



Translational Medicine

Graduate Program Handbook

Department of Medicine

Faculty of Health Sciences

Queen's University

Kingston, Ontario, Canada

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Program Overview

Translational Medicine is driven by our patients and their diseases. Guided by this primary focus, translational research spans across the spectrum from molecular and cell biology to preclinical models to patient studies and back again. Within the context of the Translational Institute of Medicine (TIME), a confederation of existing research groups within the Faculty of Health Sciences, the Department of Medicine has established two new and unique programs: **Master of Science (MSc) and Doctor of Philosophy (PhD) in Translational Medicine**. These programs train the next generation of researchers to be effective translators of biomedical discovery. The graduates of the programs operate at the intersection of clinical and related sciences and have the expertise to generate and lead discovery through an integrated process, increasing the efficiency of translating science knowledge into health improvement.

Translational Medicine

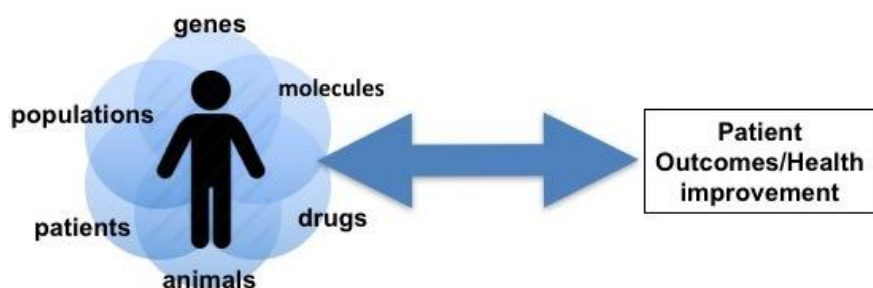


Figure 1. Conceptualization of Translational Medicine

The innovative MSc and PhD in Translational Medicine are unique research-based graduate programs focused on translational medicine at both master's and doctoral levels. The programs offer a curriculum interweaving graduate level research with authentic clinical experiences in a multidisciplinary environment across departments at Queen's University.

As one of the first of its kind, the programs link graduate level research skills with a variety of clinical experiences including patient interactions, clinical observerships and medical rounds to enhance professional thinking and action. This unique curriculum offers important foundational work for future careers in the biomedical field, and provides critical skills for pursuing careers that include clinician scientists, biomedical researchers, leaders in industry and public health and/or health policy.

Both the MSc and PhD in Translational Medicine are research-based programs, which requires the completion of 12-credit courses, including three mandatory core courses in translational medicine and 3 credits of elective course(s) chosen from students' area of interests, and thesis research. PhD students also have the requirement of a comprehensive exam.

Our Translational Medicine graduate programs are committed to promoting **diversity, inclusivity, and equity** among faculty members and students. We are committed to providing educational experiences that will build upon the principles of fairness and inclusiveness, in both formal and informal learning settings.

**Please use the following links to check the most up-to-date School of Graduate Studies and Faculty of Health Sciences information about COVID-19:*

<https://www.queensu.ca/sgs/node/1739>

<https://healthsci.queensu.ca/administration/safereturn>

Admission Requirements

In order to be considered for admission, applicants for the MSc in Translational Medicine program need to hold an undergraduate honours degree with a minimum of a B+ average in the last two years of their program, and applicants for the PhD program need to hold a master's degree with a minimum of an A- average.

Applications for admission are completed and submitted on the School of Graduate Studies website (<https://eservices.queensu.ca/apps/sgsapp/>), including an online application form and specific instructions regarding how to submit the following documents:

- A Statement of Interest about how applicants' background experiences and career aspirations make them ideally suited for the program (up to 4000 characters in the online application);
- Transcripts for all postsecondary education;
- Two references from individuals familiar with the applicant's academic performance.

In addition to the online application and the above required documents, applicants are required to submit an electronic resumé/curriculum vitae to tmed@queensu.ca.

Note: Referees are notified that you want them to provide a reference for you by email after you have submitted your online application, so please submit your application **at least two weeks** before the application deadline and be sure to include the correct email addresses of your referees on your online application. Applications will not be deemed complete and will not be reviewed by the admissions committee until all listed references are received.

Incomplete applications will not be reviewed by the admissions committee.

Language Requirements

In cases where English is not the first language, nor was the language of instruction in undergraduate studies, applicants must demonstrate English language proficiency. Those applicants will need to provide proof of English language proficiency through one of the following:

1. International English Language Testing System (Academic module) with a minimum score of 7 in each component, or
2. TOEFL iBT with a passing score of 93 including a minimum score of 24 on the speaking section.

Please note that these requirements are higher than the minimum standards set by the [School of Graduate Studies](#). Students will be involved in observing the clinical care of patients, and hence a thorough understanding and ability to communicate in English is essential.

However, if in the 12-month period prior to the month of application, an applicant has studied for at least one complete year at a post-secondary institution where English is the official language of instruction, a request to be exempted from the English language proficiency test requirement may be made to the Director of Admissions, School of Graduate Studies.

Program Requirements & Timelines

The Master of Science (MSc) in Translational Medicine requires, at minimum, the completion of 12 credit units, including three new core courses in translational medicine (TMED 800, 801, & 802) and 3 credits in elective course(s) chosen from students' area of interests, and a thesis research project.

MSc in Translational Medicine (duration: 24 months)

Year 1			Year 2		
Fall	Winter	Spring/Summer	Fall	Winter	Spring/Summer
TMED 800		Research Proposal/ Progress Report	Research/ Thesis Draft		Thesis Defense
TMED 801					
TMED 802					
Elective (Fall or Winter)					
Research Commences					

The Doctor of Philosophy (PhD) in Translational has the same coursework requirements such that students who have completed the MSc in Translational Medicine will be granted advanced standing and have no further coursework to complete thus providing an accelerated route to PhD completion. The PhD program also requires completion of a comprehensive exam and thesis research.

PhD in Translational Medicine (duration: 48 months)

Year 1			Year 2			Year 3			Year 4		
Fall	Winter	SS	Fall	Winter	SS	Fall	Winter	SS	Fall	Winter	SS
TMED 800		Research Proposal Progress Report (Year 1)	Comprehensive Exam (oral defense)/ Progress Report (Year 2)			Research/ Progress Report (Year 3)			Thesis Draft	Thesis Defense	
TMED 801											
TMED 802											
Elective (Fall or Winter)											
Research Commences											

Guided by the [Faculty of Health Sciences Graduate Council \(FHSGC\) Manual](#), students registered in the MSc in Translational Medicine with first-class standing (a minimum A- average, equivalent to 3.7 or 80%), and who show exceptional promise in their research may be considered for promotion to the PhD in Translational Medicine, without completion of the MSc. Promotion to a doctoral program requires the recommendation of the Program, the approval of the FHSGC, and the approval of the School of Graduate Studies. Normally, students will apply to the program following 3 terms of enrolment (12 months) and prior to the end of the fifth term of study (20 months). All requirements for completion of the **Mini-Master's** must be satisfied by the end of the sixth term (24 months). Students who choose the Mini-Master's route and are successfully promoted to the PhD program are expected to complete within 3 additional years.

Combined BScH/MSc (Translational Medicine) Program

This program is designed for exceptional undergraduate students:

1. who are interested in research and further pursue a master's degree;
2. who have an overall minimum A- average in the previous four completed academic terms;

Qualified students could apply for admission to the combined program (permission to take graduate-level courses) in the winter term of the 3rd year, in parallel with the process for admittance to the Honours year and the thesis research project. Applications to the combined program will be reviewed by the Translational Medicine Program Committee.

Admission to the combined program will be a two-step process.

1. Students need to submit their application to tmed@queensu.ca, providing a copy of their transcripts, an abstract of their proposed research project (500 words) with a translational focus, an elective graduate course that students wish to enroll, and the name of a faculty member in Translational Medicine willing to supervise their 4th year thesis project. The elective graduate course could either be a combined undergraduate/graduate (400/800 level) course or a graduate only course (800 level).

- a. To be considered for the combined program, students will need to enroll in one of the 4th year thesis project courses (including any of the 499 courses: ANAT499, CANC499, MICR499, NSCI499, PHAR499, PHGY499 or BCHM 421/422) and work with a faculty member from the Translational Medicine program. The 4th year thesis project will become the foundation for students' MSc thesis, and the same faculty member would normally become the supervisor of the student in the MSc program.
- b. Students must obtain the course coordinator's permission to enroll in the elective graduate course. If the student wants to take two graduate courses in the fourth year of their undergraduate degree, one of those courses must be TMED 802 (Research Success Skills). In order for the student to be granted advanced standing in the M.Sc. degree program, they must have received a final grade of at least B- (B minus) in the graduate courses taken during the 4th year.

2. For admission to the MSc in Translational Medicine with advanced standing, students need to complete the standard SGS application process in their fourth year, have an overall minimum A-average in the previous two years of their undergraduate program, and have demonstrated significant research potential and productivity in the 4th year thesis project. More information for this step could be found at (under “Prospective Students”): <https://deptmed.queensu.ca/academics/translational-medicine-graduate-programs/program-overview>

Students will receive essential graduate research training both through the courses and in their 4th year research project, which lay the essential foundation for their master’s thesis. Therefore, students in the combined program can reduce the time to obtain the MSc degree by up to two full terms. The combined program will enrich students’ learning experiences, provide advanced standing in their graduate studies, increase their research productivity and success rates for external scholarships and awards.

Mini-Master’s

(This section is extracted from the [FHSGC Manual](#).)

Students registered in a Master's program at Queen's University, with first-class standing, and who show exceptional promise in their research may be considered for promotion to a doctoral program in the same Program, without completion of the Master's degree. Promotion to a doctoral program requires the recommendation of the Program, the approval of Faculty of Health Sciences Grad Council and the approval of the School of Graduate Studies.

NOTE: Students admitted to a doctoral program by the mini-master’s route may revert to the master's program within the same department/program in exceptional circumstances and with the approval of the supervisor(s), the department/program and the School of Graduate Studies.

Promotion into a doctoral program without completing the Master's thesis is reserved for students who meet the following criteria:

1. Must have completed at least one term, full time, and have completed at least two graduate courses, or equivalent.
2. Must complete all course requirements for both the Master’s and Doctoral degree prior to graduation.
3. Should have an undergraduate honours degree with a minimum upper second class standing or equivalent.
4. Must have an overall first class average in graduate courses completed.
5. Must meet Program criteria for demonstrating promise and ability at research. This may take the form of oral or written presentation as well as letters of support from faculty familiar with the student’s progress.
6. Must apply to Council following one term of enrolment (4 months) and prior to the end of the fifth term of study (20 months). All requirements for completion of the mini-master’s must be satisfied by the end of the sixth term.

1. Procedure for Application and Approval:

The student will meet with the supervisor, the supervisory committee and the Graduate Program Director or delegate to agree upon whether he or she should apply to the Ph.D. program without completing the Master's thesis. During this meeting the ramifications of the transfer to the doctoral program are to be clearly defined for the student.

The following documents are required for submission to the SGS:

- Updated transcript (internal transcript acceptable)
- A brief justification outlining the student's qualifications for admission (to be completed by the Graduate Program Director or delegate)
- Letter of support from the supervisor
- Outline of student's current and proposed research
- Completed application package for admittance to the doctoral program, including a decision sheet for acceptance into the Ph.D. program, "pending successful completion of the mini-master's".

The application will be forwarded to the Chair of Council c/o the School of Graduate Studies. When the mini-master's candidate is in the same department/program as the Chair of Council, the application shall be forwarded to the Associate Chair of Council c/o the School of Graduate Studies. The Chair or Associate Chair will either approve the application, thereby accepting the student into the Ph.D. program pending successful completion of the mini-master's examination, or, in the case where he/she queries the qualifications of the student, have the application forwarded to Council for discussion. Both the Graduate Coordinator/ Graduate Program Director (or delegate) in the student's Program, and the supervisor must attend the Council meeting when the application is discussed.

No later than 40 working days after the approval to proceed via the mini-master's route has been confirmed in writing by the SGS, the mini-master's candidate will defend a written research report and proposal in an oral examination to an examining committee.

2. Procedure for Examination of the Research Proposal of the candidate for the Mini-Master's:

The candidate must prepare a written report that normally should not exceed 20 pages in length, double spaced (excluding Figures, Tables and References), clearly delineating the background of the research project, the work done to date, and the proposal for development of the research into a doctoral thesis. This report will be submitted to an examining committee composed of the following members:

Head/Director or Delegate as Chairperson

Supervisor

Two faculty members (cross-appointees or the supervisory committee may be used)

The Mini-Master's Oral Examination Form will contain a signature line for the candidate indicating that the candidate has been informed of the make-up of the Committee and that there are no conflicts.

An oral examination will be held normally no later than 2 weeks (10 working days) after submission of the written report to the members of the examining committee. At the examination, the candidate will present for 20 minutes on the research report. This presentation will be followed by an oral examination that consists of two rounds of questions. Questioning or comments of the examining committee will primarily relate to the background of the project, what the student has accomplished, and the basis for expanding the project. This should normally last no longer than 90 minutes.

At the end of the examination, the candidate will be asked to leave the room while the examining committee members discuss the performance of the candidate. The examining committee will decide if the student will be recommended for promotion to the Ph.D. program or not. Two or more negative votes by the examining committee will result in failure of the mini-master's examination. The decision of the examining committee shall be forwarded to the SGS.

Students who pass their mini-master's examination will be allowed to transfer to the doctoral program in the following September, January or May. For these students, the mini-master's examination will also count as the PhD Comprehensive Exam; a separate exam is not required. The Chair and/or Associate Chair of Council shall report any promotions to the Graduate Council at the next meeting. Students who do not pass the mini-masters examination will be allowed to complete the M.Sc. thesis, according to SGS regulations.

PhD Comprehensive Exam

The goal of the PhD comprehensive exam is to assess the student's knowledge of their field and scholarly qualifications that should be exhibited by a doctoral candidate. The exam will assess the student's ability to explore and comprehend the fundamental knowledge in their field of specialization and to use the knowledge to inform ongoing research approaches ultimately ensuring a solid foundation which will allow students to progress towards being considered an expert.

Students entering the PhD program directly after completing an MSc will be required to complete a comprehensive exam within 24 months of registration in the program. For students who have transferred into the PhD program following a Mini-Master's defence, the Mini-Master's oral exam will serve as the oral comprehensive exam; a separate exam is not required.

Approximately 8 weeks before the planned exam, you should confer with your supervisor to come up with a list of examiners. Your supervisor is expected to contact potential examiners to confirm their willingness to participate. Once confirmed, and at least 6 weeks prior to the exam, their names should be submitted to the Graduate Program Assistant. Then, the Graduate Program Assistant will work with them to schedule the exam.

Members of the examining committee will be:

Chairperson (chosen by the Graduate Program Director)

Supervisor

Two faculty members (cross-appointees or the supervisory committee may be used)

At least 10 working days before the exam, the student will submit a written report based on the PhD thesis project to all examiners. The report should not normally exceed 20 pages in length, double spaced (excluding Figures, Tables and References) clearly delineating the background of the research project, the work done to date, and the future directions of the project.

An Evaluation Form available from the Graduate Program Assistant, should be completed and returned to the Graduate Program Assistant at least 3 working days prior to the defence date by any member of the examining committee who feels that the defence should NOT go ahead. If two or more negative reports are submitted, the student and supervisor will be notified by the Chair of the Examining Committee or the Graduate Program Director to determine if they want to proceed with the PhD comprehensive exam. The SGS will also be notified. The decision of whether to proceed or not lies with the student. If the decision is made to postpone, the Chair must communicate to the supervisor and student the required revisions to the written report and that the student has the right to submit the revised report within one month. Following the subsequent submission of the revised report, the oral examination must take place. The SGS will be informed when an oral thesis examination is postponed due to negative reports.

During the oral exam, the student will present for 20 minutes on the research report. This presentation will be followed by two rounds of questions from the examining committee focused on the proposal and oral presentation, as well as questions that probe the student's understanding of the background and related literature. This should normally last no longer than 90 minutes.

At the end of the exam, the student will be asked to leave the room while the exam committee discusses the performance and evaluation. Two or more negative votes will result in failure of the examination. You will be informed of the result immediately after the exam and the decision forwarded to the SGS. Failure at the first attempt at the comprehensive exam will be followed by a re-examination within three months. Normally, failure at the re-examination results in a recommendation to the SGS that the student withdraws from the program.

Graduate Studies in Cancer Research

The graduate program in cancer research is multidisciplinary collaborative program that provides students with opportunities to pursue their studies within nationally, and internationally recognized centres of Cancer Research excellence at Queen's University.

It is jointly offered by the various graduate programs including Translational Medicine, Departments of Biomedical & Molecular Sciences, Pathology & Molecular Medicine, Public Health Sciences, and Psychology. This program provides students with centralized access to the broad range of cancer research and educational opportunities available to them within the Faculty of Health Sciences, and at Queen's University as a whole.

For more information or to register please visit <https://www.queensu.ca/cancergradprogram/> and <https://deptmed.queensu.ca/deptmed/academics/translational-medicine-graduate-programs/program-overview>

Fees and Registration

Tuition

The tuition of our MSc and PhD in Translational Medicine is the same as other research graduate programs at Queen's, which is set at \$5,772.99 (domestic rate) for the 2021-22 academic year. Please visit the Office of the University Registrar for more details on tuition and fees: <http://www.queensu.ca/registrar/financials/tuition-fees>.

Net ID

Your NetID is your network identity at Queen's. It will be the "User ID" you need to sign on to the applications and services that are operated by ITSservices, such as email, Moodle course management system, SOLUS Student Center, MyQueensU Portal, QShare, Wiki, etc. The login is called your "NetID", and instructions on how to generate them can be found at: <http://www.queensu.ca/its/netid>

You will need your Queen's student number to go through these processes.

If you don't have your Student number, please call the School of Graduate Studies (SGS) office at 613-533-6100. We cannot provide you with your student number by email, due to confidentiality requirements.

Registration

When registering for courses to the full time Translational Medicine program (once accepted into the program), complete [the SGS Registration form](#) and submit to tmed@queensu.ca.

Funding and Awards

Students enrolled in the programs will receive funding packages to assist with living expenses and coverage of tuition: MSc – minimum \$21,000 per year for 2 years; PhD – minimum \$23,000 per year for 4 years.

Travel Grants are also available to a maximum of \$1500 to each student to be used for travelling to present at conferences. Students must submit a letter of request to the Graduate Program Assistant indicating their project, title of presentation (poster or oral) and the name, location and dates of the conference. The School of Graduate Studies also offers \$600 towards travel grants. Contact the program office for more details.

The School of Graduate students offers internal awards such as the Arthur B. MacDonald Prize for Academic Excellence and the Queen's Tri-Agency Recipient Recognition Awards

For more information, visit their website at: <https://www.queensu.ca/sgs/prospective-students/applying-scholarships>

TMED Course Descriptions

Core courses

The flagship course entitled *Translational Medicine* includes faculty lectures, interactive patient sessions, and clinical observerships. In the experiential course, *Profession of Medicine*, students attend weekly Medical Grand Rounds becoming immersed in the professional environment of medicine. The third course, *Research Success Skills*, educates students about study design, as well as ethical and regulatory requirements for biomedical research.

* = courses that are one term in length. Courses are 3 credits unless otherwise stated

TMED* 800 Translational Medicine

Students are educated in the translation of medical knowledge from a variety of medical disciplines. Classroom sessions are divided into a traditional lecture, followed by an interactive discussion and a 3-minute student presentation. Clinical observerships involve direct placement within various clinics. Students are expected to write a review article on the topic of their thesis research for their final assignment.

TMED 801 Profession of Medicine

This course immerses students in the professional learning environment of Medicine. Course content consists of attendance at a minimum number of weekly Medical Grand Rounds, followed by facilitated small group discussions. Student seminars are held during the winter term for presentation of thesis research proposals.

TMED 802 Research Success Skills

This course provides the students with essential skills required to be a successful researcher. Instructions on study design, ethical and regulatory requirements for biomedical research are provided through completion of online modules. Library sessions are included to teach strategies to search the biomedical literature. Students are expected to write a CIHR Canada Graduate Scholarship application and laboratory/research skills related to their thesis research are evaluated.

Electives

TMED 811 Next Generation Sequencing (1 credit)

This one-credit course teaches students the theoretical and practical basis of high-throughput genomics and transcriptomics. The course is a combination of classroom lectures, practical bench science and practical computing. Students learn to design, implement and analyze an experiment using next generation sequencing technology and be expected to demonstrate these skills in the course assignments.

BMED 862 Cellular Techniques (1 credit)

This one-credit course is part of a suite of methodology courses being developed for the graduate program in Biomedical and Molecular Sciences intended to familiarize graduate students with the principles and practice of cutting edge technologies used in biomedical and molecular sciences research. The objective of this course is to familiarize graduate students with the principles and practice of cutting edge technologies used for protein and peptide analysis involved in biomedical research.

BMED 865 Imaging Analysis (1 credit)

This one-credit course is part of a suite of methodology courses being developed for the graduate program in Biomedical and Molecular Sciences intended to familiarize graduate students with the principals and practice of cutting edge technologies used for imaging analysis involved in biomedical and molecular sciences research. This particular course will introduce students to wide field epifluorescence microscopy, confocal microscopy, immunohistochemistry, imaging of live cells and fluorescence recovery after photobleaching.

BMED 869 Reproduction (1 credit)

The objective of this course is to familiarize graduate students with the principles and practice of cutting edge technologies used in reproductive and developmental biology involved in biomedical and molecular sciences research. This specific offering of the course will focus on methods to study developmental toxicity. This unit will include an introductory lecture, hands on laboratory experience and a take home assignment.

BMED 809* Principles and Drug Discovery and Development

This is a problem-based course focusing on and consisting of discussions of receptor theory, mechanisms of drug action, drug metabolism, pharmacokinetics, pharmacogenetics and pharmacogenomics, and drug transport. The course comprises lectures, problem-solving discussions and seminars, based on recent literature.

BMED 811* Advanced Molecular Biology

This course concentrates on the molecular biology of mammalian models particularly mechanisms involved in human diseases. The human genome project, forensic analysis, DNA diagnostics of human diseases, models of transcriptional and growth regulation and cancer, DNA repair, RNA processing and translation are all discussed. Emphasis on recent findings and course materials will be drawn from current reviews.

NSCI 844* Controversies in Neuroscience

As insight regarding the human brain expands, so do issues such as what constitutes personhood, what drives the criminal mind, intelligence-enhancing drugs and end-of-life decisions, to name a few. Lead by experts who deal daily with such concerns, this course will focus weekly on a particular topic in neuroscience which impacts on society.

EPID 803* Public Health System in Canada

This course provides an overview of the public health system in Canada including the provision of health care services. The first section of the course provides a history and overview of the Canadian public health care system, including how health services are organized and financed, as well as an introduction to health policy. The second section of the course highlights health care delivery, focusing on federal and provincial health care delivery, and both major and specialized health care delivery systems.

EPID 810* Controlled Clinical Trials

This course will cover material relevant to the design and conduct of controlled clinical trials. Design topics will include methods used to achieve unbiased results with improved precision,

such as adequate sample size, randomization, blinding, pre- and post-stratification, cross-over designs, placebos and the counting of relevant events. Attention will be given to the problem of conducting multi-centre clinical trials. Topics covered will include drafting of protocols, design of data forms, logistics of data flow, methods of follow-up, data management and quality control, periodic reporting, final data analysis and the production of final reports. Ethical issues and the role of randomized trials in clinical investigation will be discussed.

PATH 822* Experimental Cancer Therapeutics

The aim of this course is to introduce and discuss essential questions on the basic science of experimental therapeutics for the treatment of cancer. Topics will include discussions on: new drug development; molecular and signaling pathways involved in tumour genesis; challenges with existing cancer therapeutics; molecular approaches to profiling human cancer signatures; drug discovery and delivery; imaging, preclinical and clinical testing of novel therapies to assess efficacy and validate drug targets; and clinical trial results and the molecular basis for variability in tumour responses. A general theme for the course will be how to identify an experimental target or novel therapeutic, and translate the results into an improved therapy for the treatment of cancer.

PATH 826* The Molecular Basis of Disease

This course covers several diseases and integrates the genetic, biochemical, physiologic, anatomic, and general etiologic factors which play a role in the progression of each disease from its inception to death or recovery. The perspective will demonstrate that each disease is the result of an evolving interplay of genetic and environmental factors.

**Additional existing courses may be approved by the Program Director and students' supervisor, depending on the research interests of the students.*

TMED Course Syllabus

TMED-800 Translational Medicine Syllabus 2021-2022

Course Coordinators: Dr. Mark L. Ormiston

Time: Fall Term, Tuesdays, 8:30-10:30 am

1. First class on September 7, 2021; the class starts with course orientation at 8:30, and the lecture starts at 9:30 am on that day.
2. Observerships are 3-4 hour blocks and will be scheduled through tmed@queensu.ca based on student's interest and the availability of the clinics.

Location: Richardson Lab 104 (Auditorium)

Office Hours: By appointment

Contact: Dr. Ormiston: Internal Phone #: 36241; Email: mark.ormiston@queensu.ca

TA: Dr. Devin Phillips; Email: devin.phillips@queensu.ca

Graduate TA: Sophia Linton; Email: sml10@queensu.ca

Course Description:

This course is a 3-month (1-term) graduate course in which students will be educated in the translation of medical knowledge using examples from a variety of medical disciplines. Course content will consist of weekly, 2-hour classroom sessions, as well as monthly, 3-4 hour clinical observerships. Classroom sessions will be divided into a traditional 1-hour lecture by a member of Faculty from the Department of Medicine or the Faculty of Health Sciences, followed by an hour of interactive discussion and 3-minute student presentations. Clinical observerships will involve direct placement of the graduate students within various clinics at KGH or Hotel Dieu Hospital. Students will have the opportunity to observe and interact with clinicians and patients in a clinical setting.

Course Objectives:

This course will provide students with an understanding of the mechanisms involved in translating biomedical research into the clinic. At the end of the course, students will:

1. Be familiar with current issues in translational medicine across a range of disciplines.
2. Be able to critically assess current biomedical and health sciences research, with a particular focus on how this work can be translated into new therapies or clinical practices.
3. Have an appreciation and understanding for the clinical environment, the principles of patient privacy, as well as the impact of research on patient outcomes
4. Possess a basic understanding of legal and ethical principles associated with the translation of biomedical research into medical practice, including interactions with industry partners.

5. Have experience in the clear communication (written and oral) of scientific concepts relating to translational medicine to a range of target audiences, including patients, clinicians and basic scientists.
6. Understand the requirements to merit authorship on peer reviewed articles.

Instructional Strategies:

This course consists of 1-hour weekly lectures, followed immediately by 1-hour interactive learning sessions that are directly relevant to the previous hour's lectures. Interactive sessions can include, but are not limited to, discussions with patients or Q&A sessions with industry experts, such as industry-academic liaisons or lawyers specializing in biomedical patent cases. At the end of the interactive session, two students from the class will each give a 3-minute presentation describing the key points covered in the session. In-class sessions will be complemented by monthly clinical observerships, which will include clinic and/or ward-based experiences and patient interactions.

Prerequisites:

Admission to the MSc or PhD stream of the Translational Medicine Graduate Program. Graduate students enrolled in other MSc or PhD programs within the Queen's University Faculty of Health Sciences can also take the course if space is available (Course Coordinators' approval required).

Course Outline

This course will allow students to apply the knowledge of basic science that they have gained through their undergraduate degrees to the practice of translational medicine. Weekly lectures will introduce students to examples of knowledge translation across a range of medical disciplines and will gain an appreciation for the major obstacles that currently hinder the successful translation of basic biomedical discoveries into new clinical practices. These lectures will be followed by weekly interactive sessions, where students will have the opportunity to liaise directly with patients, as well as industry and academic professionals with direct, real-world understanding of the practice of translational medicine. Students will also demonstrate their understanding and learning through a 3-minute presentation. In-class activities will be complemented by monthly clinical observerships that will allow students to better understand the impact of knowledge translation on clinical practice.

Course activities:**1) Lectures on Translational Medicine & Practical Interactive Sessions (2 hour/week)**

The first hour of the weekly, 2-hour in-class sessions will consist of a traditional lecture on issues that are relevant to translational medicine in a specific medical specialty or sub-specialty. A table of proposed lecturers for the initial course offering is included below.

The second hour of the 2-hour weekly sessions will be dedicated to interactive exercises that are directly relevant to the previous hour's lecture. These sessions will include discussions with patients, as well as industry experts in fields that are directly relevant to translational medicine, such as technology transfer, patent law and academic-industry partnerships. At the end of this session, two students will each give separate 3-minute oral presentations.

***Please be mindful that there are no make-up classes. It is your responsibility to attend all required classes.**

Date	Speaker	Topic
September 7	Mark Ormiston Devin Phillips Wei Yan	8:30- 9:30 Course Orientation
	Paula James	9:30-10:30 History/Overview of the TMED Graduate Program
September 14	Anne Ellis Sophia Linton (3-minute presentation demonstration)	1 st Hour: Conducting Clinical Trials 2 nd Hour: Patient/research participant session
September 21	Stephen Archer	1 st Hour: Development of Sildenafil and Dichloroacetate in PAH 2 nd Hour: Patient session
September 28	David Lillicrap	1 st Hour: Hemophilia 2 nd Hour: Patient session
October 5	Prmeet Sheth and Hugh Guan	COVID-19 Research
October 12	Mark Ormiston & Alan Lomax	1 st Hour - DNA Damage and Repair in Cancer Treatment 2 nd Hour - PhD Scientist Career Paths
October 19	Tara Baetz	1 st Hour: Melanoma Clinical Trials 2 nd Hour: Patient session
October 26	Diane Lougheed	1 st Hour: Respiriology 2 nd Hour: Patient session
November 2	Don Maurice	1 st Hour: cAMP and cGMP Signalling 2 nd Hour: Medicolegal Consulting
November 9	Stephen Vanner	1 st Hour: GI Motility Disorders 2 nd Hour: Patient session
November 16	Rachel Holden	1 st Hour: Nephrology 2 nd Hour: Patient session
November 30	Gord Boyd	1 st Hour: Cognitive Recovery after ICU Admission 2 nd Hour: Patient session

2) Clinical Observerships: (4 hours every month)

We will arrange for students to rotate through three, 3-4 hour experiences on different medical teams, one for each month during the term (September, October & November). Each student will participate in a variety of experiences which will vary with the structure of the specific clinical setting. Clinical observerships will include, but will not be limited to, attendance at outpatient clinics and/or ward rounding with a team. Students will have an opportunity to observe case discussion to improve their understanding of clinical reasoning. CIP (Clinician Investigator Program) students are exempted from the clinical observerships.

Grading:

1) Attendance & Participation (10%):

Consistent with professional expectations in the workplace, students have a responsibility to attend the required educational sessions. Attendance will be taken and 2% will be deducted from the final grade per unapproved missed session. Students who miss more than 3 sessions will fail the course.

Students will also be assessed in terms of their participation and contribution to the class. Students are expected to demonstrate understanding of the lectures and ask relevant questions and/or join discussions. Ten percent of the final grade will be assigned by the Course TA based on the students' performance throughout the course including attendance.

2) Observerships: (20%)

Clinical preceptors will provide a mark for each clinic that the student attends, based on attendance and the demonstration of appropriate behaviours such as punctuality, professional interactions with team members, and respecting patient confidentiality.

3) 3-Minute Presentation (20%)

Each student will be expected to give one 3-minute presentation at the end of the second hour of the session. Students will be evaluated on their ability to effectively communicate a key point/points raised during the session, and their demonstration of an understanding of the connections between the lecture and the interactive session. Our Graduate TA will demonstrate the 3-Minute Presentation for one session. A debrief session among the TA, the Graduate TA and students will be held to clarify the expectations, requirements, and assessment.

Each student will then sign up for one presentation for the rest of the sessions in the course. While one student is presenting, the other student who will present in the same session will be asked to leave the room. Marks are assigned by the Speaker and the TA.

4) Review paper in Translational Medicine: (10% for the outline and reference list, 40% for the final submission)

As a final assignment, students will produce a review paper examining approaches in translational medicine that are directly relevant to their thesis research project. Assignments should be sent to the course TA Devin Phillips at devin.phillips@queensu.ca and copy tmed@queensu.ca

- a. A detailed outline plus reference list is due **November 2nd**. The outline should include:
 1. the name of the target journal (that is relevant to the student's research discipline);
 2. a brief description of the journal requirements for publication (e.g., word limits; reference style; major components required for a review paper)
 3. an introductory paragraph that states the thesis research focus;
 4. the literature search method, which should include what databases are searched (e.g., PubMed, Embase, etc.), what search terms are used, and whether restrictions are applied (e.g., the time span of publications); and

5. the outline of the final review paper (subheadings and bullet points are encouraged).
The reference list format should comply with the journal students specify in the outline.

Marks will be awarded for completion of the outline and the reference list. Students will receive feedback from the TA and their supervisors to consider for the final review paper. **After the outline, students are NOT allowed to seek further feedback for the final review paper from their supervisors as they will be assessing the final review paper.**

- b. Final papers will be prepared in a manner that is suitable for publication in a peer-reviewed journal that is relevant to the student's research discipline, with the hope that this work will (i) contribute to the student's graduate thesis and (ii) form the basis of a publication arising from the student's graduate studies. The final paper should include an abstract and the structure of the paper should include all necessary components for publication in the journal students specify in the outline. Tables and figures are optional. If students choose to include them, they should also comply with the journal requirements. The final paper is due **December 7th** (1 week after the last session of the course). A plagiarism check will be conducted on the paper.

Late assignment policy: At the discretion of the course coordinators, 10 percent of the total assignment mark will be deducted for each 48-hour period after the official listed due date if an extension has not been arranged in advance of the due date. Extensions are granted and late marks are deducted at the discretion of the course coordinators.

Students' performance or work will be assessed based on the rubrics. All rubrics are attached to this syllabus.

Rubric for Observerships (20% of course mark)

Student: _____

Preceptor: _____

Date: _____

	Below Expectations (0 mark)	Meets Expectations (1 mark)	No Chance to Observe
Professionalism 1. Is punctual			
2. Respects patient privacy			
3. Demonstrates professional behaviors and attitudes			
Communications 4. Asks effective learning questions			
Collaboration 5. Respects other members of the healthcare team			
Overall Score	_____ out of 5		

Comments (if any):

Rubric for 3-Minute Presentation (20% of course mark)

Date: _____ **Name of Presenter:** _____

Assessed by: _____

*Please assign one overall score in each criterion based on the descriptions/consideration listed.

Criteria	Descriptions/Consideration	Mark
Comprehension	Did the presenter demonstrate a clear understanding of the topic and content? Did the presentation cover the most important points from the session? Did the presenter make connections between the research and clinical practice?	_____ out of 10
Communication	Was the presentation clearly delivered with an effective pace of speech? Was the presentation well structured? Did it make a coherent argument? Did the presenter use effective non-verbal communication (i.e., eye contact, voice modulation, body language etc.)?	_____ out of 5
Engagement	Was the presentation engaging? Did the presenter capture and maintain your attention?	_____ out of 5
Total Mark		_____ out of 20

Comments (if any):

Rubric for the Review Paper (40% of the course mark)

Student: _____ **Assessed by:** _____

*A plagiarism check will be conducted on the paper.

*Please assign one overall score in each criterion based on the descriptions/consideration listed.

Criteria	Descriptions/Consideration	Mark
Content (overall quality)	Does the paper include concrete details and accurate descriptions of relevant materials? Does the paper identify a research gap in the field supported logically by previous literature? Does the paper address the research gap in a translational way?	_____ out of 10
References (overall quality)	Have key original papers (rather than reviews) in the field been critically reviewed in the paper? Are references clearly integrated and used to advance the argument? Does the paper demonstrate accurate use of summaries, paraphrasing, and quotations?	_____ out of 10
Organization	Does the paper follow a logical structure? Are paragraphs unified in a coherent way? Are ideas presented in an easy-to-follow sequence with proper transitions?	_____ out of 5
Critical Thinking	Does the paper critically review and synthesize literature in one's field? Does the paper present and integrate relevant literature within one's own research? Does the paper apply the key concepts in a precise manner with creative thoughts and explanations?	_____ out of 5
Voice	Is the paper presented from a clear position from the author? Does the paper express the author's opinion from an appropriate viewpoint? Is the paper written in a way that appeals to the research community?	_____ out of 5
Writing Conventions	Does the writing conform to styles in the field? Does the writing use correct grammar, spelling, punctuation, and word of choice? Does the writing incorporate a formal and objective tone?	_____ out of 5
Total Mark		_____ out of 40

Comments (if any):

**TMED-801 Profession of Medicine
Syllabus 2021-2022**

Course Coordinator: Dr. Sarah Moran

Time & Location: Fall-Winter, Thursdays, 7:45-10:00 am (not meeting every week)

- a. Medical Grand Rounds are held between 7:45 am – 8:45 am every Thursday at **Etherington Hall Auditorium** (Zoom option available), and the Course Coordinator will select the rounds that students are required to attend.
- b. A facilitated small group discussion will be held between 9:00 – 10:00 am at **Etherington Hall Auditorium** for selected rounds.
- c. In addition to the selected rounds, students need to attend other rounds that fits their research interests and fulfill a total of 20 rounds requirement for the course.

Office Hours: By appointment

Contact: Dr. Sarah Moran Phone #: 613 548 1360; Email: sarah.moran@queensu.ca

Course Associate: Dr. Asish Das Gupta asish.dasgupta@queensu.ca

Graduate Teaching Assistant: Sophia Linton, Email: sml10@queensu.ca

Course Description:

This course is an 8-month (2-term) graduate course in which students will be immersed in the professional learning environment of Medicine. Course content will consist of attendance at a minimum number of Medical Grand Rounds, followed by facilitated small group discussions after selected Medical Grand Rounds. Students will be expected to lead one discussion session, in the presence of the Grand Round speaker. The lead student will then write a Critical Thinking Report which will be posted online to continue the discussion with their peers. Student seminars will be held during the winter term for presentation of thesis research projects.

Course Objectives:

This course will provide students with an understanding of professional behaviors and collegial interactions within the profession of medicine. They will be exposed to settings in which clinicians and scientists regularly interact for the purposes of continuing education and professional development. At the end of the course, the students will:

1. demonstrate a broad understanding of physiology and pathophysiology across systems;
2. embrace a Bench to Bedside and Beside to Bench approach to biomedical research and clinical care;
3. efficiently translate fundamental and pre-clinical science knowledge into health improvement;
4. effectively communicate across settings, purposes, and audiences in oral and written form;
5. understand the importance of interactions with various forms of media to communicate scientific information clearly without hyperbole but with passion.

Instructional Strategies:

Over both terms, students will be expected to attend a minimum of 20 hours of Medical Grand Rounds (formal lectures typically from visiting faculty), followed by a 1-hour facilitated small group discussion session after selected Medical Grand Rounds. The discussion will focus on the presented work and its relationship with translational medicine, the perspectives from the general public and the career path of the speaker. Seminars will be held during the winter term, and each student enrolled in the course will be expected to present his/her thesis research project.

Prerequisites:

Admission to the MSc or PhD stream of the Translational Medicine Graduate Program. Graduate students enrolled in other MSc or PhD programs within the Queen's University Faculty of Health Sciences can also take the course if space is available (Course Coordinator's approval required).

Course Outline**Course activities:****1) Medical Grand Rounds: (a minimum of 20 hours over 2 terms)**

Students are expected to attend Medical Grand Rounds for a total of 20 hours over 2 terms to gain an understanding of the breadth of translational medicine and to assist in the development of their research ideas. Attendance at Medical Grand Rounds will be recorded. The schedule of available rounds is set on an annual basis and will be provided to students at the start of the course in September.

The Course Coordinator will select the 20 Medical Grand Rounds that students are required to attend. A facilitated small group discussion will be held between the speaker and students for some selected rounds. Please be mindful that there are no make-up classes for the rounds that include the facilitated small group discussion. It is your responsibility to attend all required classes. Students can make up attendance at Medical Grand Rounds that are not followed by a discussion session by contacting the Course Coordinator. Students will be expected to lead one discussion session, in the presence of the Grand Round speaker. During this session, students will be asked to address the following questions:

- a. How could the research or the Grand Rounds topic benefit patients?
- b. How has this research or the Grand Rounds topic been represented in the lay press and is it accurate/appropriate? and
- c. What training/career path did the presenter take and what are the pros/cons of following a similar route today?

The first facilitated small group discussion will be led by the Graduate Teaching Assistant (TA). A debrief session among the Course Associate, the Graduate TA and students will be held to clarify the expectations, requirements, and assessment.

The lead student will then write a maximum 750-word Critical Thinking Report which will be posted online to continue the discussion with their peers. The target audience of this report is the general public who have no prior background knowledge of the topic. The report should summarize the discussion with the guest speaker in the context of

translational medicine. The Graduate TA will write the first Critical Thinking Report as an example. All reports will be published at:

<https://deptmed.queensu.ca/academics/translational-medicine-graduate-programs/tmed-students/tmed-blog>

2) Seminar Presentation:

During the winter term, a seminar day will be scheduled, during which students will present their proposed research and research progress to other students within the program and faculty.

The format of the presentation should conform with the students' research discipline. The presentation should focus on the introduction of students' research question(s), relevant background/literature review, and the proposed methods/plan to address the research question(s). Preliminary results are welcome but not required. The presentation should be no longer than 15 minutes, and a 5-minute Q & A will follow. The Graduate TA will hold a preparation session for the seminar presentation.

The planned dates for seminar presentations are Thursday mornings, March 31st and April 7th, 2022. The detailed agenda will be decided when it's closer to the date.

Grading

All assignments should be submitted to the Course Associate Dr. Asish Das Gupta at asish.dasgupta@queensu.ca and copy tmed@queensu.ca

Assessment Task or Component	Detailed Description	Due Date
Attendance: (Pass/Fail)	Consistent with professional expectations in the workplace, students have a responsibility to attend the required educational sessions. Attendance will be taken and 2% will be deducted from the final grade per missed session. Students who miss more than 3 sessions will fail the course.	Ongoing
Facilitated Small Group Discussion (30%)	Students will be expected to lead one discussion session, in the presence of the Grand Round speaker. The lead student's performance will be assessed by the Course Associate (10%) and their peers (10%). Students will also be assessed in terms of their participation and contribution to the discussion. Ten percent of the final grade will be assigned by the Course Associate based on the students' performance throughout the course. Students are expected to: <ul style="list-style-type: none"> a. Demonstrate understanding of the discussion and ask relevant questions in each discussion; 	As scheduled

	<ul style="list-style-type: none"> b. Respect the speaker and the class and actively attend to what others say; c. Demonstrate collaborative learning skills and do not dominate the discussion. 	
Critical Thinking Report (30%)	<p>Students who lead the small group discussion will write a maximum 750-word Critical Thinking Report, which will be posted on the TMED Blog to continue the discussion with their peers. The report will be assessed by the Course Coordinator (10%) and the Course Associate (10%).</p> <p>An overall of 10% will be assigned by the Graduate TA based on the students' participation in the online TMED Blog comment section throughout the course. Comments should be meaningful, demonstrating students' reading and understanding of the Critical Thinking Report and advance discussion. Students are encouraged to make connections, discussions and ask questions amongst the report and other comments.</p>	The following Monday morning before 12:00 pm
Seminar Presentation (40%)	<p>In the winter term, students will be expected to present their thesis research projects. Peer review is an important component of biomedical research; therefore, 10% of the presentation grade will be comprised of peer evaluations, and 30% will come from faculty evaluations of the presentation (which includes the Course Coordinator, a faculty panel, student's supervisor, and the Course Associate).</p>	As scheduled

Late assignment policy: At the discretion of the course coordinators, 10 percent of the total assignment mark will be deducted for each 48-hour period after the official listed due date if an extension has not been arranged in advance of the due date. Extensions are granted and late marks are deducted at the discretion of the course coordinators.

Students' performance or work will be assessed based on the rubrics. All rubrics are attached to this syllabus.

Rubric for Facilitated Small Group Discussion (20%)

Name of the Student Facilitator: _____

Assessed by: _____

Date: _____

*Please assign one overall score in each criterion based on the descriptions/consideration listed.

Criteria	Descriptions/Consideration	Mark
Critical thinking	Applies relevant data, ideas, or concepts as presented during the Grand Round to the practice of translational medicine and patient care <i>(Question a: How could the research or the Grand Rounds topic benefit patients?)</i>	_____ out of 4
Preparation	Incorporates a discussion of the topic as depicted in the lay press into the discussion <i>(Question b: How has this research or the Grand Rounds topic been represented in the lay press and is it accurate/appropriate?)</i>	_____ out of 4
Knowledge	Making connections between the speaker's training/career paths and today's world <i>(Question c: What training/career path did the presenter take and what are the pros/cons of following a similar route today?)</i>	_____ out of 4
Leadership	Takes responsibility for maintaining the flow and quality of the discussion whenever needed	_____ out of 4
Communication (Oral)	Actively attends to what others say, and facilitates rather than dominates the discussion	_____ out of 4
Total Mark		_____ out of 20

Comments (if any):

Rubric for Critical Thinking Report (20%)

Student: _____ **Assessed by:** _____

*Please assign one overall score in each criterion based on the descriptions/consideration listed.

Criteria	Descriptions/Consideration	Mark
Knowledge	Incorporates references/evidence drawn from the literature and press articles	_____ out of 4
Critical thinking	Gives well thought-out, detailed explanation and recommendation on how to apply the information presented during the Grand Rounds and discussion to the practice of translational medicine and patient care	_____ out of 4
Organization	Organizes the report in a logical structure with proper transitions	_____ out of 4
Writing	Minimum grammar and spelling errors that interfere with the flow of the report	_____ out of 4
Communication (Written):	Writes in a manner that the report is accessible to the general public and conforms to ethical standards	_____ out of 4
Total Mark		_____ out of 20

Comments (if any):

Rubric for Seminar Presentation (40%)

PRESENTER: _____ **EVALUATOR:** _____

*Please assign one overall score in each criterion based on the descriptions/consideration listed.

Criteria	Descriptions/Consideration	Mark
Knowledge	Demonstrates a systematic understanding of knowledge in one's own research area with comprehensive references	_____ out of 10
Scholarship 1	Critically evaluates relevant literature and identifies research questions with a translational focus	_____ out of 10
Scholarship 2	Appropriately elaborates how their research methods/plan address the research questions	_____ out of 10
Organization/ Reasoning	Presents arguments in a clear and logical manner with examples/evidence support	_____ out of 5
Communication (Oral):	Clearly presents one's research and respectfully answers all questions with acknowledgement of one's own knowledge limits	_____ out of 5
Total Mark		_____ out of 40

Comments (if any):

TMED-802 Research Success Skills Syllabus 2021-2022

Course Coordinator: Dr. Anne Ellis

Time: Fall-Winter, Tuesdays, 2:30-4:00 pm (not meeting every week)

- a. First Fall Term class on September 7, 2021 for course orientation;
- b. First Winter Term class on January 11, 2022;
- c. Other face-to-face classes are scheduled as necessary throughout the course but will generally be Tuesdays at 2:30 pm in the same location.

Location: Botterell Hall, B139

Office Hours: By appointment

Contact: Dr. Anne Ellis Internal Phone #: 613-548-2336; Email: ellisa@queensu.ca

Course TA: Dr. Mackenzie Bowman mlb5@queensu.ca

Course Description:

This course is a 2-term graduate course designed to provide the students with essential skills required to be a successful researcher. Instruction on study design, ethical and regulatory requirements for biomedical researchers will be provided through completion of online modules including N2 Network of Networks CITI (Collaborative Institutional Training Initiative), the Canada Cancer Trials Group module on Clinical Trials, and the TPS2 (Tri-Council Policy Statement) CORE (Course on Research Ethics) online module. Library sessions will be included to teach strategies to search biomedical literature. Students will be provided instruction on grant writing and will be expected to write a CIHR Canada Graduate Scholarship application. In person seminar sessions will enhance the learnings from the online modules. Additionally, laboratory/research skills related to their thesis research will be trained and evaluated.

Course Objectives:

This course will provide students with essential skills required to be a successful researcher. At the end of the course, the students will:

1. have the ability to design fundamental, pre-clinical, and clinical research projects with the goal of optimizing their translational potential
2. explain the principles of good clinical trial design and good clinical practice (GCP) compliance
3. successfully navigate regulatory and quality control steps at all stages of health research including ethical and legal concerns
4. recognise knowledge gaps, formulate a relevant research question, efficiently search sources of medical literature and manage the retrieved citations.
5. acquire skills in writing and reviewing grant applications associated with translational research design, data collection, and data analysis
6. understand the importance of research collaboration including the responsibilities of various roles

Instructional Strategies:

Online modules will be utilized to teach ethical and regulatory requirements for biomedical researchers. These will be provided free of charge to our students through the Kingston General Health Research Institute, Kingston Health Science Centre – Kingston General Hospital Site. Additional modules will be provided by Queen's University (TPS2 CORE) and by the Canada Clinical Trials Group. The Medical Information Literacy sessions will include online modules, applied sessions and individual consultations. A series of seminars and workshops will occur throughout the course.

Prerequisites:

Admission to the MSc or PhD stream of the Translational Medicine Graduate Program. Graduate students enrolled in other MSc or PhD programs within the Queen's University Faculty of Health Sciences can also take the course if space is available (Course Coordinator's approval required).

Course Outline

Course activities:

1) Completion of TPS2 (Tri-Council Policy Statement) CORE (Course on Research Ethics) online certificate training (estimated 3 hours): <http://tcps2core.ca/welcome>

This module is mandatory for all graduate students at Queen's University doing research on human subjects. The module covers pertinent issues of ethics-related concerns.

This module should be completed no later than **October 12, 2021** before class.

A debrief session with the course TA is scheduled on **October 12, 2021**.

2) Completion of online modules including N2 CITI online modules (estimated 30 hours) OR the Canada Cancer Trials Group module (estimated 36 hours):

Students will be expected to complete one of following:

a. 4 online modules offered by N2 Network of Networks CITI (Collaborative Institutional Training Initiative - <https://about.citiprogram.org/en/courses/?filter=all>): Good Clinical Practice, Responsible Conduct of Research-Life Sciences, Privacy & Security and Health Canada Division 5 which focuses on investigator initiated or industry sponsored drug trials; **OR**

b. the Fundamentals of Clinical Trial Design, Conduct and Analysis online module, designed and maintained by the Canada Cancer Trials Group:

http://www.queensu.ca/artsci_online/additional-resources/Clinical%20Trials%202017/HTML/story.html

The decision about which to complete should be made by in consultation with the student's supervisor, taking into account what is most appropriate for the student's thesis research.

This module should be completed no later than **October 12, 2021** before class.

A debrief session with the course TA is scheduled on **October 19, 2021**.

3) Medical Information Literacy Sessions: 2.5 hours

A 1.5-hour session will be provided by a librarian from Bracken Health Sciences Library at the beginning of the fall term in order to familiarize students with available library resources and services at Queen’s University. This will be followed by a 1.5-hour hands-on training session to equip students with the information research skills necessary to master the inquiry process (from topic selection, background reading, question formulation, information collection and evaluation, to a final product). The intro session and workshops will be held at:

1. **September 14** from 2:30-4:00 pm.
2. **September 28** from 2:30-4:00 pm. (Students should bring their own laptops for this session).

During the fall term, students will schedule a half-hour research consultation with a librarian at Bracken to review your research question and database search strategy. To schedule your research consultation, email sandra.mckeown@queensu.ca with your availability. Important: provide your research question and the search strategy/history for one database at least one day prior to the consultation. The last day to schedule this consultation is **October 29, 2021**.

The Library Guild to Translational Medicine can be found at:

<https://guides.library.queensu.ca/translational-medicine>

4) Research Skills Workshops

A series of workshops are scheduled in the winter term to enhance students’ research skills. Please refer to the Class Schedule for this academic year’s workshops.

Class Schedule

***Please be mindful that there is no make-up class. It is your responsibility to attend all required classes.**

Date	Activity
September 7, 2021	Course Orientation Dr. Anne Ellis and Dr. Mackenzie Bowman
September 14	Medical Information Literacy Session 1 (introduction) Sandra McKeown, Bracken librarian
September 21	Introduction to the CIHR Canada Graduate Scholarship Application Dr. Mackenzie Bowman
September 28	Medical Information Literacy Session 2 (hands-on) Sandra McKeown, Bracken librarian
<u>October 5</u>	<u>Deadline for the draft of CIHR Canada Graduate Scholarship application</u>

October 12	<p><u>Deadline for online modules (30%) before class</u></p> <p>Online Module Debriefing Session 1 (TCPS2 CORE modules) Dr. Mackenzie Bowman</p>
October 19	<p>Online Module Debriefing Session 2 (N2 CITI online modules) Dr. Mackenzie Bowman</p>
<u>October 29</u>	<p><u>Deadline for Medical Information Literacy Session 3 (the last day for the research consultation with the Librarian) (5%)</u></p>
<u>November 9</u>	<p><u>Deadline for the CIHR Canada Graduate Scholarship application assignment (35%)</u></p>
January 11, 2022	<p>Experimental Design for Basic and Clinical Research Dr. Gord Boyd</p> <p>Using practical examples, Dr. Boyd will provide students with an introduction to experimental design for basic and clinical research. The session will include discussion of the importance of the early involvement of statistical support/research methodologists, power and sample size calculations, type 1 and type 2 error, and a number of different statistical analyses.</p>
January 25	<p>GCP - The Good, the Bad and the Ugly Dr. Annette Hay</p> <p>This session will provide students with a further introduction to Good Clinical Practices (GCP). Dr. Hay will facilitate discussion on research misconduct – what it is, why it happens and how we identify and address it. Students will learn about historical and real-world examples of research misconduct. Dr. Hay will also discuss GCP in relation to her role at the Canadian Cancer Trials Group.</p>
February 15	<p>Life as a Clinician Scientist Dr. Jennifer Flemming, Dr. David Reed, Dr. Samuel Silver and Dr. Anne Ellis (moderator)</p> <p>This workshop aims to help students better understand the responsibilities, experiences and challenges of being a Clinician Scientist. The format of the session is a panel discussion where each panel member will give a short introduction of themselves to cover the questions below. A Q & A session will follow.</p> <ol style="list-style-type: none"> 1. What are your responsibilities in your current role? 2. What does your daily/weekly routine look like?

	3. What are your expectations of a) graduate students in medicine; b) MD/PhD students; c) CIP trainees?
March 1	<p>CHIR Grant Review Workshop Dr. Mark Ormiston, Dr. Gord Boyd, Dr. Anne Ellis and Dr. Mackenzie Bowman</p> <p>The purpose of this workshop is to take students through the grant review process using faculty CIHR proposals. Students will take on the role of the peer reviewer and review these proposals.</p> <p>Two weeks prior to the scheduled workshop, the TA will provide students with the two grants to be reviewed and specific instructions on reviewing the grants. Students are required to come to class having reviewed the proposals and they must be prepared to discuss their reviews in their small assigned groups, as well as within the larger class setting. Faculty will facilitate discussions and share their personal experiences with the grant review process.</p>
March 15	<p>Inclusion in Academic Medicine: Conversation and Inspirations Dr. Mala Joneja</p> <p>In this workshop, Dr. Joneja perceives inclusion as the foundation to achieve equity and diversity. She focuses on the role of meaningful conversations and how inclusion in medicine could be fostered through understanding our common humanity.</p>

Grading

Assessment Task or Component	Detailed Description	Due Date
Attendance & Participation: (10%)	<p>Consistent with professional expectations in the workplace, students have a responsibility to attend the required educational sessions. Attendance is mandatory and 2% will be deducted from the final grade for each unapproved missed session. Students who miss more than 3 sessions will fail the course.</p> <p>Students will also be assessed in terms of their participation and contribution to the class. Students are expected to demonstrate understanding of the lectures and ask relevant questions and/or join discussions. Ten percent of the final grade will be assigned by the Course TA based on the students' performance throughout the course including attendance.</p>	Ongoing

<p>Completion of Online Modules: (30%)</p>	<p>Successful and timely completion of the required online modules:</p> <ul style="list-style-type: none"> a) Course on Research Ethics (CORE) (5%); b) N2 CITI online modules OR the Canada Cancer Trials Group module (25%). <p>Students will receive a certificate of completion for CORE. The certificate should be submitted to the TA by the specified deadline in order to receive credit for this course grade item.</p> <p>Each CITI module includes an evaluation quiz at the end; students must achieve at least 80% to pass. Each student will be expected to submit their marks to determine this portion of the course grade no later than the specified deadline. The mark of the quizzes (pictures or screenshots) should be submitted to the TA.</p> <p>Additionally, students will receive certification for successful completion of the modules; this certification is recognized nationally and internationally by organizations such as the American Medical Association, the FDA (Food and Drug Administration) and the National Institutes of Health. The N2 CITI modules were originally developed in the United States, but have been adapted to include Canadian content and are recognized by Health Canada and the TransCelerate Biopharma Group (a network of the major pharmaceutical companies).</p>	<p>No later than October 12 at 2:30 pm</p>
<p>Medical Information Literacy Sessions (5%)</p>	<p>Students will obtain credit for attending:</p> <ul style="list-style-type: none"> 1) the introduction session (September 14); 2) hands-on workshop (September 28); and 3) the individual research consultation with the librarian <p>All 3 must be attended to achieve the 5%. This component is assessed by the Bracken Librarian, Sandra McKeown. The individual research consultation must be scheduled between October 1 and October 29.</p>	<p>No later than October 29</p>
<p>CIHR Canada Graduate Scholarship application (35%)</p>	<p>Students will complete a CIHR Canada Graduate Scholarship application following the appropriate format given their program of study (MSc or PhD).</p> <p>A draft of the research proposal (both MSc and PhD) and a draft of the training expectations (PhD only) should be completed by October 5 if students would like to receive</p>	<p>Outline by October 5; Full application by</p>

	<p>feedback. Students are encouraged to send their drafts to their supervisors for feedback. Additionally, students may also send their drafts to the TA for feedback if they wish.</p> <p><u>After this deadline, students are NOT allowed to seek further feedback for the application package from their supervisors and the TA as they will be assessing the application package.</u></p> <p>For the MSc application package, students should submit:</p> <ol style="list-style-type: none"> 1) a CIHR CCV; 2) a Summary of Proposal (max of 1,800 characters); 3) a one-page outline of proposed research 4) a reference letter (that students write about themselves on behalf of their supervisors) <p>Detailed instructions for CGS-M application could be found at http://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/CGSM-BESCM_eng.asp</p> <p>*Please be mindful that the deadline for CIHR CGS-M is usually December 1 every year.</p> <p>PhD application: For the PhD application package, students should submit:</p> <ol style="list-style-type: none"> 1) a CIHR CCV; 2) a Lay Abstract; 3) a Training Expectations (Max 2 pages) 4) a Research Project Summary (Max 1 page) 5) a reference letter (that students write about themselves on behalf of their supervisors) <p>Detailed instructions for CIHR Doctoral Research Awards application could be found at http://www.cihr-irsc.gc.ca/e/38887.html</p> <p>*Please be mindful that the Queen’s internal deadline for the CIHR Doctoral Research Awards is October 14th this year.</p> <p>The application package accounts for 35% of the final grade. This assignment will be assessed by the Course Chair and/or the Course TA, and students’ supervisors.</p>	<p>November 9</p>
<p>Lab/Research Component (20%)</p>	<p>The supervisor will provide a mark for the performance and progress of student’s thesis research. Students are expected to have a meeting with their supervisors at beginning of the fall term. Students should clarify their supervisors’ expectations such as daily work routine, working hours and</p>	<p>Marks due March 31, 2022</p>

	interactions with the research team. Components that will be considered include maintenance of accurate lab books/research notes, appropriate balance between independence and seeking assistance and demonstration of appropriate lab/research skills (ie, completion of essays, attention to protocols, data analysis), and working well with other lab/research team members.	
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Late assignment policy: At the discretion of the course coordinators, 10 percent of the total assignment mark will be deducted for each 48-hour period after the official listed due date if an extension has not been arranged in advance of the due date. Extensions are granted and late marks are deducted at the discretion of the course coordinators.

Students' performance or work will be assessed based on the rubrics. All rubrics are attached to this syllabus.

Rubrics for the Application Package of CIHR Canada Graduate Scholarship (35%)

Student: _____ **Assessed by:** _____

*The assignment will be assessed as a whole based on the following criteria.

Criteria	Consideration	Mark
Research Plan (20%)	<ul style="list-style-type: none"> • Quality and originality of contributions to research and development; • Relevance of experience and training to field of proposed research • Significance, feasibility and merit of proposed research • Judgment and ability to think critically • Ability to apply skills and knowledge <p><i>*This criterion is used to assess the Summary of Proposal and A one-page outline of proposed research for MSc students; Lay abstract and Research Summary for PhD students.</i></p>	<hr/> out of 20
Personal Characteristics (10%)	<ul style="list-style-type: none"> • Leadership skills • Project management skills • The ability to communicate theoretical, technical and/or scientific concepts clearly and logically in written formats <p><i>*This criterion is used to assess the Reference Letter for MSc students; the Reference Letter and the Training Expectations for PhD students.</i></p>	<hr/> out of 10
CIHR CCV (5%)	<ul style="list-style-type: none"> • Completion of the CIHR CCV 	<hr/> out of 5
Total Mark		<hr/> out of 35

Comments (if any):

Rubrics for Lab/Research Performance (20%; Due March 31, 2022)

Dear supervisors,

The following rubrics are drafted for you to establish your expectations and requirements with your students in terms of their Lab/Research performance. You are welcome to revise the criteria and/or descriptions below so that they fit your needs and contexts. Please set clear expectations with your students in the beginning of Fall 2021 and submit your evaluations by March 31, 2022 to tmed@queensu.ca. Thank you very much.

Student: _____ **Assessed by:** _____

*Please assign one overall score in each category based on the criteria listed.

Criteria	Descriptions/Consideration	Mark
Knowledge	Demonstrates steady progress in terms of one's own research	_____ out of 4
Time Management	Meets deadlines for all assigned tasks and meetings	_____ out of 4
Engagement	Demonstrates dedication to all lab/research activities	_____ out of 4
Teamwork	Interacts positively with all lab/research team members, and shows respect and support to others	_____ out of 4
Communication	Actively attends to what others say, and participate in discussions in lab/research meetings	_____ out of 4
Total Mark		_____ out of 20

Comments (if any):

Academic Integrity

Studying at Queen's means you are part of a scholarly community, one in which all members (students and faculty alike) are held in mutual respect. Academic Integrity also supports the reputation of Queen's University; universities, and the degrees they confer, are only as strong as their reputations. **Violating academic integrity can have** serious consequences, from failing a course to being expelled from Queen's. For more information visit the School of Graduate Studies policy on Academic integrity at:

<https://www.queensu.ca/sgs/graduate-calendar/academic-integrity-policy>

A plagiarism software will be used to check all written assignments in this program to ensure academic integrity.

Changes in Registration, Status and Course Work

Course deletions and additions are recorded on an Academic Change Form, initialed by the Course Coordinator; signed by the Supervisor and Program Director; and submitted to the School of Graduate Studies for approval.

Graduate Student Supervision

Supervisors

It is understood that the primary supervisory role rests upon your supervisor, and that your supervisor has the responsibility of overseeing your day to day progress, of directing research and of advising on a variety of academic matters. Finding a supervisor is the student's responsibility. Please visit our website for details on all of our TMED faculty members and their research areas of interest. <https://deptmed.queensu.ca/deptmed/academics/translational-medicine-graduate-programs/translational-medicine-graduate-faculty>

Co-Supervisors

Sometimes it is useful for students to have two co-supervisors; for example, when the thesis topic spans two disparate fields, the particular expertise of each co-supervisor would be helpful. In the case of a less experienced supervisor who is approved as a co-supervisor, the other co-supervisor needs to be an experienced faculty member from TMED program. In such cases, one of the co-supervisors must be designated as the major supervisor and will take primary responsibility for your academic supervision, especially in dealings with the graduate office. Students with co-supervisors should discuss the details of collaborative research with each of their supervisors. In cases of co-supervision, it may be appropriate to have an additional member on the supervisory committee. This decision should be made in consultation with the Graduate Program Committee.

Supervisor's Absence

If a graduate supervisor leaves the University, or is absent on sabbatical leave, or is required by the University to perform other duties that would impair effective supervision, the supervisor must make formal written arrangements for an interim supervisor to act as both an academic and

research advisor. Copies of this written arrangement must be given to both to you, as the student, and the Graduate Program Assistant to be put in your student file.

Change of Supervisor

The initial selection of a supervisor is usually considered a permanent arrangement. If, however, you and your supervisor do not work well together, or find that your research interests are not compatible, a request to change supervisors may be made in writing to the Graduate Program Committee. In all cases, it is recommended that you discuss the proposed changes with all members of your supervisory committee and with the Graduate Program Committee before a formal request for change is made.

Thesis Supervisory Committee

Each student will have a supervisory committee. Under ordinary circumstances, the members of the supervisory committee act as supplementary (or complementary) advisors and monitor your academic progress. In exceptional circumstances, the committee will act as a first "adjudicating" body in settling a disagreement between you and your supervisor. The membership of supervisory committees (for students new to the program) will be reviewed and approved by the Graduate Program Committee.

Formation

Supervisory committees must be formed within the first term of graduate study and are chosen in consultation with your supervisor. Once decided, the members of the supervisory committee should be submitted to the Graduate Program Committee for approval. The Graduate Program Committee may recommend changes if the committee structure is unsatisfactory (see below).

Composition

For both MSc and PhD students, the supervisory committee consists of the supervisor and at least two other members. Supervisory committee members may be from a different research group either inside or outside the Department. In some circumstances, students may have a committee member from outside Queen's. In such cases, a request must be made in writing to the Graduate Program Committee, stating reasons for the request and qualifications of the proposed committee member. Committee members outside of Queen's also require approval from the School of Graduate Studies. At least one member of the supervisory committee should be an experienced TMED faculty member to ensure that students' research meets all the degree level expectations of the program.

Supervisory Committee Meetings

Students need to have their supervisory committee approved by the Graduate Program Committee before proceeding with their first committee meeting. The first meeting with your supervisory committee will normally take place within the first three months. The second meeting should take place by June 1 at the end of the first academic year. For MSc students, the second-year committee meeting should be scheduled based on the student's research progress and should decide if the student is ready to defend their thesis. For PhD students, these meetings should be held by June 1 at the end of their second and third academic year. The fourth-year

committee meeting should be scheduled based on the student's research progress and should decide if the student is ready to defend their thesis. Additional meetings can be held as needed. It is the responsibility of you and your supervisor to schedule these meetings.

Expectations for Supervisory Committee Meetings

Following your initial meeting with your committee members, you must submit a one-page abstract/outline of your research for the Graduate Program Committee's approval. The abstract should be no longer than one page and should contain the title of your research, background, overall objectives, specific aims, hypothesis and a few details about the methods/progress to date results. The names of your supervisory committee should also be listed in this abstract.

In advance of the June 1 meetings, you must prepare a maximum 5-page written summary of research progress with an emphasis on results. This report should include background, objectives, hypothesis, progress to date including data and results, and future directions. You will also need to fill in the [Annual Progress Report form](#) that includes the program requirements and milestones achieved (papers submitted or published, conferences, presentations, grant applications, and/or professional development). Both documents should be distributed to the supervisory committee members at least five working days prior to these meetings. Upon the conclusion of the meeting, a signed copy of the [Annual Progress Report form](#) will be submitted to the Graduate Program Assistant by June 30 for your student file. You need to attach the summary of research progress to the [Annual Progress Report form](#). You or your supervisors may also call a supervisory committee meeting any time to address academic problems or difficulties with your research program.

Annual Progress Reports

An [Annual Progress Report form](#) must be filed with the Departmental Graduate Program Assistant by June 30 at the end of the first and second year for MSc students and subsequent years for PhD students. You need to attach your summary of research progress to this form.

Thesis Examinations

Thesis Format

The decision about thesis format should be made between the student and the supervisor. The student should keep the supervisor updated about the writing plan and schedule, and the supervisor must be given ample time to review the entire thesis before it is submitted to the SGS in preparation of the oral defence.

The SGS allows two thesis formats: Traditional or Manuscript. Please note that the SGS has formatting guidelines that must be followed (ie: margins, font size, line spacing). These mandatory details, as well as thesis templates that we encourage you to use, can be found at <http://queensu.ca/sgs/current-students/degree-completion>.

Traditional Format:

Title Page
Abstract (maximum 350 words)
Statement of Co-Authorship (should describe the student's contribution to the knowledge in the thesis, and the contribution of co-authors, if any)
Acknowledgements
Table of Contents
List of Tables
List of Figures
List of Abbreviations
Chapter 1: Introduction
Chapter 2: Literature Review (if necessary)
Chapter 3 to n: Body of Thesis (Materials and Methods, Results, Discussion)
Chapter n + 1: Summary and/or Conclusions and Future Directions
References
Appendices

Manuscript Format:

The research included in this format need not be published nor accepted for publication at the time of the thesis defence, but this format is generally intended for use when 1 or more manuscripts with the student as first or co-first author have been generated prior to the defence. Publication or acceptance for publication in no way supersedes the University's judgement of the work. Results that the student wishes to include in the thesis that do not fit within a particular manuscript may be included in an appendix. In this format, references used within each chapter will be cited at the end of that chapter. A pre-print formatted version of the manuscript must be used rather than reprint so that the format is consistent throughout.

Title Page
Abstract (not more than 350 words)
Statement of Co-Authorship (should describe the student's contribution to the knowledge in the thesis, and the contribution of co-authors, if any; this information should be included in more detail at the beginning of each chapter that is a manuscript)
Acknowledgements
Table of Contents
List of Tables
List of Figures
List of Abbreviations
Chapter 1: Introduction
Chapter 2: Literature Review (if necessary)
Chapter 3 to n: Manuscripts
Chapter n + 1: Discussion/Summary/Conclusions and Future Directions
References
Appendices

MSc Thesis Defence Committee

The MSc Defence Committee must be approved by the GPC and is chosen for the expertise of its members and ability to examine the student. Committee members will include:

Chairperson (chosen by the Graduate Program Director)
Department Head or Delegate
Supervisor and/or co-supervisor
Internal Examiner (Department of Medicine faculty member)
Internal/External Examiner (faculty member from outside the Department of Medicine, but within the Faculty of Health Sciences)

An External Examiner is not required but may replace the Department member following the advice of the supervisor and approval by the GPC. In these cases, the supervisor will be responsible for arranging reimbursement of the expenses of the external examiner.

PhD Thesis Defence Committee

The PhD Thesis Defence Committee must be approved by the GPC and is chosen for the expertise of its members and ability to examine the student. Committee members will include:

Chairperson (chosen by the Thesis Coordinator, Rose Silva, from SGS)
Department Head or Delegate
Supervisor and/or co-supervisor
Internal Examiner (Department of Medicine faculty member)
Internal/External Examiner (faculty member from outside the Department of Medicine, but within the Faculty of Health Sciences)
External Examiner (from outside of Queen's University, can participate by videoconference)

Thesis Submission and Defence Procedures

Please review the SGS requirements on “Completing Your Degree” at <https://www.queensu.ca/sgs/current-students/degree-completion>. You must conform to these requirements, as well as to those described in the [Faculty of Health Sciences Grad Council Manual](#).

Procedures for MSc Thesis Submission and Oral Examination

The successful and timely completion of your MSc requires careful planning and a recognition of other faculty commitments, vacation schedules and the need for program staff involvement. It is your responsibility to plan ahead to ensure you complete your studies on time.

Approximately 8 weeks before your planned defence, you should confer with your supervisor to come up with a list of potential examiners. Your supervisor is expected to contact potential examiners to confirm their willingness to participate. Once confirmed, and at least 6 weeks prior to the defence, their names should then be submitted to the Graduate Program Assistant, with the following additional pieces of information:

Thesis title
Preferred dates/times for the defence
Brief, specific expertise of the proposed examiners

Following this, the list of proposed examiners will be reviewed by the GPC for approval and the supervisor notified if there are any concerns. Then, the Graduate Program Assistant will work with the potential examiners to schedule the defence.

The final version of your thesis must be approved by your supervisor before submission – by submitting your thesis it is assumed you have your supervisor's approval. It is your responsibility to ensure that your thesis conforms to the requirements set out in this document, and those of the Faculty of Health Sciences and of the SGS. You should submit an electronic version of your thesis to all examiners at least 10 working days prior to the defence, as well as providing a print version (if requested).

[The Oral Thesis Examination Form](#) will need to be signed by your supervisor and the Department Head (or the Graduate Program Director) and submitted at least 10 working days prior to your defence.

It is your responsibility to work with the Graduate Program Assistant to ensure that all audio/visual equipment is available and that you are able to operate it independently. The Graduate Program Assistant may not be available on the day of your defence.

An Examiner's Confidential Report Form obtained from the Graduate Program Assistant should be completed and forwarded to the Graduate Program Assistant at least 3 working days prior to the defence date by any member of the examining committee who feels that the defence should NOT proceed. If two or more negative reports are submitted, the student and supervisor will be notified by the Chair of the Examining Committee or the Graduate Program Director to determine if they want to proceed with the oral thesis exam. The SGS will also be notified. The decision of whether to proceed or not lies with the student. If the decision is made to post-poner, the Chair must communicate to the supervisor and student the required revisions to the thesis and that the student has the right to submit the revised thesis at a later date. Following the subsequent submission of the revised thesis, the oral examination must take place. The SGS will be informed when an oral thesis examination is postponed due to negative reports. If no negative report is submitted, it is presumed that the examiner agrees that the oral thesis examination should be held as scheduled and that they will attend the oral thesis examination.

At the beginning of the scheduled defence you will be asked to leave the room briefly while the committee confers and confirms that the oral exam should proceed. Any concern about the thesis and/or the student's readiness to defend should have been flagged using the form and procedure described above. Following this, you will be invited back into the room to give a 15-20 minute presentation summarizing the content of your thesis. This will be followed by a question period, normally comprised of two rounds of questions starting with the examiner most distant from the student, and ending with the supervisor. The scope of potential questions is broad, but could include detailed discussion of the research objectives and hypothesis, the chosen

methods including strengths and weaknesses, interpretation and evaluation of results, and relevance of the thesis findings and conclusions to the research field. Every student will be expected to address the translational aspects of their work, how they expect their results to directly or indirectly benefit patients or populations and the ways their research was informed by patient needs and concerns. The examination will normally take 90–120 minutes in total.

Following the oral examination, you will again be asked to leave the room. The Chairperson will discuss the evaluation of each of the examiners and determine the overall assessment of the exam. Once invited back into the room, you and your supervisor will be notified of the outcome by the Chair. The outcome will be reported in writing to the SGS using the [examination form](#). Examiners will refer to the *General Regulations and notes for Examiners* document created by SGS.

The SGS will notify you (with a copy to the program) of the completion of your degree requirements only after submission of four unbound copies of your final thesis (with required revisions). Tuition fees are charged up to the date of receipt of the completed thesis.

Procedures for PhD Thesis Submission and Oral Examination

The successful and timely completion of your PhD requires careful planning and a recognition of other faculty commitments, vacation schedules and the need for program staff involvement. It is your responsibility to plan ahead to ensure you complete your studies on time.

Approximately 10 weeks before your planned defence, you should confer with your supervisor to come up with a list of potential examiners. Your supervisor is expected to contact potential examiners to confirm their willingness to participate. Once confirmed, and at least 8 weeks prior to the defence, their names should then be submitted to the Graduate Program Assistant, with the following additional pieces of information:

- Thesis title
- Preferred dates/times for the defence
- Brief, specific expertise of the proposed examiners

Following this, the list of proposed examiners will be reviewed by the GPC for approval and the supervisor notified if there are any concerns. Then, the Graduate Program Assistant will work with the potential examiners to schedule the defence.

The final version of your thesis must be approved by your supervisor before submission – by submitting your thesis it is assumed you have your supervisor's approval. It is your responsibility to ensure that your thesis conforms to the requirements set out in this document, and those of the Faculty of Health Sciences and of the SGS. You should submit an electronic version of your thesis to all examiners at least 30 working days prior to the defence, as well as providing a print version (if requested).

[The Oral Thesis Examination Form](#) may be completed by the Grad Assistant, then signed by your supervisor and the Department Head (or the Graduate Program Director) and submitted at least 30 working days prior to your defence.

It is your responsibility to work with the Graduate Program Assistant to ensure that all audio/visual equipment is available and that you are able to operate it independently. The Graduate Program Assistant may not be available on the day of your defence.

An Examiner's Confidential Report Form obtained from the Graduate Program Assistant should be completed and forwarded to the Graduate Program Assistant at least 3 working days prior to the defence date by any member of the examining committee who feels that the defence should NOT proceed. If two or more negative reports are submitted, the student and supervisor will be notified by the Chair of the Examining Committee or the Graduate Program Director to determine if they want to proceed with the oral thesis exam. The SGS will also be notified. The decision of whether to proceed or not lies with the student. If the decision is made to post-pone, the Chair must communicate to the supervisor and student the required revisions to the thesis and that the student has the right to submit the revised thesis at a later date. Following the subsequent submission of the revised thesis, the oral examination must take place. The SGS will be informed when an oral thesis examination is postponed due to negative reports. If no negative report is submitted, it is presumed that the examiner agrees that the oral thesis examination should be held as scheduled and that they will attend the oral thesis examination.

At the beginning of the scheduled defence you will be asked to leave the room briefly while the committee confers and confirms that the defence should proceed. Any concern about the thesis and/or the student's readiness to defend should have been flagged using the form and procedure described above. Following this, you will be invited back into the room to give a 20-minute presentation summarizing the content of your thesis. This will be followed by a question period, normally comprised of two rounds of questions starting with the examiner most distant from the student, and ending with the supervisor. The scope of potential questions is broad, but could include detailed discussion of the research objectives and hypothesis, the chosen methods including strengths and weaknesses, interpretation and evaluation of results, and relevance of the thesis findings and conclusions to the research field. Every student will be expected to address the translational aspects of their work, how they expect their results to directly or indirectly benefit patients or populations and the ways their research was informed by patient needs and concerns. The examination will normally take 120 minutes in total.

Following the oral examination, you will again be asked to leave the room. The Chairperson will discuss the evaluation of each of the examiners and determine the overall assessment of the exam. Once invited back into the room, you and your supervisor will be notified of the outcome by the Chair. The outcome will be reported in writing to the SGS using the [examination form](#). Examiners will refer to the General Regulations and notes for Examiners document created by SGS.

The SGS will notify you (with a copy to the program) of the completion of your degree requirements only after submission of four unbound copies of your final thesis (with required revisions). Tuition fees are charged up to the date of receipt of the completed thesis.

Notes for Conducting Mini-Master' Examination

For Chairs, Examiners and Students

*For Fall 2021 term, the guiding principle of planning for Master's and Doctoral Oral Thesis Examinations is that there should be flexibility in allowing the candidate and any or all members of the examination committee to attend in person or virtually.

1. The Chair should inform examiners and the candidates of the general procedures to be followed at the examination. The candidate is asked to withdraw if there are any questions that the examiners wish to discuss.
2. The candidate will then give a 15–20-minute presentation, followed by questions from examiners. Questioning usually starts from the examiner external to DOM (if applicable), then the examiner from DOM, and supervisors at last.
3. The mini-master's examination should normally last no longer than 1.5 hours. Therefore, each examiner, has a quota of 15 minutes for the first round and 5-10 minutes for the second round. The Chair should exercise her or his discretion and guide the time limits that each examiner has for questions. The student may have a 5-minute break following the first round of questions.
4. While each examiner, in turn, holds the right to question, she or he may allow supplementary questions from other examiners during her or his allotted time, when appropriate. The Chair should ensure that each examiner has her or his own quota of time without excessive interruption.
5. At the conclusion, the Chair asks each examiner, in turn, if she or he has any supplementary questions. If not, the candidate is asked to withdraw and the Chair calls for a discussion on the performance of the candidate.
6. The examining committee will decide if the student will be recommended for promotion to the Ph.D. program or not. Two or more negative votes by the examining committee will result in failure of the mini-master's examination. The decision of the examining committee shall be forwarded to the SGS.
7. The Chair notes the result on the "REPORT OF THE EXAMINING COMMITTEE ON THE MINI-MASTERS EXAMINATION" form and invites each examiner to sign it and check the appropriate box. The Chair then signs the form. **(Please note during the pandemic, the Chair can sign on behalf of all committee members)**
8. The candidate is then recalled and the Chair informs the candidate of the results, including details of any revisions and/or additional work required (if applicable).

Notes for Conducting PhD Comprehensive Examination

For Chairs, Examiners and Students

*For Fall 2021 term, the guiding principle of planning for Master's and Doctoral Oral Thesis Examinations is that there should be flexibility in allowing the candidate and any or all members of the examination committee to attend in person or virtually.

1. The Chair should inform examiners and the student of the general procedures to be followed at the examination. The COMPS Report Form "Confidential Report to the Dean of the School of Graduate Studies" is provided to each member of the examination committee as well as the student so that they could report their concerns if they choose to do so. This form is NOT mandatory to complete and submit. The student is asked to withdraw if there are any questions that the examiners wish to discuss.
2. The student will then give a 15-20 minute presentation, followed by questions from examiners. Questioning usually starts from the examiner external to DOM (if applicable), then the examiner from DOM, and supervisors at last.
3. The PhD Comprehensive Examination should normally last no longer than 1.5 hours. Therefore, each examiner, has a quota of 15 minutes for the first round and 5-10 minutes for the second round. The Chair should exercise her or his discretion and guide the time limits that each examiner has for questions. The student may have a 5-minute break following the first round of questions.
4. While each examiner, in turn, holds the right to question, she or he may allow supplementary questions from other examiners during her or his allotted time, when appropriate. The Chair should ensure that each examiner has her or his own quota of time without excessive interruption.
5. At the conclusion, the Chair asks each examiner, in turn, if she or he has any supplementary questions. If not, the student is asked to withdraw and the Chair calls for a discussion on the performance of the student.
6. The examining committee will decide if the student pass or fail the examination. Two or more negative votes by the examining committee will result in failure of the PhD comprehensive examination.
7. The Chair notes the result on the "PhD Comprehensive Examination Decision Form" and invite each examiner to sign it. The Chair then signs the form. The decision of the examining committee will then be forwarded to the SGS. **(Please note, during the Covid-19 pandemic, the Chair will sign on behalf of all examiners).**
8. The student is then recalled and the Chair informs the student of the results, including details of any revisions and/or additional work required (if applicable).

Notes for Conducting MSc and PhD Thesis Examination

For Chairs, Examiners and Students

*For Fall 2021 term, the guiding principle of planning for Master's and Doctoral Oral Thesis Examinations is that there should be flexibility in allowing the candidate and any or all members of the examination committee to attend in person or virtually.

1. Before the examination, if any two of the examiners recommend that the thesis examination not proceed, the Chair will be informed and should consult the supervisor and the Program Director who discuss with the candidate whether the thesis examination should proceed.
2. On the examination day, the Chair should inform examiners and the candidates of the general procedures to be followed at the examination. All examiners must be present for the examination. The candidate is asked to withdraw if there are any questions that the examiners wish to discuss.
3. The candidate will then give a 15-20 minute presentation, followed by questions from examiners. Questioning then follows in the order of (when applicable):
 - a) Examiner external to the University;
 - b) Internal/external examiner;
 - c) Internal examiner;
 - d) Head/Director of the Department/Program or her or his delegate, and
 - e) Supervisor(s).
4.
 - a) The master's examination will normally last no longer than 1.5 hours. Therefore, each examiner, has a quota of 15 minutes for the first round and 5-10 minutes for the second round.
 - b) The PhD examination will normally last 2 hours or slightly more. Therefore, each examiner, has a quota of 15 minutes for the first round and 10 minutes for the second round.
 - c) The Chair should exercise her or his discretion and guide the time limits that each examiner has for questions. The candidate may have a 5-minute break following the first round of questions.
5. While each examiner, in turn, holds the right to question, she or he may allow supplementary questions from other examiners during her or his allotted time, when appropriate. The Chair should ensure that each examiner has her or his own quota of time without excessive interruption.
6. At the conclusion, the Chair asks each examiner, in turn, if she or he has any supplementary questions. If not, the candidate is asked to withdraw and the Chair calls for a discussion of both the written thesis and the oral defence, and then invite the examiners to vote. The 3 decisions are Passed, Referred or Failed. A vote of two or more examiners normally results in an outcome in a lower category.

7. The Chair is not a voting member of the committee. The Chair should record a list of required revisions and/or additional work (if applicable) and provide it to the student and the supervisor.
8. The Chair notes the result on the “Thesis Examination Form” and invite each examiner to sign it, and check the appropriate box. The Chair then signs the form. **(Please note, during the Covid-19 pandemic, the Chair will sign on behalf of all the committee members).**
9. The candidate is then recalled and the Chair informs the candidate of the results, including details of any revisions and/or additional work required (if applicable).
10. Please note guests or observers are allowed if the following protocols are undertaken; supervisors are responsible for obtaining everyone on the Committee’s permission (most importantly the student’s permission) to have guests enter the examination, but only for the student’s presentation (if there is one) and general questioning period. Similar to the in-person rules, guests may not be present during the Committee deliberations. Guests must also verbally agree not to record the examination and not to be in communication with the candidate during the examination (e.g., sending texts, photos, or any answers during the examination). The Chair is responsible for ensuring that the guests are welcome at the appropriate time and leave the online examination at the appropriate time.

Withdrawal on Academic Grounds and Appeals of Same

(see SGS Calendar, General Regulations, Graduate Degree Programs-General, Withdrawal on Academic Grounds)

Any academic decision can be appealed by the student under the [SGS General Regulation Appeals Against Academic Decisions](#). This SGS regulation (*Withdrawal on Academic Grounds*) does not apply to the appeal of an academic decision but rather outlines the procedures whereby a graduate program recommends that a student be required to withdraw on academic grounds, and the procedures and responsibilities for deciding on the outcome of this recommendation. Note that a recommendation under a. or b. below, may be appealed by the student under the SGS General Regulation *Appeals Against Academic Decisions*.

Some Graduate Programs have separate procedures to be followed that would be enacted prior to making a recommendation under the procedures below.

Prior to making a recommendation under the procedures below, the faculty member(s), and/or the Head/Director or Graduate Coordinator/ Graduate Program Director of the Program shall meet with the student to discuss their academic situation, the possible recommendation of withdrawal, and the grounds for the recommendation. The student may invite a representative to the meeting. If the student intends to be accompanied by legal counsel, he or she must provide at least 48 hours’ notice to the department/program/faculty attendees who reserves the right to

reschedule the meeting if notice is not given. If the student does not wish to attend the meeting, the student can submit a written statement. If the student does not respond to an invitation to attend the meeting, or does not make a written statement, the process will continue without the student's input.

The student shall be informed in writing when the Graduate Program shall be making a recommendation of withdrawal to the Council and shall be informed of the grounds for the recommendation.

Unsatisfactory performance by the student during the program may cause proceedings to be instituted by the Program requiring the student to withdraw. There are several circumstances which may lead to this request, and, as these differ in certain important respects, the procedures of appeal and review also differ. The Council has the following responsibilities in each situation:

a. Failure of a Primary Course: In cases when a student does not achieve B- (B minus) in a primary course, the Head/Director or Graduate Coordinator/Graduate Program Director of the Program may recommend to the Chair of Council that the student:

- a) repeat the examination (or equivalent) within one year after the original examination (or equivalent), or
- b) repeat the course, or
- c) take a substitute course. If approved, a student may take another course approved by the Chair of Council to allow them the opportunity to complete the degree requirements.

If such a recommendation is not made or, if made, is not approved by the Council, any student who fails to obtain the required standing in any primary course shall be required to withdraw. Council, or its duly empowered Chair or Associate Chair, shall examine the case to see that proper procedures were followed, and if this is ascertained, the Chair of the Council shall notify the SGS, who shall inform the student of the Program's recommendation and the confirmation of the recommendation by the Council. Review of the Program recommendation by the Council or its duly empowered Chair or Associate Chair, is limited to procedural matters and any extenuating circumstances only and does not entail assessing the academic decision itself.

If the case is evidently straightforward, it may be approved by the Chair/Associate Chair and then must be submitted for approval and action to SGS (not GSEC), and also reported back to Council. Otherwise, the request will be placed on the agenda for decision by Council at its next meeting.

All such Council decisions are subject to appeal, under the general regulations of the SGS. It is the responsibility of the Chair or Associate Chair of Council to represent Council and explain Council's decision to the SGS Academic Appeal Board, if/as required.

b. Withdrawal on General Academic Grounds: There are other academic circumstances that could lead to a recommendation that the student be required to withdraw. To cite several examples: in the judgment of the supervisor or a supervisory committee the student may be making unsatisfactory progress in research; the student may have failed the comprehensive examination; there may have been marginal performance in seminars; preliminary drafts of

chapters of the thesis may reveal an unsatisfactory standard of scholarship; or in the judgment of the supervisor or a supervisory committee or other Graduate Program academic committee, the student's overall academic performance in coursework is not acceptable. For such cases the Program shall recommend withdrawal to Council and shall inform the student in writing that such a recommendation is being made and the grounds for this recommendation.

The Program recommendation shall be taken to a meeting of Council. The Chair of Council shall inform the student that he or she may attend the meeting, with or without a representative, and that he or she is entitled to present the case. If the student intends to be accompanied by legal counsel, he or she must provide at least 48 hours' notice to the Chair of Council, who reserves the right to reschedule the discussion of the matter to another meeting of the Council, if notice is not given. If the student does not wish to attend the meeting of Council, the student can submit a written response to the recommendation, for circulation to the Council and for discussion by the Council at the meeting. If the student does not respond to an invitation to attend the meeting, or does not make a written submission, the process will continue without the student's input. Review of the Program recommendation by the Council is limited to procedural matters and any extenuating circumstances and does not entail an assessment of the academic decision itself.

If the Council approves the recommendation of the Program, the Chair of the Faculty Graduate Council shall report the case to the Dean of the School of Graduate Studies who shall notify the student in writing of the recommendation by the Council. This letter will also inform the student of the relevant appeal procedure under SGS General Regulation *Appeals Against Academic Decisions* and will inform the student of the academic services provided by the Coordinator of Dispute Resolution Mechanisms and the Society of Graduate and Professional Students' Student Advisors.

All such Council decisions are subject to appeal, under the SGS General Regulation *Appeals Against Academic Decisions*. It is the responsibility of the Chair or Associate Chair of Council to represent Council and explain the decision to the SGS Academic Appeal Board, if/as required. The Graduate student representative to Council will not be permitted to attend that portion of a Council meeting at which student matters pertaining to Sections 2.2, 2.3 or 2.4 are discussed.

TMED Student Society

Who Are We?

The TMED Student Council is an elected group of student leaders who strive to organize, plan, and run activities/events to help foster an inclusive and welcoming program environment. We represent the Student Society; this involves serving the interests and requests of the Translational Medicine graduate students within the Department of Medicine, and acting as a medium of communication between the students and the TMED Graduate Program Committee, governing bodies of Queen's University, and any other recognized council or society.

What Do We Do?

This past year, we successfully hosted several initiatives including a Student vs. Faculty Trivia Night, Outreach Initiative for the Kingston Youth Shelter, Christmas Cookie Decorating Contest, End of Year Banquet, Casual Hangouts, and more! We also established a Mentorship program, which we hope to up-scale over the years. Ultimately, we are committed to providing students with an incredible and fun graduate experience in the program, beyond the lecture hall setting!

Our Team

The TMED Student Society consists of the following positions:

- Executive council positions
 - President
 - Vice President
 - Secretary

- Remaining Council Positions
 - Treasurer
 - EDI/SGPS Representative
 - MSc Student Representative/GPC Representative
 - PhD Student Representative/GPC Representative

Below is the election timeline for this year:

- Executive positions are elected in April, with a term on the council from May - April of the following year
- Council positions are elected in September, with a term on the council from September - April of the following year

Have any Suggestions/Feedback for Us?

We would love to hear any suggestions regarding any council events/activities that you would like to see us plan for this year!

Use the following link to give us any feedback/suggestions:

<https://docs.google.com/forms/d/e/1FAIpQLSfzptnpAa3gj5PNQQdtrXYsnBtoKuFMYuv4t4WMP3QNAw3pCQ/viewform>

Let's Stay Connected!

TMED Student Society Google Calendar:

<https://calendar.google.com/calendar/u/0/embed?src=fm6gnlcktvbf68nrc2kqhd5k3g@group.calendar.google.com&ctz=America/Toronto>

Webpage:

<https://deptmed.queensu.ca/academics/translational-medicine-graduate-programs/tmed-students/tmed-student-society>

Email:

tmedstudentsoc@queensu.ca

Facebook:

Queen's University TMED Student Society

Instagram:

tmedqueens

Twitter:

@tmedQueens

Housing

Community Housing manages the student rental properties owned by Queen's University. This includes two apartment complexes located at west campus – An Clachan and John Orr Tower – as well as a variety of apartments and houses in the Student Village (Core Rentals) around campus.

Community Housing also operates an Accommodations Listing Service where external landlords can post listings for student rental units. The Landlord Contract Program is also managed by Community Housing.

Location

Community Housing is located at 169 University Avenue at the corner of University and Clergy West. Paid parking is available underground at the Queen's Centre, entrance is off of Division Street.

Hours of Operation:

Telephone reception 8:30 am to 4:30 pm. Open to Walk-in Customers from 9:00 am to 4:00 pm, Monday to Friday (excluding holidays).

They are open over the lunch hour.

Phone: 613-533-2501 Fax: 613-533-2196 Email: community.housing@queensu.ca

Here are some helpful links for more information on housing:

<https://community.housing.queensu.ca/>

<http://quic.queensu.ca/resources/housing-support/long-term-options/>

Services and Contacts on Campus

Ban Righ Centre

Assists women of all ages, especially those who are returning to university after a time away, to continue formal or informal education. Women from diverse backgrounds find community, practical, personal and financial support in an informal setting prepared to meet their particular needs. This environment supports academic endeavours, encourages mutuality and equality, and nurtures and respects women. These services are offered without charge or membership. [Contact the Ban Righ Centre for more information.](#)

Career Services

The central provider of career education and employment support services at Queen's University for [undergraduate](#), [graduate students](#) and recent [alumni](#) from all disciplines. We offer a comprehensive range of [accessible services](#) to support and empower students in making informed decisions about their career, further education and employment goals. Visit their website for more information at: <https://careers.queensu.ca/>

Campus Bookstore

A not-for-profit corporation that endeavors to distribute required course material at the lowest possible price to students, while operating a comprehensive University bookstore for the Queen's community.

The Campus Bookstore is located in Clark Hall on Queen's University Main Campus. Open regular hours from 9 AM to 6 PM, Monday to Friday, and, 10 AM to 5 PM on Saturday. Open 24 hour-a-day at <http://www.campusbookstore.com>.

Computer Software

Visit the [ITS Supported Software page](#) for more information on software and instructions on how to obtain it.

Equity and Human Rights

Please see the links below for information for graduate students about harassment and harassment protocols, and information for faculty regarding the response protocol should a

graduate student report concerns about discrimination or harassment from a faculty member or staff member.

[Information for Graduate Students about Harassment and Harassment Protocols at Queen's University](#) and [Response protocol](#).

For more information, please visit the Human Rights Office website at:
<http://www.queensu.ca/humanrights/home>

Libraries

There are several libraries on campus which you can use.
Bracken Health Sciences Library is located on the Main Floor of Botterell Hall, 18 Stuart Street.

For more information on all the libraries on campus see the library website at:
<http://library.queensu.ca>.

Learning Commons

The Learning Commons is located on the ground floor of [Joseph S. Stauffer Library](#), the Humanities, Social Sciences, Business, Government Documents, Data and Maps Library on campus. Along with our partners, the [Adaptive Technology Centre](#), [Student Academic Success Services](#), [Queen's University Library](#), and [ITServices](#), the Learning Commons strives to offer students many of the above listed services.

For more information on the Queen's Learning Commons, please feel free visit their website at:
<https://library.queensu.ca/help-services/queens-learning-commons>

School of Graduate Studies

All regulations governing graduate studies at Queen's are established by the School of Graduate Studies (SGS). Also there are a number of resources and supports relevant to wellness, balance and the graduate student experience available at: <https://www.queensu.ca/sgs/current-students/sgs-habitat>.

For more information, please contact them at:
Gordon Hall, Room 425
613-533-6100 grad.studies@queensu.ca
<http://queensu.ca/sgs/home>

Queen's Centre for Teaching and Learning (CTL)

The CTL offers a wide variety of programs and services that are designed to meet the teaching and learning needs of students/post-doctoral fellows, staff and faculty meetings.

For more information contact them at:

Queen's Centre for Teaching and Learning
Macintosh-Corry Hall, F200
613-533-6428
ctl@queensu.ca
<https://www.queensu.ca/ctl/home>

Student Health and Wellness Services

Student Wellness Services supports the personal, academic, and social development of students at Queen's University by providing a range of programs and services. Our mission is to provide a welcoming, confidential, and integrated service that is responsive to the needs of students.

<http://www.queensu.ca/studentwellness/>

Student Academic Success Services

Student Academic Success Services offers academic support to students who wish to develop their skills in critical thinking, reading, learning, studying, writing, and self-management. We welcome Queen's undergraduate and graduate students at all stages of program completion and all levels of ability. Contact them at: <https://sass.queensu.ca/>

Translational Medicine Graduate Program

For any inquiries regarding the Translational Medicine Graduate program, please contact:
Translational Medicine Graduate Program
Department of Medicine
Etherington Hall, Room 3049
613-533-6000 Ext. 74148
tmed@queensu.ca

Acknowledgements

This handbook was written with reference to the Pathology and Molecular Medicine Graduate Handbook, the Faculty of Health Sciences Graduate Council Manual and resources from the School of Graduate Studies.

Appendices
Appendix 1

Annual Progress Report

Student Name: _____ ID #: _____

Program: _____ Start Date: _____ Year in Program: _____

Thesis Topic: _____

<u>Courses Completed to Date</u>	<u>Grade</u>	<u>Courses Completed to Date</u>	<u>Grade</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

To be completed by the student:

Program requirements still to be completed:

Please provide a summary of the progress you have made on your thesis research.

Please report on papers submitted or published, conferences, presentations, grant applications, and/or professional development.

Please provide details on your plans and goals for each term in the coming year.

If you wish, please comment on the supervisor(s)/committee evaluation. If applicable, please also indicate if there is anything that has hindered progress in the last year.

Appendix 2

Faculty of Health Sciences
Graduate Council MANUAL
Graduate Programs in the FHSGC

<i>Graduate Department/Program Name</i>	<i>Graduate Credentials Awarded</i>
Aging and Health	Grad. Dipl.(A.H), M.Sc. (A.H.), Ph.D.
Biomedical and Molecular Sciences	M.Sc. (A.S.), M.Sc., Ph.D., combined B.Sc./M.Sc., Grad. Dipl. (PHMI), Grad. Dipl. BI, M.B.I.
Collaborative Program in Biostatistics	M.Sc.
Collaborative Program in Cancer Research	M.Sc., Ph.D.
Combined MD/PhD –MD/Master’s Programs	MD/Ph.D., MD/Master’s
Health Professions Education	M.P.H.E.
Health Quality	M.Sc.(H.Q.), Ph.D.
Medical Sciences	G.Dip., P.M.M.Sc.
Neuroscience	M.Sc., Ph.D., combined B.Sc./M.Sc.
Nursing	M.N.Sc., M.N. (PHCNP), PHCNP Diploma, Ph.D.
Occupational Therapy	M.Sc. (O.T.)
Pathology and Molecular Medicine	M.Sc., Ph.D., combined B.Sc./M.Sc.
Physical Therapy	M.Sc. (P.T.)
Public Health Sciences	M.P.H., M.Sc., Ph.D.
Rehabilitation and Health Leadership	D.Sc.
Rehabilitation Science	M.Sc., Ph.D.
Translational Medicine	M.Sc., Ph.D.

Approved by the Graduate Studies Executive Council, February 8, 2010
Revised July 2021

[Please visit this link for the most up to date version of this manual.](#)