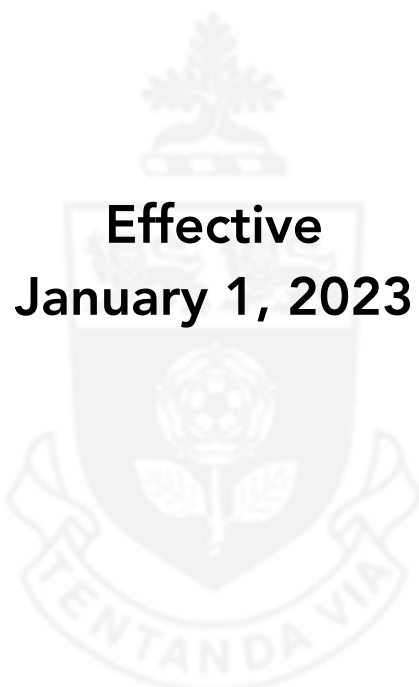




Graduate Program

Mathematics and Statistics

Policies and Procedures for Milestone Examinations in the PhD Program



Effective
January 1, 2023

All graduate students who participate in a comprehensive examination must abide by the rules stated in this document regardless of the enrolled degree program

Graduate Program in Mathematics and Statistics: <https://www.yorku.ca/science/mathstats/graduate-programs/>

There are two graduate milestone examinations that must be completed as degree requirements for a PhD the Graduate Program in Mathematics and Statistics. The first is called comprehensive examinations which cover breadth in mathematics and the second is dissertation subject oral which is a research examination surrounding the proposed research and related literature.

1. Comprehensive Examinations:

a. Objectives

PhD students will declare a specialization in one of the areas of pure mathematics, applied mathematics, or statistics, and write Comprehensive Examinations in subjects which are appropriate to the chosen specialization. The objectives of the PhD Comprehensive Examinations are to ensure that the students, before initiating their PhD research activities, possess adequate knowledge in the major areas of their PhD program and have the ability to effectively communicate that knowledge to their peers. It is expected that through completing the Comprehensive Examinations, the PhD students will be able to demonstrate:

- An understanding of key concepts in mathematics or statistics as relevant to their PhD program
- The ability to use mathematical or statistical concepts to solve complex problems in coursework and research projects

There are certain conditions on comprehensive exam selection that must be met depending on the program specialization. The details for this are available in the graduate mini-calendar of the Department of Mathematics and Statistics.

b. Timing, Scheduling, and Participation

A full-time doctoral candidate must satisfy their comprehensive exam requirement by completing their required exams within the first 3 semesters following the start of their program. Part-time doctoral candidates must satisfy their comprehensive exam requirements within the first 6 semesters.

Students will normally complete their Comprehensive Examinations simultaneously while completing their required coursework. They must complete all Comprehensive Examinations prior to completing their Dissertation Subject Oral.

The dates and times of comprehensive exams will be announced to all graduate students in the department via email at least 20 days before they

are administered. Deferred or rescheduled exams will be announced no fewer than 5 days prior to the new exam.

To participate in a comprehensive exam, students must complete a participation form and submit it to the Graduate Program Assistant (GPA) at least 30 days prior to the scheduled exam. Without completion of the participation form, a student will not be allowed to participate in a Comprehensive Exam. If a student participates in a comprehensive exam without having submitted the participation form by the appropriate deadline, it will be considered void, regardless of the outcome of the exam.

Students need not enroll in the course nor attend lectures for the course associated to the comprehensive exam in order to write the exam for comprehensive credit. However, students must still fulfil their course degree requirements regardless of comprehensive exams. Furthermore, insufficient knowledge or preparation for a comprehensive exam is not justification for failure.

c. Format and Structure

The syllabus for a Comprehensive Exam is determined by the instructor of the course with which the comprehensive is associated and may be part of a regularly scheduled final exam. The proposed syllabus must be approved by the PhD Committee and made available to students at least 30 days before the exam's date. The PhD committee will evaluate the syllabus with the intention of maintaining consistency in comprehensive exams across the program. Any substantial changes to examination content, mode of delivery, or evaluation method must be articulated in the syllabus for the committee to review. In exceptional cases where a student cannot participate in a Comprehensive Exam and if the instructor has granted a deferral within 2 months of the original exam, the same syllabus will be considered without additional approval by the PhD Committee.

Comprehensive Examinations should normally be in-person, closed book, and not exceed 3 hours. The instructor must provide a rationale for an exam which does not meet these criteria. If any aids (e.g., calculator, formula sheet, etc.) are permissible they will be announced in the approved syllabus.

d. Accessibility and Accommodations

Students requiring accommodation must contact York Student Accessibility Services well in advance of the Comprehensive Exams' dates to arrange for their accommodation. The instructor should receive

a copy of the accommodation letter, and is expected to support students who require accommodation, whilst ensuring the integrity of the examination process. Students with special needs and accommodation may require longer duration of exam, which is confirmed in their letter of accommodation.

e. Assessment Criteria and Feedback

As part of the syllabus submitted to the PhD committee for approval, a passing threshold will be indicated. This information will be made available at least 20 days prior to the exam's date. Importantly, this passing threshold may be different from what is required to pass the course associated with the exam. Furthermore, performance during the course (e.g., assignments, projects, participation in class discussion, mid-terms) will not be considered in evaluating a Comprehensive Exam.

Any additional assessment criteria such as multi-components with different weighting will be clearly explained and justified in the exam syllabus made available to students.

A written rationale for assessment of Comprehensive Exams, along with all examination material, will be submitted by course directors to the PhD committee no later than 14 days after the examination has taken place. The rationale by the course director must provide sufficiently detailed description of how the assessment criteria were used to reach the recommended outcome (Section f below). The PhD committee will review the examination of each candidate as well as the written rationale. The PhD committee may solicit further information from the course director as needed. They may also consult subject-matter experts outside of the committee to provide an independent assessment, particularly if there is a dispute in opinion between the course director and PhD committee. The PhD committee will make a final decision on the outcome(s) of the Comprehensive Exam by majority vote.

f. Outcomes of the Examination

The outcome of the Comprehensive examination will be one of the following:

- Pass
- Fail

The decision on outcome will be made by the PhD committee within 45 days after the exam completion and communicated to the student no later than 7 business days after the decision has been made. A written justification of the decision

will accompany the outcome. If an independent assessment was made by a subject-matter expert this will be noted as part of the justification.

In the event of a Pass outcome, the student will be deemed to have successfully completed the Comprehensive Examination for which the passing grade was awarded.

In the event of a Fail outcome, students will be required to re-attempt the Comprehensive Examination the next time it is offered. If the examination for which the candidate received a failed outcome was elective, they may substitute a different elective examination for a re-attempt. Repeat exams may be offered by a different examiner than the original examination and may have a different syllabus.

A student cannot fail any one comprehensive exam more than once, and not more than a total of 3 comprehensive exams. In the event this occurs, the student will be deemed to be unsuccessful in completing their graduate milestone examinations and the Graduate Program Director (GPD) will recommend to the York University Faculty of Graduate Studies that the student be required to withdraw from the program.

g. Exam Reappraisal and Extension of Timelines

If a student cannot complete their comprehensive exams within the required timeline (e.g., because they must reattempt a mandatory failed exam which will not be offered again within their first three semesters), they will submit a request for a timeline extension in writing to the GPD. The GPD will present the case to the PhD committee who will decide on timeline extensions by majority vote. All requests must normally be submitted to the GPD at least 2 months prior to the original completion timelines (3 semesters for full-time students, 6 semesters for part-time students). Requests not made by this deadline or requests denied by the PhD committee will result in the GPD recommending to the York University Faculty of Graduate Studies that the student be required to withdraw from the program. Absent exceptional circumstances, choosing not to complete a Comprehensive Examination will be insufficient justification for timeline extensions.

Students may, with sufficient academic grounds, request in writing to the GPD that the grade of the comprehensive exam be reappraised. Reappraisal will follow the guidelines established by the Faculty of Graduate Studies:

<https://www.yorku.ca/gradstudies/students/current-students/regulations/graduate-courses-and-grading/>

Decisions regarding timelines and outcomes of Comprehensive Examinations may be appealed to the York University Faculty of Graduate Studies by submitting a Graduate Academic Petition

<https://www.yorku.ca/gradstudies/students/current-students/regulations/graduate-academic-petitions/>

2. Dissertation Subject Oral (DSO)

a. Objectives

The aim of the DSO is to ensure that a PhD student has necessary depth of knowledge in their field of specialization and to assess the student's ability to conduct original research

b. Timing, Scheduling, and Participation

The DSO normally occurs after the completion of the comprehensive exams. For full-time PhD students, it must be completed before the end of the 6th semester. For part-time students the DSO must be completed before the end of the 12th semester.

Prior to the DSO, the Doctoral Dissertation Supervisory Committee must be approved by the Dean of the Faculty of Graduate Studies.

In preparation for the DSO, the student shall, in consultation with the supervisor, decide on a dissertation subject and prepare a syllabus of materials, a list of references, as well as an abstract for their DSO presentation. The syllabus of materials shall consist of relevant theoretical results, techniques, and examples which are deemed most likely to be useful in research on the dissertation subject. The Supervisory Committee must unanimously approve the DSO abstract and syllabus and agree that a command of materials listed in the syllabus will enable the student to pursue original research in that subject.

After the abstract/syllabus is approved, a date for the DSO examination will be set by the Supervisory Committee in consultation with the student. Once a date has been set, the following information about the DSO must be sent to the Graduate Program Assistant (GPA) as soon as possible and no fewer than 5 days before the DSO:

- i. student's name
- ii. a document containing title/abstract/syllabus/references of the DSO

iii. date, time, and location of the DSO

iv. names of the supervisor and other members of the Supervisory Committee

The GPA will announce the DSO to all faculty members and students of the Graduate Program in Mathematics and Statistics at least 3 days prior to the scheduled DSO. This announcement is with the understanding that the students have been provided with sufficient time to prepare for their DSO. In the exceptional circumstance when the GPA is not available to send this announcement, it becomes the responsibility of the supervisor to ensure that the above information about the DSO is sent to all faculty members and students in the Graduate Program in Mathematics and Statistics at least 3 days prior to the scheduled DSO.

If a DSO must be rescheduled, for example due to illness of a student or committee member, the same procedure for the original DSO would apply and the new date/time/location should be sent to the GPA at least seven days prior to the new date of the DSO.

c. Format and Structure

The DSO shall consist of a 30-minute oral presentation of the dissertation subject and a question period of up to one hour in length. All members of the student's Supervisory Committee must be present. Members of the graduate program may attend the examination and may ask questions on the presentation or on the syllabus of materials.

The Supervisor will serve as the Chair of the committee and will have to ensure that each member of the exam committee has an equal opportunity to pose questions. The format of the questioning period will follow the Oral Exam procedural guidelines of the Faculty of Graduate Studies, which can be found at

<https://www.yorku.ca/gradstudies/students/current-students/thesis-and-dissertation/doctoral-dissertation/>

d. Accessibility and Accommodations

Students requiring accommodation must discuss the issue with members of their Supervisory Committee well in advance of the DSO date. The Supervisory Committee is expected to support students who require accommodation, whilst ensuring the integrity of the examination process. Any changes to the format of the DSO suggested by the Supervisory Committee in order to

accommodate student's needs must be approved by the Graduate Program Director.

e. Assessment Criteria and Feedback

During the 30-minute presentation the student typically presents background material and known key results in the dissertation subject, followed by an outline of possible research projects and a discussion of methods/techniques that could be used to advance these projects. If the student has already made progress on these research projects, they may present their new results, including partial or negative results. There is no expectation at this stage that the student already has publishable research results, rather the student is expected to demonstrate that they have full knowledge of the background and technical material of the chosen topic and that they have the capability to do original research in the proposed research area.

f. Outcomes of the Examination

The outcome of the DSO examination will be one of the following:

- Pass
- Fail

The result of the DSO is decided by the Supervisory Committee via a vote. It is expected that a committee will produce a clear recommendation on the outcome of the DSO and thus a tied vote is considered a Fail outcome. Students will be informed of the outcome of the DSO no later than 7 days after it was completed including a written rationale for the outcome. If the student has passed, they will have been deemed to have successfully completed their DSO milestone requirements.

In the case of a Fail outcome, with the approval of the Supervisory Committee, the student would be allowed an additional attempt after further study, provided the next DSO attempt is held within the required timeline (before the end of 6th semester for full-time students and 12th semester for part-time students). The second DSO will be examined by the Supervisory Committee. This may have different members if the Supervisory Committee has been amended following the first DSO. Such amendments must be formally approved by following the appropriate procedures of the York University Faculty of Graduate Studies.

g. Extension of Timelines

If a PhD student has not passed the DSO before the required date (before the end of 6th semester for full-time students and 12th semester for part-time

students), at that time (before the start of 7th semester for full-time students and 13th semester for part-time students) the student must submit a request for a timeline extension in writing to the GPD supported by a letter from the Supervisor. The GPD, in consultation with the PhD committee, will decide on timeline extensions which will normally not exceed one semester. If the student has not passed the DSO by the required deadline, the GPD will normally recommend that the student be withdrawn from the PhD Program.

3. Procedures for Updating Graduate Milestones and Examinations

The Policies and Procedures described in this document will be reviewed every 7 years at the time of the Graduate Program Cyclical Review by the GPD and the PhD committee. If necessary, changes to the Policies and Procedures will be adapted.

Outside of the cyclical review, members of the graduate program in the Department of Mathematics and Statistics may suggest revisions to this policy by submitting a request to the GPD who will present the request to the PhD committee for a ratification vote.

Any policy revisions will be approved by majority vote of the PhD committee followed by the Graduate Faculty of Mathematics and Statistics Council.