

CLINICIAN SCIENTIST GRADUATE PROGRAM (CSGP)

STUDENT HANDBOOK



<http://CSGP.medicine.dal.ca/>



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Welcome to Clinician Scientist Graduate Program

The Clinician Scientist program welcomes you and wishes you an enjoyable and rewarding graduate experience. We hope that your stay here will provide you with a wealth of knowledge and training which will serve you well throughout your career. We hope also that you will be able to establish friendships with fellow graduate students, staff, and faculty and that these friendships may enhance the enjoyment and success of your research activities.

The Program offers training leading to the degree of MSc or PhD. The aims of these graduate programs are to bridge the gap between clinical and basic medical research, and to offer training in clinical research, which is not otherwise formally offered at this University.

Browse through the following pages to acquaint yourself with our graduate program. We hope it will be a useful reference guide for you, your research supervisor and members of your supervisory committee.

Introduction

The Faculty of Graduate Studies sets the rules for graduate students to follow at Dalhousie. These rules are found in the Faculty of Graduate Studies Calendar, available from the Faculty of Graduate Studies office (3rd Floor, Henry Hicks Arts and Administration Building). In addition to the Calendar, the information contained in this booklet is designed to help students understand the rules, regulations and procedures pertaining to graduate studies in the Clinician Scientist program.

This booklet is intended to provide graduate students and faculty with a description of procedures and degree requirements for graduate study in the Clinician Scientist program at Dalhousie University. Unusual situations may require some individual modifications to be made through discussions with supervisors and supervisory committees. Any modifications will be subject to approval by the Graduate Studies Committee for the Clinician Scientist program.

It is the responsibility of each student to obtain a Dalhousie Graduate Calendar (available from the Faculty of Graduate Studies, 3rd Floor, Henry Hicks Academic and Administration Building) each year to make themselves aware of the Faculty Regulations.

The procedures outlined herein will apply to all students registering for the first time as graduate students. They will continue to apply in subsequent years. Any further revisions will apply only to students whose programs start after the date of revision.

Guidelines on the Supervision of Graduate Students

The following guidelines are based on guidelines developed in 1981 at a conference sponsored by the Faculty of Graduate Studies and the Dalhousie Association of Graduate Students. They were reviewed and endorsed by the Dean and Graduate Coordinators in January 1992.

I. Responsibilities of Supervisors

When a faculty member agrees to supervise you, they assume several responsibilities:

- i. to provide reasonable access to students and to be available for consultation at relatively short notice
- ii. to help decide upon a relevant and interesting research project
- iii. to tell students approximately how long it will be before written work, such as drafts of chapters, can be returned with comments
- iv. to be thorough in their examination of thesis chapters, supplying, where appropriate, detailed comments on such matters as literary form, structure, use of evidence, relation of the thesis to published work on the subject, footnoting, and bibliographical techniques, and making constructive suggestions for rewriting and improving the draft
- v. to indicate clearly when a draft is in a satisfactory final form or, if it is clear to the supervisor that the thesis cannot be successfully completed, to advise the student accordingly
- vi. to know the departmental and University regulations and standards to which the writer of a thesis is required to conform, and to make sure that the student is aware of them
- vii. to continue supervision when on leave, with arrangements being made for members of the supervisory committee to assist the student for the leave period
- viii. to advise and help the student approach other faculty members for assistance with specific problems or even to request the reading of a chapter or section of the thesis

II. Responsibilities of Students

When undertaking the writing of a thesis, students must assume several responsibilities:

- i. to choose a topic, in consultation with their supervisor, and to produce a thesis that is essentially their own work
- ii. to produce a thesis which meets the standards of scholarship required by the University and the department, including demonstration of their capacity for independent scholarship and research in their field
- iii. to acknowledge direct assistance or borrowed material from other scholars or researchers
- iv. to realize that the supervisor has undergraduate or other duties which may at times delay the student's access to the supervisor at short notice
- v. to give serious and considered attention to advice and direction from the supervisor
- vi. to submit their work to the judgment of the department and to abide by its decision when any rights of appeal, if exercised, have been exhausted
- vii. to know the departmental and University regulations and standards to which the writer of a thesis is required to conform

NB: It should be noted that the thesis represents your work and you are ultimately responsible to its production. This includes writing, typing, artwork, photocopying, and binding costs; some costs may be defrayed by your supervisor at their discretion.

III. Rights of Supervisors

Your supervisor has the following rights:

- i. to expect students to give serious and considered attention to their advice concerning what they regard as essential changes in the thesis
- ii. to terminate supervision and advise the student to find another supervisor if the student does not heed advice and ignores recommendations for changes in the thesis, or if the student is not putting forth a reasonable effort

- iii. to have their thesis supervision properly credited by the department as an intrinsic part of their workload so that, in the assignment of duties, they are not overburdened to the point of having their effectiveness impaired as supervisors
- iv. to have the thesis-writer acknowledge, by footnoting, all portions of the supervisor's own research over which the supervisor wants to retain future rights of authorship
- v. to have thesis-writers give permission for the results of their research to be used for the benefit of a larger project. This applies when they are working as assistants with their supervisor on research that is part of such a project. This is always with the understanding that students will refrain from scholarly credit for their own work and be given acknowledgement of their contribution to the larger project

IV. Right of Students

Students have the following rights:

- i. to have a clear understanding of what is expected in thesis writing (expected length, acceptable methodology, validity of topic, notification of progress)
- ii. to expect help from their supervisor in establishing a feasible topic and in solving problems and assessing progress as the thesis is being written
- iii. to receive a fair assessment of the completed thesis and explanations of negative criticism
- iv. to be allowed to have a new supervisor when they can offer convincing reasons to the department for the change and the change can be reasonably accommodated by the department
- v. to be protected from exploitation by their supervisor or other faculty members if the latter should:
 - X intrude upon the student's right of authorship or fail to give the student authorship credit for team research (where applicable, the department's protocols on authorship should be provided to students before they embark on research), OR
 - X divert the student's efforts from the timely completion of the thesis
- vi. to submit a thesis even if the supervisor is not satisfied, although such action should be taken only in extreme cases and after full consultation with the department

V. Responsibilities of the Clinician Scientist Department

Departments have certain responsibilities in supporting and maintaining their graduate programs:

- i. to provide necessary facilities and supervision for each student admitted, and not to accept more candidates than can be offered effective supervision to uphold a high academic standard for thesis
- ii. to provide adequate supervision at all times, so that, when a supervisor leaves the University for another permanent position, substitute arrangements are made as soon as possible
- iii. to allow students to change supervisors if their research interests shift or develop in a new direction and a change of supervisor will not deprive them of financial support and if the change can be reasonably accommodated by the department
- iv. to provide procedures which assist and encourage students to complete the thesis, such as early review and approval of topic and methodology, guidelines on access and appeals, oversight of the students' schedule, and a clearly stated system of thesis review and evaluation
- v. to encourage students to give papers as they proceed, so that they can test their ideas on a wider audience than the supervisory committee
- vi. to ensure that the graduate coordinator acts as a general overseer of students' progress
- vii. to instruct all students (or to see that they attend Faculty-level workshops) on research ethics
- viii. to explain to students the University's policies on intellectual property rights

Graduate Studies Committee (GSC)

The GSC is an appointed committee of the Program with the following primary responsibilities:

- a) to recommend to the FGS which students be admitted to the Clinician Scientist program
- b) to recommend sources of external funding that the students can apply for support
- c) to administer placement and qualifying examinations as required
- d) to monitor progress of graduate students. The committee will ensure that each graduate student fulfils the requirements of the Faculty of Graduate Studies and of the Clinician Scientist Program. To this end, the Graduate Studies Administrator will maintain records of all graduate students.

Research Supervisor

Normally, graduate students will have made mutually acceptable arrangements with a faculty member for the supervision of their research before registering for their program at Dalhousie. As soon as possible after registration, new students, with their supervisor's advice, will establish a supervisory committee.

Supervisory Committees

The course of study of every graduate student in the Clinician Scientist program is approved by the student's supervisory committee. Supervisory Committees must be appointed within the first three months after registration in the program. The committee members are selected by the supervisor, with student input, and approved by the GSC. If changes are required, the student should consult with the supervisor and the Graduate Coordinator. This committee also forms most of the examining committee which recommends to the Program (and hence to the Faculty) when a student has satisfactorily fulfilled all requirements for the MSc or PhD degree.

Committees for MSc Candidates

Consists of:

- student's research supervisor

- two other faculty members, at least one of whom will be a clinician scientist and all must be FGS members.
- with co-supervisors will have a 4-member committee.

Committees for Ph.D. Candidates

Consists of:

- the student's research supervisor
- three other members, at least one of whom will be a clinician scientist and all must be FGS members
- with co-supervision, there will be 5 members of the supervisory committee
- an external examiner, appointed at least three months before the thesis is to be submitted, will act only in the final thesis examination. The external examiner is chosen by the student's supervisory committee. The supervisor then informs the Graduate Coordinator for the CSGP who then advises FGS. FGS approves the selection of the external examiner based on their criteria for this role and extends the invitation to the external examiner.

Duties of Supervisory Committees

- to meet with the student initially to discuss a program of study in light of the student's background; to inform the GSC in writing of those classes that the student expects to take in order to satisfy class requirements or to correct background deficiencies.
- to meet with the student at least twice a year (usually in May and November) to discuss the student's progress and recommend strategies to address any problems in the research program.
- to report on the student's progress to the GSC at least twice a year (following the committee meeting with the student).
- along with the supervisor, assess the body of work completed by the student and recommend on the timing of thesis submission.
- form the nucleus of the examining committee

Criteria

The criteria on which a student's work is judged are:

- evidence of research ability shown by progress on a research project,

- evidence of academic ability in the achievement of satisfactory grades in graduate classes and active participation in at least one divisional seminar program, and
- satisfactory performance in teaching and other assigned duties in the discipline.

Grievance Procedures

A student with a grievance should proceed in the following sequence:

1. Supervisor and/or Supervisory Committee
2. Graduate Coordinator
3. Graduate Studies Committee
4. Faculty of Graduate Studies

If the grievance cannot be resolved by the Supervisor or the Graduate Coordinator, the student must then submit a written statement to the Graduate Studies Committee, who will then meet with the student regarding the grievance. The Graduate Coordinator will chair the Graduate Studies Committee when reviewing a grievance. The Graduate Coordinator would be a non-voting member at such a meeting.

If a mutually satisfactory resolution cannot be reached, the Faculty of Graduate Studies may strike an Appeals/Grievance Committee to adjudicate. Appeals/Grievance beyond this level follow the appeals process open to all registered students in the University.

Work Outside of Graduate Studies

During their Graduate Studies, residents will be permitted to continue participation in their Clinical Department Grand Rounds. **In addition to Grand Rounds, the resident may also be permitted to participate in clinical work up to a maximum of 16h per week.** All clinical commitments must be approved by the GSC for the Clinician Scientist program and must not interfere with the research program.

Class Requirements

At the first meeting of the Supervisory Committee, relevant course work for the student will be identified by the Committee in agreement with the student and the supervisor. There will be a minimum requirement of one-half course in the basic science discipline most relevant to the research project; however, the Committee may require that additional courses be taken to provide the knowledge base required for the thesis research. In addition, regular contributions to, and attendance at, a Journal Club and a seminar series, will be a requirement to ensure a firm grounding in experimental methods.

In addition to these general requirements, all Ph.D. candidates are required to pass a comprehensive examination.

Failure in a Class

It is a Faculty of Graduate Studies regulation that a student who fails ANY class (a grade less than B- in any mandatory core class) is automatically dropped from their program of study within the Faculty. However, if a failure is in no more than one half-class and if a grade of C- or better has been obtained, the Graduate Studies Committee will consider all aspects of any individual case and may, at its discretion, recommend to the Dean of the Faculty that the student be readmitted.

Grading Scale

Grade	Score	GPA
A+	90-100	4.3
A	85-89	4.0
A-	80-84	3.7
B+	77-79	3.3
B	73-76	3.0
B-	70-72	2.7
C+	67-69	2.3
C	63-66	2.0
C-	60-62	1.7
D	50-59	1.0
F	0-49	0

Progress Review

Two supervisory committee meetings are required **per year**. One week before this meeting, the student should submit a written abstract (one or two pages) to each member of the supervisory committee and to the Program Manager outlining their research progress and proposals. At the time of the meeting, the student will discuss this abstract and entertain comments and questions from supervisory committee members.

A written summary of the proceedings of the committee meetings reporting the resulting decisions or suggestions made by the supervisory committee should be composed by the student, circulated to committee members for approval and signature, and submitted to the Program Manager for filing in the student's file.

In addition to submitting the committee reports from their semi-annual supervisory committee meetings, each student will also be required, annually, to complete a Faculty of Graduate Studies Progress Report Form that must be submitted to the Dean of Graduate Studies. The Graduate Coordinator must sign this form before submission.

Forms for all the above reports can be obtained on the Clinician Scientist Graduate Program website: <http://CSGP.medicine.dal.ca/> under forms.

MSC/PhD Programs

Two degree programs are offered; however, all students will initially enroll in the MSc Program. Exceptions will be made for those Residents who already hold a MSc degree in a relevant discipline. Decisions on which MSc degrees are acceptable for admission to Clinician Scientist PhD program are left up to the discretion of the Graduate Studies Committee for Clinician Scientist. If, after one year, the student wishes to transfer to the PhD Program, and, if his/her Supervisory Committee recommends such a transfer, a recommendation will be sent to the Clinician Scientist Program Committee and, from it, to the Faculty of Graduate Studies for consideration and approval. A detailed explanation of each Program is now given:

M.Sc.:

This program will normally be for two years, including course work and research. A minimum of one-half course in the area of research interest will be required (with a minimum grade as required by the Faculty of Graduate Studies). A thesis on the research performed would be submitted and defended as outlined under the Guidelines of the Faculty of Graduate Studies. An external examiner will be appointed for the thesis examination to ensure rigorous standards. The external examiner will be external to the discipline the student is registered in. For at least the first three years of the program, where possible, the thesis will be sent out to an examiner external to Dalhousie University for written comment.

Ph.D.:

The time taken by the student to complete the Degree will be dependent on the progress and success of the thesis work as judged by the Supervisory Committee. The PhD program is expected to be completed within 3 years; a maximum of 5 years would be allowed. Course requirements would apply as in the M.Sc. Program, but, in addition, a thesis proposal would be prepared by the student within twelve months of initiation of the Program and presented to the Supervisory Committee. In addition, 18 months of initiation of the Program, the student must complete a comprehensive examination, which will have an oral and a written component. There will be a thesis required at the completion of research as stipulated by the Faculty of Graduate Studies. In addition, publications, at least in the state of submission, will be expected.

Ph.D. Research Proposal

The writing of a research proposal that will form the basis of a student's directed research is an important step towards focusing one's efforts and resources on a particular problem and devising appropriate strategies for its solution. The skills of successful "grantsmanship" in the writing of a research proposal are important in establishing one's scientific credibility and in attracting interest (i.e. funding) in one's work. In the course of graduate student training, demonstration of these skills is also an important early indicator of academic development. PhD graduate students are required to compose a research proposal and to present it to their supervisory committee. The proposal should outline the project the student proposes to do and it should follow the style used in CIHR grant applications but be no more than five single-spaced pages. Students are encouraged to seek advice from their supervisors, supervisory committee members (and others) as to the preparation of their research proposal.

The research proposal is to be submitted to members of the supervisory committee, ideally by the 10th month and, in any case, no longer than the 22nd month after initial registration. The supervisory committee will meet with the student, ideally by the 12th month and no later than the 24th month after initial registration. This meeting will serve to review and to question the student on the research proposal. An important function of this meeting is to decide on the feasibility of the proposal and the student's abilities to carry out the proposed work. Acceptability will be judged by the student's supervisory committee at that meeting.

Comprehensive Examination

The Clinician Scientist Program requires that PhD students demonstrate knowledge of a broad scope of clinical and basic medical science aspects of the subject being studied rather than an in-depth knowledge about basic science in a particular discipline.

The purpose of the Comprehensive Examination is to challenge the student's ability to prepare, evaluate and communicate scientific concepts and to discuss these orally in a competent fashion. The skills thereby attained by students in the preparation for and performance of the Comprehensive Examination mark an important level of accomplishment in their scientific training. The ability to consolidate knowledge and prepare critical summaries in a timely manner is an essential skill to the successful preparation of manuscripts and grant proposals, which graduate students, as new scientists, will encounter increasingly during their careers.

Written component: The Examination Committee will meet to set five written questions. It is possible to submit questions in the form of a research proposal. The student will receive the questions three months prior to the examination. The student will prepare a written paper for one of five exam topics and circulate their paper to all examiners **two weeks** prior to the

exam. As a guideline for length, each paper shall not exceed twenty, double-spaced pages, excluding references and figures.

Oral Component: The student will be examined orally by the entire examining committee **one week after submission of the written paper**. It is recommended that rounds of questions be employed in order to give each examiner an early opportunity to question the candidate. The written paper may serve as the primary basis for oral questions, but knowledge of related areas will also be tested. In particular, some knowledge base in the areas of the other four questions must be demonstrated.

The examination committee for both components of the comprehensive exam will normally comprise:

- three members of the student's supervisory committee, including the supervisor [and co-supervisor if the candidate is jointly supervised]
- one additional member
- the Graduate Coordinator, who will act as Chair

Timing of the Comprehensive Examination

The comprehensive examination will normally take place at the end of the second year of graduate studies (around the 24th month).

Assessment of Comprehensive Examination

Students must perform satisfactorily in all components of the comprehensive exam as judged by consensus of examiners. If consensus is not reached, the Chair of the examining committee must make a recommendation to the Graduate Program Committee as to whether or not the student is eligible to retake the exam. If a retake is granted, it must take place no sooner than two months and no later than six months after the first Examination.

Seminars

All graduate students must present at least one seminar per year in their Discipline seminar series. Generally, new students will be scheduled in the spring semester while more senior students will present in the fall semester.

The function of these seminars is to involve the entire discipline in a student's research project and to permit the student to gain experience in one important format of oral communication. Prior rehearsal of the seminar with the supervisor or supervisory committee (strongly recommended), post-seminar debriefing (with seminar coordinator and supervisory

committee), and use of standard evaluation forms distributed to a few selected members of the audience (faculty and students) will help the student to benefit from this experience.

These seminars should be well planned, formal presentations of 40-50 minutes and these presentations should be developed so that a general science audience can understand and appreciate the material presented. The content should be appropriate for a graduate level with relevant, current data from the literature used to support general statements. As with any presentation, effective use of well-prepared visual aids is a necessity.

New students should use their first seminar to present a literature review related to their research, and an outline of their proposed project. This presentation should be a clear, concise review of the literature that supplies the audience with an overview of the general research area (what has been done, what is being done, what is going to be done and why this is important). The review may include previous data from research conducted by the student's supervisor and from other laboratories. The student's own research project should then be outlined relative to the "larger picture" painted from the overview of the field. The objectives of the research, the approaches to be used and the expected significance of the results should be detailed.

Subsequent seminars may be research presentations of the student's own data or literature reviews of other significant research areas of general interest (topics should be discussed with the supervisor).

Journal Club Participation

Students are required to join and participate in a journal club most closely related to their particular discipline. This journal club participation is in addition to the regular discipline seminars.

Residence Period

All graduate programs are normally completed within five years from initial registration. The following table sets out residency requirements for each program offered:

DEGREE	RESIDENCY	MINIMUM ADMISSION REQUIREMENTS
M.Sc.	1 yr.	<ul style="list-style-type: none">• a medical degree from an LCME accredited medical school• current registration in a Royal College, or College of Family Physicians, Accredited Residency Program*• an Honours Bachelor's Degree in a basic science discipline

Ph.D.	2 yrs.	Same as above, with the addition of one year completed in M.Sc. in Clinician Scientist (unless the candidate already has a M.Sc. degree)
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NB: Under certain conditions Clinical Fellows who are not registered as Residents will be allowed to enter the program on a case by case basis pending approval of the GSC.

- Although only 1 year is required, it is expected that most residents will take two years to complete their M.Sc. Flexibility for individuals with parental responsibilities will also be considered
- Although only two years are required, it is expected that most residents will complete their Ph.D's in 3 years. A maximum of 5 years is allowed.

Title of Thesis

A title of the Ph.D. thesis, indicative of subject matter, must be submitted to the Dean of Graduate Studies for Faculty approval no later than six months before the expected final thesis examination. This is the responsibility of the student and their supervisor.

Thesis Submission

Unbound copies of an MSc or PhD thesis must be presented for final consideration by the student's committee. Any thesis presented in bound form will be rejected automatically. The student's attention is drawn to the other thesis requirements in the Graduate Studies Calendar. The Faculty of Graduate Studies Office has an information sheet available on the preparation of theses, and students are advised to read these before reaching the final stages of thesis writing. In addition, the thesis format must be approved by Graduate Studies BEFORE it is submitted to the supervisory committee members.

For the MSc, unbound copies of the thesis, together with a thesis-approval form, must be given to members of the Examination Committee no later than two weeks prior to the Defence. Each member of the Examination Committee must complete the thesis-approval form, indicating whether it is suitable for defence, and submit it to the Program Administrator for Clinician Scientist no later than one week prior to the Defence.

For the PhD, a form (available from Graduate Studies or from the Clinician Scientist Program Administrator) indicating that the thesis is ready to be sent to the external examiner, must be signed by all supervisory committee members before the thesis is submitted to Graduate Studies.

Please visit: <http://www.dalgrad.dal.ca/regulations/ix/> for further FGS regulations on thesis submission.

Thesis Defence

All MSc and PhD candidates will make a public oral presentation of their work for not more than 20 minutes. Thereafter, questions will be asked by the examining committee. The Clinician Scientist Program office will arrange and publicize the MSc defence, PhD defences are arranged and publicized by the Faculty of Graduate Studies. Both are done in consultation with the research supervisor and the student. The MSc defence will be chaired by the Graduate Coordinator, or the Coordinator's designate, and the PhD defence by the Dean of Graduate Studies or by an appointee of the Dean.

Thesis Defence Examination Committee

MSc: Supervisor, two committee members and one additional faculty member.

PhD: Supervisor, three committee members and an external examiner (external to the University).

Funding

Residents will receive an equivalent salary to their clinical counterparts. The funding for the students enrolled in the program can come from a variety of sources which include outside scholarships from national funding bodies, such as CIHR; specialty foundations, such as the Heart & Stroke Foundation; local bodies, such as the Nova Scotia Health Research Foundation; or from internal sources, such as departments, divisions, and individual operating grants and contracts held by Faculty of Medicine researchers.

Funding for Graduate Studies in the Clinician Scientist Program **must** be secured through your Clinical Department Head or other source **prior** to acceptance into this program. A letter from the funding source will serve as sufficient documentation for this purpose.

Students in this program are **not eligible** for funding through the Faculty of Graduate Studies.

Other Program Policies

The Graduate Program in Clinician Scientist adheres strictly to the zero-tolerance sexual harassment policy of the University.

More Information

If you have questions about any of the material in this handbook or about any aspect of the Clinician Scientist Program, please direct your enquiries to:

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