# Grad Student Handbook

DEPARTMENT OF PHYSIOLOGY AND BIOPHYISCS

August 2025

# Contents

# Section I - Introduction and General Information

## 1. Faculty of Graduate Studies

Graduate programs at Dalhousie University are controlled by the Faculty of Graduate Studies (FGS). Students must obey all regulations and requirements of the Faculty. These are described in: "Faculty of Graduate Studies Manual on Policies, Governance and Procedures". Regulations of the department are in addition to those of the Faculty and apply to all departmental graduate programs.

## 2. Programs

The department offers full-time graduate programs leading to M.Sc. and Ph.D. degrees in Physiology and Biophysics.

### The M.Sc. Program

The M.Sc. program provides students with a basic training in research in physiology and biophysics. Students graduating with the M.Sc. degree should be able to conduct supervised research or to enter Ph.D. programs in physiology or related disciplines. Graduates of the M.Sc. program will have demonstrated that they can:

a. Understand all areas of human physiology at the senior undergraduate level, and have a deeper understanding of specific areas studied in graduate courses and in thesis research
b. Present research seminars to scientific audiences
c. Perform research in a specialised area of physiology and/or biophysics

### The Ph.D. Program

The Ph.D. program trains students to become competent, independent researchers and capable teachers at the university level. Graduates of the Ph.D. program will have demonstrated that they can:

a. Conduct original research in physiology and/or biophysics
b. Publish their results in internationally recognised peer-reviewed journals
c. Present their work at national and international scientific meetings

# Section II - Program Regulations

## 1. The M.Sc. Program

Students must complete formal coursework, conduct original research, write a thesis, and defe nd the thesis.

### Course Requirements

a. Students must obtain at least 3.5 credits. The M.Sc. thesis is worth 2.0 credits, the remaining 1.5 credits must be earned by completion of appropriate courses (including the Graduate Seminar course).

b. Each student **must** register for and participate in **PHYL 5517X/Y** (Physiology and Biophysics Graduate Seminar course) each year that he/she is in the program. However, the 0.5 credit is earned only once.

c. All students must select at least one 0.5 credit graduate course offered by the department as part of their remaining 1.0 credit requirement (the list of currently offered courses can be found here: https://medicine.dal.ca/departments/department-sites/physiology/education/graduate-programs/ graduate-classes.html).

d. For Independent Study, Directed Reading, or Special Topics classes, by the end of the first week of class the Independent Study / Directed Reading / Special Topics form must be submitted to the Faculty of Graduate Studies (available at https://dalu.sharepoint.com/sites/graduate-studies/SitePages/forms.aspx).

e. All other courses must be approved by the supervisor/co-supervisor and the Supervisory Committee. Depending on the student's background and projected needs, he or she may be required by the Supervisory Committee to take more courses than the minimum 3.5 credits. Note that students may not register for more than one Independent Study, Directed Readings, or Special Topics classes in any graduate program (see section 6.6.5 of the Graduate Studies Calendar) and that Graduate Coordinator must approve registration to such courses.

f. All students must present at least one departmental seminar during the course of their studies.

## 2. The Ph.D. Program

Students complete formal course work if deemed necessary by their supervisory committee, pass a Comprehensive Examination within 2 years of entering the Ph.D. Program, conduct original research, write, and defend a thesis.

### Course Requirements

There is no minimum number of credits. However, students must satisfy the following departmental requirements:

a. Register for and participate in **PHYL 5517X/Y** (Physiology and Biophysics Graduate Seminar) each year.
b. Present at least one departmental seminar during the course of their studies.
c. Complete any course work required by the supervisory committee.

## 3. Mandatory Seminar Attendance

Graduate students are required to attend all departmental seminars, pre-talks and graduate student meetings following the seminar over the course of the academic year. Attendance is taken at all meetings. Attendance at these seminars allows students to develop breadth of knowledge in areas of physiology and biophysics research that may be outside their own area of interest.
***If a student is unable to attend for any reason, they must notify the Seminar Series Coordinator via email; declining the calendar invite is not sufficient notice of absence.***
The pre-talk includes a presentation by an appointed graduate student on the seminar topic and is scheduled for the same day as the seminar. Two published papers, suggested by the seminar speaker, will be circulated to the graduate students in advance of the pre-talk for review. The graduate student meeting is held directly following the seminar, facilitated by the Seminar Series Coordinator.
Seminars presented by graduate students from the department do not include pre-talks or student meetings.

## 4. Academic Standing

Students are required to obtain a minimum grade of B- in all courses. Failure to do so constitutes a failure and the automatic dismissal of the student from the program. However, under exceptional circumstances the department, with approval of the Supervisory Committee and the Graduate Education Committee, may consider an application to re-enter the program to re-take the failed course. Any student who subsequently fails a second course will be dismissed from the program with no possibility of re- entry.

## 5. Recommended / Typical Program Sequences

*M.Sc. Program: See Appendix*
*I Ph.D. Program: See Appendix II*

## 6. Program Durations

### Full-time Programs

The Faculty of Graduate Studies sets maximum limits of 4 years and 6 years for M.Sc. and Ph.D. degrees, respectively. These should be regarded as absolute program limits. The department will

only request extensions beyond these times in exceptional circumstances.

## 7. Annual Progress Report:

Every graduate student in the second year and beyond (M.Sc. and Ph.D.) is required to submit an Annual Progress Report to the Faculty of Graduate Studies (https://dalu.sharepoint.com/sites/graduate-studies/SitePages/gsis-progress-reports.aspx). This report is due each year one month before the anniversary of the student's admission date.

## 8. Academic Integrity:

Students must be aware of policies, procedures and penalties for academic dishonesty and offenses. Infringement of these policies can result in dismissal from the program. For more information visit the Academic Integrity Website: http://academicintegrity.dal.ca/.

# Section III - Supervision

## 1. The Supervisor

a. Supervisors must be regular, joint-appointed, cross-appointed, or Adjunct (Retired) faculty members of the Department of Physiology and Biophysics (other categories of Adjunct faculty may only co-supervise students, as per Faculty of Graduate Studies regulations: https://dalu.sharepoint.com/sites/graduate-studies/SitePages/membership-adjunct.aspx). Their supervisory status must be approved by the Graduate Education Committee for each student supervised.

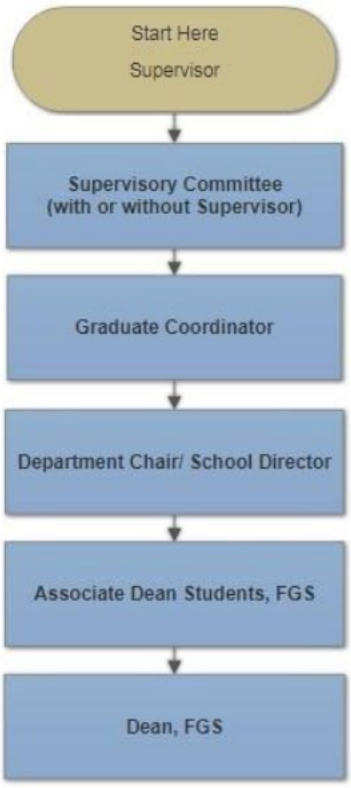
b. Supervisors must provide adequate research facilities for the student to perform their thesis research. This includes laboratory space, study space, equipment and supplies.

c. Supervisors must have a complete and thorough knowledge of their responsibilities to the Faculty of Graduate Studies, the department, and to the student. The supervisor must be familiar with the requirements for graduate degrees offered in the department and be able to provide the direction and assistance required by the student to achieve these goals.

d. Supervisors must guide their students in the selection of research projects, establish a realistic timetable for the completion of each phase of the research, and allocate enough time to the student to provide suitable guidance.

e. Supervisors are responsible for ensuring that a suitable Supervisory Committee is set up.

f. A positive student-supervisor relationship is crucial for success in a graduate program. For comprehensive guidance on managing this relationship—such as setting expectations, communication strategies, and addressing any issues—please refer to the Student-Supervisor Relationships page. If you have concerns, there are steps you can take:



## 2. The Supervisory Committee

a. A Supervisory Committee must be established for every graduate student. The committee should be set up as soon as the student is in the program. Thereafter, the committee must meet at least every **6 months**. A week prior to the student's scheduled meeting, the student will be reminded to submit their PowerPoint slides and supervisory committee report to their chair and committee at least **24 hours before their meeting**. The report will be completed by the committee chair, signed by the committee members, and provided to the student to be placed in the student's file. Additional committee meetings may be requested by the student, the supervisor, or the supervisory committee as required. Otherwise, the next meeting will be booked by the graduate administrator to be held in 6 months' time.

b. The Supervisory Committee consists of the supervisor / co-supervisor plus at least two other Dalhousie faculty members (including must be Adjunct appointments, as per Faculty of Graduate Studies regulations: https://dalu.sharepoint.com/sites/graduate-studies/SitePages/membership-adjunct.aspx). At least 1 member of the committee, other than the supervisor or co-supervisor, must be a member of the Department of Physiology and Biophysics and 1 member must be from outside the department.

# Section IV - Funding Opportunities

Competitive scholarships are available for outstanding applicants:

- President's Awards: Students **entering** the Ph.D. program with a full doctoral scholarship from NSERC, CIHR, or Killam are eligible to apply for the Dalhousie University President's Award. The Award will cover tuition fees (but not differential fees or other student fees) for up to the first two years of a student's program.

- FGS Scholarships and bursaries

- Student Research and Conference Travel Grants

- External Funding

# Section V - Progression and Examinations

## 1. The M.Sc. Thesis Examination

a. The Examining Committee will contain at least 3 members of the Department of Physiology and Biophysics, of whom at least 1 must hold a full- or joint-appointment. This number may include the supervisor if he or she holds a full- or joint appointment in the department.

b. The Examining Committee will contain at least 1 person with a PhD degree and an academic appointment who is not a member of the department.

c. At least 1 member of the Examining Committee must be a person with a PhD degree and an academic appointment who is not on the student's supervisory committee. The student and Supervisory Committee must discuss and approve the external examiner prior to booking the thesis defence. This can be accomplished through an in-person meeting or e-mail discussion.

d. The Chair of the committee will be the Graduate Coordinator, or delegate. The Chair must hold an appoi ntment in the Department of Physiology and Biophysics and must be in a neutral position relative to the student (*i.e.*, not a member of the Supervisory Committee and not having collabo rated in any work that the student has performed).

e. The student is required to submit their thesis draft to their supervisory committee for approval 3-weeks prior to their defence date. If the thesis is deemed acceptable, it will then be sent to the external reviewer 2-weeks prior to the defence. The defence will only proceed with the approval of the entire Examining Committee.

f. The examination will commence with a public presentation of the research work, followed by questions from the Examining Committee and the audience. Finally, the Examining Committee will meet *in camera* to decide the examination result. A detailed description of examination procedures and possible outcomes is given in the Faculty of Graduate Studies manual.

**Note: Students are advised that those who receive an offer to attend a Canadian Medical School during their MSc degree may be required to complete their program requirements before commencing their medical studies.** In this case, students must have defended their thesis and submitted the final, corrected, electronic version to FGS by the end of summer deadline (for October convocation). Failure to comply will result in forfeiture of placement in the medical program.

**For more information on degree requirements, see: http://www.dal.ca/academics/academic_calendars.html**

**For further details on theses and defences, see: https://dalu.sharepoint.com/sites/graduate-studies/SitePages/theses-defences-overview.aspx**

## 2. Direct Transfer from the M.Sc. to the Ph.D. Program

Approval for a transfer to the Ph.D. program without completion of an M.Sc. requires separate approval by the M.Sc. supervisor, the Ph.D. supervisor (if different), the M.Sc. Supervisory Committee, and the Graduate Education Committee. This will normally be considered at the start of the second year but must be completed within 18 months of entering the M.Sc. Program.

As a minimum the Graduate Education Committee will require evidence that satisfactory grades have been obtained in all course work, that any uncompleted required courses are in progress, that research work has been carried out that is suitable for publication in internationally recognised, peer-reviewed journals, and that a suitable proposal for the Ph.D. thesis research has been made.

If approved, the Committee Chair will return the student's completed committee report, provide the transfer date, and explicitly instruct the Graduate Education Assistant to begin the transfer process through FGS.

## 3. The Comprehensive Examination

a. All Ph.D. students are required to pass a comprehensive examination in a subject relevant to their general field of research within **2 years** of entering a Ph.D. program.

b. The rules for membership of the Examining Committee are identical to those for M.Sc. thesis examination.

c. The purpose of the comprehensive examination is to test the student's knowledge of the discipline in which they are conducting research, including related areas of physiology and biophysics that the committee feels are relevant. It is not an examination of knowledge in the entire chosen field of physiology and biophysics, but students must satisfy the committee that they have the ability to pursue and complete original research, and to understand the significance of their research within the broader context of physiological systems.

d. The comprehensive examination consists of: (i) the preparation of a written paper; (ii) an oral synopsis of the paper; and (iii) an oral examination of the student on matters related to the topic of the paper. Students must satisfy the committee in all 3 areas in order to pass the examination. The general process is as follows:

e. The Supervisory Committee decides on the general subject matter of the paper, in consultation with the student. The student must submit at least 3 topics related to, but not directly associated with their thesis topic to their Supervisory Committee for consideration. The topic will be chosen by the student's Supervisory Committee and must then be approved by the Graduate Education Committee. The topic cannot be changed without full agreement of both committees. The format of the exam must follow the guidelines below. To complete the comprehensive exam, both the written and oral portion of the exam must be deemed satisfactory by the examining committee.

f. Specific Guidelines for the Comprehensive Paper:

i. Once the exam topic has been decided, the student will have two months to read and to acquire a broad knowledge of the primary literature. During this time the student will meet

regularly with their supervisor to discuss progress and provide a list of papers being read. Review papers may be used to guide the reading effort but should not be relied upon. During this time, the student is expected to maintain progress in their lab work.

ii. After the two months of reading, the student will receive a specific question within the scope of the chosen topic. The student will have one month to prepare a written paper addressing the specific question. The document should be approximately 40 pages long (not including references), using double-spaced Times 12-point font.

iii. The paper must contain the following structured sections:

1. General Introduction: Provide a comprehensive overview of the topic, establishing the context and relevance of the work described.
2. Introduction to the Main Question: Clearly articulate the specific question and the significance and rationale behind it.
3. Current Knowledge: Present an in-depth review of existing literature and current understanding related to the research question, identifying key findings and established models, and the evidence supporting them.
4. Discussion of Discrepancies: Critically analyze and discuss any inconsistencies or gaps in the existing knowledge, highlighting areas of controversy or uncertainty. This discussion should include an assessment of the strength of findings supporting different models.
5. Future Perspectives: Propose potential future research directions and outline the broader implications of the research findings for the field.

iv. Original figures may be included in any section. The use of unaltered figures from other sources is not permitted.

v. Within 2 weeks following submission, the committee will either approve the student to proceed to the oral examination, or request revisions for the paper to meet the required standards. The committee will set the deadline for resubmission, not to exceed three weeks from the decision.

vi. Only one round of revisions is permitted.

vii. The oral presentation may be scheduled at the time of paper submission; to be rescheduled if revisions are required. The student will have 2 weeks to prepare for the oral examination, which will include:

1. Prepared presentation (10 min). The student will have a maximum of 10 minutes to present a summary of the main question, important milestones, and discrepancies. Original figures are encouraged. The use of unaltered figures from other sources is not permitted.

2. The oral examination (approximately 90 min). The student will be expected to answer questions and engage in thoughtful discussion about areas related to both the specific paper topic and the broader preliminary topic. All members of the Examining Committee, including the Chair, may question the student. Examinations will typically last 2-3 hours.

viii. The student must demonstrate:

1. Knowledge of well-established findings and models,
2. Knowledge of seminal primary literature in the field,
3. Ability to relate the findings discussed to a broader physiological context,
4. Ability to critically analyze and synthesize results, and
5. Ability to propose future directions.

g. The examinations result may be a clear pass, a pass with supplemental reading required, or a fail. The decision will be made by a majority vote. The Chair may not vote except to break a tie. Note that the Faculty of Graduate Studies regulations allow only 1 re-examination in the event of a fail, which must occur within 1 year of the initial examination.

h. The use of large language models is prohibited.

## 4. Publication of Thesis Research

The Supervisory Committee will expect the majority of the thesis work to be of sufficient quality for publication in a reputable scientific journal, and that the candidate will have appeared as the first author on at least 1 paper. As a guideline, Ph.D. students will normally be expected to publish at least 3 full- length papers from their thesis work.

## 5. The Ph.D. Thesis Examination

a. The Examining Committee will contain at least 3 members of the Department of Physiology and Biophysics, of whom at least 1 must hold a full or joint appointment. This number may include the supervisor if he or she holds a full or joint appointment in the department.

b. The Examining Committee will contain at least 1 person whose primary appointment is with another department at Dalhousie University.

c. The Examining Committee will obtain an External Examiner from outside Dalhousie University who must be approved by the Faculty of Graduate Studies.

d. Before the thesis is sent to the External Examiner, it must be examined by all Dalhousie University members of the Examining Committee, who must all notify the Graduate Coordinator in writing that, in their opinion, the thesis is acceptable for examination at a Ph.D. defence.

e. The examination will follow the rules and regulations of the Faculty of Graduate Studies and will follow a similar overall format to an M.Sc. thesis exam.

**For further details on theses and defences, see: https://dalu.sharepoint.com/sites/graduate-studies/SitePages/theses-defences-overview.aspx**

# Section VI - Administration

## 1. The Graduate Coordinator

The Graduate Coordinator is elected by the Committee of the Whole for a three-year term. He or she is responsible for the overall operation of the graduate program and serves as Chair of the Graduate Education Committee. The role of the Graduate Coordinator is to oversee the day-to-day running of the graduate program. The Graduate Coordinator is the students' advocate providing fair and impartial advice with regard to their academic development. It is expected that the Graduate Coordinator will be available for consultation when needed. In the event that the Graduate Coordinator has graduate student(s) in the program, those student(s) will be assigned a member of the Graduate Education Committee to act as their advocate.

## 2. The Graduate Education Committee

The Graduate Education Committee will consist of the Graduate Coordinator and at least 3 other full or joint appointed members of the Department of Physiology and Biophysics. Faculty members of the committee are elected by the Committee of the Whole for a three-year term.

## 3. Physiology and Biophysics Graduate Students Society

The Graduate Student Society is comprised of all graduate students from the department. The main objectives of the association are to enhance the experience of students in the Physiology and Biophysics graduate program and to encourage interactions between graduate students through social events or academic activities.

# Appendix I – Recommended / Typical M.Sc. Program Sequence

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| Within 30 days | **Course Selection**<br>*Student and Supervisor select courses.* |
| Before end of first term in the program | **Supervisory Committee Appointed**<br>*Supervisor selects committee in consultation with student.* |
| Before end of first term in the program | **1st Supervisory Committee Meeting**<br>*Student is responsible for coordinating meeting with assistance from the Graduate Secretary.*<br>*Supervisory committee report form must be pre-filled by the student before the meeting.*<br>*Graduate Coordinator or delegate will chair all meetings.* |
| Every 6 months for the duration of your program | **Follow up Supervisory Committee Meetings**<br>*Student is responsible for coordinating meeting with assistance from the Graduate Secretary.*<br>*Supervisory committee report form must be pre-filled by the student before the meeting.*<br>*Graduate Coordinator or delegate will chair all meetings.* |
| Each year, 1 month before the anniversary of the start date of the program | **Annual Progress Report to FGS**<br>*Student completes Part A and B. Supervisor completes Part C. Must be approved by Student, Supervisor, and Grad Coordinator.* |
| At least 2 months before the thesis defense | **Approval of Thesis Rough Draft**<br>*Student submits rough draft to his/her Supervisor for review.* |
| At least 2 weeks before thesis defense | **Thesis Submitted to Examining Committee**<br>*Student supplies copies to Examining Committee. Supervisor recommends Examining Committee to Graduate Coordinator.* |
| At least 2 weeks after submitting thesis to examining committee | **Thesis Defense**<br>*Student is responsible for arranging defense date as well as booking a room with assistance from the Graduate Secretary.* |

# Appendix II – Recommended / Typical Ph.D. Program Sequence

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|---|---|
| Before end of first term in the program | **Supervisory Committee Appointed**<br><br>*Supervisor in consultation with student selects committee.* |
| Before end of first term in the program | **1st Supervisory Committee Meeting**<br><br>*Student is responsible for coordinating meeting with assistance from the Graduate Secretary.*<br>*Supervisory committee report form must be pre-filled by the student before the meeting. Graduate Coordinator or delegate will chair all meetings.* |
| Every 6 months for the duration of your program | **Follow-up Supervisory Committee Meetings**<br>*Student is responsible for coordinating meeting with assistance from the Graduate Secretary.*<br>*Supervisory committee report form must be pre-filled by the student before the meeting. Graduate Coordinator or delegate will chair all meetings.* |
| Each year, 1 month before the anniversary of the start date of the program | **Annual Progress Report to FGS**<br>*Student completes Part A and B. Supervisor*<br><br>*completes Part C. Must be approved by Student, Supervisor, and Grad Coordinator.* |
| At 3.5 months before comprehensive exam | **Comprehensive Proposal**<br>*Must be approved by Supervisory Committee and Grad Ed Committee.* |
| Within 2 years of starting the program | **Comprehensive Exam**<br><br>*Student initiates process following proposal. Supervisory proposes additional examiner to Graduate Coordinator.* |
| 6 months before defense | **Approval of Thesis Title** |

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|  | *Student with advice from Supervisor registers title with Faculty of Graduate Studies.* |
| At least 3 months before thesis defense | **Approval of External Examiner** |
|  | *Supervisor submits list of 3 suggested examiners to Graduate Coordinator.* |
| At least 3 months before thesis defense | **Approval of Examining Committee** |
|  | *Supervisor submits proposed committee to Graduate Coordinat or.* |
| At least 8 weeks before thesis defense | **Thesis Submitted to Examining Committee for Approval** |
|  | *Must be approved before submitting to FGS.* |
| At least 6 weeks before thesis defense | **Thesis Submitted to FGS for Formatting Check** |
|  | *Student is responsible for submitting thesis and supporting documents.* |
| At least 6 weeks before thesis defense | **Thesis Submitted to Examining Committee** |
|  | *Student supplies copies to Examining Committee.* |
| Within 6 years of initial registration | **Approval of Thesis** |
| | *Student supplies copies to Supervisor and Graduate Coordinator.* |