Toronto Metropolitan University

Graduate Programs in Computer Science

Procedures for Doctoral Candidacy Examinations

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The Candidacy Examination Process

The purpose of the candidacy examination is to determine whether the doctoral student has the appropriate knowledge and expertise to undertake a dissertation in the selected field or area of study.

As stipulated in Senate policy[1], every Doctoral program requires that a student complete a preparatory or foundation phase before a research program may be attempted. In the Computer Science Doctoral program this takes the form of a qualification examination that, if successfully completed, results in the student becoming a Doctoral Candidate.

The examination occurs in two parts which must be taken in sequence. These parts are:

1. A **written** examination of the student's *breadth* of knowledge within the discipline of Computer Science based primarily on graduate courses successfully completed by the student.

2. An **oral** examination of the *depth* of the student's knowledge as expressed in their research proposal and the breadth of their knowledge as expressed in the answers to the written examination.

[1] "GRADUATE STATUS, ENROLMENT AND EVALUATION", Policy 170(b), Section 22.1, https://www.torontomu.ca/senate/

The Candidacy Examinations must normally begin **no earlier than the 2nd year** and be completed **no later than the end of the 3rd year of student registration in the program**.

Beginning the Examination Process

The student's Supervisor will assemble a committee of two (2) other examiners (the Examination Committee) drawn from members of the student's supervisory committee and other Faculty members of the Computer Science Doctoral program. The Program Director (or designate) will act as the non-voting chair of the committee for a total of four (4) members[2,3].

The student will formally initiate the process of the Examination by submitting the form **"*Candidacy Written Examination Notification Form*"** which will stipulate;

- who is on the Examination Committee,
- the name of the student,
- the research topic, and
- other pertinent information.

Part 1: The Written Examination

The written examination is designed to ascertain a student's understanding of the basic theories, and recent developments of both a theoretical and applied nature, in his/her field or area of study. This understanding must exhibit both articulate comprehension and critical exposition.

Upon receiving the Written Examination Notification form, the Program Administrator shall provide the Examination Committee with a list of graduate courses the student has taken at Toronto Metropolitan University.

Each voting member of the committee shall devise a question drawn from the general topic areas of these courses and provide appropriate references for the student.

The Chair of the Examination Committee, in consultation with the committee members, shall determine the suitability of each question along with the available reference material to

Written Question Guidelines

- Each question must be drawn from peer-reviewed literature.
- Suggested reference materials must be readily available to the student.
- Each question should require the student to: analyze, address the literature, and express insight into the nature of the question.
- Questions to avoid multiple parts where possible. If multiple parts are necessary, they should be closely related.

[2] If special expertise is required, one (1) examiner from outside the program may be selected to serve on the examination committee.
[3] A Co-supervisor is automatically a member of the examination committee.

ensure that the questions are appropriate, of sufficient complexity and answerable within one week. Duplication of questions must be avoided.

Once the questions have been deemed suitable, two (2) questions shall be drawn at random from the available questions (3) by the student in the presence of the Program Administrator.

The student shall have one week to familiarize themselves with the questions and relevant reference material and answer the questions in writing.

No later than one week after selecting questions, the student will provide his/her written answers[4] to the examination questions to the Program Administrator.

The members of the committee shall mark their respective answer using the rubric provided in the table below.

Table 1 Rubric for marking examination questions

Mark	Guidance
0	The student substantially failed to answer the question
1	The answer provided was incorrect
2	The answer provided was mostly incorrect but some insight was shown into the problem posed by the question
3	The answer provided addressed the question and began to answer it showing some insight into the problem
4	The answer provided was substantially correct with some definable deficiency and showed good insight into the problem
5	The answer provided was correct

Evaluation of the Written Examination

Marks should be sent to the student's Supervisor who will compile them for delivery to the Chair of the Examination Committee who is responsible for recording the total mark on the form "***Report of the Candidacy Examining Committee***"[5] in the section marked "*Written Examination: Final Mark*".

The student will be considered to have passed the written examination if they achieve over 50% of the available marks.

[4] Written answers may take the form of an electronic document, preferably saved in the Portable Document Format (PDF).
[5] This form shall be used to record all marks stemming from the Candidacy Examination and therefore contains multiple sections.

The marked questions, with commentary from the markers, will be provided to the student who will be asked to address the comments, providing explanation, and clarification as necessary.

Part 2: The Oral Examination

Once the student is ready to proceed with the oral examination (after successfully completing the written examination), they will submit a **"*Candidacy Oral Examination Notification Form*"** which will stipulate;

- who is on the Examination Committee,
- the name of the student,
- the research topic,
- the date, time and location of the oral examination, and
- other pertinent information.

This form should be submitted to the Program Administrator at least three weeks prior to the date of the oral examination.

In addition, the student will provide a written research proposal in the appropriate format[6], consisting of at least the following headings:

i) **Recent Progress**
Describe one's own recent progress in research activities related to the proposal.

ii) **Objectives**
Define the short- and long-term objectives of the research program.

iii) **Literature Review**
Discuss the literature pertinent to the proposal, placing the proposed research in the context of the state-of-the-art within the accepted literature.

iv) **Methodology**
Describe the methods and proposed approach, providing sufficient details to allow the examination committee to assess the feasibility of the research activities. Significant milestones should be identified.

v) **Impact**
Explain the anticipated significance of the work. It is expected that, in part, this section will address publications anticipated stemming from the proposed research.

[6] The proposal is to contain no more than 5 pages with one additional page of references. The document is to use the Times New Roman 12 pt font with margins of 2.54 cm (1 inch) all around.

On the examination day, the student will make an oral presentation of approximately 30 minutes to the committee that provides an overview of the research proposal—addressing each sub-topic of the proposal separately.

The presentation will be followed by two (2) rounds of formal questions from the committee related to the student's proposal. A third round of questions may be allowed by the committee Chair if necessary.

Once the final round of questioning is complete the student will be asked to leave the room while deliberations take place by the committee.

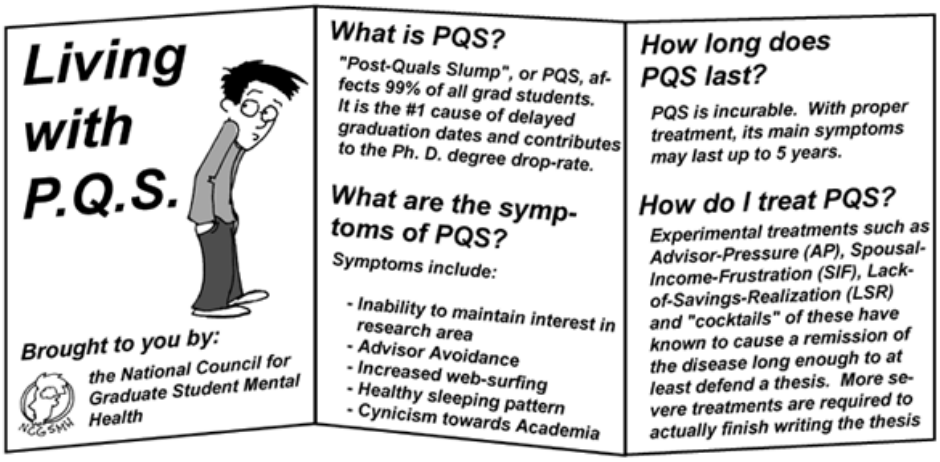
Determining the Outcome of the Oral Examination

The committee shall deliberate the presentation made by the student with regard to the research proposal and the proposal itself. If the committee finds the proposal satisfactory[7] a mark of "pass" will be assigned and recorded in the section "Oral Examination: Final Mark". Otherwise, the student will be assigned the mark "fail".

Determining Candidacy

1. ***If the student receives a passing mark in both the written and oral components of the candidacy examination, he/she will immediately become a Candidate in the Doctoral program***, this will be recorded on the form which will be kept in the candidate's file.
2. ***If student has failed their second attempt to pass the qualifying exam they will be asked to immediately withdraw***. Otherwise, she/he will have their failure recorded and given a maximum of 1 term to prepare for another examination consisting of the part(s) of the candidacy examination which were failed in the current attempt.

[7] A student may be granted a "pass" even though some small weaknesses are identified -- if it is considered that these may be remedied quickly. In such cases, a plan of remediation is to be designed by Supervisor and student, and satisfactory completion of the plan is to be attested by the Program Director in writing by checking the box on the form: "All required changes have been completed" and signing where appropriate.



[8]

[8] http://compthis.blogspot.ca/