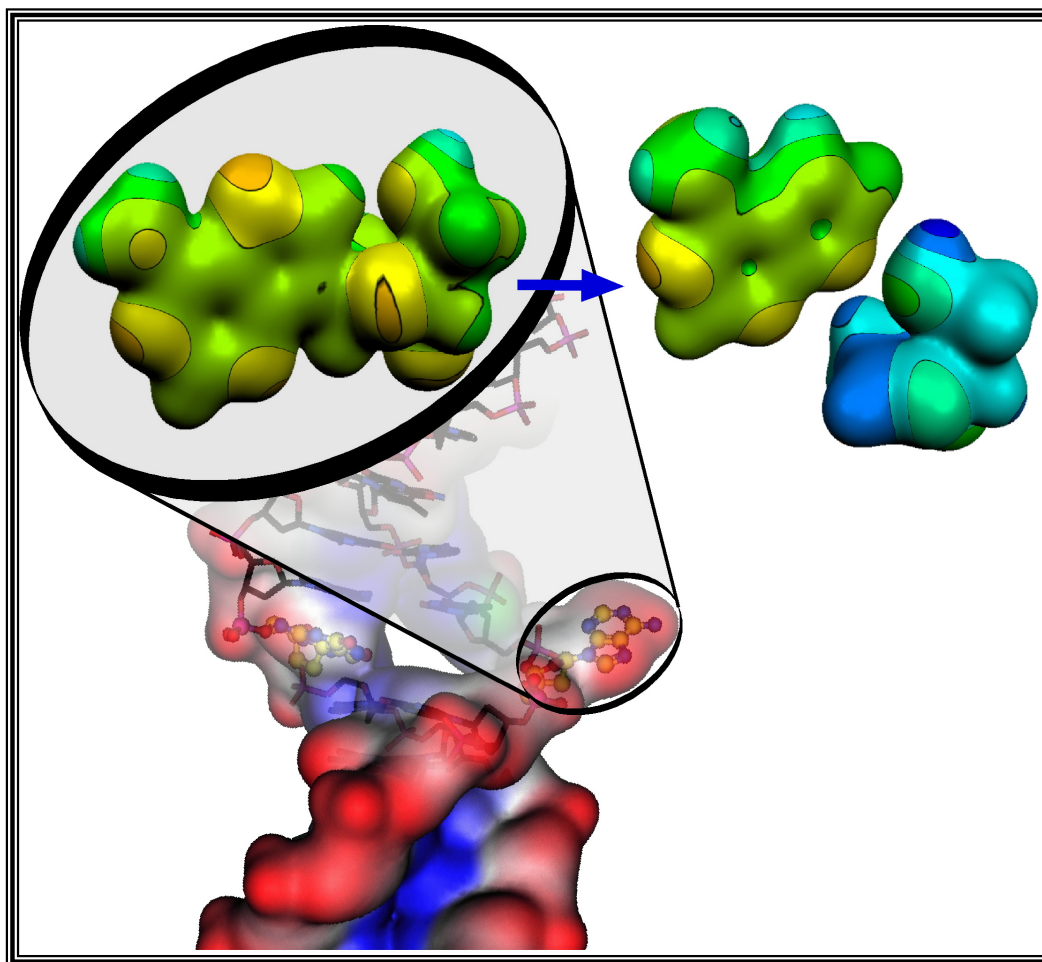


Chemical Biology

Graduate Program

GRADUATE HANDBOOK

2023-2024



McMaster
University 

Inspiring Innovation and Discovery

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Appendix A: Tuition and Supplementary Fees (2023-2024)

Appendix B: Sessional Dates (2023-2024)

Appendix C: Chemical Biology Graduate Program Travel Award Application

Appendix D: Program Timelines (M.Sc., Ph.D., Direct Entry to Ph.D., MD/Ph.D.)

[2023 – 2024 Graduate Calendar](#)

<https://academiccalendars.romcmaster.ca/index.php?catoid=48>

This document is not intended to replicate or modify the information found in the School of Graduate Studies (SGS) Calendar.

If there is any discrepancy between this document and the SGS Calendar, then the School of Graduate Studies Calendar shall prevail. Students and faculty are encouraged to look at the SGS Graduate Calendar.

Important Contact Information

Dr. Giuseppe Melacini ABB 232 26959 melacin@mcmaster.ca
Director

Tammy Feher ABB 156 20874 chembio@mcmaster.ca
Administrative Coordinator
(Office Hours: Monday - Friday 8:00-4:00)

Name	Position	Office	Extension	E-mail
Dr. Bruce Newbold	Associate Dean of Graduate Studies (Science)	GH 212	22616	adeangss@mcmaster.ca
Lisa Kush	Graduate Administrative Assistant, BBS	HSC 4H30E	22064	kushl@mcmaster.ca
Shari McCollin	TA Coordinator (Biochemistry & Biomedical Sciences)	HSC 4H30B	27335	mccolls@mcmaster.ca
Dr. Peter Kruse	TA Coordinator (Chemistry)	ABB 263	23480	pkruise@mcmaster.ca
Mokhamed Ranne	McMaster Chemistry Graduate Student Society (MCGSS), President	ABB A302		gsamcgss@mcmaster.ca

HSR Bus Pass Presto Card

Students entitled to an HSR (Hamilton Street Railway) pass will now receive a separate card (Presto card) to be presented alongside their student card. Students can pick-up their HSR card through the Campus Store located in Gilmour Hall. Details on the new bus pass, distribution locations and dates can be found on the <https://msumcmaster.ca/info/hsr-bus-pass/>

Frequently Asked Questions

Email

The School of Graduate Studies uses electronic mail to communicate directly with graduate students at various times during the year. University Technology Services provides each student with an email address. You are required to “self-register” at http://www.mcmaster.ca/uts/email_accounts/email.html

***Please inform Tammy ASAP when you receive your McMaster email address.**

Student Number/Employee Number and Security ID Cards

Your student number and employee number are the same.

NEW students must obtain a photo ID badge (“Working at McMaster” card). This will allow you access to the buildings/labs you will be using as a graduate student. You will receive instructions on how to obtain this card by Tammy Feher. All access to areas in ABB is managed by Terry Chu (chut@mcmaster.ca) after a student provides a 5-digit number from your access your card.

Note: you will need to show that you have completed all the required safety training before your card can be activated. If your laboratory is located outside of ABB, please ask your supervisor or other group members how to gain access to your building.

Orientation Meeting for New Students

At the beginning of each term there is a meeting for graduate students to provide introductions, information about the department, and a safety orientation. *This meeting is mandatory for all graduate students and is normally held during the first or second week of the term.*

Parking Passes

Applications for parking permits on campus are available online at <http://parking.mcmaster.ca>.

The Parking & Transit office is located in the T32, Room106.

Health & Safety

In order to ensure everyone is working safely in our labs, the following training is to be completed. Supervisors may request, at their discretion, that people in their lab complete refresher training of the current health and safety courses offered by the University on a more frequent basis, as deemed necessary:

Minimum Safety Requirements:

- **WHMIS Core**
- **Due Diligence – to be updated every 3 years**
- **Asbestos Awareness**
- **Ergonomics**
- **Fire Safety – to be updated every 3 years**
- **Slips, Trips & Falls**

- **Chemical Handling & Spills – to be updated every 3 years**
- **Violence and Harassment Prevention in the Workplace – to be updated every 3 years**
- **Department Orientation (date to be determined)**
- **Health and Safety Orientation (different from the Department Orientation)**
- **Site Specific Training – to be given by the person’s supervisor or their designate (supervisor must email me to let her know this training has been given)**

The following safety training may be required if they apply to your lab. Please discuss these requirements with your supervisor to see if any apply.

Lab specific training:

- **Autoclave**
- **Biosafety**
- **Biosafety Level 3**
- **Gas Cylinder**
- **Hydrogen Fluoride – to be updated every 3 years**
- **Laser Safety – to be updated every 2 years**
- **Lock Out/Tag Out – to be updated every 2 years**
- **Radiation**
- **Specialized Biosafety**

For more information please consult: [Health and Safety Training](#)

Online health and safety courses are conducted through the University’s learning management system, Avenue to Learn. To register for either in class or online training login to the Mosaic Portal. Approximately halfway down the page on the left hand side there should be a Health and Safety link. Click on the link, select “Search by course name”, find the course you wish to take and follow the steps to register.

24 hours after registering for an online session of a health and safety training course in Mosaic, the course material and quiz will become available for review and completion by logging into their Avenue to Learn account. These online courses will be automatically graded in Avenue to Learn and the result recorded in Mosaic one (1) business day after successful completion.

****Please note: If you will be working in a lab located in the Biochemistry & Biomedical Sciences (BBS), HSC you must contact the main office in HSC 4N59. BBS has a series of workshops hosted early in September which you are required to attend. Here is the website to find all training sessions: <http://fhs.mcmaster.ca/safetyoffice/>**

Let’s Talk Science

There are several opportunities each year for our graduate students to participate in volunteer capacities. One of these is “Let’s Talk Science”. Let’s Talk Science provides an opportunity for graduate students to get into the classroom and promote both science and our program at the same time. For more information visit the website: <http://www.science.mcmaster.ca/lts/> or email ltsp@mcmaster.ca.

Seminars

Students in Chemical Biology should attend seminars and student colloquia in the Biochemistry and Biomedical Sciences program, and are encouraged to attend relevant seminars and student colloquia in other departments such as Chemistry & Chemical Biology, Biology and Biomedical Engineering.

Financial Support

Stipend: The minimum departmental support for M.Sc. students in 2023-2024 is \$27,963 and \$29,963 for Ph.D. students. Students can expect at least this minimum level of support for either 2 years (M.Sc. students) or 4 years (Ph.D. students). There is no guarantee of financial support after these respective periods. Some students are awarded scholarships (i.e., NSERC, CIHR, OGS) which provides financial support through some of or all of their graduate studies. The salary of students with external or internal scholarships is usually higher than those who do not hold a scholarship. Chemical Biology students will also normally receive a TA stipend as part of their total stipend. A half TA is 130 hours per year or approximately 5 hours per week (MSc terms 1-6, PhD term 1-12).

Social Insurance Number (SIN): The Social Insurance Number is a nine digit number and is required by law as an administrative number for authorized federal programs, notably Employment Insurance, Canada Pension Plan and Income Tax. A SIN card is required to work in Canada or to receive government benefits. If you do not have a SIN number, application forms can be obtained from and submitted in person to one of the Human Resources Development Canada offices:

Central and Mountain office

1550 Upper James street (corner of Rymal Rd)
Floor 1
Hamilton, ON, L9B 1K3

East Hamilton Office

225 Barton Street East (at Nash Rd)
Hamilton, ON L8H 7T4

***Once the number is received, please inform Human Resources Employee Contact Center at hr.mcmaster@mcmaster.ca**

You may also visit their website at <https://www.canada.ca/en/employment-social-development/services/sin.html>

NOTE: To apply you will require the following documents (originals only, not photocopies)

- 1) You will be required to take your acceptance letter (which will include your Teaching Assistantship requirements)
- 2) Valid passport
- 3) Study permit (issued by Citizenship and Immigration Canada) along with a contract of employment on official letterhead OR a work permit (issued by Citizenship and Immigration Canada).

Graduate Student Payments & Fees

Student Pay: The following information has been compiled to assist you in understanding your stipend as a full-time graduate student: See <https://gs.mcmaster.ca/current-students/fees-and-payment/> for information on how student pay is handled at McMaster.

Personal Tax Credit Return - The University is required by law to deduct Employment Insurance (EI) and Canada Pension premiums (CPP) on all *employment income* (e.g. TA payments). Federal income tax will be assessed on all income (including scholarships and bursaries). You should complete the **Personal Tax Credit Return forms (TD1 and TD1ON)** which may lower the rate at which you are taxed. If you wish to submit or make a change to your basic tax deductions, the forms can be downloaded from the Graduate Studies website at the following link

<https://hr.mcmaster.ca/employees/payroll/tax-information/>

Please return completed forms to Human Resources Services (Campus Services Building 202).

Tax forms (T4 and T4A slips) are ready by the end of February.

Canadian Union of Public Employees - If you are receiving a Teaching Assistantship or a Research Assistantship in lieu of a TA, you are a member of the CUPE (Canadian Union of Public Employees, Local 3906). Union dues (at the current rate of 2.5% of the above employment) will be deducted every pay period in each month in which you receive TA/RA monies. Copies of the current agreement between CUPE and McMaster University are available at the School of Graduate Studies https://hr.mcmaster.ca/app/uploads/2019/02/CUPE-Local-3906_Unit-1-Collective-Agreement_FINAL.pdf

Dental Plan - An Employee in Classification A (CUPE Unit 1) who is contracted to work as a TA or RA (in lieu of TA) for the academic year (September 1, 2023 to August 31, 2024) will have to pay Dental Plan Premiums, \$125.00 yearly for single coverage and \$505.00 yearly for family coverage, this will be deducted from your first TA/RA (in lieu) pay cheque of the academic year. Provisions for opting-out of the Dental Plan or for obtaining family coverage are covered in two separate documents. Visit the CUPE website at <http://cupe3906.org> or consult a copy of the CUPE 3906 Unit 1 Collective Agreement (available online).

Health Plan

The GSA Health Plan was designed to provide many important services and cover expenses not covered by your basic health-care plan (i.e. OHIP or UHIP), such as prescription drugs, travel health coverage, physiotherapy, medical equipment and more.

All full-time and part-time graduate students who are GSA members and who pay GSA and McMaster fees are automatically enrolled in the plan. Note: new students registering in May are not covered throughout the summer.

If you're an international student, you must be covered by the University Health Insurance Plan (UHIP) or have equivalent coverage, <https://studentsuccess.mcmaster.ca/international-students/health-insurance/> Without UHIP or equivalent coverage, you cannot make claims for GSA Health Plan benefits. The GSA Health Plan provides extended health coverage for many services not covered by UHIP. Please visit <https://gsa.mcmaster.ca/2023/08/25/new-gsa-health-dental-plan-insurer/> for more

more information.

Students with sufficient University funding will have their UHIP premium (student single coverage only - \$756) deducted from payroll in the **September pay**.

GROUP NAME:	GSA Health Plan
GROUP NUMBER (Health & Dental Benefits):	MUG
Insurance Company:	Securian Canada
GROUP NUMBER (Travel Benefits):	97180
Insurance Company:	Securian Canada
Policy Year:	Sept 1, 2023 – August 31, 2024
For more information:	http://www.studentcare.ca/rte/en/McMasterUniversity_Home
GSA Office:	Reflectory Rathskeller Building, East Tower, 2 nd Floor
Website:	https://gsa.mcmaster.ca/
Tel:	(905) 525-9140, Ext. 22043

Academic Record & Calendar

MOSAIC Login: <https://epprd.mcmaster.ca/psp/prepprd/?cmd=logout>

Please take the time to check your academic record on MOSAIC. If you have any questions about your record, please contact Tammy Feher or the School of Graduate Studies. For each term there is a deadline date for registration and changes (drop and add) in courses (see Appendix B). Students registering in or adding a course after the appropriate deadline will not receive academic credit for that course. Students dropping a course after the deadline will receive a failing grade in that course. As you have access to your record on MOSAIC, it is in your best interest to check your record to ensure that any changes to your record during the year are accurately reflected in the system. If you notice any discrepancies, please notify the department. **It is the student's responsibility to initiate and follow through on dropping or adding a course.** Informing the instructor of the course is not sufficient.

Teaching Assistantships

Teaching Resources: <https://mi.mcmaster.ca/>

Appointments: Each year, the program receives an allocation of Teaching Assistantships. A qualified full-time graduate student may be offered a teaching assistantship at the time of their admission to their first year of study. All Teaching Assistantship support is dependent upon continuous full-time registration in good standing.

Canadian Union of Public Employees - If you have been offered a Teaching Assistantship, and have decided to accept it, you will also become an employee of McMaster University in addition to being a graduate student. The terms and conditions of your employment are governed by the collective agreement between the Canadian Union of Public Employees, Local 3906 Unit 1 and the University. A copy of the collective agreement is available on the McMaster website at: https://hr.mcmaster.ca/app/uploads/2019/02/CUPE-Local-3906_Unit-1-Collective-Agreement_FINAL.pdf

Continuity of Funding: Every regular full-time student, **in a Master's program**, who has been employed as a Teaching Assistant during a part of the first year of study in a program will be Re-employed as an assistant during a part of the **one** succeeding year of study subject to his/her maintaining regular full-time graduate status and to his/her ability to perform the work. Full-time students, **in a Doctoral program**, who have been employed as a Teaching Assistant during a part of the first year of study in a program will be re-employed as an assistant during a part of each of the **three** succeeding years of study, subject to his/her maintaining regular full-time graduate status and to his/her ability to perform the work.

Hours of Work Form: A meeting between the Supervisor and Teaching Assistant must be held within 7 days of the Teaching Assistant commencing his/her duties in the applicable academic term. At this meeting, the employment supervisor will describe the work to be done, giving details, including the nature, number and scheduling of specific assignments and the estimated hours of work each will involve. The employee and supervisor will discuss this information, taking into account course enrollment, nature of assignments and expectations for grading, in determining reasonable workload. Following this discussion, the "**TEACHING ASSISTANT HOURS OF WORK ASSIGNMENT**" form will be completed and signed by both parties as well as the department Chair.

TA Wages: Employees who hold a half (130 hours) Teaching Assistant contract shall be paid their wages in equal bi-weekly installments over the term of their Teaching Assistant contract. The 2023 hourly rate for employees holding a four-year undergraduate degree is \$48.52. This rate includes 4% vacation pay. Please note that tuition, taxes, CPP, EI, UHIP (if required), dental (if eligible) etc., will be deducted from your teaching assistantship income.

Exchange or Substitution of Duties: An employee may arrange to exchange his/her duties with or by a qualified person for periods not to exceed ONE week at a time and not to exceed two weeks per term subject to the approval of: BBS TA – Shari McCollins, Instructional Assistant (biochemistryadvisor@mcmaster.ca), Chemistry TA – Peter Kruse, TA Coordinator (pkruise@mcmaster.ca). Examples of such an arrangement would be for the employee to attend an Academic Conference or to attend to an ill family member.

Discharge and Discipline: The value of progressive discipline with the aim of being corrective in application is recognized by both parties. Where appropriate, discipline will be preceded by counseling. Discipline will typically consist of (oral or written) warning(s) and suspension prior to discharge.

Vacations: Students will be allowed a total of two (2) week's vacation annually, which may be taken during the mid-term recess or subsequent to the completion of T.A. duties within an academic term during which they are employed. Scheduling of vacations shall be subject to the academic and residency requirements of the student's program of studies and **must be approved by the supervisor.**

Academic Research Integrity and Ethics – On line course

All new graduate students must complete the Academic Research Integrity and Ethics (SGS 101) administered by the School of Graduate Studies as part of their degree requirements within the **First Month**. There will be three modules. Two are on a separate website called MyGradSkills, <https://www.mygradskills.ca> which also has a quiz. Passing this quiz is not passing the SGS 101. You must also complete the module three which is on Avenue to Learn, <http://avenue.mcmaster.ca> this will also have a final quiz that you must pass and have questions from all three modules. A passing grade is 14/20 or more. You will have three attempts. This should take less than one hour.

Accessibility for Ontarians with Disabilities Act (AODA) – On-line course

All graduate students are required to take the Accessibility for Ontarians with Disabilities Act (SGS 201) On-line course given by McMaster University, which reports to the Ministry of Community and Social Services. This course is part of their degree requirements. Please register at www.mcmaster.ca/accessibility - subject code is SGS and the course code is 201#. There is a quiz and the passing grade is 10/10. There is no limit to the number of attempts. This should take less than 30 minutes to complete.

ACADEMIC REQUIREMENTS

M.Sc. Requirements

A candidate for the M.Sc. degree is required to spend at least one calendar year in full-time study at McMaster University. Typically a Master's thesis should take 20-24 months. The MAXIMUM permissible time for completion of a Master's degree is limited to **THREE** years from the initial registration in the program. **Students who are beyond 24 months in a M.Sc. program are not guaranteed a TAship.**

<p>NOTE: A student whose work is unsatisfactory may at any time be required to withdraw from the program.</p>
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Candidates are required to:

- (1) complete **two** one-semester graduate courses both at the “700-level”, one of which **must** be CHBY 700
- (2) give at least one seminar in the Chemical Biology seminar program; and
- (3) present a thesis which will embody the results of original research.
The thesis must be defended in an oral examination.

Students may be admitted to the doctoral program without completing their Master's degree. These students may be allowed to transfer to the Ph.D. program after one year provided their progress is judged satisfactory by the Supervisory Committee. Please see “**Transfer from M.Sc. to Ph.D. Program**” guidelines for details.

M.Sc. Thesis Evaluation

Permission to write up a M.Sc. thesis is typically requested at or after the student's **third** supervisory committee meeting at approximately the eighteenth month mark following admission into the program. Once the student has completed their thesis, they must submit it to their supervisor for formal review. If it is considered ready for defence, it will then be read and evaluated by a committee of **THREE** faculty members (including the supervisor). The thesis will be defended by the candidate in an oral examination before this committee. Acting on behalf of the Program Director, the time of the defence will be set by the Graduate Assistant; normally this will be about two weeks after the completed thesis has been submitted to the department. Normally the supervisor will act as chair of the defence committee. After a successful defence, the candidate must address any necessary corrections and submit the thesis to the School of Graduate Studies.

Transfer Examination

This exam provides a direct route from M.Sc. to Ph.D. studies and permits students to significantly reduce their overall time for completion of a Ph.D. degree. This examination can take place as early as 12 months after beginning the M.Sc. program, but usually takes place **shortly after eighteen months in the M.Sc. program** and **MUST** be taken by the **twenty-two month mark**. Transfers will not be permitted beyond Term 6. See "[Guidelines for Transfer from M.Sc. to Ph.D.](#)".

Ph.D. Requirements

Our Ph.D. program is tailored to maximize student productivity and learning through basic research. Our philosophy is that the most important goal of a higher degree is to become an expert in a specific field, while maintaining sufficient breadth of knowledge to succeed after leaving graduate school. This includes publication in respected peer-reviewed journals, applications for scholarships and awards, oral and written presentation skills. Our graduates typically secure top-level international post-doctoral positions.

The **minimum** time to complete a Ph.D. is **THREE** calendar years beyond the bachelor's level or **TWO** calendar years beyond the Master's level. Completion of the Ph.D. degree is normally limited to **SIX** years from the initial registration. **Beyond this point students will not be eligible for TA support and may also be refused RA support at the supervisor's discretion.**

Students applying to our program who already hold a M.Sc. degree from another institution can be admitted directly into the Ph.D. program subject to approval from our admissions committee. **Such students are required to take a qualifying exam**, similar in structure and content to the transfer exam, usually within their first **nine** months in the program, but normally not later than 12 months after the start of their Ph.D. studies.

Ph.D. Candidates must:

- (1) Complete CHBY 700 if not already completed at the M.Sc. level;
- (2) Give **two departmental seminars**.
- (3) Present the student's thesis, which must embody the results of their original research and provide evidence of a high scholarly level. The candidate will defend this thesis in a final oral examination at the end of the graduate studies.

<p>NOTE: A student whose work is unsatisfactory may at any time be required to withdraw from the program.</p>
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Ph.D. Comprehensive Examination

Every Ph.D. candidate must pass a Comprehensive Examination between 18 and 20 months after beginning Ph.D. work at McMaster. The Comprehensive Examination will consist of a seminar and oral defence. See "[Guidelines for the Ph.D. Comprehensive Examination](#)".

Ph.D. Thesis Evaluation

<p>GUIDE FOR THE PREPARATION OF MASTERS AND DOCTORAL THESES: https://gs.mcmaster.ca/current-students/completing-your-degree/</p>
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The PhD final oral examination on the thesis takes the form of a brief presentation by the candidate and questioning by the committee. You should prepare a presentation that will take between 15 and 20 minutes to deliver. In preparing it, you should consider that you are speaking to an audience who has read your thesis. A simple summary is therefore neither necessary nor desirable. What you should endeavour to do is stress the main points of your contribution to the advancement of knowledge and the principal technical difficulties either of an experimental or theoretical nature which you have overcome. Notes or other aids may be used but the presentation may not be read from a prepared script. You should also be aware that the final oral exam, chaired by a university representative, is a university examination as contrasted with a departmental one, and that the committee contains two members from other departments, one indeed from a different Faculty.

Submission of a Ph.D Thesis prior to Defense

Before preparing the final version of the thesis, the student MUST receive formal permission to write by his/her supervisory committee members.

TIMELINE: Approximately 8 weeks to schedule a PhD Defence (unless an accelerated option is chosen in consultation with the supervisor – please contact Tammy for more information on this option).

- The student emails a copy of the thesis to each member of the supervisory committee. The student will access the “Student Centre” portal in Mosaic to initiate the defense process online and submits thesis title, along with the estimate thesis submission date.
<https://epprd.mcmaster.ca/psp/preprd/EMPLOYEE/EMPL/?cmd=logout>
- The Theses Coordinator will contact the supervisor and all supervisory committee members to ask them to approve the date for defense and approve the written thesis as defensible.
- Supervisor suggests external examiners.
- The Thesis Coordinator will arrange the selection of an external examiner from the list of prospective examiners.
- Notification of the date, time and place of the thesis defense will be sent by the Thesis Coordinator.

***PLEASE CONTACT TAMMY TO SCHEDULE A DATE FOR YOUR DEPARTMENTAL TALK:**

- Student – after a date has been set for the Thesis Defense, contact Tammy Feher to schedule a suitable date for your departmental talk before or after your defense date.

Thesis Submission – M.Sc. and Ph.D.

Prior to the thesis defense and, in the case of a doctoral thesis, before sending out the draft to the external examiner, the entire document must be reviewed for its originality using the University’s paid subscription to the Urkund software. The program/supervisor will review the originality report generated by Urkund and either recommend changes to the document or approve it for the defense. A thesis may not be seen by the thesis examining committee (including the external reviewer in the case of a doctoral thesis) until the Urkund generated report was reviewed and approved by the supervisor or the program, unless authorized by the Associate Dean of Graduate Studies.

- 1) Following a successful defence, ONE electronic copy of the thesis, revised as recommended by the Thesis Examining Committee and approved by the Supervisor/Examining Committee, must be submitted to the School of Graduate Studies through the E-Thesis Submission module in MacSphere.
- 2) The “**Final Thesis Submission Sheet**” signed by the supervisor must accompany the final submission of the thesis following a successful defence.
- 3) The **Copyright Permission Form** (if applicable) will need to be submitted.
- 4) **Library and Archives Canada Licence** (Ph.D. only)
- 5) **McMaster University Licence**

Please note that all the forms can be found at

<https://gs.mcmaster.ca/current-students/forms-and-policies-for-graduate-students-staff-and-faculty/>

An embargo for one year or less may be requested but please consider that the embargo may not cover the title and abstract of the thesis, which become searchable online.

Questions

If you have any questions regarding the thesis submission, you may contact the Thesis Coordinator at gthesis@mcmaster.ca

Course Requirements

- M.Sc.** => **Two half** graduate courses (at the “**700-level**”), one of which must be CHBY 700.
Ph.D. => Students must complete CHBY 700 if not already completed at the M.Sc. level. There are no other **formal course requirements** for doctoral students. Those students who wish to do so may however participate in any relevant course offerings in Chemistry, BBS or other affiliated departments.

In selecting courses, students must consult with their supervisor. The Supervisory Committee has the authority to recommend a more extensive course of study.

Students must complete courses with at least B- standing. Courses are evaluated through student’s presentations, essays, and/or examinations. **The supervisory committee may require a student to take courses in addition to those prescribed by departmental or university regulations.** These additional courses must be relevant to the student’s program. Students are expected to complete assignments on time and must consult with the coordinator of the course if deadlines cannot be met. Graduate students taking 600-level courses are required to do extra course work beyond that required of undergraduates in the corresponding 400-level course, usually in the form of a written assignment. Under normal circumstances a student who fails to obtain B- in a prescribed course is asked to withdraw from the program. Those allowed to remain in the program must either repeat or replace the failed course. A failing grade in a prescribed course remains on the transcript.

Course Selection

It is important to note that students must have the approval of their supervisor prior to making their course selections on MOSAIC. Please contact the course coordinator for the starting date of all 700-level courses (most start around mid-September and mid-January). Course selection may be completed either at the time of registration or at a later date with reference to the critical deadline dates (Appendix B). <https://gs.mcmaster.ca/academic-services/how-enroll>

Categories of Graduate Courses

- M** **Count towards the Master's degree requirements.** This category identifies the courses that are to count towards the Master's degree requirements (including any additional graduate requirements or undergraduate courses specified by the supervisory committee or Departmental Chair). The passing grades for an **M** course are A+, A, A-, B+, B, and B-.
- D** **Count towards the Doctoral degree requirements.** This category identifies the courses that are to count towards the Doctoral degree requirements (including any additional graduate requirements or undergraduate courses specified by the supervisory committee or Department Chair). The passing grades for a **D** course are A+, A, A-, B+, B, and B-.
- EC** **Extra Course.** This category identifies courses that the student is taking with the approval of the supervisor and Graduate Admissions Committee, but that are not necessary to the student's current degree program. If a failing grade (*i.e.* less than B- in a graduate course or less than D- in an undergraduate course) is received in a course taken as Extra, the courses (and grade) will not appear on the student's transcript unless because of academic dishonesty. Courses designated as EC may subsequently be counted towards graduate degree requirements and the course designation changed to M or D, if approved by the Faculty Admissions and Study Committee.

To register for courses:

- On MOSAIC select - **COURSE SELECTION FOR GRADUATE FOR SEPTEMBER 2020**
- Read the accountability statement and click **continue**
- Complete course selection by **adding and/or dropping** courses
- **Verify** changes
- **Apply** changes
- Confirmation screen will return with confirmation number
- **Print this screen so there is a record of course selection**

Illness During Course Work: If a graduate student is ill or is under a doctor's care prior to an examination or course deadline, this must be brought to the attention of the course instructor at that time.

COURSE OFFERINGS (2023-2024)

The following are general descriptions of the relevant graduate courses offered by the Graduate Program in Chemical Biology, the Department of Chemistry and Chemical Biology and the Department of Biochemistry & Biomedical Sciences for 2023-2024. Courses marked with an asterisk (*) are half courses. Please note that 700-level courses may be offered in alternate years.

The following 700-level courses (half course credit) are available in the Graduate Program in Chemical Biology (2023/24). **Please contact the course coordinator for the starting date and location.**

NOTE: The Chemical Biology Program offers unique courses that are designed to foster interdisciplinary and independent learning. **All courses will be taught in the inquiry style, and will focus heavily on examination of the current literature at the interface of Chemistry,**

Biochemistry and Biology. All courses will be administered by a minimum of two faculty members involved in the program in an effort to provide complementary viewpoints on a given topic.

+CHBY 700/A – Tools for the Chemical Biology Profession

The main objective of the course is to provide an introduction to a range of professional skills that will be useful to students not only throughout their graduate degree, but also in their future careers. The course will focus on the topics of Graduate School, Safety, Ethics in Science, Equity Diversity and Inclusion in Science, Scientific Literacy, and Effective Written and Oral Science Communication. The course will be delivered in the form of presentations, panel discussions, and interactive activities, and will also involve the discussion of recent cases and publications.

+CHBY 700/B – Topics in Chemical Biology

This course will set the tone for the Chemical Biology program and will be team taught by at least two instructors. The course will use topics from the current literature to provide an overview of Chemical Biology and will demonstrate the integration of chemical, biochemical and biological approaches to the solution of current problems of relevance to medicine, the environment and drug design. The focus of this course will vary from year to year; the integrative approach to chemical biology will remain the course goal each year.

+CHBY 701 – Chemical Biology Colloquium A

Students will prepare and present a seminar concerning a detailed examination of their own area of research. Participants will be required to provide a suitable background to the work and critically discuss salient aspects of the field. A question period will follow in order to provide a forum for discussion of the material presented. CHBY 701 is a non-credit course.

+CHBY 702 – Chemical Biology Colloquium B

Student will present a seminar concerning a detailed examination of their own area of research and also prepare a written review article describing the current state of their field. The review must provide suitable background to the area, the current state of the research within the field and an appraisal of possible future trends and directions. Students are encouraged to provide critical assessment of the material presented and use the format employed by the journal “Trends in Biochemical Sciences” or “Accounts of Chemical Research”. Students will receive course credit for CHBY702.

The following 700-level courses (half course credit) are available in the Department of Biochemistry and Biomedical Sciences (2023/24): <https://biochemgrad.healthsci.mcmaster.ca/graduate-programs/courses/>

The following 700-level graduate modules (one quarter course credit) are available in the Department of Chemistry and Chemical Biology in 2023/24: <https://chemistry.mcmaster.ca/graduate/chemistry/current-students/12-graduate/302-graduate-courses.html>

The following 700-level courses (half credit course) are available in the Department of Biology in (2023/24): <https://biology.mcmaster.ca/graduate/prospective-students/grad-courses/>

Please contact the respective course coordinators for details about starting date and location.

Seminars

Full participation in the Chemical Biology seminar program is a requirement of the graduate program; learning to communicate the results of basic research is an integral part of graduate education. Of particular importance is the exposure of students to a broad range of topics, especially those outside the candidates own area of specialization. A total of **two** seminars are required for PhD students and **one** for MSc students. NOTE: Students who enter directly into the PhD program are still required to present **two** seminars.

Seminars must focus on the student's own research.

- The first seminar will normally be given 13 to 16 months (Term 5, Jan-Apr) after initial registration in the M.Sc. program.
- The second seminar is required 5 to 8 months (Term 5, Jan-Apr) after transfer/registration in the Ph.D. program.
- The third seminar will normally be given just before the Ph.D thesis defence as a departmental seminar.

Students receive feedback from faculty and other graduate students following each seminar. Graduate seminars are held in the Winter term and **all graduate students are expected to attend**. The first seminar is expected to last 20 minutes with five to ten minutes for questions from the audience. The second seminar typically lasts 50 minutes and is to be more broad ranging in scope. The expectation is that by this time students will present their work in the context of their field, showing its significance and impact.

Academic Ethics

The Senate "Statement on Academic Ethics" describes the expectations the University has of its scholars. Breaching academic ethics is ultimately destructive of the values of the University; it is, furthermore, unfair and discouraging to those students who pursue their studies with integrity.

Breaches of academic ethics fall into two general categories:

- (a) a disregard for the norms of scholarly integrity, without necessarily intending to deceive, and
- (b) academic dishonesty which is an intentional disregard for the norms of scholarly integrity.

Academic dishonesty is not qualitatively different from other types of dishonesty. It consists of misrepresentation by deception or by other fraudulent means. In an academic setting this may take any number of forms such as: copying or the use of unauthorized aids in tests, examinations and laboratory reports; plagiarism; the submission of work that is not one's own or for which previous credit has been obtained, unless the previously submitted work has been presented as such to the instructor of that course; aiding and abetting another student's dishonesty; giving false information for the purpose of gaining admission or credits; and forging or falsifying McMaster University documents. Graduate students should be aware that the most common form of academic dishonesty is plagiarism. While some instances of alleged plagiarism turn out to be poor research methodology, such a finding is also damaging to a graduate student, who is expected to be competent in the treatment of secondary materials. Ignorance of what plagiarism is or what its consequences are likely to be is not an adequate defence for a graduate student. The inadequate notation of sources may be construed to be an attempt to deceive; failure to note sources will invariably be construed as an attempt to deceive. Therefore, in their own best interests, graduate students should familiarize themselves with the materials on plagiarism provided in the McMaster University Senate Statement of Academic Ethics and Senate Resolutions on Academic Dishonesty. Graduate students, having been deemed admissible to higher studies, should know the protocols for treating secondary materials in their discipline, and should be punctilious in acknowledging the employment of someone else's words or ideas in their written work.

While the emphasis in the main portion of the Senate Resolutions on Academic Dishonesty is on examinations and course work, the few breaches of academic ethics that occur at the graduate level occur as commonly in master's or doctoral theses as in course work. Whether dishonesty is discovered as part of a graduate course, in a graduate thesis, or on the written portion of a comprehensive examination, the outcome is necessarily grave. Graduate courses tend to be graded on the basis of a few major papers. If dishonesty is found in one of them, the possibility of passing the course is slim; failure in a graduate course normally leads to involuntary withdrawal from the program, and this serious consequence can result even if the student's Department makes a recommendation otherwise. Dishonesty in a comprehensive examination will normally lead to a recommendation for involuntary withdrawal. Dishonesty in a thesis may lead to a recommendation for involuntary withdrawal. If dishonesty is discovered after the thesis is submitted for examination, recommendation for involuntary withdrawal is the most likely outcome. Dishonesty discovered after the thesis has been examined and the degree awarded is likely to lead to a recommendation that the master's or doctorate degree be rescinded.

In graduate work the acknowledgement of source materials is of particular importance in this connection. In all work submitted in conformity with the requirements for graduate degrees, source materials must be properly acknowledged. If they are not, a penalty to a maximum of a zero grade for the submission may be levied by the instructor or in extreme cases suspension or expulsion may be recommended by the Senate Committee on Academic Dishonesty.

Graduate students are responsible for being informed about academic dishonesty; by the same token graduate instructors, graduate supervisors, and the School of Graduate Studies have a responsibility for helping to educate graduate students about academic dishonesty, for offering constructive criticism where appropriate, and for referring instances of academic dishonesty for disciplinary measures. The Senate Resolutions on Academic Dishonesty, which are directed toward undergraduate and graduate students specify the procedures to be followed in the event that a student is charged with academic dishonesty.

Copies of the Statement on Academic Ethics and the Senate Resolutions on Academic Dishonesty may be obtained from the Senate website at:

<http://academiccalendars.romcmaster.ca/content.php?catoid=24&navoid=4560>

Departmental Awards

Impact Awards (Recognition for Student Publications)

This award will be presented to Chemical Biology graduate students for highly meritorious contributions to scientific literature during the year prior to the award presentation. A prize for the most impressive first-authored publication(s) by our graduate students will be given based on the recommendation of the Award Selection Committee. Nominations should be submitted in the form of a one-page letter to the Chair from the graduate supervisor. The letter should briefly outline the achievements of the candidate, indicating the student's accomplishments and role in the publication, and should be accompanied by a copy of the publication. The department anticipates bestowing up to two awards annually.

Chemical Biology Leadership Awards (CBLA)

The CBLAs are awarded by the Chemical Biology Graduate Program to Chemical Biology graduate students based on three main criteria: (1) Leadership and interpersonal skills, as assessed based on citizenship and participation in the Chemical Biology graduate program or extracurricular activities (60%). Examples include volunteering for outreach activities, training of new group members, initiation

of new collaborations; (2) Academic excellence as gauged based on course grades (20%); (3) Research potential as gauged based on research publications (20%). The application package must include (a) a letter by the supervisor commenting on criterion (1) listed above; (b) current graduate and undergraduate transcripts; (c) updated CV, including list of publications authored by the student applicant.

Chemical Biology Graduate Student Travel Awards

The Program will grant up to ten competitive \$1000 travel awards each year to assist students planning to attend scientific meetings. Most of these awards will be handed out in the Spring and Summer to accommodate the large number of meetings that typically take place between May and September. However, a small number of travel awards may be reserved for Winter meetings. To qualify, students must be enrolled on a full-time basis in either the M.Sc. or Ph.D. programs and **must present their own original data either as a poster or as a speaker at the meeting they plan to attend. Students who have received a travel award in the past will only be eligible for another one if funding permits.** Students applying for these awards are strongly encouraged to apply for travel funds from other sources including, in particular, the GSA.

Application Procedure: There are three application deadlines:

- March 15 (for meetings scheduled between April 1 and June 24)
- June 15 (for meetings scheduled between June 25 and August 31)
- October 6 (for meetings scheduled between September 1 and March 30).

Students must apply to the Program by the deadline in advance of the meeting they are to attend. The application requires an abstract of the work to be presented at the meeting and other pertinent information. **The completed application form must be accompanied by a one page (maximum) letter explaining the relevance of the meeting to the advancement of their education and how it will benefit their work** (Appendix C). The Program Director and the Award Selection Committee will review and approve applications. In cases of conflict of interest, a designate will assist on an ad hoc basis.

External Awards

There are a number of external awards available from provincial and national funding agencies. All graduate students are encouraged to apply for awards provided they meet the eligibility requirements. **Students will receive notification by email outlining procedures and deadlines.** Please read and follow all instructions carefully.

***NSERC - Natural Sciences and Engineering Research Council of Canada – CGS/PGS- Doctoral:** To be eligible for support from NSERC, you must and/or will be undertaking a program of study or research in one of the fields that NSERC supports. The proposed research must clearly be intended to advance knowledge in one of the natural sciences or in engineering. In addition, for awards held at universities, **the research must be supervised by a faculty member whose own research is in a field that NSERC supports.** In cases where the proposed research is deemed to fall within the mandate of either CIHR or SSHRC, **NSERC will not accept the application.** If you hold or have held a CGS from another federal granting agency (CIHR or SSHRC), you are not eligible to apply to NSERC for support at the same level. **You may submit only one application per academic year to NSERC or CIHR.**

***NEW:** Applications have now moved to an electronic on-line submission process. All forms and documents will be attached as PDF files. Applicants should let Tammy Feher know that they are applying for this scholarship at least two weeks before the deadline.

Scholarship Values: CGS D - \$35,000 a year (for up to three years)
PGS D - \$21,000 a year (for up to three years)

Applications:	http://www.nserc-crsng.gc.ca/Students-Etudiants/PG-CS/index_eng.asp
Application Deadline:	<u>October 1st</u> Tammy Feher (ABB-156)

***CIHR Doctoral Research Award Competitor:** The Fredrick Banting and Charles Best Canada Graduate Scholarships Doctoral Award (CGS-D) Provides special recognition and support to students pursuing a doctoral degree in a health-related field in Canada

Applicants MUST apply on-line through the Research Portal. Let Tammy Feher know that they are applying for this scholarship at least two weeks before the deadline.

Scholarship Values: CGS-D - \$35,000 (for 36 month)

Applications:	https://cihr-irsc.gc.ca/e/38887.html
Application Deadline:	<u>October 1st</u> Tammy Feher (ABB-156)

***2023 Canada Graduate Scholarships – Master’s Program Competition (CGS M):** The CGS M Awards Program supports students in all research disciplines and is administered jointly by Canada’s three federal granting agencies: (CIHR, NSERC and SSHRC)

Applicants **MUST** apply on-line through the Research Portal. Let Tammy Feher know that they are applying for this scholarship at least two weeks before the deadline.

Scholarship Values: CGS M - \$17,500 (for 12 months, non renewable)

An effective Plan of Study or Statement of Interest should clearly communicate:

- Your specific research interests and focus;
- The relevance of your specific research to the broader field(s) or discipline(s) of which it is a part;
- The methodology used to tackle your research problem (ensure the approach is reasonably feasible);
- Your academic preparedness to undertake and complete your research, and predicted training outcomes

Applications:	http://www.nserc-crsng.gc.ca/Students-Etudiants/CGSHarmonization-HarmonizationBESC_eng.asp
Application Deadline:	<u>December 1st</u> Tammy Feher (ABB-156)

***OGS - Ontario Graduate Scholarship:** Ontario Graduate Scholarships are awarded for one academic year (\$15,000 value)

Note: All eligible applicants who apply for the NSERC Doctoral and the 2023 Canada Graduate Scholarship – Masters Program competition will automatically be considered for a McMaster OGS award for the 2023/2024 academic year. There will be NO separate application for OGS.

Internal University Awards

***McMaster Internal Prestige Scholarships Competition:**

Ontario Graduate Fellowships are offered. Each prestige award has their own value and eligibility requirements. Chemical Biology will be notified by the School of Graduate Studies office in April or May 2024 if students have been awarded a scholarship.

GUIDELINES FOR GRADUATE STUDENT ADVISORY COMMITTEE

The Program Director is responsible for maintaining the academic standards within the Chemical Biology Program. The Director must monitor the recruitment and training of all graduate students. In co-ordination with the Chairs of the Departments of Chemistry and Chemical Biology and of Biochemistry and Biomedical Sciences, she/he can delegate specific responsibilities to other faculty members and, since graduate education warrants considerable effort, a graduate advisory committee (GAC) is appointed by the Director.

Terms of Reference for the GAC

1. To Review All Graduate Applications

Students should normally have a course background in a suitable Honour's program in the Physical or Life Sciences (Chemistry, Biochemistry, Biology, etc) with a B+ or better standing. Students from other programs can be admitted. However, if a student is inadequately prepared in Biochemistry, Chemistry or Biology, additional course(s) will be prescribed on the acceptance letter.

2. To Approve Supervisory Committees

The supervisory committee will be suggested by the student's supervisor but must be approved by the GAC. The supervisory committee will consist of at least three members. Two including the supervisor, must be from within the Chemical Biology program. A third member, whose scholarly interests include the area of the student's main interest, may be from outside the Program. These committees guide students on their research project and also counsel the student on appropriate course work to enable the student to:

- carry out his/her project;
- prepare for transfer to the Ph.D. program, if appropriate; and
- pass the comprehensive exam. The committee must meet as outlined in the "[Guidelines for Supervisory Committee Meetings](#)".

3. To Approve Transfer of M.Sc. Students to the Ph.D. Program

The GAC will review possible M.Sc. to Ph.D. transfers. For successful transfer, a student should have: (1) an overall academic (undergraduate and graduate) performance of B+ or better, and (2) a favourable recommendation on his/her research performance and potential from the supervisory committee. Transfers must take place prior to twenty-one months in the M.Sc. program. Students will prepare a transfer proposal of twenty pages (double-spaced). The purpose of this proposal is to outline the necessary theoretical and technical background of the perspective doctoral projects to be undertaken by the student, to describe the progress they have made to date, and the experimental route they intend to take towards the accomplishment of the doctoral research aims.

Supervisory Committee Meetings

University regulations require that all graduate students meet formally with their supervisory committee to discuss their progress. Committee meetings provide a tool for both communicating and documenting students' accomplishments and their supervisory committee expectations. Students newly admitted to our M.Sc. program must meet with their supervisory committee at least three times during their first eighteen months in the program.

The supervisor is responsible for assembling a Supervisory Committee. The committee will consist of the student's supervisor and at least one other full-time faculty member from the Chemical Biology Graduate Program. The research interests of all committee members will encompass the thesis topic of the student.

The Program must forward a committee report to the School of Graduate Studies after each meeting. It is the responsibility of the supervisor and student to ensure that these meetings take place and are officially recorded by completing a Supervisory Committee Report form. Different forms are used for master's and doctoral students. Each committee member must indicate whether the progress made by the student has been excellent, satisfactory, marginal or unsatisfactory. Doctoral students must summarize their progress on page 3 of the form and ensure all members initial at the bottom. If a marginal or unsatisfactory grade is given by any one member, another committee meeting must be held within 3 months to re-assess the student's progress. If an unsatisfactory rating is given by all committee members, the supervisor will confer with our Program Director to decide what further course of action to take.

It is the responsibility of the student to reserve audio-visual equipment and collect the form before the meeting. Students should also call a supervisory committee meeting any time they have academic problems or difficulties with their research.

***There is a new Ph.D supervisory committee on-line report. A link will be sent to you to initiate the process. For all M.Sc supervisory committee meetings a form can be found here:**

<https://gs.mcmaster.ca/app/uploads/2020/02/Masters-Supervisory-Committee-Meeting-Report-June-2022.pdf> Return forms ASAP to Tammy Feher at chembio@mcmaster.ca.

GUIDELINES FOR SUPERVISORY COMMITTEE MEETINGS

***First Meeting (4-6 months after registration in program)**

The first supervisory committee meeting must be held within 4-6 months of registration in the graduate program. The goal of this initial meeting is to determine whether the student has a well-defined project and whether the student is making the necessary effort to become well-versed in the background literature to their field. We expect all students to attempt to master this material within their first year of graduate school. At this first meeting, the student should also have made some basic progress towards their research goals although it may be of a preliminary nature.

***Second Meeting (12-14 months)**

The second committee meeting takes place between 12 and 14 months after arrival in the program and it is expected that the student will have made further progress in digesting the literature that is relevant to their field and to have made headway in their research. **In certain circumstances this may be replaced with the Ph.D. transfer meeting/exam.**

***Third Meeting (18-20 months)**

The third committee meeting takes place by 18 to 20 months after starting the program. The purpose of this meeting is to decide what the student needs to do to complete a M.Sc. thesis. Alternatively, if the student wishes to do so and has the support of their supervisor, he/she may obtain permission to proceed to the transfer examination for entry into the Ph.D. program.

Committee Report

For each committee meeting students must write a short report summarizing their project and the most recent progress they have made. This must be submitted to committee members at least **one week** prior to the meeting. This report should be approximately **10** pages double-spaced, typewritten, excluding references and appendices. The report should include a summary (250 words max), a brief introduction, an overview of completed work and work-in-progress, and a description of future experiments.

Committee Meeting

At the beginning of the meeting the student will give a 15-20 minute presentation. The presentation should provide the rationale of the project, a description of the experimental approaches being used, an overview of progress, ongoing work, and future directions. The supervisory committee will then discuss the project in detail with the student. Students receive a grade and specific recommendations in writing following each committee meeting. Students whose performance is not considered to be up to par will be graded "unsatisfactory" for that meeting. Depending on the circumstances, two unsatisfactory grades can be grounds for dismissal from the program.

Subsequent Meetings - PhD

Doctoral students must meet with their committee to review progress at least once a year. However, if desired or considered necessary by their supervisor, additional meetings may be arranged.

Direct Admission to Ph.D. Program

Students who enter our Ph.D. program directly with a M.Sc. degree are required to schedule their first Supervisory Committee Meeting within **SIX** months of the initial registration. They must subsequently prepare a proposal for Ph.D. research and defend it at an exam that is similar to the transfer exam at approximately **NINE** months, but not later than **TWELVE** months after the initial registration. This meeting will include participation of their committee members and the Transfer Chair.

GUIDELINES FOR TRANSFER FROM M.Sc. TO Ph.D.

Goals and Outline of the Transfer Process

The Program promotes the effective integration of graduate students into the research programs of its faculty members. Since these are ongoing programs with long-term objectives, it is for the benefit of the students and the research programs to integrate M.Sc. students intending to proceed to Ph.D. degrees into these long-term objectives as early as practical. In order for this to happen, a process has been established to assess M.Sc. students' academic and research ability and potential to carry out Ph.D. studies. Students who have demonstrated this ability may proceed directly to the Ph.D. program without writing up their Master's thesis provided the following conditions have been met:

- The student must have completed one graduate ½ course with a minimum B+ standing.
- The student has had his/her first supervisory committee meeting within 4 to 6 months of first registration and the committee approves the long-term strategy of the proposal as suitable for a Ph.D. project. At this meeting the committee will expect that the student has taken significant steps to master the literature relevant to his/her fields. Some preliminary progress at the bench is also expected.
- A second meeting held within 9 to 12 months of the student's first registration will serve to address any shortcomings identified during the first meeting. At this point it is anticipated that the student will have made significant progress in their bench work. The student must have a solid grasp of the literature relevant to his or her field at this time in order to be *eligible* for the examination required for direct transfer to the Ph.D. program.
- The supervisory committee recommends that the student be considered for transfer based on his/her performance to-date within 18-20 months of first registration in the program.
- The transfer exam will take place within 22 months of the student's first registration.

Transfer Examination

The transfer examination has three purposes. First, it tests the student's preparation for Ph.D. level research by determining whether they have mastered the theoretical background of their fields. Students will therefore be expected to have researched and read the publications that form the foundation of their field as well as the necessary background for the technology they intend to employ. Secondly, it will provide an independent assessment of the performance to-date and the student's ability to execute the longer-term strategy of the proposed Ph.D. research project. Thirdly, this exam will help constructively reveal the student's strengths and weaknesses. While questioning in the transfer exams can be expected to be rigorous, students are not expected to have the correct answers for everything. A student coming out of this examination therefore will have had an independent evaluation of his/her project and background knowledge, and will have been made aware of areas in which he/she needs improvement. This last point may include the recommendation of specific course work.

Procedure

Students will complete a proposal using the format of a NSERC or CIHR operating grant. This written proposal must represent the student's own original work; the inevitable input of the supervisor notwithstanding, McMaster University policies on Academic Ethics and Academic Dishonesty apply. The aim of this proposal is to describe the theoretical background to the project and outline the goals of the research. This document should illustrate that the student's goals have sufficient depth to form the basis of a Ph.D project and must clearly demonstrate the progress that the graduate student has made during the first 18 months. This proposal is expected to be a major exercise in writing and should be interesting, concise and informative. It must be comprehensible by faculty members who are knowledgeable in chemical biology but not necessarily experts in the field. This proposal should include an abstract of not more than 300 words, an introduction to the student's field and basic research direction, a summary of progress and a detailed discussion of the research to be carried out towards a Ph.D., including driving open questions and hypotheses as well as specific aims with related experimental plans. It is important to explain and justify the approach being taken and include a projected timeline for the completion of each aim.

There is an absolute length limitation of 20 pages (double-spaced, 12 point font, not including figures or references). The first 2-3 pages should introduce the subject of the student's thesis. Following the introduction there should be a 2-3 page summary of the student's progress. The remaining 14-16 pages should explain the proposed research. Students may subdivide each section in whatever manner they deem to be the most readily digested by the examining committee. References must conform to the ACS Chemical Biology format.

Preparation time for this proposal is limited. Students will be assigned a date for their transfer exam five weeks in advance of their exam (at least three months prior to the anticipated Ph.D. start-date). The report must be presented to the Committee at least one week prior to the transfer meeting.

Transfer Meeting

The student will give a 15-20 minute presentation outlining the major points of his/her proposal, including accomplishments to-date and the research proposed for the Ph.D.. The exam will then consist of at least two rounds of questioning from each of the voting Committee members and will deal with any and all aspects of the presentation and proposal. The total time for the questioning will not exceed two hours.

The Transfer Committee will consist of the members of the Supervisory Committee, the Transfer Chair, and one additional member who has no direct connection with the student's Supervisory Committee. The Program Director will normally act as or appoint the Transfer Chair and appoint the additional member. The Transfer Chair cannot be the student's supervisor.

The Transfer Chair will have no voting privileges. The Transfer Chair will ensure that the exam is conducted in a fair manner in keeping with the objectives outlined in this document. In the event that a student is at a loss to answer a particular question, the Chair may ask the examiner for clarification or to move on to a more fruitful line of questioning.

Students should expect questioning to be thorough and far-ranging. Frequently, a correct answer will be followed up with a more difficult continuation in an attempt to plumb the depths of the student's knowledge. It is to be expected that most students will encounter at least some questions that they are unable to answer; it is particularly important therefore that the student is certain he/she always understands what is being asked.

Possible Recommendations

- Proceed to Ph.D. studies without obtaining a Master's degree;
- Admission to Ph.D. studies but with concurrent completion of all requirements for a Master's degree within two months from the date of reclassification;
- Proceed with Ph.D. studies following completion of the Master's degree;
- Not proceed with Ph.D. studies but complete the Master's degree;
- Adjournment of the transfer meeting.

In the event deficiencies are identified in the course of the transfer examination which the Committee deems can be rectified in a timely manner, the Committee is empowered to adjourn, providing the student with a written copy of the concerns to be addressed. The Committee must be reconvened for a re-examination and to make a final determination, in no case later than 24 months after the first registration of the student in the graduate program.

After the examination, the Transfer Chair will inform the candidate and the Program Director of the Committee's decision and the reason for it. Transfers will only become effective: September 1st, January 1st or May 1st.

Direct Admission to Ph.D. Program

Students who enter our Ph.D. program directly with a M.Sc. degree are required to schedule their first Supervisory Committee Meeting within **SIX** months of initial registration. They must subsequently prepare a proposal for Ph.D. research and defend it at an exam that is similar to the transfer exam at approximately **NINE** months, but not later than **TWELVE** months after initial registration. This meeting will include participation of their committee members and the Transfer Chair.

GUIDELINES FOR THE Ph.D. COMPREHENSIVE EXAMINATION

Goals and Outline of the Comprehensive Examination

The comprehensive exam is a capstone event in the Ph.D. program. It is given 18-24 months post entry into the Ph.D. program, when students are expected to have matured into experts in their fields. The marking scheme is Pass, Pass with Distinction, or Fail.

The examining committee consists of three faculty members from the Graduate Program in Chemical Biology one of who will chair it as if it were a Ph.D. defence.

The exam consists of a written report, a 20 minute presentation and a question period with members of the supervisory committee.

1) Written report

The comprehensive report should be in the form of a broad and exhaustive critical review of the wider field of research the doctoral student is working in. The review may serve as a foundation for the first chapter of the future doctoral thesis. The suggested format is similar to a [Nature Chemical Biology review](#) (5K words and eight figures/tables maximum). At least 80 references should be included. The report should be submitted to the comprehensive committee at least one week prior to the exam.

2) Presentation

The presentation should roughly 20 minutes in length and cover the student research in a comprehensive fashion, clearly placing it in the context of their field. This should very much resemble in form and content, seminars students attend in the external seminar series.

3) Question Period

Following the presentation, the student and the advisory committee will engage in a question and answer session. Students should be able to answer questions germane to their field of expertise. At this stage of their career, students should be comfortable with the fundamental aspects of the research they have performed and the general scientific context of their work. The breadth of questions may go beyond the written report. In general, the Chair will oversee two rounds of questions from the committee. Feedback on the seminar content and presentation style will also be given.

3) Timing of Re-Examination

If a re-examination is necessary, it will normally take place within one month, but the actual timing will be determined on the basis of consideration of what is needed to correct the deficiencies. This may include a requirement for a graduate level course in an area deemed deficient, or a written document that reviews a specific research area and provides a formal proposal. A second failure will necessitate withdrawal from the Ph.D. program.

Appendix A
2023-2024 SCHEDULE OF FEES

<https://registrar.mcmaster.ca/fees/graduate/>

REGULAR FEES FOR NEW & RETURNING STUDENTS IN SEPTEMBER 2023

	Fall	Winter	Spring	Total
Canadian Fees				
Regular Tuition Fees	\$ 2102	\$ 2102	\$ 2102	\$ 6307
Part-time Fees	\$ 1051	\$ 1051	\$ 1051	\$ 3154
Visa Ph.D. Fees				
Regular Tuition Fees	\$ 2102	\$ 2102	\$ 2102	\$ 6307
Part-time Fees	\$ 1051	\$ 1051	\$ 1051	\$ 3154
Visa M.Sc. Fees				
Regular Tuition Fees	\$ 5699	\$ 5699	\$ 5699	\$17096
Part-time Fees	\$ 2924	\$ 2924	\$ 2924	\$ 8773

Appendix B
Sessional dates (2023-2024)

<https://academiccalendars.romcmaster.ca/content.php?catoid=48&navoid=9532>

Appendix C

Chemical Biology Graduate Program Travel Award Application

Name:	Student No.:
E-mail:	Supervisor:
Program:	Year in Program

Conference Name:
Conference Location:
Conference Date:
Title of Presentation:

Budget	Amount in CAD
Airfare	
Registration	
Accommodation	
Meals	
Other	
Total	
Account to be Reimbursed	

Abstract (including title, authors & affiliations):

Signatures:

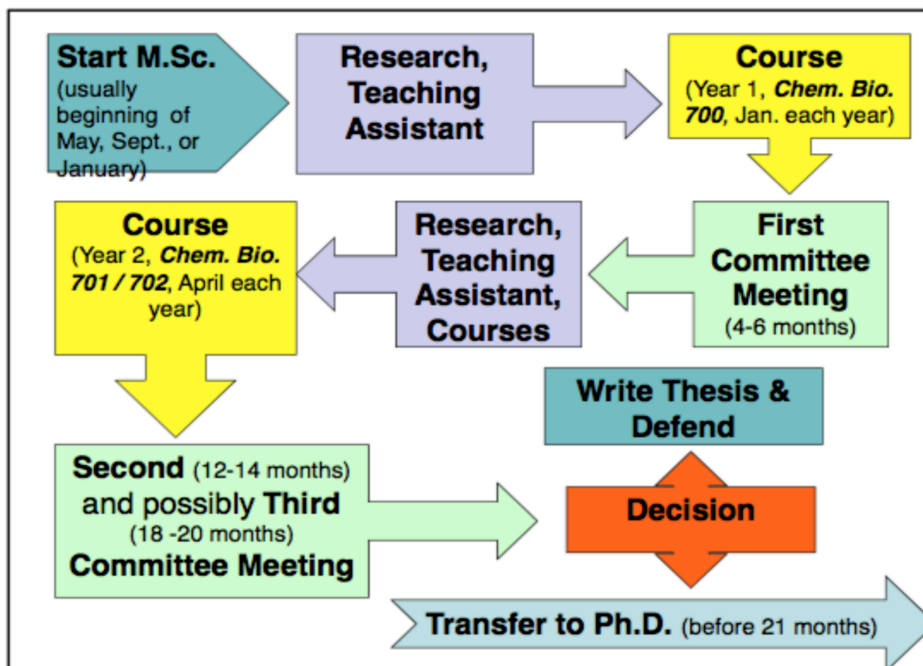
Applicant: _____
Date: _____

Supervisor: _____

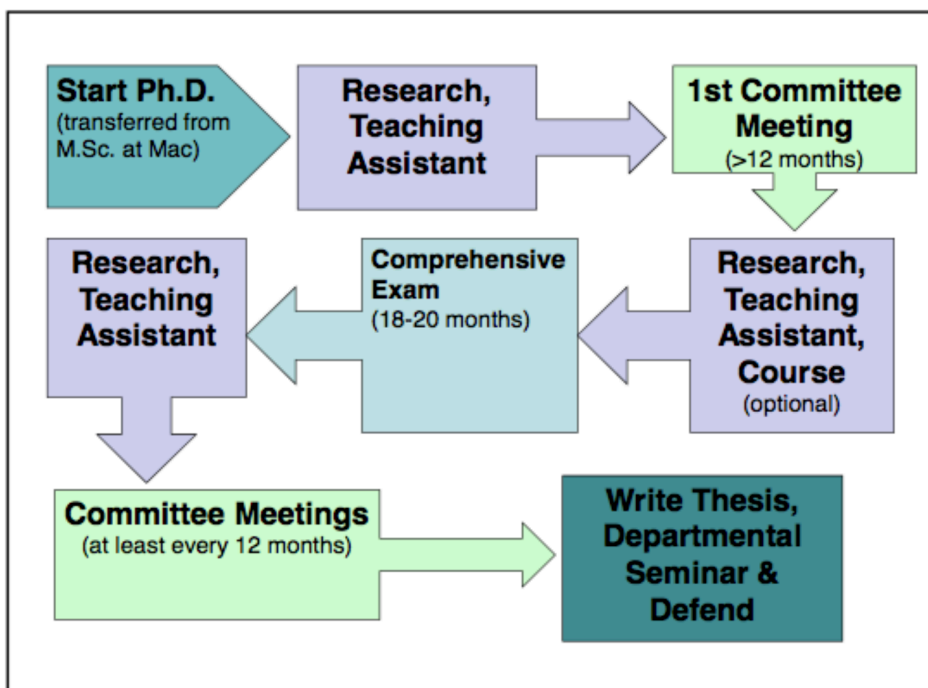
PLEASE ATTACH A ONE-PAGE LETTER EXPLAINING THE RELEVANCE OF THIS MEETING AND HOW IT WILL BENEFIT YOUR WORK

Appendix D

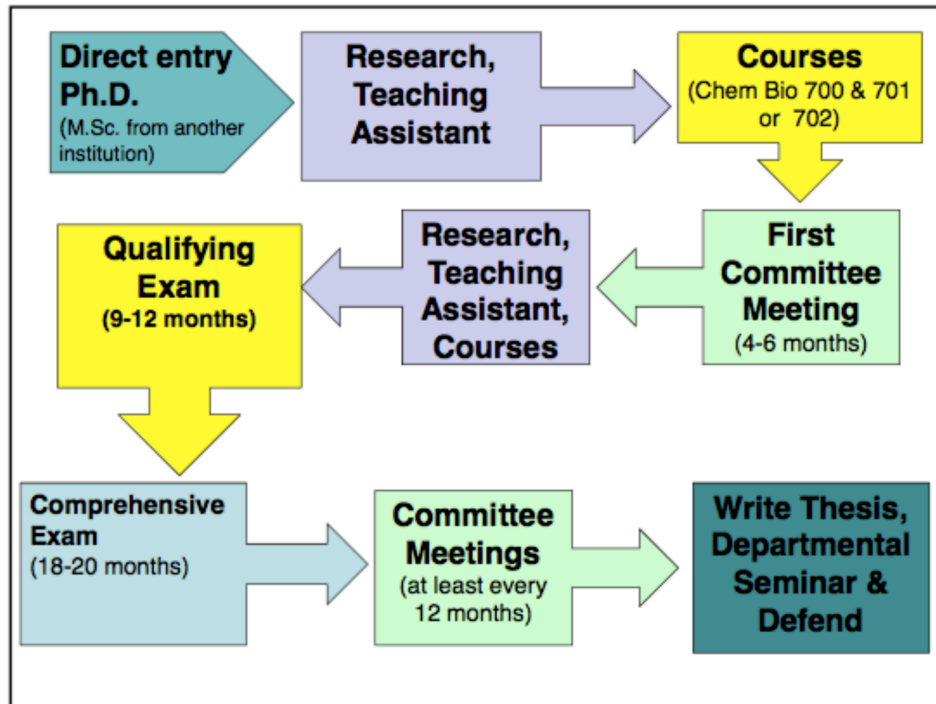
M.Sc. Roadmap



Ph.D. via Transfer Roadmap



Direct Entry to Ph.D Roadmap



MD/Ph.D Program Timeline

https://fhs.mcmaster.ca/mdphd/documents/mdphd-timeline-05-09_000.pdf