

**BIOCHEMISTRY COMPREHENSIVE EXAM/TRANSFER EXAM**  
(Section E5. from [BMI Policies and Procedures for Graduate Programs](#))

**E5. Biochemistry Comprehensive Exam / PhD Transfer Exam**

**E5.1. Timing:**

- PhD students: The Comprehensive Exam should occur within 3, 4 or 5 terms of first registration.
- MSc students hoping to transfer: The Transfer Exam should occur within 4 or 5 terms of first registration. Students who transfer to the Ph.D. in 4 sessions or less will be nominated for a Dean's Scholarship of \$1500.00 (refer to 6.2).

**E5.2. Permission:**

- Ph.D. students do not require permission from members of their Thesis Advisory Committee (TAC) to take the qualifying exam. The TAC however should ensure that the Comprehensive Exam is completed in a timely fashion.
- Students wishing to transfer from the M.Sc. into the Ph.D. program will be required to obtain permission from their TAC, prior to submitting a request for the Comprehensive Exam. This permission must be included on the signed [TAC Meeting](#) form.

**E5.3. Scheduling:**

At the second meeting of the TAC committee, normally in the 4<sup>th</sup> term after first registration, the student's research project and the Comprehensive Exam/Transfer Exam are discussed.

At least six weeks before the anticipated date of the examination, the candidate will write to the Director of the Graduate Program via the Graduate Studies Office and request the convening of the Exam. The request for the scheduling must be accompanied by names of potential examiners as well as by a research abstract (item 5.6). The Graduate Studies Office will assist by confirming the time and location of the Exam and ensure the Research Proposal is sent to the examiners at least 2 weeks prior to the event.

**E5.4. Purpose of the Examination:**

1. Using the Research Proposal and the candidate's ability to answer questions raised by examiners
  - a. to assess the candidate's abilities to generate original and new knowledge in the chosen topic of research;
  - b. to assess the candidate's abilities at integrating his or her research project in the context of current knowledge of his or her field of research;
2. Assess the candidate's abilities and preparation both in the research specialty and in broader topics related to biochemistry. The candidate is expected to answer general questions related to the field of biochemistry;
3. Show that the candidate has a feasible project and the potential to complete the PhD degree
4. *For MSc students only:* Demonstrate that the candidate has generated results that constitute "a significant part of an MSc Thesis" and that he/she has acquired the ability to work in a scientific manner.

**E5.5. the Examining Committee** will be composed of 4 members: one TAC member, 2 other members of the Biochemistry Graduate Program, and the Chairperson. All members of the Examining Committee are to be approved by the BCH Graduate Studies Committee. The Chairperson of the Examining Committee will be a member of the BCH Graduate Studies Committee or someone appointed by the Director of the BCH Graduate Program. In addition to the Examining Committee, the Supervisor and any Co-Supervisor

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must be present but are not allowed to ask questions during the Exam. The supervisor/s, are asked by the Chair of the Examining Committee to comment at the end of the exam, after the student has left the room.

**E5.5.1 the Chairperson's Responsibilities:**

1. Conducting the examination within the guidelines;
2. Verifying the completion of the requirements of the program and the FGPS (courses requirement, annual report, TAC meeting, seminar attendance, etc);
3. Ensuring the thoroughness of the assessment of the candidate according to format of examination (item E5.7);
4. Overseeing the order, nature and timing of the questioning
5. Filling out the report of the examination for the candidate's file and submitting it to the Graduate Studies Office;
6. Providing a detailed report in writing to the Director of the Graduate Program if the decision of the Examining Committee is that the student was unsuccessful

The Chairperson may intervene:

- in the questioning, if needed to maintain the appropriate level or conduct of the Exam;
- in the discussion and assessment by examiners, if the vote or consensus does not accurately reflecting the results of the questioning during the Exam;
- to deny the privilege of voting or forming consensus to any member of the Examining Committee who was absent from any part of the Exam.

**E5.6. the Research Proposal:**

The student must prepare a document, which is concise, and to the point, containing: a succinct review of relevant literature, previous relevant work by the candidate, the hypothesis and the proposed research. The proposal should be constructed on the model of research proposals submitted to external agencies, such as CIHR.

The introduction must include the scientific basis for the study and the rationale for performing it. The hypothesis that forms the basis for the research is included at the end of the introduction. The specific objectives of the study and underlying logic must also be provided. The document must include data obtained by the student, an interpretation of their significance, a discussion and a list of references. When the data presented was generated by others or obtained in collaboration, the student must indicate the names of the collaborators. For the future work, the proposed methodology including the strategy for data analysis must be included. The Research Proposal must be submitted to the Examination Committee and the Graduate Studies Office at least 2 weeks prior to the date of the examination.

The text of the research proposal, excluding tables, figures, appendices and full references, should not exceed 15 typewritten, double-spaced pages in length using 12 point Times New Roman font and 1" margins. Each page of text and figures must be numbered and contain the student's full name and proposal title.

It must be a professional document that includes:

1. A title page listing the names of the student, supervisor, and examiners, the date, time, and location of the exam, and the proposal title.

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2. A 150 word abstract describing the thesis objectives, hypotheses to be tested, work completed and especially the work proposed.
3. A table of contents.
4. A brief summary of the current state of knowledge relating to the proposed research. This would be similar to an introduction in a paper.
5. A report on work performed to date (this should constitute no more than 40% of the proposal). Use "I" and not "we" to clearly indicate that the work presented has been done by you). This section should document that the results constitute "a significant part of a M.Sc. thesis" (E2.2). This should be in a paper format i.e. methods, results, discussion.
6. A proposal of future work, which should be more in grant form.
7. The hypothesis and objectives of the Ph.D. proposal should be clearly stated.
8. A concise outline of the research plan (e.g. methodology). This should include the rationale for the choice of particular methods and approaches (this should be the major point of the proposal). Each objective should be related to a method and a rationale.
9. A projected timetable for each objective.
10. An Appendix may be included containing published or submitted papers. Papers listed as submitted must be accompanied by dated correspondence from the editor or journal.

The [Supervisor Form for Comprehensive Exam](#) signed by the supervisor must accompany the proposal at the time of submission. The Thesis Supervisor is responsible for reviewing the Research Proposal of his/her student before submission to the examination Committee and the Graduate Studies Office and for ensuring that the proposal conforms to the format.

The Examining Committee will return proposals that do not meet these criteria. In these cases, the student will have an additional two weeks to upgrade the Research Proposal.

**E5.7. Format of the Exam:**

1. The student will introduce the proposed research with a brief presentation (not more than 15 minutes) that clearly identifies the rationale, hypothesis, research objectives, previous and future work.
2. Members of the Examining Committee will question the candidate in the style of a thesis defense. This will constitute an organized assessment with equal emphasis on the data presented, the proposed research, and on related general knowledge.

The student is expected to be able to:

1. Defend the data presented and the proposed experimental design from both technical and theoretical perspectives.
2. Define appropriate controls; discuss data with emphasis on interpretation, significance and limitations.
3. Answer questions on areas of general knowledge. The objective is to identify weaknesses that could be rectified through course work, reading assignments.
4. Use the board to support answers and to draw structures, pathways etc.

Students are strongly encouraged to have a practice defense with their supervisor, lab members, and/or colleagues.

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**E5.8. Assessment and Evaluation:**

At the end of the Exam, the student will be asked to leave the room and the Supervisor can then express his/her opinion of the student's performance to the Committee. The Supervisor will then be asked to leave the room and members of the Examining Committee will deliberate in the absence of the student and the Supervisor. The candidate and Supervisor will be invited back into the room and will be informed of the Committee's decision and will, if necessary, suggest areas where the student needs to improve his/her background knowledge.

The Documentation Form, along with additional recommendations, will be forwarded to the Graduate Studies Office and to the members of the student's TAC to ensure follow-up within six 2 terms of the exam. If necessary, the Graduate Studies Office will remind the student to organize a TAC no later than 2 terms following the date of the Exam.

The Committee may elect to adjourn the Exam prior to assigning a grade. Adjournment is for the purpose of requesting additional work from the student and the examination will resume a reasonable length of time later. Only one adjournment is possible.

The overall mark for the Exam will be a letter grade and a minimum of A- is required to pass. The candidate's performance will be evaluated in two parts:

- Part A: The student has demonstrated evidence of research ability and has presented a suitable PhD proposal;
- Part B: The student has demonstrated sufficient background knowledge for this stage of their program.

**If the overall mark received is lower than A-, the student has failed the exam.** The members of the Examining Committee have identified important flaws in the candidate's qualifications and will recommend corrective measures.

In keeping with FGPS regulations,

- A PhD student may ask for one re-examination within 2 terms of the first examination. If the student fails the re-examination they must resign from the PhD program.
- For the re-examination, corrective measures will be communicated to the student and the same Examining Committee will judge the candidate's success in meeting the corrective measures.
- A M.Sc. student will be asked to complete a M.Sc. degree. A second transfer examination is not permitted.

**5.9 Specific for MSc recommended for transfer to PhD Biochemistry:**

In their first term of PhD registration, transfer students will enrol for their Seminar (BCH8366), Thesis (BCH9999) and Comprehensive Exam (BCH9998). The Transfer Exam will be accepted, in lieu of the Comprehensive Exam, for satisfactory completion of the BCH9998 requirement at the PhD level. **The student is not considered a PhD student until official approval has come from the FGPS**