### Important Dates 2021–22

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>Sept. 9</td>
<td>Graduate and cross-listed courses and seminars begin.</td>
</tr>
<tr>
<td>Sept. 10</td>
<td>Registration deadline to avoid late fees.</td>
</tr>
<tr>
<td>Sept. 21</td>
<td>Final date to add Fall courses without an add–drop form.</td>
</tr>
<tr>
<td>Sept. 24</td>
<td>Final date for the Graduate Office to submit M.Sc. reader reports to SGS. All Reader reports must be submitted by this date.</td>
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<tr>
<td>Oct. 11</td>
<td>Thanksgiving holiday — University closed.</td>
</tr>
<tr>
<td>Oct. 25</td>
<td>Last day to drop Fall courses on ACORN without academic penalty. After this date you will need to submit an add–drop form.</td>
</tr>
<tr>
<td>Nov. 8–12</td>
<td>Reading Week — no classes in most courses.</td>
</tr>
<tr>
<td>Dec. 8</td>
<td>Last day of classes in Fall term.</td>
</tr>
<tr>
<td>Dec. 22</td>
<td>First day of winter break.</td>
</tr>
<tr>
<td>Jan. 3</td>
<td>University re-opens.</td>
</tr>
<tr>
<td>Jan. 10</td>
<td>Graduate and cross-listed courses and seminars begin.</td>
</tr>
<tr>
<td>Jan. 10</td>
<td>Registration deadline for students registering or starting their program in January. After this date a registration fee will be assessed.</td>
</tr>
<tr>
<td>Jan. 17</td>
<td>Final date to add Winter courses without an add–drop form.</td>
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<tr>
<td>Jan. 14</td>
<td>Final date for receipt of M.Sc. degree recommendations. All Reader reports must be submitted by this date.</td>
</tr>
<tr>
<td>Feb. 20</td>
<td>Final day to drop winter session courses without academic penalty. After this date you will need to submit an add–drop form.</td>
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<tr>
<td>Feb. 21</td>
<td>Family Day holiday — University closed.</td>
</tr>
<tr>
<td>Feb. 22–25</td>
<td>Reading Week — no classes.</td>
</tr>
<tr>
<td>April 8</td>
<td>Last day of classes in Winter term.</td>
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1. Introduction

This handbook describes the requirements of M.Sc. degree program of the Department of Computer Science, and associated administrative procedures. All M.Sc. students should become familiar with its contents.

2. M.Sc. Course Requirements

2.1 Minimum number of courses

Students in the M.Sc. program are required to complete four graduate half-courses. In order to obtain credit for a course, the student must obtain a mark of B– or higher. (Note that where a course is cross-listed with an undergraduate course, graduate students must enrol in the graduate section to receive credit. In many cross-listed courses, graduate and undergraduate students are assessed differently.)

In some cases, students may reduce the number of courses they are required to take by requesting transfer credit for graduate courses that were completed but never used toward the requirements of another degree, diploma, certificate, or any other qualification (either at UofT or elsewhere), or as a Non-Degree Special Student. Students may request to transfer up to 1.0 Full Credit Equivalents (that is, up to two half-credit courses) to their current degree program using the transfer credit form.

2.2 Breadth requirement

CS courses are classified on the basis of their content into four methodologies and sixteen research areas. Methodologies are core problem-solving approaches and/or techniques and general tools emphasized in the course material, while research areas are aligned with the activities of the various research groups in the department. The methodologies and research areas are described in the boxes below. The classification of each course is given in the course timetable. Not all courses (e.g., CSC 2600) qualify for breadth.

The breadth requirement ensures that students complete courses from a sufficiently wide range of topics within Computer Science. To satisfy the M.Sc. breadth requirement, students must complete one course from at least three of the four methodology areas. As long as three of the methodology areas are satisfied, students may satisfy their fourth course requirement in various ways. Sometimes, students choose to take a second course from one of the methodologies, leaving one methodology in which they take no courses. Alternatively, students may choose one course from each of the four methodologies. A student may also choose to take a graduate half-course from another department at UofT.

Graduate courses that were completed in a prior graduate program (either at UofT or elsewhere) may qualify to fulfill the breadth requirement — see section 2.4 below.
Methodologies

Methodology 1: Analysis and Computation in Discrete Models
The courses in this grouping focus on the analysis of, and algorithms for, discrete mathematical structures, such as graphs, formal logic, and formal models of computation. The grouping includes courses that analyze computational limitations and discrete computation. These courses study and apply techniques from areas such as probability, combinatorics, algebra, mathematical programming, and formal logic.

Methodology 2: Analysis and Computation in Continuous Models
The courses in this grouping focus on the analysis of and algorithms for continuous mathematical models. Topics include the derivation of mathematical models, their properties, and computational techniques for approximating their solution. These courses study and apply techniques from areas such as probability and statistics, computer graphics, computer vision, numerical analysis, and machine learning.

Methodology 3: Building Software and Hardware Artifacts
This grouping includes courses that study the design and implementation of specific software or hardware artifacts. These courses expose students to the challenges in building artifacts such as computer-animated movies, computer-aided design systems, databases, network protocols and devices, and simulations of large-scale systems. Courses in this group typically have a significant project component in which students build a substantial software or hardware artifact.

Methodology 4: Human-Centered and Interdisciplinary Computing
This grouping includes courses that study computational paradigms and methods within human-computer interaction or scientific domains outside traditional computational sciences. These courses typically have a cross-disciplinary component, involving fields such as the life sciences, linguistics, psychology, social sciences, and economics.

Research Areas

1. Algorithms and Discrete Math
2. Complexity and Cryptography
3. Computational Biology
4. Computational Linguistics
5. Computer Graphics
6. Computer Systems and Networks
7. Computer Vision
8. Database Systems
9. Distributed Computing
10. Human–Computer Interaction
11. Knowledge Representation
12. Machine Learning
13. Scientific Computation and Numerical Analysis
14. Software Engineering
15. Interdisciplinary Computer Science
16. Robotics
2.3 Courses outside Computer Science

Students are allowed to take courses offered by other departments, provided that the offering department gives permission to enrol — and provided that the student’s courses, overall, meet the breadth requirements of their degree.

A few courses offered by other departments on topics that are closely related to computer science are accepted for fulfilling breadth requirements. The current list of these courses is available here. Students may propose the addition of courses to this list by contacting the Graduate Office.

2.4 Plan of Study and Breadth Exemption Evaluation

Before starting their degree, a student must submit a Plan of Study Form and optional Breadth Exemption Evaluation Form to Graduate Office for approval, listing the courses that they propose to take in order to satisfy the breadth requirement. (Not all courses are offered each year, and it is not always known in advance which courses will be offered. It is understood, therefore, that the student’s proposed list of courses might need to be altered in the future, in which case a revised form should be submitted.)

The form also allows the student to request that graduate-level courses taken in a prior graduate program be recognized in fulfilling the requirement. To support such a request, the student should submit evidence of the course content (e.g., a syllabus or copies of course notes), the problem-solving approach or technique used in the course (e.g., copies of assignments or exams), and proof of their grade in the course (e.g., their transcript; unofficial copies are okay) along with their Plan of Study form. But note that graduate courses taken in fulfillment of a bachelor degree’s course requirement do not count towards the breadth requirements (not even graduate courses from our department).

3. M.Sc. Student Supervision

Every M.Sc. student is assigned a supervisor (and possibly a co-supervisor) prior to registration. The supervisor advises on course selection and thesis topic selection, and provides continuing help during the conduct of research. All students are required to consult frequently with their supervisors throughout their graduate studies, to report on their progress, to ask questions, and to obtain advice regarding their research.

To be the primary or sole supervisor of an M.Sc. student, a faculty member must hold an associate or full membership in the School of Graduate Studies, with a specific graduate faculty appointment in the Department of Computer Science (i.e., a CS-SGS membership). (With approval from the Associate Chair, Graduate Studies, faculty with an emeritus appointment in CS-SGS may also supervise M.Sc. students.) When an M.Sc. student is co-supervised, at least one of the co-supervisors must be identified as the primary supervisor (a.k.a. supervisor of record), and this faculty member must hold an associate, full, or emeritus membership in CS-SGS.

An excellent guide for making the most of the relationship between a student and their
supervisor is the supervision guidelines provided by SGS. Take note of the checklists for both students and supervisors provided in Appendix 2 of each version of this document. The Department of Computer Science supports the expectations stated in this guide, and we encourage students to discuss these checklists with their supervisor.

Occasionally the student–supervisor match is not productive. Any student who finds themselves in such a situation should discuss difficulties or concerns with their current supervisor. In many cases, the reason is an issue which might be resolved by talking it out. If no resolution can be found, students who feel a need to change their supervisor are welcome to seek advice from the Associate Chair, Graduate Studies. However, the ability to switch supervisors depends on the availability of another faculty member to serve in this role. A Supervisory Committee Composition Form must be submitted to seek approval for change of supervision.

4. Research Paper

An M.Sc. research paper should demonstrate the student’s ability to do independent work in reviewing the relevant literature, identifying a problem in a research area, organizing existing concepts, suggesting and developing new approaches to solving problems in a research area, and reporting the results.

The standard for this paper is that it could reasonably be submitted for peer-reviewed publication. Negative results are also acceptable, given a reasonable prior hypothesis and a thorough analysis of the reasons for these negative results. A typical research paper is 30–60 pages, double-spaced.

The completed research paper must have the written approval of two readers, one of whom must be the student’s supervisor. The second reader must hold an associate, full, or emeritus membership in the graduate faculty at the School of Graduate Studies (in any UofT department). The readers should be given at least two weeks to review the paper. They will then submit their evaluation of the paper to the Graduate Office for review and consideration by the Associate Chair, Graduate Studies.

If the research paper is unacceptable to either reader, they will provide the student with a list of required revisions, and the student is given an opportunity to improve the research paper. After improvement, the research paper is again submitted to two readers; normally they will be the same two readers but in exceptional circumstances, with the approval of the Associate Chair, Graduate Studies, the second reader may be different. Most papers go through at least one round of revision, and the student should allow plenty of time for this so that the final approval can be received by the program completion deadline (see section 5.1 below); missing this deadline incurs significant additional tuition fees.

5. Timelines, Deadlines, and (Un)satisfactory Progress

5.1 Time limit to degree completion

There are two program time limits. The departmental time limit refers to the amount of
time a student can receive guaranteed funding from the department. SGS time limits refer to the amount of time a student may register in their program.

1. For the M.Sc. program, the departmental time limit for guaranteed funding period for full time students is 17 months, and the program is designed to be completed in this time.

   Note: Although funding is given for 17 full months, the SGS completion deadline typically falls in the third week of the 17th month, and the reader reports for research papers must be received in the Graduate Office at least two working days prior to this. Students who miss this deadline will be liable for fees for an additional term, a substantial expense that will not be covered by their funding. It is therefore important to watch out for this deadline and be sure that all course requirements, including final approval of the research paper, have been completed two days prior to this deadline.

2. The SGS time limit for the M.Sc. is 36 months. In exceptional circumstances, an M.Sc. student who does not complete all the requirements for the degree within the SGS time limit may be considered for up to three one-year extensions, up to a hard limit of 6 years for the M.Sc. program. The first two extension requests require the approval of the Associate Chair, Graduate Studies; the third requires approval from both the Associate Chair and the School of Graduate Studies.

Students who have serious health problems or personal circumstances that prevent them from making satisfactory progress are entitled to take a leave from graduate studies. Such leave effectively stops the clock for both funding and time to degree completion; on return, the student is entitled to resume at the point where they left, without penalty. See section 6.3 for details.

5.2 Program Completion

Students who have completed their course work and breadth requirements and have their research paper ready for evaluation (see section 4 above) should complete the following forms:

M.Sc. Request to Graduate: When you are ready to graduate, you will need to submit the Request to Graduate form to the Graduate Office in order to make that happen. Deadlines for submission are sent out by the Graduate Office each session.

M.Sc. Reader Reports: This is part two of the graduation process for M.Sc. Students. Each of your readers must be sent a link to the M.Sc. Reader Report form (https://uoft.me/DCSMScEval) along with your Research Paper. The deadline to receive these reports from the readers is set by the Graduate Office and indicated to students through email.

5.3 Transitioning to the Ph.D. program

For an M.Sc. student to be allowed to transition to the Ph.D. program upon completion of the degree, both readers of the M.Sc. research paper must indicate in their evaluation that
the paper achieves the standard expected for transition to the Ph.D. program and they must complete the corresponding section of the evaluation form.

One of the two readers must indicate on their evaluation form that they are interested in supervising the student’s Ph.D. studies. This may be either the student’s present supervisor or the second reader. For transition to the Ph.D. studies with neither of these as a supervisor, the new supervisor must also carry out an evaluation of the research paper.

Upon approval for transition, a student must complete an SGS admission application and pay the application fee in order to register in the Ph.D. program. Note that SGS allows students to change registration from M.Sc. to Ph.D. only at the start of an academic session (September, January, and May).

Funding Information for Transitioning Students: Approved students will be allowed to transition to the Ph.D. program without interruption in their departmental funding upon completion of their Master’s. Forty-three additional months of departmental funding to complete the Ph.D. program is guaranteed. An exception occurs when a student is requesting dual registration, in which case Ph.D. funding will commence only upon completion of Master’s. Students may be dually registered (for a maximum of one term) in either the Fall or Winter sessions. Dual registration is not permitted in the summer term.

5.4 Unsatisfactory Progress
Being considered to be making unsatisfactory academic progress can have serious consequences. For example, if a student fails a subsequent qualifying oral or supervisory committee meeting while they have this status, or if the student misses a second consecutive deadline, then they will be offered the option to either withdraw from the program or have their registration terminated. (see SGS information on termination).

6. Fees and Administrative Procedures

6.1 Adding and Dropping Courses
Students may enrol in courses for the 2021–22 Fall and Winter sessions starting on 19 July on ACORN. The last day to add courses for the Fall session is 21 September and for the Winter session is 17 January; after these dates, an add-drop form is needed to enrol in courses.

6.2 Registration and Fees
Students are considered to be registered as soon as they have paid the minimum tuition and incidental fees, or have made appropriate fees arrangements. The registration deadline for students registering in the 2021 Fall session is 10 September; after this date a late registration fee will be assessed.

General fee information:
• Fee schedules are available on the Student Accounts website and students may pay fees as soon as their invoice is updated on www.acorn.utoronto.ca
• UHIP charges for international students are included on their fees invoice.
• Students wishing to make a fees payment from outside of Canada may choose one of the fee payment options outlined on the Student Accounts website.
• While students with outstanding severe conditions will be blocked from requesting registration without payment on ACORN, they can still pay fees at the bank. The payment will not change an INVIT status to REG.
• Continuing students with outstanding conditions from the previous year or who have allowed their registration to lapse do not have an INVIT created for the session and will not be able to pay fees until conditions are cleared.

Students with arrears: Students with arrears — that is, fees owing from prior sessions — are not eligible for Fall registration until they have paid their outstanding balance in full. Students are encouraged to clear their arrears early and seek prompt advice from the SGS Financial Aid and Advising team if they are unable to make full payment before the final day to register.

Requesting to register without payment: Students can request to register without payment (tuition fee deferral) via ACORN if they have no outstanding fees from a previous session and are the recipient of one of the following awards and it exceeds the Minimum Payment to Register amount on their invoice:
  • OSAP loan;
  • Other provincial government loan;
  • U.S. government loan;
  • University funding package (major award, research stipend, or teaching stipend).

However, if you are receiving a major award, research stipend, or teaching assistantship which is not part of a funding package, or requesting to register without payment after the registration deadline, the Register Without Payment (Fee Deferral) form must be used.

6.3 Leaves — Internship, Personal, Medical, and Parental
Personal, medical, and parental leaves: Students requiring immediate time away from their studies for personal, medical, or parental leave should notify the Graduate Office as soon as possible (see “How to request a leave” below).

Paid parental leave: (1) If your supervisor is supporting you from an NSERC, CIHR, or SSHRC grant, you may be entitled to continued support for up to 12 months while on parental leave (in addition to your guaranteed funding period); see the Tri-Agency Financial Administration guide for details. To apply for this support, contact the Graduate Office. (2) Alternatively, you may be eligible for an SGS Parental Grant for two or three sessions; see the SGS Parental Grant webpage for details.
Internship leave: Internships are not a component of the research programs in the Department of Computer Science. However, they are recognized as an important experience for our graduate students.

It is important to notify the Graduate Office well in advance of taking up an internship (see table below). Failure to meet these deadlines ends up costing the department money, and this charge could be passed on to you. If there is a substantive reason why you are unable to meet the notification deadline, contact the Graduate Office.

<table>
<thead>
<tr>
<th>Term</th>
<th>Notify the Grad Office of intention to take leave by</th>
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<tbody>
<tr>
<td>Summer (May–August)</td>
<td>10 February</td>
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<tr>
<td>Fall (September–December)</td>
<td>30 June</td>
</tr>
<tr>
<td>Winter (January–April)</td>
<td>15 October</td>
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How to request a leave: Students may request an official leave of one to three terms by completing an SGS Request for Leave of Absence form, and submitting it to the Computer Science Graduate Office with a brief statement of the reasons that the leave is requested. The statement must be signed by the student and the supervisor. If you are applying for a parental leave and want to be considered for an SGS Parental Grant, you should also submit an SGS Parental Grant application.

Note: SGS does not distinguish between personal and internship leaves. Leaves are always granted for an entire term and cannot be prorated to months or weeks. If you require a leave outside of a normal academic term, please consult with the Graduate Office. If you take a leave without approval from the Graduate Office, you will not be protected from the financial and program-progress implications.

How is time to completion affected by a leave of absence? For approved leaves, the remaining funding, the remaining components of your program, and the time-to-completion for your degree will be extended by the amount of time (number of terms) taken for the leave. This is calculated per term and cannot be prorated by weeks or days.

How are tuition fees affected by a leave of absence? Graduate School tuition fees are assessed on a program basis rather than on the number of courses taken or the number of sessions per year. Students are permitted to pay their program tuition fees in two parts, payable in the Fall and Winter Sessions. Graduate students who have paid tuition for the full year do not, in effect, pay tuition for the summer months but remain registered for that period. When a student takes a leave for any purpose, they will not be registered in the program for the duration of the leave.

How are funding and scholarships affected by a leave of absence? Student funding will be put on hold for the duration of an official leave. Students must notify the Graduate Office when they return from leave so that registration and funding can resume.
Agencies such as OGS and NSERC will allow for medical leave. However, students on personal or internship leave must check the regulations of any scholarships that they are receiving to make sure that the agency will allow a break for work experience and deferral of payments.

A break in registration may also impact your income tax calculations. Further, it may mean that any student loans you have will be immediately payable! You should check with your loan agency about repayment regulations. International students should ensure that they have an appropriate visa that will allow them to not be registered as a student while they work at an internship, and that they will have health insurance coverage in this period.

6.4 Appeals

Graduate students may appeal substantive or procedural academic matters, including grades, evaluation of comprehensive examinations and other program requirements; decisions about the student’s continuation in any program; or concerning any other decision with respect to the application of academic regulations and requirements to a student (SGS General Regulations 11.1). Students may not appeal admissions decisions, fees, or the voluntary withdrawal from a graduate program.

With the exception of appeals related to termination of registration and to failure of the Final Oral Examination, appeals are first initiated within Department of Computer Science, with the Graduate Department Academic Appeals Committee (GDAAC). Academic appeals are heard only from students who are currently registered in the School of Graduate Studies or who were registered at the time the ruling or action was taken. Students must file an appeal within eight weeks after the date of the decision being appealed.

Students must first attempt to resolve the matter with the instructor or other person whose ruling is in question. Should the matter not be resolved with the instructor, and should the student wish to pursue the matter, the student must discuss the matter with the Associate Chair, Graduate Studies. Should such discussions fail to resolve the matter, the student may then make a formal appeal to the Chair of the GDAAC.

After receiving the Notice of Appeal, the Chair of the GDAAC will provide the person or persons who made the decision being appealed with a copy of the Notice of Appeal, and request a written response. This response, along with the student Notice of Appeal will be considered by the GDAAC committee. The GDAAC committee will make a recommendation to the Chair of the Department, who will render a decision. See the GDAAC Guidelines below and the appeals policy in the General Regulations in the SGS Calendar for further information.

The decision resulting from the GDAAC may be appealed to the Graduate Academic Appeals Board (GAAB). The decision of the GAAB may be appealed to the Academic Appeals Committee of the Governing Council.