

Physics & Astronomy Research Evaluation Guidelines

Goals of the Annual Research Evaluation

The Annual Research Evaluation is the primary means for monitoring a student's progress in their research project. There is both a written and an oral component, as described in detail below. The first annual research evaluation for a beginning M.Sc. or Ph.D. student should be viewed as a proposal. The student will present the selected research topic, motivate why it is interesting and describe in general terms how it will be executed. For subsequent research evaluations, the student will report on the progress of the research project in the past year and outline the plans for the next year. The Supervisory Committee will evaluate whether that progress is satisfactory. The overall rating of the evaluation is either *Pass/Fail/Incomplete*. The assessment criteria and outcomes are described in detail below.

Supervisory Committee

The supervisor and student must select the other members of the Supervisory Committee prior to the first research evaluation and complete the supervisor and Supervisory Committee Form (available from the PHAS office or Faculty of Graduate Studies website). The supervisor is always part of the Supervisory Committee, and if there are co-supervisors, there must be at least one member of the Supervisory Committee who is not a supervisor. Master's thesis Supervisory Committees consist of a minimum of two faculty members appointed to the Faculty of Graduate Studies, at least one of whom must be a member of the Physics & Astronomy graduate program, and who serves as the principal supervisor. For Ph.D. students, the Supervisory Committee will consist of a minimum of three members from the Faculty of Graduate Studies, at least two of whom must be members of the Physics & Astronomy graduate program. The principal supervisor must be a Full Member of the Physics & Astronomy graduate program. The members of the Supervisory Committee normally commit to seeing the student through their entire degree, but changes can be made, e.g., in the case where one member is on sabbatical or the direction of the research changes significantly.

Scheduling the Research Evaluation

The annual call for student Research Evaluations typically goes out in mid-March. Research Evaluations must be scheduled to take place prior to the announced deadline, which typically falls in the beginning of May. The supervisor should consult with the student and other members of the Supervisory Committee to select a mutually convenient time for the evaluation. The PHAS office can help with booking the projector and a room, if desired. Virtual meetings are also allowed, in which the student's supervisor will host the Zoom session and provide a link. In exceptional circumstances, a research evaluation can take place after the deadline with the consent of the Graduate Program Director. **It is the student's responsibility to ensure that the Research Evaluation form is brought to the meeting with the student information component of the form completed.**

Policy for students admitted for Winter or Summer terms: For MSc or PhD students who were admitted in the Winter term, the deadline for completing the first research evaluation is September 1. The subsequent research evaluations will occur at the normal time. Students who are admitted for the Summer term will complete their first research evaluation at the normal time during the following academic year.

Policy for students defending a thesis: With the permission of the Supervisory Committee and graduate program director, MSc or PhD students who are defending a thesis during the term in which their research evaluation is normally scheduled to occur (e.g. Winter term for a Fall or Summer admit, Summer term for a Winter admit), may be exempt from completing a Research Evaluation for that academic year. For example, a thesis-based MSc student admitted in Fall term (term 1) who defends in the Winter term of the following academic year (term 5) could be exempt from performing their second research evaluation.

Policy for students being promoted from MSc to PhD: Students who are promoted from the MSc to the PhD program before completing their MSc must follow the usual schedule for research evaluations. For example, a student who is promoted from MSc to PhD in Winter term must still complete a research evaluation in Winter term. Exceptions may be if the student has a different supervisor for their PhD or if the nature of the research is significantly different, at the discretion of the GPD.

Written Report

In advance of the Research Evaluation Meeting, the student must prepare a written report. Each year this report should contain: (a) a brief introduction; (b) a summary of the progress made during the year; and (c) an outline of plans for the following year. This report must not exceed four sides of double-spaced typing. **The student must distribute the written report to the members of the Supervisory Committee at least one week before the oral presentation.**

Oral Presentation

The oral presentation should describe and expand upon the material in the written report. The presentation should not exceed 20 minutes. After the oral presentation, the Supervisory Committee will ask the student some questions pertaining to their research. This discussion need not typically exceed 30 minutes. The student then leaves the room while the Supervisory Committee discusses and fills out the research evaluation form. Feedback is given through the form, which the student can then discuss with the supervisor. The student and Supervisory Committee should anticipate the oral component of the research evaluation to last one hour.

Assessment Criteria and Outcomes

After the oral presentation and discussion, the Supervisory Committee will confer privately on the outcome of the research evaluation. The assessment criteria are listed below; all use the scale: Excellent, Very Good, Good, Satisfactory, Unacceptable. In some cases, it is useful to have in mind a numerical scale when assigning a ranking, especially in the case a student is between categories:

Excellent	Very Good	Good	Satisfactory	Unacceptable				
9	8	7	6	5	4	3	2	1

- 1) Written report: To achieve a rating of Excellent or Very Good, the written report should clearly articulate the 'big-picture' goals of the research project, include citations to relevant background literature, clearly outline research activities during the past year and how they relate to the big-picture goals, and present a coherent and achievable plan for the coming year.

A rating of Unacceptable is appropriate if the written report does not demonstrate knowledge of the goals of the research project and the relevant background literature, does not demonstrate progress or diligent attempts at progress, and does not present a plan to progress the research project.

- 2) Oral presentation: To achieve a rating of Excellent or Very Good, the student's oral presentation should clearly demonstrate their knowledge of the material in the written report (big-picture goals, relevant background, progress, and plans), demonstrate excellent or very good oral communication skills, and the student must clearly address questions posed by the Supervisory Committee (students should be evaluated on how they think through a question in addition to the accuracy of their answer). A rating of Unacceptable is appropriate if the student cannot demonstrate a basic understanding of the material in the written report, gives a poorly prepared and executed presentation indicating unacceptable oral communication skills, and is unable to address the majority of questions posed by the Supervisory Committee.
- 3) Research progress: To achieve a rating of Excellent or Very Good, the Supervisory Committee must agree that the student has made above-average and significant progress on their research project. This could be demonstrated e.g. by: publications, conference presentations or proceedings, significant code development, the development of novel experimental techniques, significant contributions to the development/construction of an experimental apparatus, successful proposals for or completion of an observational campaign, or the development of new theoretical methods. A rating of Unacceptable is appropriate if the Supervisory Committee agrees that little to no progress has been made in situations where progress could reasonably be expected (extenuating circumstances might include: insufficient or unclear direction from the supervisor, lack of access to properly functioning equipment, or other reasonable impediments to progress).

Note that for first year students, in many cases the written report or oral presentation will not include an outline of research activities performed, and the focus for evaluation should be put on the big-picture goals, relevant background, and plans.

The Supervisory Committee must decide on an Overall Outcome of the Research Evaluation: *Pass*, *Fail*, or *Incomplete*. It is expected that students receiving a Satisfactory mark or better on all of the items above will receive a *Pass*. It is expected that students must receive an Unsatisfactory mark on Research Progress to receive a *Fail*. In the case of a *Fail* the Supervisory Committee must provide a rationale in the comments section of the research evaluation form which will be reviewed by the GPD. To receive an *Incomplete*, it is expected that the student has received at least one Unsatisfactory mark on the assessment criteria, and that concrete conditions can reasonably be satisfied by the student in order to warrant a *Pass* in the future. Such conditions could include, but are not limited to: a revised written report, a re-take of the oral presentation component, completion of a research task, or a literature review. The Supervisory Committee must provide in the comments section of the Research Evaluation Form a detailed list of conditions that the student must satisfy and a date, typically no more than 12 weeks from the date of the original research evaluation, by which these conditions must be fulfilled. **The supervisor will communicate the Supervisory Committee's final decision to award a Pass or Fail to the Graduate Program Assistant and Graduate Program Director, typically within one week from the date of the original research evaluation.**

Consequences of a *Fail* on the Overall Outcome of the Research Evaluation: Receiving a *Fail* terminates the student supervisor relationship. MSc students may continue in the program as a project or thesis based MSc if they are able to identify another supervisor. If they are unable to identify another

supervisor, the student can attempt to complete a coursework MSc. PhD students must identify another supervisor to continue in the program. If a student receives a *Fail* on any subsequent Research Evaluation, they are removed from the program. In addition, a student who has received a C or F in any graduate course will be removed from the program upon receiving an overall outcome of *Fail*. Note that receiving a *Fail* on a Research Evaluation constitutes unsatisfactory performance according to the Program Requirements, and will affect the student's guaranteed funding as outlined in their offer letter. In particular, a supervisor is released from their obligation to provide funds for a Research Assistantship. If the student and supervisor determine that a *Fail* is the likely outcome if a research evaluation were to be held, the student has the option to withdraw from the program in good standing. The student can re-enroll within 12 months to complete the research evaluation and continue in the program, if the student and Supervisory Committee agree that a more favourable outcome is likely after some time away.

What should be covered in the Comments section of the Research Evaluation form: In the Comments section of the Research Evaluation Form, the Supervisory Committee should briefly summarize the student's performance and progress, provide rationale for the awarded marks on assessment criteria, and provide feedback on areas of strength and areas needing improvement, including sharing concerns about the possibility of a failing grade on a future research evaluation if research progress is perceived to be stalling. Some additional topics that the Supervisory Committee should discuss, and which might inform their comments, include:

1. whether the progress during the past year has been satisfactory.
2. how appropriate the project is for the student and for the degree (e.g., M.Sc. or Ph.D.).
3. the feasibility of the project.
4. whether the student is receiving sufficient guidance to complete the project.
5. the schedule for the project goals, to ensure timely graduation.
6. in the case of students nearing the end of their degree, whether the project is sufficiently advanced that the student can concentrate on writing the thesis/dissertation.

Signatures on the Research Evaluation Form: Signatures from the Supervisory Committee acknowledge their attendance at the Oral Presentation and their consensus on the assessment. The signature of the student acknowledges that they received the results of the Research Evaluation. The signature of the Graduate Program Director acknowledges that they have received and reviewed the Research Evaluation and have submitted a *Pass*, *Fail*, or *Incomplete* in agreement with the overall assessment on the Research Evaluation form.

Appeals Process

In the event of an Overall Outcome of *Fail* on a Research Evaluation, the student may make an appeal to the Graduate Executive Committee. An appeal will consist of a written statement made by the student addressing:

- 1) The student's rebuttal of the rationale provided on the Research Evaluation Form for an Overall Outcome of *Fail*.
- 2) If there is a real lack of research progress, a feasible plan to move forward on the project with a list of concrete and achievable milestones and dates.

In addition, the Graduate Executive Committee will meet with the Supervisory Committee to review the justification for the *Fail* submitted in the Research Evaluation Form and determine if there is consensus among the Graduate Executive Committee that an *Incomplete* with conditions to pass is not appropriate. After reviewing the information collected, the Graduate Executive Committee will determine if a *Fail* was appropriate by majority vote. If a *Fail* is deemed inappropriate, the Graduate Executive Committee may take actions including: reversing the decision and awarding a *Pass* or *Incomplete* (with conditions to award a *Pass* upon completion), mediating disputes between the student and the Supervisory Committee that may have led to an inappropriate *Fail*, or identifying a new supervisor or Supervisory Committee members in the event of a complete breakdown in the student-Supervisory Committee relationship. If a *Fail* is deemed appropriate, the Graduate Executive will provide the student with a written rationale for their decision.

Accessibility and Academic Accommodations

Students requiring accommodations are encouraged to contact the accessibility office at the University well in advance of the Research Evaluation. The Graduate Program Director and faculty members should not adapt the format or scheduling of the Research Evaluation without consulting with student and/or the applicable accessibility advisor and must follow applicable policies related to access to information and privacy.