



Biological Sciences Graduate Program Doctoral Candidacy Requirements

The University of Calgary [Graduate Candidacy Regulations](#) (“the Regulations”) govern the conduct of admission to graduate candidacy at the University of Calgary. This document establishes program specific requirements associated with the conduct of admission to graduate candidacy under the *Regulations*.

Candidacy Regulations

Admission to candidacy for the doctoral degree is an acknowledgement by the faculty members in the graduate program that the student is prepared to successfully complete the requirements of the doctoral degree program. Subject to any extension allowances, doctoral students must complete all candidacy requirements within 28 months of first registration. Those students who have transferred from a Master’s program must complete all candidacy requirements within 36 months of the first registration in that Master's program.

Statement of Purpose

Candidacy requirements should serve two main purposes:

1. Assessment of the student’s background knowledge of his/her discipline.
2. Evaluation of the student’s preparedness to conduct high-quality research in his/her particular field of study.
 - In regard to 1 and 2, and relevant to the specialty, these may include: knowledge of literature, identification of important questions, understanding of methodologies, ability to choose appropriate methods to address the research questions, awareness of appropriate data processing and interpretation approaches.
 - Candidates must display the ability to communicate knowledge and understanding of their field effectively in competent English, in writing and orally.

Overview

All doctoral students in the Biological Sciences Graduate Program must successfully complete the following components:

1. Course requirements, as stated in the [Graduate Calendar](#).
2. Thesis Proposal.
3. Written FOS exam.
4. Oral FOS exam.

Thesis Proposal

Doctoral students must present a written research proposal no later than twelve months after initial registration in the program. For students transferring from the MSc program, the MSc proposal is not sufficient, so the student must present a PhD proposal to the Supervisory Committee. The transferred student must present a PhD proposal within 3 months of transferring programs.

The thesis proposal must not exceed 20 pages (Times font 12, 2 cm margins, double spaced; excluding references, figures, tables and the research/program timeline). Appendices are acceptable, but the proposal must be interpretable without the reader having to access the appendices.

The thesis proposal is to be provided to the Supervisory Committee no later than 10 days prior to a committee meeting. During the committee meeting, the student should provide a brief (15-20 min.) oral presentation highlighting the key background questions, aims, methods to be used and expected outcomes. The Committee will then discuss the proposal with the student and provide feedback to the student. The Committee will then come to a unanimous decision through the discussions in the meeting whether the proposal is appropriate and should be:

1. Approved as is,
2. Approved with minor amendments,
3. Approved with major revisions that only require that a revised proposal be submitted, but not require another meeting, or
4. Not approved.

If there is a lack of unanimity, the case will be referred to the GPD for a decision.

Approval with minor amendments or major revisions can include changes to the scope of the proposed work and improvements to the quality of the writing. The required changes are then noted on the MSc/PhD First Committee Meeting/Proposal form and signed off by the Committee members and the student. Additional feedback on the student's knowledge and ability to critically discuss the proposed research will be provided on the meeting form. This form is held in the students' official file.

If the proposal is not approved, the Committee will request either a:

1. Revised copy of the proposal to be reviewed and then approved by the Committee, or
2. Revised copy of the proposal and another meeting with the student to help move the proposal and performance to the acceptable level, and only then will the proposal be approved.

The student is granted no more than three attempts with a minimum of 1 month between attempts. If the thesis proposal is not approved on a third attempt, the student will be required to withdraw from the doctoral program.

Field of Study (FOS) Examination

Scheduling of the FOS written and oral examinations

A meeting between the student and his/her Supervisory Committee must be held at least 6 months prior to the proposed date of the FOS examination to discuss the specific requirements and expectations of each of the FoS examination components and inform the student of the procedures. The Committee must provide an agreed upon a list of expected knowledge and provide directions to resources (if applicable).

Composition of the FOS Examination Committee

- Supervisory Committee
- One additional examiner with understanding of the field (**may** be from the same Department or external to the Department/University)
- An examiner external to the Department (but internal to the University). They need not be an *expert* in the field.

The oral examination is chaired by a neutral chair, who is non-voting and does not examine the student.

General Format of the FOS Examinations

Doctoral FOS examinations in Biological Sciences have a written component followed by an oral component. All written and oral components of the Field of Study Examination will focus on the student's Field/Area of Specialization, as identified previously by the Supervisory Committee.

For the written examination, doctoral students are given three weeks to complete a critical review paper as well as a second paper, which takes the form of a focused essay or a simulated research grant. Each of the two papers carries equal weight. One week after the submission of the written answers, the oral component will take place.

The oral examination assesses a student's knowledge of her/his Area of Specialization and preparedness to conduct high-quality research, and is not limited to elaboration or scrutiny of the written components alone. Although the student's written components may form the basis of some questions, exploration of additional topics within the student's Area of Specialization is expected.

Process of the FOS examinations

The FOS Examinations has two components and will be conducted within a one-month period. The written component will be completed during the first three weeks of the examination period to allow examiners one week to evaluate the resulting documents before the oral examination.

Specific Format of the FOS Written Examination

Answers to the written examination will be provided as two papers (chosen from categories i and ii

below) that address topics within the student's Area of Specialization. Specific topic areas of study are to be provided to the student by the Supervisory Committee no later than 4 months before the exam.

- i. *Critical review essay* – This review should address a topic that is more focused than the student's Area of Specialization, but is sufficiently broad to allow synthesis of related subjects, issues and perspectives. Recent reviews in specialized journals or "Critical Reviews in ..." or "Trends in ..." journals provide examples of the expected scope of such reviews. Such a review should: include a historical overview; explain essential concepts and critically evaluate contemporary perspectives; appraise the empirical support for the guiding concepts, including apparent inconsistencies; and identify topics that warrant specific attention to advance the field of study (maximum length – 20 pages (2 cm margins), excluding the title page, double spaced, references and illustrative material).
- ii. *Second paper based on one of the following:*
 - a. *Essay on focused topic* – This essay will address current perspectives on a specific phenomenon, hypothesis, or protocol. The topic of this essay should be more limited than would be addressed by a review, allowing the student to examine it in greater detail (length, excluding title page, references and illustrative material: minimum – 10 pages, maximum– 20 pages, double spaced).
 - b. *Simulated Research Grant Proposal* – This grant should address a hypothesis concerning a specific subject that is not the topic of the student's own research, but related to the field, and is defined by the student's Supervisory Committee. The grant proposal will begin by identifying the scientific rationale for proposed research in an area that motivates a specific hypothesis, which in turn will generate the prediction(s) to be tested. Then, a description of the proposed research will characterize the study design and the specific methods that would be used to conduct the research. The grant proposal should be maximum length – 10 pages (2 cm margins), double spaced, excluding title page, references and illustrative material; typically, this would be in the format of an NSERC Discovery Grant. The Examination Committee will specify whether a budget page should also be added.

Which of options (ii-a) or (ii-b) will apply for a specific examination must be decided by the Examination Committee in consultation with the student and communicated to the student at two months prior to the commencement of the examination period.

For each written paper, the student will be provided with a choice of at least two questions in each of the two categories (i and ii). Each examiner, which includes the supervisor and co-supervisor (if applicable), but not the examiner external to the department, is responsible for supplying a question in at least one category. The Examination Committee must agree on the questions prior to providing them to the student. The supervisor, through face-to-face and/or electronic meetings, will mediate this discussion. The questions will be assigned to the student four weeks before the date of the oral

examination. The student should not be given more than one written question from a single examiner. The student may use normal research resources appropriate to their field. The student's submission to the written examination must be the student's own work, i.e. the student is required to complete these two written components independently (see University Calendar section on *Integrity in Scholarly Activity*: www.ucalgary.ca/pubs/calendar/current/l.html).

Outcome of the FOS Written Examination

All examiners are responsible to review and assign a letter grade for BOTH components submitted for the written examination. Grades must be given to the Neutral Chair by the examiners no less than 24 hours before the time of the oral exam. Each paper carries an equal weight toward the outcome. The Neutral Chair will then tally the letter grades and produce a grade point average (GPA) (i.e., a combined GPA from all examiners and both written components – one number). A grade of less than 3.0 is considered a fail, while a grade of ≥ 3.0 is considered a pass. The Chair will then notify the Examining Committee of the GPA for the FOS written examination. The individual grades will not be shared with the examiners.

If the tallied GPA of the written material is less than 3.0, the written component is a FAIL and the oral component will not proceed. In the case of a fail, the Neutral Chair will notify the student and supervisor as soon as possible as well as the Graduate Program Director. In the case of the failed written component, the student will be given the opportunity to repeat the FOS written examination with new written topics within 6 months (but not earlier than 2 months; only one repeat is permitted). In the case of a failed written component, the examiners will provide to the student specific feedback on the written component and provide guidance for improvement. If the written component is deemed a FAIL the second time, the student will be required to withdraw from the Faculty of Graduate Studies.

If the outcome of the written component is a pass, the examiners will be allowed to discuss the answers to the questions before the start of the FOS oral examination (in the absence of the student). The Neutral Chair will not share the GPA value with the Committee until after the evaluation of the FOS oral examination has been completed.

FOS Written Examination Grading System

| Grade | Grade Point Value | Graduate Description |
|--------------|--------------------------|--|
| A+ | 4.00 | Outstanding performance |
| A | 4.00 | Excellent performance |
| A- | 3.70 | Very good performance |
| B+ | 3.30 | Good performance |
| B | 3.00 | Satisfactory performance/ Minimum pass |
| B- | 2.70 | Failure. All grades below "B" are indicative of failure in the Biological Sciences FOS exam. |

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| C+ | 2.30 | Failure. |
| C | 2.00 | Failure. |
| C- | 1.70 | Failure. |
| D+ | 1.30 | Failure. |
| D | 1.00 | Failure. |
| F | 0.00 | Failure. |

Format of the FOS Oral Examination

All examiners participate in questioning during the oral component regardless if they provided any questions for the written components or not. A Neutral Chair, who is not involved in the student's project, will oversee the oral examination. Neutral Chairs are not permitted to ask questions or participate in the evaluation.

Process of the FOS Oral Examination

The oral examination must not exceed 2 hours, which does not include time for the Examination Committee to deliberate on an outcome. All examiners will be given equal opportunity to pose questions to the student. There will normally be two rounds of questions, typically with 15 minutes allotted per examiner in the first round and 8-10 minutes for the second round. The first round should be directed at the written component subject matter. During the second round the examiners should explore the student's Area of Specialization in a broader context. Note that during the oral examination, the supervisor is an examiner and is expected to participate in the questioning.

Outcome of the FOS Oral Examination

The outcome of the oral examination will be determined by straw ballot with a PASS or FAIL vote from each examiner, followed by a discussion and then by a final vote. The candidate will pass if there is no more than one fail vote. All examiners vote, including the supervisor, but not the Neutral Chair. If the outcome of the oral examination is a fail, the candidate will be invited to retake the oral component within 2 to 6 months of the date of the first examination. Doctoral students are only permitted one retake of the oral examination, and a second failure will require the student to withdraw from the doctoral program. The Graduate Program Director may uphold the fail in the case of a clear fail or refer the decision to the Dean of the Faculty of Graduate Studies.

Appeals

Students who fail any candidacy component relating to the thesis proposal or the Field of Study examination may appeal the decision in writing to the Faculty of Graduate Studies. Please see the [Academic Regulations](#) in the *Faculty of Graduate Studies Calendar*, section O. Appeals – O.2 Appeals Against Faculty of Graduate Studies Rulings, for details about the appeals process.