charged for the winter session  
- Final date for all students to request that their degrees be conferred in absentia in March/June  
- Fall dual registrants must be recommended for the master's degree by this date to maintain their PhD registration |
| **M January 25** | - Final date to add winter session courses |
| **M February 15** | - Family Day (University Closed) |
| **M Feb 15 – F Feb 19** | - Reading Week for Faculty of Arts and Science undergraduate students |
| **M February 22** | - Deadline to submit Breadth Evaluation & Plan of Study forms for students who started January 2016 |
| **T March 1** | - Final date to drop full-year and winter session courses without academic penalty |
| **F March 25** | - Good Friday (University closed) |
| **March** | - March graduation In absentia Information is posted at www.convocation.utoronto.ca |
| **F April 22** | - For students obtaining degrees at June Convocation, coursework must be completed and submitted for full-year and Winter session courses  
- Final Date for submission of degree recommendations and submission of any requires thesis for degrees for June convocation  
- Final date for submission of final doctoral thesis for students whose degrees are to June convocation  
- Final date for degree recommendations of Winter dual registrants for the master's degree to their PhD registration |
SESSIONAL DATES 2015/2016

<table>
<thead>
<tr>
<th>Session</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summer Session 2016</strong></td>
<td></td>
</tr>
<tr>
<td>F May 6</td>
<td>Final date for registration for May session</td>
</tr>
<tr>
<td>M May 9</td>
<td>Final date to enroll in May-June or May-August session courses</td>
</tr>
<tr>
<td>F May 13</td>
<td>Coursework must be completed and grades submitted for full-year and winter session courses (except for extended courses) (4)</td>
</tr>
<tr>
<td>W May 18</td>
<td>Winter session grades available for viewing by students on the Student Web Service</td>
</tr>
<tr>
<td>M May 23</td>
<td>Victoria Day (University Closed)</td>
</tr>
<tr>
<td>F May 27</td>
<td>Final date to drop May-June F section courses without academic penalty (7)</td>
</tr>
<tr>
<td>June</td>
<td>June convocation information and dates are posted at <a href="http://www.convocation.utoronto.ca">www.convocation.utoronto.ca</a></td>
</tr>
<tr>
<td>M June 20</td>
<td>Final date to drop May-August session Y section courses without academic penalty (7)</td>
</tr>
<tr>
<td>F June 24</td>
<td>Final date to enroll in July-August courses (8)</td>
</tr>
<tr>
<td>F July 1</td>
<td>Canada Day (University Closed)</td>
</tr>
<tr>
<td>M July 4</td>
<td>Final date to enroll in July-August courses</td>
</tr>
<tr>
<td>F July 15</td>
<td>Coursework must be completed and grades submitted for May-June F section courses (7)</td>
</tr>
<tr>
<td>M July 18</td>
<td>Final date to drop July-August S section courses without academic penalty</td>
</tr>
<tr>
<td>W July 20</td>
<td>Grades for May-June F section courses available for viewing by students on the Student Web Service</td>
</tr>
</tbody>
</table>

(1) Graduate students may only enroll in undergraduate courses with the approval of their supervisor or graduate unit. Students are responsible for meeting the deadlines and requirements of the undergraduate course as presented in class and in the undergraduate division's calendar. Graduate students will be graded under the graduate grading scale. Students should consult the appropriate undergraduate calendar for enrolment and dates.

(2) The precise dates of commencement of courses are determined by the graduate units; students are urged to contact the relevant graduate units for information. SGS maintains the 13-week graduate instruction period; however, if a course does not fall into the traditional 13-week period, the graduate unit will inform students of important dates and deadlines in the course syllabus. University policy states that the first day of classes in the fall session in all teaching divisions should not be scheduled on the first and second days of Rosh Hashanah (from 1 1/2 hours before sunset on Sunday, September 13, 2015 to about 1 1/2 hours after sunset on Tuesday, September 15, 2015) or on Yom Kippur (from about 1 1/2 hours before sunset on Tuesday, September 22, 2015 to about 1 1/2 hours after sunset on Wednesday, September 23, 2015).

(3) A final thesis is the corrected, approved version of thesis which is submitted to SGS following the Final Oral Examination.

(4) Graduate units may establish earlier deadlines for completion of coursework and may prescribe penalties for late completion of work and for failure to complete work, provided that these penalties are announced at the time the instructor makes known to the class the methods by which student performance shall be evaluated.

(5) For final dates for completing degree requirements, students should consult their own graduate unit.

(6) Reading week dates are the dates which have been established for undergraduate students in the Faculty of Arts and Science. Not all Faculties offer Reading Week or a November Pause. To find out if your Faculty offers a Reading Week or November Pause, please contact them directly. SGS does not have a Reading Week or November Pause.

(7) Graduate units may establish earlier deadlines to add/drop courses but these dates must clearly be communicated to students. Please note that the last date to cancel a course or registration with no academic penalty is not the same as the last date to be eligible for a refund.

(8) Students starting their program in the Summer and OISE students are required to register by this date by paying the minimum tuition amount stated in their invoice.
The Department

Overview

The Department of Computer Science at the University of Toronto has been a leading international research department for over forty years; it was the first computer science department established in Canada. It is characterized by a breadth of research and teaching interests, and the high quality of its faculty and graduate students. Currently, the department consists of 108 faculty members including a broad array of regular faculty, cross appointed and adjunct faculty, several post-docs, research associates and visitors, 300 graduate students, and 750 undergraduate majors and specialists.

The department is not only responsible for a large number of the computer science Ph.D.'s in Canada, but our graduates are on the faculties of CS departments around the world. In fact, many of our graduates have gone on to serve as chairs of the top CS departments, including those at MIT, University of Washington, and the University of Waterloo. Our graduate students also go on to exciting and successful careers in industry. One is the former vice-president, Development and Marketing of Microsoft and now runs a venture capital company. One has won an Academy Award for his work in animation. One received the ACM Doctoral Dissertation Award for the best computer science Ph.D. thesis in the world. Several others have gone on to run successful start-ups. For example, the idea for BumpTop arose out of the founder’s M.Sc. work when he was a student here. For more details about our alumni, see http://web.cs.toronto.edu/people/alumni.htm

Our faculty and graduate students are engaged in cutting-edge investigations at the forefront of the dramatic changes in the development and uses of information and communications technology. We also place great emphasis on exposure to, and direct engagement in, research projects among our undergraduates, integrating inquiry-based learning deeply into our curriculum. Our department covers a broad spectrum of research areas – from the theoretical to the more practical – and our students have the unique opportunity to explore a variety of exciting topics with world-renowned researchers.

We are proud of our deep interdisciplinary connections. Our department has strong ties with other departments and institutes within the University of Toronto and beyond. We collaborate with areas such as Electrical and Computer Engineering (ECE), Psychology, Sociology, Philosophy, Mathematics, Occupational Therapy, and we have adjunct faculty from companies, institutes and universities around the world.

A key focus of teaching and research is currently digital media, a highly interdisciplinary field that calls us to draw from areas as diverse as networking, mobile computing, speech and natural language processing, vision, machine learning, visualization, HCI, knowledge media design and information systems. The Department of Computer Science is a leader in this effort, having been awarded a significant grant by the Canadian Foundation for Innovation for the construction of a Centre for Collaborative Interactive Digital Media.

The Department is housed in three buildings in the center of the university's urban St. George campus. Our eleven research groups are spread across the Sandford Fleming Building, the D.L. Pratt Building, and the Bahen Centre for Information Technology. Being in the heart of Toronto provides our students and faculty with a unique opportunity – we are in one of the most diverse cities in the world, and home to the third-largest ICT sectors in North America.

Administration

The Department of Computer Science is administered by the Chair: Professor Ravin Balakrishnan and Vice Chair: Professor Marsha Chechik.

The Graduate Program is administered by the Associate Chair for Graduate Studies, Professor Peter Marbach and the Co-Graduate Administrators Vinita Krishnan and Vivian Hwang. They are assisted in the Graduate Office by the Graduate Administrative Assistant Claire Mosses. Graduate
policies are under the advisement of the Graduate Affairs Committee, consisting of several faculty members and graduate students.

Overview of Graduate Programs

We currently offer two separate streams in our graduate programs, the research stream and the professional master’s stream. The research stream leads to M.Sc. and Ph.D. degrees, while the professional stream leads to the Masters of Science in Applied Computing (M.Sc.A.C) degree. The choice here is whether the student is seeking to be trained as a researcher, capable of creating original, internationally recognized, research in Computer Science, or is seeking an understanding of current research and the opportunity to apply it in real-world situations.

Applicants to the research stream are assessed, in part, on their potential to make substantial contributions to research in Computer Science. Students are offered some of the most attractive funding packages in the country, with strong funding guarantees for up to five years that rise with tuition and fee increases, competitive Admissions Awards for incoming students, and significant financial top ups for scholarship holders. In addition, about 15% of graduate students in our research stream choose to take one or more leaves to do separate industrial internships. While these internships are not part of the requirements for the M.Sc. or Ph.D. degrees, they can provide valuable industrial experience and contacts.

Alternatively, the professional masters stream is oriented towards training the next generation of industrial leaders, innovators, and entrepreneurs. Students spend eight months studying with our world class faculty, and then eight months applying their knowledge in an internship. Unlike the research stream, the internship is required for this professional stream. During their internship, the student works together with an industrial partner and a faculty supervisor on applying current research to industrially relevant problems. Our M.Sc.A.C. students have interned with a wide range of companies, including: Chango, eHealth Innovation, FixMo, Google, Guardly, IBM, MDA Space Missions, Medical Technologix, RIM, SecureKey Technologies, Side Effects Software, and Uken Games.

For further information about our application process and program details, visit: http://www.cs.toronto.edu.

We next provide a brief introduction to the different requirements, the different degree programs, and the different admission categories that we have within Computer Science. After this introduction we will provide a rough timeline for progress through each type of degree.

DCS Graduate Courses

DCS graduate courses must be approved by both the Graduate Affairs Committee and by SGS. The list of all our current graduate courses is provided in Appendices A and B. However, note that in any given year we offer only a subset of all these courses. Generally, courses are mainly offered in the Fall and Winter terms, with a handful of courses (if any) offered in the Summer term. The 2015-16 course schedule is available from http://www.cs.toronto.edu.

Breadth and Course Requirements

Each program has a course requirement, which specifies the minimum number of half-courses that are required for the degree. For the M.Sc. and Ph.D. programs there are also specific breadth requirements which limit the selection of courses. Breadth requirements are designed to ensure the graduate has a broad and well-balanced knowledge of the field of Computer Science, at the level of graduate study here at the University of Toronto. This reflects the fact that these degrees are masters and doctorates of Computer Science as a whole.

The breadth requirements for our degree programs ensure that students complete courses from a wide range of topics within Computer Science. These requirements are specified in terms of a categorization of courses into different categories of methodology and research area.
The methodological and research area categorizations for the current list of graduate courses can be found in Appendixes A and B. For continuing students who have taken courses that are no longer offered, these course categorizations can be found in Appendix C. Appendix A and B provides a list of all DCS graduate courses.

Details on the breadth requirements for each of our graduate programs are provided in the documents on the individual MScAC, MSc and PhD programs.

**Degree Programs**

**Master of Science (MSc)**

The M.Sc. degree program consists of four computer science graduate half-courses, which satisfy the M.Sc. breadth requirement, and a major research paper. The major research paper should demonstrate the student's ability to do independent work in organizing existing concepts and in suggesting and developing new approaches to solving problems in a research area.

**Master of Science in Applied Computing (MScAC)**

The MScAC program is a sixteen month professional master's program comprising two terms of coursework (September to December & January to April), and an eight month industrial internship. The program is intended for students with an undergraduate degree in Computer Science or a related discipline who want to expand their academic competence but do not intend to pursue careers in pure research.

**Doctor of Philosophy (PhD)**

The most important part of doctoral work is original research conducted under the direction of a faculty member. This research will constitute a significant and original contribution to computer science. The results will be presented in a thesis and defended at departmental and graduate school oral examinations. The Ph.D. thesis may build upon the student's M.Sc. research. The Ph.D. degree program also requires four computer science graduate half-courses and satisfaction of the Ph.D. breadth requirement. Courses taken during a student's Master's degree can count towards the breadth requirement. Students who enter into the graduate program from another university may request transfer credit for courses which were not used toward the requirements of another degree, diploma, certificate, or any other qualifications. Students admitted to the PhD Direct program from a Bachelor's degree will have to complete eight courses, and the selection of these courses must satisfy both the M.Sc. and Ph.D. breadth requirements.

Details of the program requirements for each of these programs are provided in the following documents MScAC, MSc, and PhD program.

**Different Admission Categories**

There are four categories of students:

1. **M.Sc.** Students who have completed a B.Sc. and are enrolled in the M.Sc. program (potentially as a precursor to entering the Ph.D. program).

2. **Ph.D.** Students who entered the Ph.D. program after having completed their M.Sc. program in our department.

3. **Ph.D. with M.Sc. from elsewhere.** Students who have completed the M.Sc. degree elsewhere and have entered the Ph.D. program.

4. **Ph.D. Direct Entry.** Students who have completed a B.Sc. and have entered directly into the Ph.D. program.

**MSc and PhD Student Supervision**

Every MSc and PhD graduate student will be assigned a supervisor prior to registration. The
supervisor advises on course selection, research topic selection, and provides continuing help during the conduct of research. All MSc and PhD students are required to consult frequently with their supervisors throughout their graduate studies, to report on their progress and direction and to obtain advice. Occasionally the student-supervisor match is not productive. The student should discuss difficulties or concerns with the current supervisor. In many cases the reason for wanting the change is an issue which might be resolved by talking it out. If no resolution can be found, students who feel a need to change supervisor are welcome to seek advice from the Associate Chair, Graduate Studies.

Financial Support

The Department of Computer Science will ensure that all full-time research degree graduate students receive financial support to at least the basic departmental level, provided that they are making satisfactory progress in their graduate program. M.Sc. Students do not qualify for guaranteed departmental funding.

- **M.Sc. Students**: 17 months of guaranteed funding.
- **Ph.D.-Direct Students**: 60 months of guaranteed funding.
- **Ph.D. Students who have completed M.Sc. program in our department**: 43 months of guaranteed funding.
- **Ph.D. with M.Sc. from elsewhere**: 48 months of guaranteed funding.

A student who starts our program from a Bachelor's degree will receive 60 months (5 years) of financial support. Of these 60 months, up to 17 months of support is provided to complete the Masters and 43 months of guaranteed support is provided to complete the Ph.D. Students who enter the Ph.D. program with a Master's degree from elsewhere will receive 48 months of financial support to complete the Ph.D.

Students and prospective students wishing to obtain financial support must apply for all scholarships, fellowships, and bursaries for which they are eligible. Canadian and permanent resident students should apply to the Canadian and Ontario Government scholarships (NSERC and OGS, see below). Foreign students are expected to apply to their own government and national agencies, and for Government of Canada Scholarships available through the Canadian Embassy in their country. The Ontario Student Aid Program (OSAP) provides interest-free loans.

Students who win a major scholarship are no longer eligible for basic departmental support, since that support will now be provided by their scholarship. To ensure scholarship winners obtain a significant financial reward from their scholarship, the department will pay a top-up for scholarship holders who are within their guaranteed funding period.

Deadlines and procedures for application to all award competitions will be announced by email to all registered students as that information becomes available each year.

Ontario Graduate Scholarships (OGS)

Canadian citizens, permanent residents, or students who have been admitted to Canada on a student visa are eligible. Preference is given to Ontario residents. The call for applications and deadlines will be announced by e-mail to all registered students in late-September. OGS is tenable at any Ontario university. Application forms must be submitted to the Graduate Office of the Department of Computer Science. OGS webpage: [https://osap.gov.on.ca/OSAPPortal/en/A-ZListofAid/TCONT003465.html](https://osap.gov.on.ca/OSAPPortal/en/A-ZListofAid/TCONT003465.html)

Natural Sciences and Engineering Research Council (NSERC) Postgraduate Scholarships (PGS) and Canada Graduate Scholarships (CGS) awards

Canadian citizens and permanent residents are eligible for these scholarships which are tenable at any Canadian university. Award recipients may start their scholarship in May, provided they are able to find a supervisor for the summer period preceding their registration.

NSERC application forms must be submitted to the Graduate Office of the Department of Computer Science.
The call for applications and the departmental deadline will be announced by e-mail to all registered students in September. Consult the NSERC webpage www.nserc.gc.ca for further details.

Department of Computer Science Awards

The department awards a number of scholarships. All students regardless of their legal status in Canada are eligible. Not all of these scholarships are awarded each year, as the available amount of funds for many of these depends on interest accrued from endowments. A single application for all of these scholarships will be due after NSERC and OGS recipients have been announced in early spring. The award recipients will be selected by the Graduate Affairs Committee.

**Acres Productive Technologies Inc. -- Joseph Yonan Memorial Fellowship**

This scholarship is to be awarded to graduate students with academic excellence and financial need. Eligible students will be drawn from the DCS.

**C.C. Gotlieb (Kelly) Graduate Fellowship in the Department of Computer Science**

To be awarded on the basis of academic merit (research and course work) to an outstanding graduate student in any sub-discipline of Computer Science. Financial need may also be considered.

**Robert E. Lansdale/Okino Computer Graphics Graduate Fellowship in DGP for the Department of Computer Science**

To be awarded to a graduate student in the Department of Computer Science's Dynamic Graphics Project on the basis of academic merit. Financial need may also be considered.

**Platform Computing Graduate Fellowship in Computer Science**

To be awarded to a graduate student in the Department of Computer Science on the basis of academic merit. Financial need may also be considered.

**Ray Reiter Graduate Award in Computer Science**

To be awarded on the basis of financial need to a graduate student in the area of Artificial Intelligence.

**Monica Ryckman Bursary**

The funds will be used for graduate students who are otherwise without support. Value is variable.

**Alfred B. Lehman Graduate Scholarship in Computer Science**

To be awarded to a graduate student in the Department of Computer Science on the basis of academic merit with preference given to students studying in the area of discrete mathematics, with a special emphasis on combinatorics, graph theory, matroid theory and the theoretical foundations of mathematical programming. Financial need will also be considered.

**Wolfond Scholarship Program in Wireless Information Technology**

To be awarded to graduate students in the Department of computer Science who are pursuing research in areas related to systems, wireless, networks, HCI and digital media. Awards to be given based on academic merit. The recipients of this scholarship will be known as “Wolfond Fellows”.

**Doctoral Thesis Completion Award (DCA)**

This award is intended to help support Ph.D. students who are in their first year beyond the period of guaranteed funding and whose program cannot be completed within the funded years because of special features of the research program or because of unforeseen events such as loss of data, obstruction of access of research materials, etc. The DCA is available to both domestic and international students. Information is available at www.sgs.utoronto.ca.
**Master’s Tuition Fee Bursary (MTFB)**

A limited number of bursaries are available for master’s students for whom the minimum period of registration (i.e. program length) will have ended by or before either August or December and who have a small amount of work outstanding for the degree. The value of the bursary is equal to the difference between one session full-time fee and one session part-time fee. This tuition assistance is provided for only one session during the academic year. The form is available on the SGS web site, under Student Forms.

**Fellowships from Other Agencies**

Further details on awards from outside agencies are listed in the calendar of the School of Graduate Studies.

**Ontario Government Loans**

The Ontario Student Aid Program (OSAP) provides interest free loans to needy full-time students who are Canadian citizens or permanent residents. M.Sc. students are eligible for OSAP funding. For more information, phone 1-416-978-2190 ext.6285 or email osap.staff@utoronto.ca.

**Financial Counseling**

Students in financial difficulty may wish to visit a Financial Counselor at the School of Graduate Studies, 63 St. George Street. A counselor can help with budgeting and may have access to various bursaries, grants, loans, etc. that would be sufficient to get a student through a rough financial situation.

**Departmental and University Facilities**

**Computer Facilities**

The Computer Science Laboratory (CS Lab) is the department’s research computing facility. Workstations, servers, and printers for research computing are in abundance throughout the department. Every graduate student is equipped with a research computing desktop, interconnected via a high-speed network to departmental servers, the university backbone, and the internet. Wired and wireless network access for notebook computers is also available. In addition, there are multiple special-purpose research computing laboratories focusing on specific research areas, such as graphics, databases, computer vision, machine learning, computational linguistics, robotics and distributed systems.

Teaching computing on both the graduate and undergraduate level is supported by the Computing Disciplines Facility (CDF), which operates a number of departmental teaching laboratories at different locations on campus.

Additional computing facilities on campus are also available. A list of central university IT resources is available online at http://www.its.utoronto.ca/.

**Library Facilities**

The University of Toronto library system is the largest in Canada. It consists of four central libraries and many departmental libraries. Pamphlets describing the library services are available at these locations. The Reader Registration Office is on the main floor of the Robarts Library. Visit the libraries web site at http://www.library.utoronto.ca/home/. The central libraries are:

- **Gerstein Science Information Centre**  
  7 King's College Circle

- **Sigmund Samuel Library**  
  9 King's College Circle

- **Robarts Research Library**  
  (Humanities & Social Science Library)  
  130 St. George Street

- **Sandford Fleming Library**  
  (Engineering & Computer Science Library)  
  10 King's College Circle
Research Skills Course
The department often offers a research skills course. This course is intended to help students develop essential research skills needed to succeed in conducting research, publishing research, and becoming part of the research community. The course is conducted as a Seminar Series on Research and Related Skills for Computer Science Graduate Students. More information will be forthcoming during the Fall term.

English Language and Writing Support
English Language and Writing Support, at the School of Graduate Studies, offers individual consultations, single-session workshops, and free non-credit courses for both native and non-native speakers of English. Information and registration: http://www.sgs.utoronto.ca/informationfor/students/english.

The Graduate Professional Skills (GPS) program
The Graduate Professional Skills (GPS) program is an initiative from the School of Graduate Studies to help research stream (M.Sc., Ph.D.) graduate students become fully prepared for their future.

GPS focuses on skills beyond those conventionally learned within a disciplinary program, skills that may be critical to success in the wide range of careers that graduates enter, both within and outside academe. GPS can help you to communicate effectively, plan and manage your time, be entrepreneurial, understand and apply ethical practices, and work effectively in teams and as leaders.

The GPS consists of a range of optional “offerings” with a time commitment roughly equivalent to 60 hours of work over the course of a degree. Its successful completion will be recognized by a notation on the student's university transcript.
University of Toronto Policies

This is not an exhaustive list of U of T policy. For more information visit the School of Graduate Studies Website: [http://www.sgs.utoronto.ca/currentstudents/Pages/Policies,-Guidelines,-Student-Responsibilities.aspx](http://www.sgs.utoronto.ca/currentstudents/Pages/Policies,-Guidelines,-Student-Responsibilities.aspx)

Intellectual Property Guidelines: Inventions and Patents

For information, refer to The University of Toronto Policy on Intellectual Property at [http://www.sgs.utoronto.ca/currentstudents/Pages/Intellectual-Property-Guidelines.aspx](http://www.sgs.utoronto.ca/currentstudents/Pages/Intellectual-Property-Guidelines.aspx).

Code of Behaviour on Academic Matters

Students in graduate studies are expected to commit to the highest standards of integrity and to understand the importance of protecting and acknowledging intellectual property. For example, it is assumed that they bring to their graduate studies a clear understanding of how to cite references appropriately, thereby avoiding plagiarism. The student's thinking must be understood as distinct from the sources upon which the student is referring. Two excellent documents entitled "How Not to Plagiarize" and "Deterring Plagiarism" (of interest to students and faculty respectively) are available for reference through the SGS website:


U of T Code of Student Conduct


No person shall cause another person or persons to fear for their safety or the safety of another person known to them while on the premises of the University of Toronto or in the course of activities sponsored by the University of Toronto or by any of its divisions, or cause another person or persons to be impeded in exercising the freedom to participate reasonably in the programs of the University and in activities in or on the University's premises, knowing that their conduct will cause such fear, or recklessly as to whether their conduct causes such fear. This protection is extended to all graduate and undergraduate students, all administrative and support staff, all faculty members and all instructors and TA's.

U of T Policy on Sexual Harassment


Preamble to the Policy

Sexual harassment in any situation is reprehensible. In particular, within the University community it fosters a hostile or unfair environment which counteracts the spirit of cooperation and education.

Responsibility shared

All members of the University community share responsibility for bringing about and maintaining an environment free of sexual harassment, but a particular burden is placed on those in positions of academic and administrative authority to attempt to ensure that allegations of sexual harassment which are brought to their attention are dealt with in the appropriate fashion as laid out in this Policy and Procedures.

Safety Abroad: [http://www.studentlife.utoronto.ca/cie/safety-abroad](http://www.studentlife.utoronto.ca/cie/safety-abroad)
Appendix A: COURSE CLASSIFICATION BASED ON METHODOLOGIES

Methodology 1: Analysis and Computation in Discrete Models

CSC2104 (465) Formal Methods of Program Design (Programming Methodology)  
CSC2108 Automated Verification  
CSC2125 Topics in Software Engineering  
CSC2221 Introduction to the Theory of Distributed Computing  
CSC2226 Topics in Verification  
CSC2401 Introduction to Computational Complexity  
CSC2404 (438) Computability and Logic  
CSC2405 (448) Automata Theory  
CSC2410 Introduction to Graph Theory  
CSC2411 Linear Programming and Combinatorial Optimization  
CSC2413 Combinatorial Methods and Designs  
CSC2414 Topics in Applied Discrete Mathematics  
CSC2415 Advanced Topics in Distributed Computing  
CSC2416 Machine Learning Theory  
CSC2419 Topics in Cryptography  
CSC2420 Algorithm Design, Analysis and Theory  
CSC2421 Topics in Algorithms  
CSC2426 Fundamentals of Cryptography  
CSC2427 Topics in Graph Theory  
CSC2429 Topics in Computational Complexity  
CSC2502 (486) Knowledge Representation and Reasoning  
CSC2506 Probabilistic Learning and Reasoning  
CSC2512 Constraint Satisfaction Problems  
CSC2517 Discrete Mathematical Models of Sentence Structure  
CSC2519 Natural Language Semantics  
CSC2523 Object Modeling and Recognition  
CSC2532 Dynamical Systems and Artificial Intelligence  
CSC2533 Foundations of Knowledge Representation  
CSC2534 Decision Making Under Uncertainty  
CSC2542 Topics in Knowledge Representation and Reasoning  
CSC2601 Topics in Analysis and Computation in Discrete Models

Methodology 2: Analysis and Computation in Continuous Models

CSC2206 System Modeling and Analysis  
CSC2302 Numerical Solution of Initial Value Problems for Ordinary Differential Equations  
CSC2305 Numerical Methods for Optimization Problems  
CSC2306 (456) High-Performance Scientific Computing  
CSC2307 Numerical Software  
CSC2310 (446) Computational Methods for Partial Differential Equations  
CSC2321 Matrix Calculations  
CSC2322 Boundary Value Problems for Ordinary Differential Equations  
CSC2326 Topics in Numerical Analysis  
CSC2503 (487) Foundations of Computer Vision  
CSC2504 (418) Computer Graphics  
CSC2505 Geometric Representations for Computer Graphics  
CSC2511 (401) Natural Language Computing  
CSC2515 Introduction to Machine Learning  
CSC2520 The Computational Lexicon  
CSC2521 Topics in Computer Graphics  
CSC2522 Advanced Image Synthesis  
CSC2529 Computer Animation  
CSC2530 Computer Vision for Advanced Digital Photography  
CSC2535 Advanced Machine Learning  
CSC2539 Topics in Computer Vision
CSC2541 Topics in Machine Learning
CSC2545 Kernel Methods and Support Vector Machines
CSC2602 Topics in Analysis and Computation in Continuous Models

Methodology 3: Building Software and Hardware Artifacts
CSC2107 (488) Compilers and Interpreters
CSC2203 Packet Switch and Network Architectures
CSC2208 Advanced Operating Systems
CSC2209 (458) Computer Networks
CSC2227 Topics in the Design & Implementation of Operating Systems
CSC2228 Topics in Mobile and Pervasive Computing
CSC2229 Topics in Computer Networks
CSC2231 Special Topics in Computer Systems
CSC2232 Topics in Computer System Performance and Reliability
CSC2233 Topics in Storage System
CSC2508 Advanced Database Management Systems
CSC2525 Research Topics in Data Management
CSC2531 Advanced Topics in Data Management Systems
CSC2543 Research Topics in XML Retrieval
CSC2544 Web Searching and Mining
CSC2603 Topics In Building Software and Hardware Artifacts

Methodology 4: Human-Centered and Interdisciplinary Computing
CSC2106 Requirements Engineering
CSC2130 Empirical Research Methods in Software Engineering
CSC2417 Algorithms for Genome Sequence Analysis
CSC2418 Computational Structural Biology
CSC2431 Topics in computational Molecular Biology
CSC2501 (485) Computational Linguistics
CSC2514 (428) Human-Computer Interaction
CSC2518 Spoken Language Processing
CSC2524 Topics in Interactive Computing
CSC2526 HCI: Topics in Ubiquitous Computing
CSC2527 (454) The Business of Software
CSC2536 Computer Supported Cooperative Work
CSC2604 Topics in Human-Centred and Interdisciplinary Computing
CSC2720 Systems Thinking for Global Problems

No breadth:
CSC2699 Special Reading Course in Computer Science

Appendix B: COURSE CLASSIFICATION BASED ON RESEARCH AREAS

Research Area 1: Algorithms and Discrete Math
CSC2410 Introduction to Graph Theory
CSC2411 Linear Programming and Combinatorial Optimization
CSC2413 Combinatorial Methods and Designs
CSC2414 Topics in Applied Discrete Mathematics
CSC2420 Algorithm Design, Analysis and Theory
CSC2421 Topics in Algorithms
CSC2427 Topics in Graph Theory

Research Area 2: Complexity and Cryptography
CSC2401 Introduction to Computational Complexity
CSC2404 (438) Computability and Logic
CSC2405 (448) Automata Theory
CSC2416 Machine Learning Theory
CSC2419 Topics in Cryptography
CSC2426 Fundamentals of Cryptography
CSC2429 Topics in Computational Complexity

**Research Area 3: Computational Biology**
CSC2417 Algorithms for Genome Sequence Analysis
CSC2418 Computational Structural Biology
CSC2431 Topics in Computational Molecular Biology

**Research Area 4: Computational Linguistics**
CSC2501 (485) Computational Linguistics
CSC2511 (401) Natural Language Computing
CSC2517 Discrete Mathematical Models of Sentence Structure
CSC2518 Spoken Language Processing
CSC2519 Natural Language Semantics
CSC2520 The Computational Lexicon
CSC2528 Advanced Computational Linguistics
CSC2540 Cognitive Linguistics

**Research Area 5: Computer Graphics**
CSC2504 (418) Computer Graphics
CSC2505 Geometric Representations for Computer Graphics
CSC2521 Topics in Computer Graphics
CSC2522 Advanced Image Synthesis
CSC2529 Computer Animation
CSC2530 Computer Vision for Advanced Digital Photography

**Research Area 6: Computer Systems and Networks**
CSC2203 Packet Switch and Network Architectures
CSC2206 System Modeling and Analysis
CSC2208 (469) Advanced Operating Systems
CSC2209 (458) Computer Networks
CSC2227 Topics in the Design & Implementation of Operating Systems
CSC2228 Topics in Mobile and Pervasive Computing
CSC2229 Topics in Computer Networks
CSC2231 Special Topics in Computer Systems
CSC2232 Topics in Computer System Performance and Reliability
CSC2233: Topics in Storage System

**Research Area 7: Computer Vision**
CSC2503 Foundations of Computer Vision
CSC2523 Object Modeling and Recognition
CSC2539 Topics in Computer Vision

**Research Area 8: Database Systems**
CSC2508 Advanced Database Management Systems
CSC2510 Topics in Information Systems
CSC2525 Research Topics in Data Management
CSC2531 Advanced Topics in Data Management Systems
CSC2543 Research Topics in XML Retrieval
CSC2544 Web Searching and Mining

**Research Area 9: Distributed Computing**
CSC2221 Introduction to the Theory of Distributed Computing
CSC2415 Advanced Topics in Distributed Computing

**Research Area 10: Human-Computer Interaction**
CSC2514 (428) Human-Computer Interaction
CSC2524 Topics in Interactive Computing
CSC2526 HCI: Topics in Ubiquitous Computing
CSC2527 (454) The Business of Software
CSC2536 Computer Supported Cooperative Work

**Research Area 11: Knowledge Representation**
CSC2502 (486) Knowledge Representation and Reasoning
CSC2512 Constraint Satisfaction Problems
CSC2532 Dynamical Systems and Artificial Intelligence
CSC2533 Foundations of Knowledge Representation
CSC2542 Topics in Knowledge Representation and Reasoning

**Research Area 12: Machine Learning**
CSC2506 Probabilistic Learning and Reasoning
CSC2515 Introduction to Machine Learning
CSC2535 Advanced Machine Learning
CSC2541 Topics in Machine Learning
CSC2545 Kernel Methods and Support Vector Machines

**Research Area 13: Scientific Computation and Numerical Analysis**
CSC2302 Numerical Solution of Initial Value Problems for Ordinary Differential Equations
CSC2305 Numerical Methods for Optimization Problems
CSC2306 (456) High-Performance Scientific Computing
CSC2307 Numerical Software
CSC2310 (446) Computational Methods for Partial Differential Equations
CSC2321 Matrix Calculations
CSC2322 Boundary Value Problems for Ordinary Differential Equations
CSC2326 Topics in Numerical Analysis

**Research Area 14: Software Engineering**
CSC2104 (465) Formal Methods of Program Design (Programming Methodology)
CSC2106 Requirements Engineering
CSC2107 (488) Compilers and Interpreters
CSC2108 Automated Verification
CSC2125 Topics in Software Engineering
CSC2130 Empirical Research Methods in Software Engineering
CSC2226 Topics in Verification

**Research Area 15: Interdisciplinary Computer Science**
CSC2534 Decision Making Under Uncertainty
CSC2602 Topics in Analysis and Computation in Continuous Models
CSC2604 (Winter 2014 version only) Topics in Human-Centred and Interdisciplinary Computing: Systems Thinking for Global Problems
CSC2720: Systems Thinking for Global Problems

No breadth:
CSC2699 Special Reading Course in Computer Science
Appendix C: COURSES NO LONGER OFFERED AS OF 2011-2012

CSC2402 Methodology Re: Interactability
CSC2406 Triple Systems
CSC2408
CSC2409
CSC2412 Computer Algebra
CSC2422 Reasoning about Knowledge
CSC2423 Finite Model Theory and Descriptive Complexity
CSC2428 Logic and Automata
CSC2103 Software Arch & Design
CSC2105 Software Engineering
CSC2122 Language and Compiler Design
CSC2123 Managing the Software Organization
CSC2124 Topics in Programming Languages
CSC2199 Special Reading Course in Programming
CSC2204 Advanced Operating Systems
CSC2205 Performance in Distributed Operating Systems
CSC2207 Topics in Computer Organization
CSC2211 No current course title found
CSC2225 Structure and Correctness in Operating Systems
CSC2299 Special Reading Course in Computer Systems
CSC2499 Special Reading Course in Theoretical Aspects of Computer Science
CSC2500 Artificial Intelligence
CSC2507 Conceptual Modeling
CSC2509 Data Management Systems
CSC2537 Hypermedia
CSC2538 Topics in Foundations of Databases
CSC2599 Special Reading Course in Computer Applications
CSC3111 Software Application
CSC3110 Topics in Cryptography
CSC2304
CSC2308 Numerical Methods for Nonlinear Equations
CSC2309
CSC2311
CSC2312 The Design and Assessment of Numerical Algorithms
CSC2324 Advanced Methods for Partial Differential Equations
CSC2399 Special Reading Course in Numerical Computation