

# Regulations for the Computer Science Master Program

CAS-2007-04

Department of Computing and Software  
McMaster University

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## 1 Introduction

This document contains the regulations for the M.Sc. program in Computer Science at McMaster University. It supplements, but does not supersede, the general regulations for Master's programs at McMaster University given in the *School of Graduate Studies Calendar*. *Please note that the regulations in this document apply to all students entering the McMaster University Computer Science M.Sc. program in Fall 2007.*

M.Sc. students must successfully complete the equivalent of four one-term graduate courses and prepare and successfully defend an M.Sc. thesis.

## 2 Admission policy and admission standards

Applicants may be admitted to the M.Sc. program in Computer Science if they have the equivalent of a B.Sc. in Computer Science with at least a B<sup>-</sup> average from McMaster University.

In very general and broad terms, applicants are expected to have covered the following subjects in three fundamental areas:

1. Mathematics:
  - a. Calculus.
  - b. Linear algebra.
  - c. Probability and statistics.
  - d. Discrete mathematics or mathematical logic.
  - e. Automata theory or computation theory
2. Software:
  - a. Data structures and algorithms.
  - b. Principles of programming languages or compilers.
  - c. Scientific computation.
  - d. Software design or software engineering.
3. Systems:
  - a. Computer architecture.
  - b. Operating systems.
  - c. Computer networks or systems programming.
  - d. Databases or human-computer interaction.

The Admission Authority<sup>1</sup> determines if any action is needed to bring a candidate's Computer Science knowledge to a reasonable level, and may require a candidate to take additional courses, see item 4 in Section 3 below.

### 3 Course requirements

All students must successfully complete the equivalent of four one-term graduate courses<sup>2</sup> in Computer Science, Software Engineering, or relevant areas such as Electrical and Computer Engineering or Mathematics.

1. At most one of the four may be a 600-level course.
2. At most one of the four may be from outside the Department.
3. At least two of the four must be Group A courses (i.e., Department courses with numbers in the range 701–720).<sup>3</sup>
4. If requested by the Admission Authority (for candidates not fulfilling all the prescribed requirements for admission), or if the Supervisor identifies a deficiency, a student may be required to take additional courses, usually PUCs<sup>4</sup>, to supplement their education.

In such cases the number of additional courses should normally be at most two, in some very exceptional cases at most 4. A PUC may be replaced, when appropriate, by a PGC<sup>5</sup>.

5. The selection of courses that are required for an individual student depends on the student's background and research project. The selected courses should establish sufficient depth and breadth in Computer Science.
6. The student, with the approval of the Supervisor, proposes the course selection for approval by the Department Chair or delegate.
7. Outstanding M.Sc. students may be allowed to transfer to a Ph.D. program of the Department when they complete their course requirements and demonstrate exceptional progress in their research project. Transfer procedures are determined by the respective Ph.D. programs.

### 4 Comprehensive Examination

There is no Comprehensive Examination in the M.Sc. program.

### 5 Thesis requirement

The thesis must contain *independent novel work* that contributes to the field of Computer Science. The thesis must report a substantial body of work that demonstrates scholarly competence and understanding of state-of-the-art literature in the subject area.

To present a complete thesis to the Supervisor is the student's responsibility.

The Supervisor must evaluate the thesis without unreasonable delay, but in any case within a two-month period, and request the necessary improvements.

The Supervisor will certify in writing that the thesis meets the customary standards. Only then will the thesis be submitted to the Examination Committee and the thesis defense scheduled.

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<sup>1</sup>The person or body responsible for making admission recommendations to the School of Graduate Studies.

<sup>2</sup>A "one-term course" is a "half course" in the official McMaster terminology.

<sup>3</sup>Enrollment in courses 701–704 and possibly other Group A courses may be restricted.

<sup>4</sup>A PUC is a *Prescribed Undergraduate Course* that is required as part of a student's degree.

<sup>5</sup>A PGC is a *Prescribed Graduate Course* that is required as part of a student's degree. A PGC may be a prescribed course that either is included among or is additional to the normal number of required courses.

## 6 The Examination Committee

When the M.Sc. thesis is ready to submit for defense, the student's supervisor makes a proposal for the Examination Committee.

1. The Committee consists of the Supervisor(s) and at least two additional faculty members.
2. At least one committee member besides the supervisor(s) must be a regular<sup>6</sup> member of the Department of Computing and Software.
3. One of the committee members should be from an area of specialization other than the topic of the thesis.
4. The committee members must be present at the thesis defense.
5. The Supervisor verifies that the members proposed are willing and able to serve on the Examination Committee.
6. The Computer Science Graduate Advisor approves or modifies the composition of the Examination Committee and nominates the Chair of the Committee.
7. The Chair of the Examination Committee may not be the Supervisor and usually is someone from a different area of specialization.

## 7 The M.Sc. thesis defense

The student presents and defends his/her thesis. The Examination Committee evaluates both the scientific merit and presentation of the thesis and decides about awarding the degree to the candidate.

1. The defense is open to the public.
2. The student presents the main results of his/her thesis in a 20-minute conference-like presentation.
3. The members of the Examination Committee ask questions about the material presented in the thesis, related issues, the impact of the results, and future research.
4. The Chair of the Examination Committee should allow time for questions from the public, up to a maximum of 15 minutes.
5. The defense normally takes about one hour and not longer than two hours.
6. The Examination Committee evaluates the student's performance in a closed meeting after the defense. If the student is required to make changes to the thesis, the Examination Committee should give the student a description of what needs to be changed within a few days of the defense.

## 8 Timing for full-time students

1. Normally the Supervisor is named when the student enters the program.
2. Fully funded students having prestigious scholarships from government or international agencies (e.g., NSERC) might be admitted without having a supervisor at admission. In case no supervisor is named at admission, the Computer Science Graduate Advisor acts as nominal supervisor. The actual supervisor must be named not later than 6 months after the student's arrival.
3. Students normally will take at least two one-term courses in each of the first two terms.
4. The required four courses must be completed successfully within 16 months after starting the program. When PUCs are required, the time window might stretch until 20 months.

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<sup>6</sup>This includes Professors Emeriti but not Associate members.

5. The Examination Committee should be named at least one month before the defense.
6. The final version of the thesis must be submitted to the Department's Administrative Coordinator or delegate at least two weeks before the date of the defense. The student must provide a copy of the thesis for the Department and each member of the Examination Committee. The Department will keep its copy until it receives the official bound version of the thesis.
7. The thesis should normally be completed and defended within 20 months; however, funding may continue up to a total of 24 months at the Supervisor's discretion.

## **9 Timing for part-time students**

1. The Supervisor is named when the student enters the program.
2. Students normally will take at least two one-term courses in each of the first two academic years.
3. The required four courses must be completed successfully within 28 months after starting the program. When PUCs are required, the time window might stretch until 32 months.
4. The Examination Committee should be named at least one month before the defense.
5. The final version of the thesis must be submitted to the Department's Administrative Coordinator or delegate at least two weeks before the date of the defense. The student must provide a copy of the thesis for the Department and each member of the Examination Committee. The Department will keep its copy until it receives the official bound version of the thesis.
6. The thesis should normally be completed and defended within 36 months after starting the program.