Graduate Student Handbook 2006-2007



University of Toronto Department of Computer Science

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.

Information about admissions and course listings are available from the Departmental website: http://www.cs.toronto.edu/DCS/index.html

Information about undergraduate programs is available in a separate publication, the Undergraduate Student Handbook, and the website: www.cs.utoronto.ca/DCS/Undergrad

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Academic Calendar

2006

August 14 August 31	Registration for September session begins. Last date for payment of tuition fees to meet registration deadline
September 4	Labour Day. University closed
September 5-9	Orientation in the Department and at the School of Graduate Studies
September 11	First day of lectures for September session courses
September 15	Final date to submit Ph.D. theses to SGS to avoid fee charges for 2006-2007
September 15	Registration for September ends: after this date a late registration fee will be assessed
September 15	Coursework must be completed and grades submitted for summer session courses and extended courses
September 20	Summer session grades available for viewing by students on the Student Web Service
September 26	Internal DCS deadline for submission of degree recommendations for Master's degrees for Fall Convocation
October 6	Final date for receipt of degree recommendations and submission of any required theses for master's degrees for Fall Convocation
October 6	Final date to submit final Ph.D. thesis for Fall Convocation
October 6	Final date to add full-year or September session courses
October 9	Thanksgiving. University closed.
November 3	Final date to drop September session full-year, or half-term courses without academic penalty.
November	TBA. Fall Convocation.
December	For last day of classes before Winter break, consult graduate units concerned.
December 14	Final date for receipt of ALL applications for admission to the graduate program for the 2006-07 academic year
December 22	University closed until January 3.
2007	
January 8	Most formal graduate courses and seminars begin in the week of January 8.
January 12	Final date for registration of students beginning program in January session, after this date, a late registration fee will be assessed.
January 15	Final date to submit Ph.D. theses to SGS without fee payment for January session.
January 19	Coursework must be completed and grades submitted for September session courses.
January 19	Final date to add January session courses.
January 22	Internal DCS deadline for submission of degree recommendations for March or June convocation for Master's students without fees being charged for the January session.
January 24	September Session grades available for viewing by students in the Student Web Service.
January 26	Final date to submit final M.Sc. theses to SGS for March or June convocation without fees being charged for the January session.
January 26	Final date for all students to request that their degrees be conferred <i>in absentia</i> in March.
March 2	Final date to drop full-year or January session courses without academic penalty.
March	TBA. March Graduation in absentia.
April 6	Good Friday. University closed.
April 23	Internal DCS deadline for submission of degree recommendations for June convocation
April 27	For students obtaining degrees at June Convocation, course work must be completed and grades submitted for full-year and January session courses.
April 27	Final date to submit final Ph.D. thesis and master's thesis for Spring Convocation.
May	For first day of summer classes, consult graduate unit concerned.
May 4	Final date for registration for May session.
May 18	Final date to enroll in May-June or May-August session courses.
May 18	Course work must be completed and grades submitted for full-year and January session
May 21	Victoria Day University closed
June	Spring Convocation: date pending.

July 3 Canada Day. University closed.

The Department

Overview

The Department of Computer Science at the University of Toronto 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. In our most recent departmental evaluation in 1998, the department was rated as the foremost Canadian computer science department and among the best in North America. Currently, the department consists of 115 faculty members including a broad array of regular faculty, cross appointed and adjunct faculty, several post-docs, research associates and visitors, 270 graduate students, and 3,200 undergraduate majors and specialists.

The department is responsible for a large number of the computer science Ph.D.'s in Canada. Graduates of our department are now on the faculties of most Canadian universities (Alberta, UBC, Carleton, Calgary, Dalhousie, McGill, Memorial, Montreal, New Brunswick, Quebec, Queen's, Ryerson, Saskatchewan, Simon Fraser, St. Mary's, Toronto, Waterloo, Victoria, Western Ontario, York), as well as on the faculties of many leading universities throughout the world. Five of those who took positions in the United States have received the U.S. Presidential Young Investigator Award. Our graduate students 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.

The department is supported with research grants from a number of sources including the Natural Sciences and Engineering Research Council (NSERC), the Institute for Robotics and Intelligent Systems (IRIS), the Communications and Information Technology Ontario (CITO), and the Bell University Labs.

Our department has strong ties with other departments, particularly Electrical and Computer Engineering. The establishment of the Computer Systems Research Group (CSRG) has maintained this close cooperation. The Human-Computer Interaction Group has research ties with the Departments of Psychology, Sociology and the Knowledge Media Design Institute (KMDI); the Artificial Intelligence Group has research connections with the Departments of Psychology and Philosophy. Several of our faculty members are cross appointed with other departments, specifically the Departments of Electrical and Computer Engineering, Mathematics, Psychology, Philosophy, Mechanical and Industrial Engineering, the Faculty of Management, and the Faculty of Information Studies.

In the spring of 2002, the Department moved into the 400,000 square foot Bahen Centre for Information Technology. This new Centre contains 10 state-of-the-art lecture halls, 14 tutorial/seminar rooms, more than 50 laboratories, plus office, study and meeting spaces. A major three-story atrium runs through the entire Centre, providing the main walkway for pedestrian traffic and a reception and meeting area for visitors and events. The eight-story computer science complex anchors the building's southern wing while a stand alone pavilion at the building's entrance is the focal point for electrical and computer engineering and engineering science.

One of the key areas of teaching and research that is undertaken in the new Bahen Centre deals with mobile technology. For example, the Bahen Centre is home to the Department of Computer Science's new 724 Solutions Laboratory for Wireless Information Technology, made possible by a generous gift from Greg Wolfond, Chairman, 724 Solutions Inc. The 724 Laboratories houses several outstanding researchers each leading teams of graduate students, postdoctoral fellows and professors. This initiative, together with others on mobile technology, allows the University to become a world leader in wireless information technology, research and training, providing outstanding collaborative opportunities for industry, and reinforces Toronto as a major international wireless and mobile IT centre.

Administration

The Department of Computer Science is administered by the Chair: Professor Craig Boutilier, Vice Chair: Professor Hector Levesque, Associate Chair Undergraduate Studies: Diane Horton and Associate Chair of Graduate Studies: Professor Richard Zemel.

The Graduate Program is administered by Professor Zemel and the Graduate Office Staff. They are advised by the Graduate Committee, consisting of several faculty members and graduate students.

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.ic.utoronto.ca/infotech.htm.

Library Facilities

The University of Toronto library system is the largest in Canada. It consists of four central libraries and many departmental libraries. 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) 10 St. George Street

Sandford Fleming Library (Engineering & Computer Science Library) 10 King's College Circle

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.

Inventions and Patents

The University of Toronto has an interest in any invention which results from research supported by funds or utilizing facilities administered by the University, whether such invention be made by a graduate student or a University employee, and reserves the right to require such student or employee to assign part or all of the right in any such invention to the University.

The Inventions Policy has two basic objectives: first, to encourage the public interest in the development of inventions made in the course of University activities and to maximize opportunities for commercial success, and second, to secure to both the inventor and to the University a share in the proceeds of inventions developed with use of University facilities.

Note that publication (which may even include oral disclosure) of the technical details of an invention prior to making application for a patent may prevent patenting of the invention. The Chair and Secretary of the Inventions Committee are available to give advice in such matters or to arrange obtaining advice from a patent agent.

For more information, refer to Office of Research Administration handbook *Information: Research Policies and Procedures*, section IX, Inventions Policy and Procedures, http://www.research.utoronto.ca/ipc/ip-inventions.html. Advice may be obtained on matters relating to inventions from the Chair of the Inventions Committee or from the Office of Research Services.

The Graduate Program

Student Categories

A student is either a degree student (M.Sc. or Ph.D.) or a special student. M.Sc. and special students may be either full-time or part-time; a Ph.D. student must be full-time. Any student may be resident or non-resident. For the definition of a full-time student see the SGS 2006-2007 Handbook, page 26.

Degree Student

A degree student is admitted to a program leading to a degree (M.Sc., Ph.D.).

Special Student

A special student is admitted to individual courses, not to a program leading to a degree. A special student receives grades and an official transcript, the same as a degree student. Admission as a special student requires an undergraduate degree equivalent to a four-year program at the University of Toronto with a standing equivalent to at least B+, and the necessary preparation for the courses to be taken. As a Special Student, at least one of the courses taken must be a graduate course with no undergraduate cross-listing.

Admission as a special student does not guarantee admission as a degree student. Courses taken as a special student may be used to improve one's record for application to a degree program. However, courses taken as a special student cannot be used as part of the course requirement in a degree program. Special students must submit an application for admission for each academic year of study.

Part-Time M.Sc. Program

The M.Sc. program is offered on either a full-time or part-time basis. Admission requirements are the same for part-time and full-time students. Part-time students pay lower tuition fees, but are not eligible for tax deductions, most fellowships, departmental support, and student visas. A student can change status from full-time to part-time and vice-versa only during the first term (first four months) of the graduate program with permission from the Associate Chair for Graduate Studies.

Residency

There is no direct residency requirement. Taking courses and interacting with a research supervisor are difficult from a distance, and so they impose an indirect residency requirement. A student who has completed all coursework and research may write the final draft of a thesis while working elsewhere. Sometimes opportunities for research at a distant laboratory may form an important part of a student's research. Approval for nonresident graduate studies must be obtained from the Associate Chair for Graduate Studies. Departmental funding and some fellowships require residency.

Leave for Medical or Personal Reasons

Graduate students may apply for a one-session to three-session leave for serious health issues or personal circumstances which temporarily make it impossible to continue in the program, or parental leave. Once on leave students will not be registered nor will they be required to pay fees for this period. Students on leave may not make demands upon the resources of the University, attend courses or expect advice from their supervisor. Students on leave will not be eligible to receive University of Toronto fellowship support, and in the case of other graduate student awards, the regulations of the particular granting agency apply. Further details are available in the SGS Calendar at www.sgs.utoronto.ca.

Degree Requirements

Each of the degrees requires a specific number of courses, plus an additional substantial paper. The courses must satisfy a breadth requirement to ensure a broad and well-balanced understanding of computer science. Only graduate-level courses at the University of Toronto with a B- or higher grade, or equivalent courses, with an equivalent grade, taken elsewhere may be used to satisfy the breadth requirement. Courses taken elsewhere must be approved by the breadth evaluator for the area; cross-listed undergraduate/graduate courses are acceptable if the requirements for the undergraduate and graduate students are the same. The thesis reports on research work done under supervision on a topic chosen in consultation with the supervisor. It must reach a high standard of exposition. The requirements may be reduced for applicants who have already taken some graduate studies in computer science prior to admission.

Student Supervision

Each degree graduate student will be assigned a supervisor upon registration. The supervisor advises on course selection, research 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 and direction and to ask advice. A student who wishes to change supervisors during their graduate studies should contact the Associate Chair of Graduate Studies.

You are encouraged to read the Graduate Supervision Guidelines for Students, Faculty and Administrators at http://www.sgs.utoronto.ca/current/supervision/guidelines.pdf.

Master of Science

The Master of Science (M.Sc.) degree program will consist of three to five computer science graduate halfcourses and a thesis. The courses must satisfy a breadth requirement to ensure a broad and well-balanced knowledge of computer science. The number of courses required will be determined in consultation with the supervisor and the Associate Chair, Graduate Studies.

Courses are divided into 3 groups and each group further subdivided into more specialized areas. The graduate courses taken as part of the M.Sc. requirements must include courses from each of the 3 groups and must also include courses from at least 4 different areas. With the permission of their supervisor and the Associate Chair, Graduate Studies, students are welcome to take up to 2 graduate courses in related disciplines from graduate units outside of the department if breadth requirements are met by the remaining department courses.

The thesis 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. A high standard of exposition is expected. The final thesis must have the written approval of two readers. The student's supervisor is normally one of the readers. Both readers must be approved by the Associate Chair, Graduate Studies.

If the thesis is unacceptable to either reader, the reader will provide the student with a list of deficiencies, and the student is given a further opportunity to improve the thesis. After improvement, the thesis 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, they may be different. If the thesis is again found unacceptable by either reader but acceptable to both as a project, the student may, at the discretion of the Associate Chair, Graduate Studies, be given a course credit in CSC2600, and directed to take 3 more graduate courses to complete a course work M.Sc. degree.

Satisfactory Progress (M.Sc.)

The following timeline defines satisfactory progress through the M.Sc. program. Failure to make satisfactory progress may result in the withdrawal of departmental privileges and cessation of departmental funding. 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 funding and time to completion; upon return, the student is entitled to resume at the point where they left, without penalty.

Months in	
Program	Progress
4 months	Submit completed breadth evaluation and plan of study form Complete at least 2 courses (preferably 3) with a grade of at least B-
8 months	Complete at least 4 courses (preferably 5) with a grade of at least B- Research direction decided in consultation with Supervisor
17 months	Complete at least 5 courses with a grade of at least B- Complete M.Sc. thesis and obtain approval of 2 readers

Timeline for Completion of M.Sc. Degree Program

Required forms are available on the DCS Internal Web Site or in the Graduate Office, SF3304.

Proceeding to the Ph.D. program after completion of the M.Sc.

If you start your Ph.D. program immediately after completing the M.Sc. program you will not be required to pay the application fee of \$90. To take advantage of this, you must have no substantial break in registration. That is, you must register in the Ph.D. program at the next registration date (September, January, or May). Otherwise, you will be charged the application fee. There is no exception to this SGS rule.

Students who want to begin their Ph.D. program immediately should consult with the Graduate Office regarding the required paperwork.

Doctor of Philosophy

To complete a Ph.D. program students must take nine half-courses. Courses taken during the M.Sc. degree can count towards the total of 9 required courses. Students entering the Ph.D. program with a computer science Master's degree will require three to six half-courses and a thesis. Other students will require six to nine half-courses and a thesis. The number of courses required will be determined in consultation with the supervisor and the Associate Chair, Graduate Studies. The courses must satisfy a breadth requirement to ensure a broad and well-balanced knowledge of computer science. Furthermore, the Ph.D. thesis may build upon the M.Sc. thesis.

The graduate courses taken as part of the Ph.D. requirements must include courses from each of the 3 groups and must also include courses from at least 6 different areas. With the permission of their supervisor and the Associate Chair, Graduate Studies, students are welcome to take up to 3 graduate courses in related disciplines from graduate units outside of the department, if breadth requirements are met by the remaining department courses. Students who transfer 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.

The most important part of doctoral work is original research conducted under the direction of a faculty member. This research must constitute a significant and original contribution to computer science. The results must be presented in a thesis and defended at department and graduate school oral examinations.

Ph.D. Degree Requirements Completion Deadline

A student enrolled in the Ph.D. program must have completed, by the end of the third year of registration, all degree requirements exclusive of thesis research. This includes course requirements and the departmental qualifying examination. The department may grant an extension for completion of degree requirements. To obtain an extension you must complete the form "Request for Program Extension", available on the SGS web site (www.sgs.utoronto.ca). The request for extension requires an explanation for the failure to complete degree requirements (exclusive of thesis research) to date. You will need to indicate the amount of work remaining to be done and a tentative timeline for completion of the requirements within the next two sessions. Failure to complete these requirements by the end of the extension period may result in termination of your program. Upon completion of the Ph.D. Requirements Exclusive of Thesis Research, the student may request admission to candidacy.

Supervisory Committee Meetings

The School of Graduate Studies regulations state that all Ph.D. students are required to meet with their Supervisory Committee at least once a year to assess the student's progress in the program and to provide advice on future work. The committee submits a report detailing its observations of the student's progress and its recommendations, as well as monitoring timely completion of checkpoints. The student will be given the opportunity to respond to the committee's report/recommendations and to append a response to the committee's report. Copies of the report shall be given to the student and filed with the department.

A Ph.D. supervisory committee must consist of at least three faculty members with full membership at SGS. At least 2 members must not be supervising the student. Two of the three must be departmental representatives. This must equal a total point calculation of 2 based on the following table.

Departmental representation calculation:		
1	A regular DCS faculty member (with a 50% or greater budgetary appointment in DCS, for whom	
	DCS is the home department)	
0.5	Faculty with cross-appointments in DCS, with full-membership at SGS	
0	Adjunct faculty	

For example, a typical Ph.D. supervisory committee may be composed of: 2 regular DCS faculty members and 1 adjunct; or, 1 regular faculty member plus 2 cross-appointed faculty.

Other faculty members (adjuncts) and distinguished individuals from industry may serve as advisors, attend supervisory committee meetings, and consult with the student in their areas of expertise, but they will not be permitted to be voting members on a Ph.D. Final Oral Examination.

For the Ph.D. Final Oral Examination 5 voting members, including the external examiner, are required.

M.Sc. students require 2 readers for the final thesis. At least one reader should have DCS as his/her home department.

Satisfactory Progress (Ph.D.)

The following timeline defines satisfactory progress through the Ph.D. program. Failure to make satisfactory progress may result in the withdrawal of departmental privileges, and cessation of departmental funding. 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 funding and time to degree completion; on return, the student is entitled to resume at the point where they left, without penalty.

The checkpoints/milestones for the Ph.D. program are divided into three sets. The first set represents the initial phase of graduate studies and organization of the Supervisory Committee. The second set involves committee meetings to review the student's progress and provide feedback on the research and admission to candidacy. The last set consists of the Final Oral Examination at the School of Graduate Studies.

MONTHS IN	
PROGRAM	PROGRESS / CHECKPOINTS
Initial Progress:	M.Sc. Degree
1 month	Submit completed breadth evaluation and plan of study form
4 months	Coursework: Complete at least 2 courses (preferably 3) with a grade of at least B-
8 months	Coursework: Complete at least 4 courses (preferably 5) with a grade of at least B-
	Indicate research direction.
17 months	Coursework: Complete at least 5 courses with a grade of at least B-
	Research Paper: The research paper is written by the student to demonstrate his/her 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 the problem, and reporting the results. It must have the written approval of two readers. The student's supervisor is normally one of the readers. Both readers must be approved by the Associate Chair, Graduate Studies. Students who entered the Ph.D. program after completing the M.Sc. program can usually use their M.Sc. thesis to satisfy the research paper requirement.
First set of Check	points: Initial phase of Ph.D. studies.
	 Formation of Supervisory Committee: This committee consists of the supervisor(s) and at least two other graduate faculty members. Committee members must have an appointment in DCS and at the School of Graduate Studies. Confirmation of faculty appointments is important. Committee members who do not have appropriate appointments will not be permitted to be voting examiners on the final oral examination. The composition of the committee must be approved by the Associate Chair, Graduate Studies. Studies. Students are encouraged to seek advice and research direction from members of their supervisory committee at any time. The Graduate Office must be advised immediately of any change of supervisor or committee members. Following approval of the Research Paper the student can be admitted to the Ph.D. program by submitting a request and having the request approved by the Associate Chair, Graduate Studies.
Second Set of Ch student progress a prepare a report to	eckpoints: For each of the following checkpoints the committee meets as a body to assess nd provide feedback on research. The committee will discuss its assessment with the student and be signed by the Associate Chair, Graduate Studies. If the student's progress is satisfactory, the

Timeline for Completion of Ph.D. Degree Program

ent proce ed to the next checkpoint. Otherwis recommend that the student repeat the current checkpoint/exam at a later date, or that the registration of the student be terminated. The report is sent to the student and a copy is placed in the student's file. The student is entitled to officially respond to the report. The response should be in writing with a copy sent to the Graduate Office.

If the student switches research direction after having passed some checkpoint(s) s/he may be required to repeat some checkpoint(s) at the discretion of the supervisory committee and the Associate Chair, Graduate Studies.

19 months	Oral Presentation of the Research Paper: This checkpoint is intended to give the student the opportunity to meet with the supervisory committee, present the results of the research paper and seek comments and advice on the research direction the student plans to take.
30 months	Qualifying Oral Examination: The student presents an area of research to the supervisory committee, normally in a closed forum. The purpose of this examination is to assess the student's understanding of the literature in the area of research, as well as preparedness to do research in that area. This involves assimilating the significant research papers on the topic, understanding how they relate to one another, and identifying valid open research questions. The student typically prepares a short written survey of the work in the area, and distributes it to the supervisory committee at least two weeks prior to the examination. The length of the survey should not exceed that appropriate for inclusion in a doctoral thesis in the area. Material written by the candidate for another purpose (for example, the research paper) may be re-used in the survey. The area chosen by the student should be sufficiently broad to contain many potential thesis topics, yet sufficiently narrow that the highly relevant papers number in the tens rather than in the hundreds. The examination typically lasts approximately two hours and begins with a 20 to 30 minute presentation by the candidate. The committee will determine whether the student should proceed to thesis work. They may recommend that the student do more course work or reading.
36 months	Coursework: Complete 9 courses with a grade of at least B-
	Admission to Candidacy: The Graduate Office will send a request to the School of Graduate Studies for students who have completed all required course work and the Qualifying Examination.
39 months	Research Proposal: The student submits a written proposal to the supervisory committee outlining a research plan. The supervisory committee assesses the scope and relevance of the problems the student plans to investigate, and the intended approach to solving them.
48 months	Thesis Proposal: The student submits a written proposal to the supervisory committee. The student submits a written proposal to the supervisory committee outlining the anticipated results of the thesis. The supervisory committee assesses the scope and relevance of the problems the student has solved, and ensures significant content to the thesis. A substantial portion of research should have been successfully completed, and a clear plan for completing the remainder should be included in the document. Material written by the student for other purposes (for example, a conference or journal paper) may be included.
60 months	Departmental Thesis Examination: The student defends the thesis before the supervisory committee. A draft of the thesis should be available to the committee members well in advance of the departmental thesis examination date. One copy is to be placed in the Computer Science Graduate Office at least two weeks in advance of the departmental thesis examination date. Each member of the committee is expected to read the thesis in sufficient detail to form a judgement about its acceptability.
	The departmental thesis examination is open to all students and faculty members of the department, subject to room limitations. An external examiner may be present. Students and staff members from other departments may also attend with the permission of the Associate Chair for Graduate Studies. The Associate Chair for Graduate Studies will appoint the Chair of the departmental thesis examination. The committee may approve the thesis without reservations, approve the thesis on condition that minor modifications be made, or require the student to take another departmental thesis examination.
Final Checkpoint: Successfully defend thesis	

Final Oral Examination at the School of Graduate Studies: Upon the successful defense of
the thesis at the Departmental Thesis Examination, the candidate will be ready to go forward to
the Final Oral Examination. At least 10 weeks prior to the proposed date of the examination the
student should notify the Graduate Office of the intention to book a Final Thesis Examination. All
important to allow yourself plenty of time and to adhere to the necessary steps in setting up your Ph.D. Final Oral Examination.
Regulations for the Ph.D. Final Oral Examination are in the School of Graduate Studies 2006-2007 Handbook, page 61.

Each checkpoint requires the completion of forms relevant to that checkpoint. Forms are available on the DCS Internal Web Site or in the Graduate Office, SF3304.

Internship

Internship is not a component of the graduate program in the Department of Computer Science. However, it is recognized as an important experience for graduate students. Students may request an unofficial leave from the department for the purpose of doing an internship.

The Graduate Office must be notified of your intention to do an internship and the number of months during which you will be on unofficial leave for that purpose. The record of your unofficial leave for internship will be kept on your student file in the Graduate Office. There will be no record of this leave, or internship, on your transcript.

<u>Funding</u>: Discuss with your supervisor to determine whether your funding will continue while you attend the internship. If funding will continue throughout the internship, no paper work is required. If funding is to cease, your guaranteed funding period will not be affected by this interruption. That is, you will receive all of the funding that was guaranteed to you. Your supervisor should notify the Graduate Office, indicating the dates of stopping and restarting funding payments.

Check the conditions of any scholarship(s) you are receiving to be sure that the agency will allow a break for work experience and deferral of payments which will recommence when the internship has ended. If you have any questions about interrupting scholarship payments during the time of the internship, please contact the Fellowships & Loans Office at SGS.

NSERC recipients are required to submit the form "Request for Deferment or Interruption of Award" and, in some cases, an NSERC Progress Report as well. The forms are at <u>www.nserc.ca</u>. These documents should be sent to the School of Graduate Studies, Fellowships & Loans Office. The NSERC contact at SGS is Shelly Eisner, 416-978-2150.

OGS does not allow a break for internship unless it is part of the degree requirement. The OGS rule is that students are permitted to work a maximum of 10 hours a week while registered as full-time students. The OGS contact at SGS is Angela Ho, 416-978-2205.

<u>Tuition Fees</u>: According to the rules of the School of Graduate Studies, during the period of the internship you will remain registered. A break in registration would impact your income tax calculations and would make any student loans immediately payable. Because graduate education results form the sum of experience encountered during the program, Graduate School fees are assessed on a program basis rather than on the number of courses taken or the number of sessions per year. Students who pay the full-time fees for the previous Fall or Winter Session do not pay fees for the Summer Session. There will be no refund of fees in the case of an internship.

<u>Time to Completion of Degree</u>: 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, eg. one term, taken for the internship. This is calculated per term and cannot be prorated by weeks or days.

Any questions in this regard should be directed to Julie Weedmark in the Graduate Office at julie@cs.toronto.edu.

Exchange Programs

The Department of Computer Science participates in exchange programs with several universities, including Johannes Kepler (Linz), Humboldt (Berlin), Stuttgart, Luigi Bocconi (Milan), Grenoble, Rouen, Paris, Nice, Jean Moulin, Lyon, Kyoto, Hong Kong University of Science and Technology, Chinese University of Hong Kong, West Indies, Chile (Santiago), National Technical University of Singapore, UBC (Vancouver), McGill

(Montréal), Montréal. Students may spend up to a year of their studies at an exchange university, with the approval of their supervisor and the Associate Chair for Graduate Studies. Courses taken there will be accepted for credit as part of the program here. Students will be assigned supervisors for their research while they are there. Fluency in the language of the exchange university is required.

Financial Support

The Department of Computer Science will ensure that all full-time degree graduate students receive financial support to at least the basic departmental level, provided that they are making satisfactory progress in their graduate program.

A student who starts our program from a Bachelors degree will receive five years (i.e., 60 months) of financial support. Of these five years, up to 17 months of support is provided to complete the Masters and the remainder of the 60 months of guaranteed support is provided to complete the Ph.D. Those students starting the program with credit for a Masters degree from elsewhere will receive 60 - min(M,16) months of support to complete their Ph.D., where M is the number of months that they took to complete their Masters.

The funding period for those students who receive partial credit for graduate work done elsewhere will be adjusted as follows. The first course waived causes no reduction of the funding period; after the first course, the reduction in the funding period is 2 months per course waived. In addition, if the research paper or the Master's thesis requirement is waived, the funding period is reduced by 8 months. Let N be the total number of months of reduced funding calculated according to the formula above and let M be the number of months that they were enrolled in another graduate program. Then the total guaranteed funding period in our graduate program is reduced to 60 - min(M,N) months. Of these 60 - min(M,N) months, 17 - min(M,N) months of support is provided to complete the Masters, if necessary, and the remainder of the 60 - min(M,N) months of guaranteed support is provided to complete the Ph.D. Two weeks vacation per year may be taken.

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 must apply to the Canadian and Ontario Governments (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 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. However, to ensure scholarship winners continue to obtain a significant financial reward from their scholarship, the department will continue to supply some funding for scholarship holders in the form a top-up award. The size of this top-up award is calculated by a formula detailed in the document "DCS Top-Up Policy," available on the DCS web site.

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

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 forms must be submitted to the Graduate Office of the Department of Computer Science by late September. The call for applications will be announced by e-mail. The annual rate for 2005-06 was PGS-M \$17,300, CGS-M \$17,500, PGS-D \$21,000, CGS-D \$35,000. Consult the NSERC webpage www.nserc.gc.ca for further details.

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. As well, 60 scholarships will be awarded to students who have been admitted to Canada as visitors with a student visa. The call for applications will be announced by e-mail. OGS is tenable at any Ontario university. OGS forms must be submitted to the Graduate Office of the Department of Computer Science by late September. The annual rate for 2005-06 was \$15,000. Consult the OGS webpage: http://osap.gov.on.ca/eng/not_secure/OGS.htm 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, with the exception of the OGSST. Not all of these scholarships are awarded each year, as the available amount of funds for many of these depend on interest from endowments. A single application for all of these scholarships will be due after NSERC and OGS recipients have been announced in early spring. A call for applications will be sent out by the Graduate Office in June. The award recipients will be selected by the Graduate Affairs Committee.

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. Typically one award worth \$500 will be given each year.

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. Typically one award of \$500 will be given each year.

Monica Ryckman Bursary

The funds will be used for graduate students who are otherwise without support. Typically one or two awards worth \$5,000 will be given each year.

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. Typically one award worth \$5,000 will be given annually.

Ontario Graduate Scholarship Science and Technology

Applications will be accepted from Canadian citizens or permanent residents. The Ontario Graduate Scholarship in Science and Technology (OGSST) program is designed to encourage excellence in graduate studies in science and technology. The program is supported through funds provided by the province of Ontario and by funds raised by the University of Toronto from the private sector. The Computer Science Department has three scholarships each worth \$15,000 available annually for distribution.

Fellowships from Other Agencies

Further details on awards from outside agencies are given 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. For more information, phone 1-416-978-2190 ext.6285 or email <u>osap.staff@utoronto.ca</u>.

ROSI

The Repository of Student Information (ROSI) is where all student records information is stored.

It is each student's responsibility to ensure that personal information and records in ROSI are correct. Keep your mailing and e-mail addresses up-to-date, including the expiry dates. You should check that you are enrolled in only the courses you want. You can also view your Academic Record and Fees Account on the system. Any discrepancies should be reported to the Graduate Office immediately. A change in legal status in Canada, or a change in name, cannot be updated in ROSI. Such legal changes must be reported to the School of Graduate Studies. They will require a copy of the official documents indicating your change in status.

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. While the single-session workshops function on a drop-in basis, courses require registration, and consultations require an appointment.

Scientific Writing Course

The Computer Science Department sponsors a non-credit 10-week intensive scientific writing course for graduate students during the Fall and Summer months. There are two sections: one for native speakers and one for non-native speakers of English. The course is designed to help develop fluency, clarity, and accuracy in written work and oral presentations. Watch for the announcement of this course in late August.

Some Useful Web Sites

DCS Internal Web Page ROSI International Student Centre UHIP Information T-Card Information Tuition Fees SGS Forms SGS Home Page https://dscweb.cs.toronto.edu/home.php www.rosi.utoronto.ca www.library.utoronto.ca/isc/ www.library.utoronto.ca/isc/uhip.html www.library.utoronto.ca/services/card/when.html www.sgs.utoronto.ca/current/fees/index.asp www.sgs.utoronto.ca/current/studentforms/index.asp www.sgs.utoronto.ca

Health Services

 Counseling and Learning Skills
 http://www.calss.utoronto.ca/

 Dentistry
 http://www.utoronto.ca/dentistry/

 Disability Services
 http://www.library.utoronto.ca/equity/ssd.htm

 Equity Issues
 http://www.library.utoronto.ca/equity/

 Health Services
 http://www.utoronto.ca/health/

 Psychiatric Services
 http://www.utoronto.ca/psychservices/

 Sexual Harassment / Education
 http://www.library.utoronto.ca/equity/sexual.html

 Family Housing
 http://eir.library.utoronto.ca/StudentHousing/index.cfm?fuseaction=category&category=7

Graduate Office Staff:

Linda Chow, Graduate Assistant (Programs, Exams, Courses, Checkpoints, etc.)	linda@cs.toronto.edu
Kolden Simmonds, Graduate Assistant (Admission, Fee Deferral, Registration, Desk Assignment)	kolden@cs.toronto.edu
Julie Weedmark, Graduate Program Administrator	julie@cs.toronto.edu
Professor Richard Zemel, Associate Chair, Graduate Studies	zemel@cs.toronto.edu

Courses: Division and Numbering

For the purpose of satisfying breadth requirements, graduate courses in computer science are divided into three groups, which are subdivided into eight areas, as follows:

Group I

Area (a): Area (b):	Programming Languages & Methodology Systems: Hardware & Software
Group II	
Area (a):	Numerical Analysis & Scientific Computation
Area (b):	Computational Complexity
Area (c):	Applied Discrete Mathematics
Group III	
Area (a):	Artificial Intelligence
Area (b):	Computer Graphics & Human- Computer Interaction
Area (c):	Information Systems

Graduate Computer Science course numbers consist of four digits which may be interpreted as follows:

First Digit:

2---No Information

(Before 1968, when computer science was part of the mathematics department, the first digit 2 identified computer science courses. Mathematics graduate course start with the digit 1.)

Second Digit:

1---Programming: Languages & Methodology

2---Systems: Hardware & Software

3---Numerical Analysis & Scientific Computation

4---Computational Complexity; Applied Discrete Mathematics

5---Artificial Intelligence, Computer Graphics, Human-Computer Interaction, Information Systems

6---Project Courses

Third Digit:

0---Introductory, General
1---Intermediate
2---Intermediate
3---Advanced, Specialized

Suffix:

H--- Semester long course, 4 months (Runs from September - December 2006 or January - April 2007)

Note: a parenthesized course number is cross-listing, either as an undergraduate course or in another department.

Please consult the department webpage for a full listing of courses.

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Cover Image: "Fluxlines of an electromagnetic field simulated with Yee's algorithm" by Michael McGuffin