



CIHR/MSFHR Strategic Training Program in

BIOINFORMATICS

Guidelines for the Chair of the PhD Comprehensive Qualifying Examination

Format: Oral

Pass/Fail: The qualifying exam will be graded pass/fail by a majority vote of the examining committee.

Note: If the student entered as a PhD candidate, upon failing the exam, he/she will be permitted one, and only one re-examination. The second oral exam should be held within 3 months of the first exam. If a student has transferred from an MSc program to a PhD program, upon failing the exam, he/she will not be admitted to the PhD program and will instead continue towards the completion of their MSc degree.

- (a) **Purpose:** The qualifying examination is intended to test the student's understanding of their chosen field of study as a whole, and the student's preparation for the thesis research to follow.

The examination will cover the general area of the student's research, and the candidate is expected to be able to discuss any other areas closely related to their own research. This examination will not be limited to the specifics of the project proposal and will also place a strong emphasis on general knowledge in areas relevant for the student's work, as well as their ability to formulate hypotheses and design tests of them. The exam is not designed to test merely factual recall. The candidate will be expected to reason on their feet, and to integrate fundamental principles of research.

Each candidate is required to submit a written thesis proposal to each member of the Examining committee at least two weeks before the scheduled date of the exam. The candidate is expected to review the literature and discuss the general nature of unsolved problems in their research area, and to propose a series of questions, and experimental ways to answer them.

- (b) **Timing:** For all PhD candidates, the qualifying examination must be held within 24 months of entry into the program, however, preferably within 18 months, and will be held prior to transfer from the MSc. to PhD.
- (c) **Examining Committee:** The Examining committee will consist of the student's Thesis Supervisory committee (supervisor and at least two other members). The

supervisor will be present at the exam as a non-voting observer. The Director of the Bioinformatics Training Program, or designate, will chair the exam.

- (d) **Scope of the Qualifying Exam**: This will assess the student's knowledge, understanding and ability in the following areas:
- i) basic scientific principles and experimental design
 - ii) any background necessary for the student's specific area of proposed thesis research
 - iii) the ability to integrate fundamental principles with the thesis proposal
 - iv) the ability to reason, understand why they are doing what they are doing, and the ability to integrate new ideas of information into the proposal
- (e) **Format of the Qualifying Exam**: The examination consists of the presentation of the proposal for the thesis work, followed by questions from the examining committee. The questions are to address both the specific research topic of the thesis, and topics related to the general subject area of the proposal.

A two-hour period is scheduled for the examination, the first 15 minutes of which are devoted to the presentation of the proposal. Under no circumstances will the presentation be allowed to exceed 20 minutes. The chair will announce the order of the examiners, followed by the student's presentation. Each examiner will be given about 20 minutes to pose questions. The supervisor does not pose any questions at the exam.

The Chair ensures that the committee uses good judgment about questions on "related topic". He/she does not normally participate in the questioning except to clear up misunderstandings, intervene in cases of bullying and, at the end of questioning by the other members of the committee, to expose possible important weaknesses. The Chair also ensures the examiners keep to time.

Once the examiners have had one round of questions, the Chair will ask each examiner, in the same order, if they have any further questions.

- (d) **Results**: Following the examination, the candidate will be asked to withdraw from the room, and the Chair will ask the supervisor to make a brief statement. The Examination committee will then discuss the candidate's performance. After the discussion, the Examination committee will vote to pass or fail the candidate by secret ballot. The decision will simply be the majority. In the case of a tie, the Chair will cast the deciding vote. The Examining committee may make one of the following recommendations:
- a. That the candidate continues on to the Ph.D. program. (pass)
 - b. That the candidate be given a conditional pass (candidate shows deficiency in one specific area only)
 - c. That the candidate be re-examined within 3 months' time. (fail)

- d. That the candidate be asked to withdraw from the PhD program, but permitted to complete requirements for the MSc. degree. (fail)
- e. That the candidate be withdrawn from the University. (fail)

The Chair will then recall the candidate, and announce the result of the decision. The Chair may also comment on the strengths and weaknesses of the performance.

The Chair will prepare a written report of the outcome of the qualifying examination signed by all members of the Examination committee and send it to the Bioinformatics Program coordinator.

