



Department of Physiology and Pharmacology

Schulich School of Medicine & Dentistry
The University of Western Ontario

Graduate Student Handbook

Department Website: www.schulich.uwo.ca/physpharm/

SGPS Website: www.grad.uwo.ca

[Updated September 2019]

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Overview

We train graduate students to develop critical thinking skills to be applied in research, and to promote innovation, integrity and scholarship. This is accomplished through fostering creativity, collegiality and leadership. We train students in diverse fields, including neurosciences; cardiovascular sciences; cell, developmental and cancer biology; endocrinology and reproductive biology; as well as clinical and basic pharmacology. An **M.Sc.** degree prepares graduates for career opportunities in research, teaching, science and health care sectors, including clinical trial coordination (possibly after additional training). Graduation from a **Ph.D.** program is essential for a career as an independent investigator and for many other career opportunities in academia, government, public policy, and the pharmaceutical and biotechnology sectors.

Physiology studies how living organisms function at multiple levels, including molecules, cells, tissues, organs and systems. It also addresses how functions in a given organ or tissue may modulate other parts of the organism. It encompasses numerous fields of biology including molecular biology, biochemistry, anatomy, cell biology, biomedical engineering and computing science.

Pharmacology is the study of how drugs, hormones and chemical agents affect biological processes in living organisms. Pharmacology studies drugs, their sources and effects on target tissues and the rest of the body. It also includes the characterization of drug-drug interactions, toxicological effects, and therapeutic uses. Substances with medicinal properties are pharmaceuticals, but pharmacology is not synonymous with pharmacy, although they are sometimes confused. Pharmacology deals with how drugs interact within biological systems to affect function, whereas pharmacy is a science concerned with safe and effective use of medicines.

Skill Sets and Academic Standards Expected of Our Students

Skill Sets Required Before Entering our Graduate Programs

- High academic standing with an average of at least 80% in undergraduate courses
- Strong commitment to pursuing rigorous research training in a selected subject area
- Enthusiasm and a high degree of interest in science and research
- Curiosity, and an open and enquiring mind
- Sound work ethics, integrity and moral standards
- Excellent time management skills
- Collegiality
- Perseverance and patience
- Maturity and reliability

Skill Sets Acquired in our M.Sc. and Ph.D. Programs

- Excellent critical thinking skills
- Ability to integrate data and information from multiple sources, and to develop and test hypotheses rigorously
- Excellent oral and written communication skills
- Skills in a range of analytical techniques using state-of-the-art instrumentation
- Ability to work with equipment and instruments at tasks requiring precision
- Ability to co-ordinate or co-supervise the work of others
- Ability to identify problems, and to develop and implement innovative solutions
- Ability to work independently, and in teams with basic and/or clinical scientists

Life of a Graduate Student

Although the expectations of students enrolled in the M.Sc. and Ph.D. programs may vary, it should be recognized that graduate school represents a very different educational experience than that of undergraduate studies. Scientific discovery is seldom a linear process, and it is generally not possible to drive research directly towards a desired outcome. Discovery is a mixture of insight, effort, curiosity, good fortune and perseverance. All graduate students, regardless of whether they are in the M.Sc. or Ph.D. program, are expected to pursue original hypothesis-based research that results in the generation of novel, publication-quality data, and to disseminate their findings to the scientific community.

The M.Sc. program provides an opportunity for students to explore the possibility of pursuing research as a career. The normal time to completion of this degree is 2 years, although completion of a high-quality thesis may take longer. It is not a requirement of Western's School of Graduate and Postdoctoral Studies (SGPS) that the M.Sc. research be published, but it is a normal expectation in our M.Sc. programs that at least one high-quality publication be produced from data collected during the M.Sc. training period. Students are expected to display enthusiasm and dedication towards completing the objectives that define their research projects. This may require working on their projects outside of standard work-week hours. In research, the end result is nearly always determined by the effort and commitment of the student to the project. The reward for this is the opportunity to pursue research questions and lead discovery in diverse and important areas that are directed at reducing human suffering and improving our understanding of the biological world. M.Sc. students with guidance from their supervisors and Advisory Committees [see below] develop a research plan that can result in the production of significant research findings. As research is an unpredictable enterprise, it may be necessary to revise or pursue new objectives during the course of studies, depending upon the results of the initial experiments. Together, the student, supervisor and Advisory Committee are all committed to producing the highest quality thesis possible and achieving this goal will always require a dedicated effort by the student. Over the course of the M.Sc. program, students also complete course and non-course requirements [details below] and normally have the opportunity to be Teaching Assistants (TA) in undergraduate courses. Graduate school can be, and often is, one of the highlights in a student's life. Students are provided with the opportunity to work in exciting environments and share experiences with like-minded colleagues that can result in life-long

friendships. Many former graduate students look back on this time in their life with fondness and the realization that it represented an important period of personal development that laid the foundation for a rewarding career.

M.Sc. transfer to the Ph.D. program. Students enrolled in the M.Sc. or Accelerated M.Sc. program have the opportunity to transfer their registration to the Ph.D. program without prior completion of M.Sc. degree requirements. This transfer must take place before the end of the fifth academic term of registration. About one year before the transfer occurs, the M.Sc. student should inform their supervisor and Advisory Committee of their interest in pursuing the transition to the Ph.D. program. At that time, the Committee will assess the student's progress and potential, and begin discussions about how the research project would be expanded to incorporate the increased scope of a Ph.D. program. Three primary conditions must be met to ensure the Program's support for transition to the Ph.D. level: (1) the student must be judged by the supervisor and Advisory Committee to have displayed the necessary aptitude for completing a Ph.D. degree, (2) the research progress must be judged by the supervisor and Advisory Committee to be outstanding and sufficient for the production of a publishable manuscript, and (3) the proposed Ph.D. project must be of sufficient scope to clearly indicate that a Ph.D. program is warranted. These conditions indicate that not all students will be allowed to transfer to the Ph.D. program. Alternatively, students can complete their M.Sc. degree requirements, and then be considered for entrance into the Ph.D. program after having successfully defended their M.Sc. thesis. The normal time for completion of a Ph.D. degree following transfer from the M.Sc. program is 4 years, although this is entirely dependent on the progress in research and is contingent on the time required to produce a high-quality thesis.

The Ph.D. program. Ph.D. students are expected to display greater independence, initiative and maturity in research than M.Sc. students. The Ph.D. is the highest degree offered by a University, and not all students are expected to have the desire or ability to successfully complete a Ph.D. program. This degree requires an extensive time commitment and has higher expectations, including the production of 3 high-quality publishable, original research thesis chapters as first author. Students entering the Ph.D. program normally spend 3 to 5 years completing degree requirements, depending on whether they were direct entry or transferred from the M.Sc. program. Under the guidance of their supervisor and Advisory Committee, Ph.D. students are expected to develop a research plan that will lead to significant, novel research findings. Together the student, supervisor and Advisory Committee are all committed to producing the highest quality thesis possible, and achieving this goal will always require a dedicated effort by the student. Over the course of the Ph.D. program, students also complete course and non-course requirements [indicated below] and have the opportunity to work as TAs in undergraduate courses. Students considering applying to a Ph.D. program must reflect carefully on their future career goals, as pursuing these studies indicates that the student has the necessary passion, ability, enthusiasm, determination and drive to complete the program and to explore advanced career goals, in academia or elsewhere. Completion of a Ph.D. degree can be a life-enriching process that enables graduates to pursue their own research directions, but it is a demanding process that will stretch the capabilities of all students. However, as with completion of the M.Sc. degree, there are few academic activities that will be more enriching over the course of a person's lifetime.

Enrolment and continued registration in the Physiology and Pharmacology Graduate Program implies and requires compliance with a set of regulations and criteria set out for graduate students by the Department and the SGPS. The specific requirements are listed on the following pages. Continued enrolment in the programs also involves a level of productivity that will enable successful completion of the degree requirements in the time frame outlined above. Although the working time commitment will differ amongst students, it is expected that a student will spend more than 40 hours per week engaged in laboratory, or laboratory-related, work.

Beginning a Graduate Program in Physiology and Pharmacology

Each newly enrolled M.Sc. and Ph.D. student will attend an individual Orientation Meeting, organized by the student, with their supervisor and a member of the Graduate Studies Committee designated as the student's Graduate Studies Committee Representative (GSR) within the first 2 weeks of beginning the program. This meeting will be about 15 minutes in duration, and serve to welcome students to the Physiology and Pharmacology graduate programs and to ensure that program and course requirements are clearly outlined. This meeting also provides each student with an opportunity to meet the Department of Physiology and Pharmacology GSR that will be a member of their Advisory Committee.

It is also required that new students and their supervisors discuss the contents of this Graduate Student Handbook, using the Letter of Understanding received by the student, and prepared as a guideline for this discussion. Each student and their supervisor will sign the Letter of Understanding to indicate that this discussion has taken place. The Orientation Meeting will serve as an opportunity for students to ask additional questions related to the content of the Letter of Understanding.

Function and Composition of the Graduate Student's Advisory Committee

Each graduate student has an Advisory Committee composed of their supervisor, GSR and 1 to 3 other faculty members. These faculty members are selected based on their research expertise, and on the knowledge and skills that they can bring to the graduate student's research project. They may be members of the Department of Physiology and Pharmacology or any other academic Department at Western, and occasionally may be from another university. The Chair of the Graduate Studies Committee is an *ex officio* member of every Advisory Committee, but will not normally attend these meetings. The role of the Advisory Committee is to oversee a graduate student's progress in all aspects of their degree program, and particularly to monitor progress in their research project. This Committee is also available to advise the student, either as a group or as individuals, about career development, academic and research issues. The GSR is an advocate for the student and assists in ensuring that the project and the student's performance are consistent with Department expectations. Students are normally responsible for organizing Advisory Committee meetings in a timely fashion (see paragraph below), although the supervisor, GSR, Chair of the Graduate Studies Committee or any member of a student's Advisory Committee can call a meeting at any time during a student's program, as required. Students are also welcome to meet individually with their Advisory Committee members at any mutually convenient time over the course of their studies.

M.Sc. and Ph.D. students must hold their first meeting with their Advisory Committee before the end of the first academic term of study and should then meet every 6 months, or sooner if required, until completion of their degree. Compliance with the above requirement is indispensable to demonstrate appropriate progression through the program, and to maintain eligibility for SGPS financial support (W funds). The GSR chairs the committee meetings, and also records the meeting minutes, which are kept as records of student progress through the program. The GSR also serves as a liaison for the student with the Graduate Studies Committee of the Department. The first Advisory Committee meeting does not require preparation of a full written report, but provides an opportunity for students to meet with their Advisory Committee to outline their proposed research project. Subsequent meetings require the preparation and distribution of a complete advisory committee report by the student. This report should be distributed to the committee no later than one week before the meeting. Failure of the student to distribute the progress report to their advisory committee on time may result in cancellation of the meeting by the GSR, the supervisor or the other members of the student's advisory committee. Holding advisory committee meetings in a timely fashion is a requirement to demonstrate appropriate progression through the degree.

The following information provides graduate students an overview of the typical format of the Advisory Committee meeting, and outlines how students should prepare for these meetings. The GSR begins each meeting by providing a brief overview of the student's progress in fulfilling program and course requirements, time in program, funding, TA positions and other relevant general information. This allows development of a meeting agenda to ensure that sufficient time is given to addressing specific issues or concerns. The first Advisory Committee meeting focuses on a review of the student's course requirements and initial research project objectives; a written report by the student is not required. Discussion should revolve around the specific research questions to be investigated, development of specific research objectives, and identification of experimental methods to be used. For all subsequent meetings, students are required to distribute a written Advisory Committee progress report to each member of the Committee at least one week before the scheduled meeting that outlines research progress and goals for the next few months. **Additional information and a template for preparation of this report can be found on the Department website at <https://www.schulich.uwo.ca/physpharm/graduate/Handbook%20and%20Forms.html>**

Students are also required to prepare an oral presentation for the meeting that outlines research progress made since the previous meeting. After the opening comments by the GSR, the student is invited to begin their presentation. This is not considered to be a formal presentation, and therefore members of the Advisory Committee may interject frequently to discuss the experimental data or approaches as they are presented. This ongoing discussion and clarification makes the presentation seem more like a conversation that generates constructive input for the student and challenges the student to think more broadly about the research project and data interpretation. For example, discussions may focus on how to trouble-shoot a technical problem, or input may be requested regarding additional avenues of research related to the overall objective. In cases where progress is limited or where insurmountable concerns arise, the Committee may be of assistance in defining ways to improve progress or to refocus research

objectives appropriately. Students and their Committees should act together to ensure that program goals for completion of the degree are met with a high level of performance. A typical Advisory Committee meeting should last about 1 hour but may extend up to 2 hours, and the GSR, with help from the student completes a written record of the advisory committee meeting (GSR Report Form). At the completion of the meeting, notes taken by the GSR regarding progress through the program, both since the start of graduate studies, and since the last Advisory Committee meeting held are recorded. An assessment of progress as “Satisfactory” or “Unsatisfactory” will be noted on the report. If the progress assessment is unsatisfactory on two or more occasions (consecutively or not), the Advisory Committee and the Program may consider student withdrawal from the Program. The notes taken by the GSR will also document any challenges that have been encountered, and the reports are reviewed and signed by all present. Students also have the opportunity to include their comments in the report. The goal of the meeting is that students should feel they have received clear direction and advice regarding their progress and the next stage of their research project.

The Advisory Committee also has an important role in recommending if a student should transfer from the M.Sc. to the Ph.D. program, identifying topics and examiners for the Ph.D. comprehensive examination, and selecting thesis examiners. The Committee provides an appraisal to the student regarding whether, in their judgment, the research is ready to be written in thesis format and submitted for defense. The Advisory Committee normally reads the thesis after the student, with the supervisor, has prepared it for submission, and provides the student with additional feedback regarding its suitability for examination. At the final Advisory Committee meeting prior to thesis submission, the Committee may conduct a “mock” defense to assist the student with preparation for the thesis examination. Thus, Advisory Committee meetings serve several purposes, and are designed to assist the student and supervisor in achieving the program and research goals. The Advisory Committee is an essential component of our graduate training programs, with the aim of ensuring that consistent, satisfactory progress is achieved.

Requirements of the Graduate Program in Physiology and Pharmacology

The following are the basic requirements laid out by the Department for Physiology and Pharmacology Graduate Program. Additional information and all forms can be found on the Department website at www.schulich.uwo.ca/physpharm

General requirements:

Each graduate student is required to:

1. form an Advisory Committee during the first 6 weeks of registration in consultation with their supervisor, and subject to approval by the Department’s Graduate Studies Committee.
2. meet with their Advisory Committee at intervals no longer than every 6 months, or more often if considered necessary and/or recommended by the Advisory Committee. Records of discussions and recommendations from each meeting are to be provided to the

Department of Physiology and Pharmacology Graduate Studies Administrator on the appropriate form bearing the signatures of the members of the Committee and the student.

3. achieve an average of at least 80% on course work to be eligible for financial support from the University, in the form of a Teaching Assistantship (TA).
4. have written approval from their advisory committee to transfer from M.Sc. to Ph.D. status, to present a doctoral seminar towards fulfillment of this requirement, and to begin writing the thesis. These written approvals are recorded by the GSR in the Advisory Committee Report and relevant additional forms, together with the list of proposed thesis/comprehensive examiners. These documents are added to the student's file.
5. maintain a level of productivity that will enable successful completion of the degree requirements within the time frame established by SGPS.
6. conduct research in an ethical manner and always with the highest standards of academic integrity, observe all safety regulations, ethical animal experimentation (if applicable), and policies established by Western University.
7. fulfill any additional requirements established by the School of Graduate and Post-doctoral Studies and by the Schulich School of Medicine and Dentistry.
8. attend Department Seminars during each academic year for the duration of their residency period.

Detailed academic requirements and milestones :

M.Sc. students:

- 1) Must enroll and successfully complete the Communications and Critical Thinking Graduate Course (PhysPhrm 9551) – 1.0 full credit. **The CCT course must be completed within 16 months after entry into the program.**
- 2) Must enroll and successfully complete the non-course online requirement on “Basic Knowledge in Physiology and Pharmacology”. At least half of the modules for each Physiology and Pharmacology must be completed within the first term of beginning the graduate program. The entire set of modules must be completed within the first two terms of the graduate program. Adherence to this time line is required to demonstrate appropriate progression towards the M.Sc. degree.
- 3) Must hold meetings with Advisory Committee at intervals no longer than 6 months, to demonstrate appropriate, satisfactory progression towards the M.Sc. degree. Meetings can be called sooner if recommended by the Advisory Committee.
- 4) Must complete and formally defend novel research studies conducted during the time of their enrolment in the graduate program equivalent to the content of a single strong research manuscript, as well as successfully write and defend their thesis. **The thesis must contain the results of the student's graduate research program.** The use in the thesis of

published material generated by the graduate student is permissible, provided that this published material describes work done during the student's registration in their graduate program.

- 5) May enroll and complete additional course work based upon the student's desire and recommendations of their Advisory Committee and supervisor. This additional course work is not required to complete their M.Sc. program, and does not replace CCT. Grades in optional courses may assist students to receive scholarship support.

M.Sc. transfer to PhD students:

To transfer from the M.Sc. program to the Ph.D. program the student must have demonstrated significant progress on their research project that usually represents the accumulation of sufficient data to represent a publication quality study. The Advisory Committee must be of the opinion that the student has the expected aptitude to complete a strong Ph.D. thesis and that the project has sufficient scope to encompass a Ph.D. project. The transfer between programs must occur before the student completes the 5th term of graduate studies. Normally, students that complete this transfer may not subsequently transfer back to the M.Sc. program. Criteria used to determine a student's eligibility for transfer include potential to develop as an independent investigator, based on intellectual contributions to research carried out in the M.Sc. program, and a reasonable likelihood of continuing funding in support of the student and associated research costs.

- 1) Must complete the CCT course. If the student has already completed the CCT course, s/he will receive credit for that course.
- 2) Must complete the non-course online "Basic knowledge in Physiology and Pharmacology" requirement.
- 6) Must hold meetings with Advisory Committee at intervals no longer than 6 months, to demonstrate appropriate, satisfactory progression towards Ph.D. degree, or sooner if recommended by the Advisory Committee.
- 3) Must complete an additional 0.5 course credit (see below for acceptable course offerings).
- 4) Must complete the 1.0 credit grant-writing course (PhysPhrm 9620; currently held in the fall each year) **within 16 months after starting the Ph.D. program.**
- 5) Must successfully pass an Oral Comprehensive examination, which is a requirement, not a course. The Comprehensive examination must take place **within 18 months after starting the Ph.D. program, and within 4 months of completing the grant course.**
- 6) Must present to the Department a seminar on their research findings approximately 1 year before the completion of their studies. This is a program requirement, not a course.
- 7) Must complete and formally defend novel research studies conducted during the time of their enrollment in the graduate program, which are determined by their advisory committee and Ph.D. thesis examination committee to have significantly advanced their field of study. The thesis must contain the results of the student's graduate research program, and represent integrated material, rather than a collection of unrelated studies.

The use in the thesis of published material generated by the graduate student is permissible, provided that this published material describes work done during the student's registration in their graduate program.

Ph.D. students with prior M.Sc. degrees:

- 1) Must complete the CCT course. If the student has already completed a course deemed to be equivalent to the CCT course based on a review and recommendation from the Graduate Studies Committee, they will receive credit for that course. Nevertheless, the student is required to attend the introductory first 4 lectures of the CCT course that covers program requirements, research ethics, professionalism and effective communication instruction
- 2) Must complete an additional 0.5 course credit (see below for acceptable course offerings).
- 3) Must complete the 1.0 credit grant-writing course (PhysPhrm 9620; currently held in the fall term each year) **within 20 months after starting the Ph.D. program.**
- 8) Must successfully pass an Oral Comprehensive examination, which is no longer a course, but is a program requirement. The Comprehensive exam must take place **within 22 months after starting the Ph.D. program, and within 4 months of completing the grant-writing course PhysPhrm 9620.**
- 4) Must present a departmental seminar of their research findings approximately 1 year before the completion of their studies. This is a program requirement, not a course.
- 5) Must complete and formally defend novel research studies conducted during the time of their enrolment in the graduate program that are determined by their advisory committee and Ph.D. thesis examination committee to have significantly advanced their field of study. The thesis must contain the results of the student's graduate research program, and represent integrated material, rather than a collection of unrelated studies. The use in the thesis of published material generated by the graduate student is permissible, provided that this published material describes work done during the student's registration in their graduate program.

Direct Entry PhD students:

- 1) Must enroll and successfully complete the Communications and Critical Thinking Graduate Course (PhysPhrm 9551) – 1.0 full credit. **The CCT course must be completed within 16 months after entry into the program.**
- 2) Must enroll and successfully complete the non-course online requirement on "Basic Knowledge in Physiology and Pharmacology". At least half of the modules for each Physiology and Pharmacology must be completed within the first term of beginning the graduate program. The entire set of modules must be completed within the first

- two terms of the graduate program. Adherence to this time line is required to demonstrate appropriate progression towards the Ph.D. degree.
- 3) Must hold meetings with Advisory Committee at intervals no longer than 6 months, to demonstrate appropriate progression towards Ph.D. degree, or earlier if recommended by the Advisory Committee.
 - 4) Must complete an additional 0.5 course credit (see below for acceptable course offerings).
 - 5) Must complete the 1.0 credit grant writing course (PhysPhar 9620; currently held in the fall each year), within 20 months of starting PhD program.
 - 6) Must successfully pass an Oral Comprehensive Examination, which is no longer a course but a program requirement, within 22 months of starting Ph.D. program, **and within 4 months of completing the grant course (PhysPhrm 9620).**
 - 7) Must present a departmental seminar of their research findings approximately 1 year before the completion of their studies. This is also now a program requirement and not a course.
 - 8) Must complete and formally defend novel research studies conducted during the time of their enrolment in the graduate program that are determined by their advisory committee and Ph.D. thesis examination committee to have significantly advanced their field of study. The thesis must contain the results of the student's graduate research program, and represent integrated material, rather than a collection of unrelated studies. The use in the thesis of published material generated by the graduate student is permissible, provided that this published material describes work done during the student's registration in their graduate program.

The following Table illustrates the time frame for completion of PhysPhrm 9620 and the Comprehensive exam, depending on the start date of the Ph.D. student in the program:

Start date	Enrollment in PhysPhrm 9620	Comprehensive Examination
Jan 1	Sep 1 (8 months from start)	No later than March 1 (16 months from start)
May 1	Sep 1 (4 months from start)	No later than March 1 (12 months from start)
Sep 1	Sep 1 (0 or 12 months from start)	No later than March 1 (8 or 20 months from start)

Course Offerings and *0.5 Credit Eligible Courses:

Please refer to the Department Website for a listing and description of all courses for the M.Sc. and Ph.D. programs in Physiology and Pharmacology. The Graduate Studies Administrator registers students in courses and specific deadlines for registration apply. Students must be registered in graduate courses (course number 9500 or higher) before the end of the 1st month of the appropriate academic term (i.e. Sept 30, Jan 31 or May 31).

Graduate students wishing to take “extra” courses (i.e. undergraduate courses) will be charged at a rate per course that is established by Western, in addition to their normal graduate student tuition. This amount is not covered by the W funds, and payment of this additional tuition fee is the responsibility of the student. Students must register during the normal undergraduate add/drop period (roughly Sept. 15 and Jan. 18 – see Graduate Studies Administrator for exact dates). The student will also require a form, available from the Graduate Studies Administrator, to register for these courses. Students wishing to audit a graduate course must declare their intent at the initial registration for the course, i.e. within 1 month of the official beginning of the academic term when the course is offered. Please see the Graduate Studies Administrator to obtain the required form. The courses offered by the Graduate Program in Physiology and Pharmacology, in addition to the Communication and Critical Thinking course (PhysPhrm 9551), are listed below. These courses provide credits towards the Ph.D. degree requirements. PhysPhrm 9620 is offered every September. The 0.5-credit courses are offered every two years, provided enrolment satisfies the minimal class size requirement for each course.

- 1) *Pharmacokinetics and Drug Disposition -0.5 Credit – **PhysPhrm 9557**
- 2) *Translational Research: From Bench to Bedside– 0.5 Credit – **PhysPhrm 9553**
- 3) Ph.D. grant writing course- 1.0 Credit – **PhysPhrm 9620**

Students may also select from the relevant course offerings of other Schulich Graduate Programs as available and as warranted based upon their research area. To be acceptable for the required 0.5 course credit in the Ph.D. program, the selection of these courses must be upon the recommendation by the student’s supervisor and Advisory Committee, and be approved by the Graduate Studies Committee.

Students may take additional courses (such as other departmental offerings and 4th year undergraduate courses) based upon their needs and recommendations by their supervisor and Advisory Committee. Such courses will not be considered towards the course requirements for the Physiology and Pharmacology graduate program. A term average of at least 70%, with no grade below 60% in optional courses is required to maintain registration in the program.

Notes:

1. The requirements for Physiology and Pharmacology students who are also members of a collaborative program may differ slightly. Please consult the individual collaborative program directors for specific information.
2. **Students must be registered full-time and meet all Physiology and Pharmacology Graduate Program conditions for progression towards their degree in order to be**

eligible for SGPS Financial Support.

Additional Information for International Students

International students must show original study permits to SGPS and the Department Graduate Studies Administrator upon arrival at Western. Students must also apply for a Social Insurance Number (SIN) through the London Human Resources Centre of Canada. This application requires the Study Permit/Student Authorization and a “Contract of Employment for International Students at the University of Western Ontario” provided by the Department Graduate Studies Administrator. The Graduate Studies Administrator should be notified as soon as the SIN is received.

Requirements of the School of Graduate and Postdoctoral Studies (SGPS)

The following information is excerpted from the SGPS website, which should be consulted by students and supervisor for any available updates:

http://grad.uwo.ca/current_students/regulations/index.html

Each student is required to:

1. maintain a cumulative average of at least 70% calculated each term over all courses taken for credit, with no grade less than 60%.
2. make satisfactory progress towards the degree, according to milestones set by the program.
3. actively pursue their research and course work at Western, except under the following conditions: A student may be absent from Western while visiting libraries, attending a graduate course at another institute, doing field work and the like. If such periods exceed four weeks in any one academic term, formal approval is required from both the Graduate Studies Chair of the degree program and the Vice Provost of SGPS.
4. pay or make arrangements to pay all fees by the established deadline each term (see fee bill for deadline) in order to maintain registration in the program. Failure to pay fees will result in deregistration. See “Withdrawal and Readmission after Withdrawal” process.
5. maintain continuous registration in SGPS, either full-time or part-time, in each successive term from initial registration until the end of the term in which all requirements for the degree are completed.
6. complete all degree requirements within a period not exceeding, in the case of the M.Sc. degree, 3 calendar years from initial registration and, in the case of a Ph.D. degree, 6 calendar years from initial registration. For students who transfer from a M.Sc. to a Ph.D. program without completing the M.Sc. program, a maximum of 7 calendar years from initial registration in the M.Sc. program will be given to complete the Ph.D. degree. For students

admitted part-time to an approved part-time program, maximum registration is 4 years. The student will be withdrawn at the end of his or her maximum registration time limit unless the Vice Provost of SGPS has approved an extension.

7. meet the following criteria to be registered as a full-time student according to guidelines of the Ontario Ministry of Training, Colleges and Universities:
 - be pursuing graduate studies as a full-time occupation.
 - be geographically available and visit the campus regularly. It is understood that a graduate student may be absent from the University as outlined in point #2 above.
 - must not be employed by the University for **more than an average of ten hours** per week in any academic term.
 - be considered a full-time graduate student by the graduate program.
 - must have paid, or made arrangements to pay, full-time tuition fees.
 - identify himself or herself as a full-time graduate student in a degree program offered by the Department.

Leave of Absence

The Vice Provost of SGPS may grant a leave of absence for an internship, or on medical, pregnancy/parental or compassionate grounds, normally to a maximum of 3 terms, on the recommendation of the student's graduate program. The period of leave is not counted toward the student's funding period and maximum registration period. During the leave, no use can be made of University facilities or resources, including the student's supervisor and members of the student's Advisory Committee.

Withdrawal and Readmission after Withdrawal

Withdrawal from a graduate program can occur in two ways. A student can withdraw voluntarily following formal notification to the graduate program. Alternatively, the program or Vice Provost of SGPS can withdraw a student from the program for failure to meet admission conditions, progression requirements, specified deadlines for completion, or failure to pay fees.

A student who has withdrawn voluntarily or who has been withdrawn and wishes to complete their program must formally apply for readmission. Credit for previous work completed will be considered by the Vice Provost of SGPS upon recommendation of the graduate program. A student who has been withdrawn for non-payment of fees will be considered for readmission under the following payment conditions:

- a) Payment of all fees owing at the time of withdrawal including all penalty fees incurred as a result of the default
- b) Prepayment of full fees for the term in which readmission is sought
- c) These payments must be by money order, cash, direct debit, or certified cheque. Any student who has withdrawn or has been withdrawn may be required to pay fees for the terms in which registration has lapsed if readmitted.

SGPS Guidelines and Information Regarding Courses, Requirements and Milestones

At the time of admission, a student may request that the Graduate Program reduce their course requirements. The Graduate Program may do so if it is satisfied that the student has completed equivalent work, and provided it has not counted towards a previous degree.

SGPS requires that all courses taken by the student be approved by the Graduate Studies Chair of the student's program and the Graduate Studies Chair of the Department or unit offering the course (if the course is not from the student's program) and recorded within 1 month after the beginning of each term. Credit cannot be given for courses in which a student is not properly enrolled or for courses completed during terms in which the student has not registered.

The Graduate Studies Chair must approve requests from students to withdraw from courses. If a course is dropped within the first 4 weeks of the term in which the course begins, no record of the course will appear on the student's transcript. Between weeks 4 to 8 of the term in which the course begins, a dropped course will appear as a WDN (withdrawn) on the transcript. After the 8th week of the term in which the course begins, dropped courses will be recorded as F (failure).

Students may audit graduate courses with approval from the Graduate Studies Committee, Course Manager, Graduate Advisory Committee and their supervisor. The student must declare an intention to audit a graduate course at the initial registration for the course, i.e., within 1 month of the official beginning of the term. The Graduate Studies Administrator can provide the "Graduate Course Audit" form upon request.

When a student does not complete the work required for a one-term half course or a two-term full course in time for the grade submission deadline, a grade of INC (incomplete) will appear on their transcript. INC will be changed to the grade obtained if the course work is completed prior to the grade submission deadline in the term after the one in which the INC was awarded. If a grade is not submitted by this deadline, the INC becomes an F (failure). A numerical grade submitted for an INC grade, or an F grade resulting from an INC, is final. SGPS will not consider a subsequent revision of either of these grades, except on documented medical or compassionate grounds. The INC grade does not apply to full courses that are longer than two terms (in these courses an interim grade of IPR (In Progress) stands until the student completes the course).

Students registered at Western may take courses at other Ontario universities under the Ontario Visiting Graduate Student program, without having to pay additional tuition fees. Courses taken under this agreement must be required for the student's degree and must be taken for credit, and may not comprise more than 20% of the course requirements of any particular graduate degree.

Thesis Information

Guidelines

Up-to-date information on the preparation and submission of the thesis is available on the SGPS website www.grad.uwo.ca/current_students/thesis/index.html. The Department does not have specific requirements for literature references included in the bibliography, but it is suggested that the student use the style of a peer-reviewed scientific journal appropriate to the discipline. Other requirements for thesis formatting are defined by SGPS. Documents required for binding of the completed thesis following examination are available from the Graduate Studies Administrator. Costs associated with thesis production are not the responsibility of the supervisor, although the latter may contribute upon discussion with the student.

Timing

When the thesis is considered to meet the scholarly standards recognized for the discipline and degree and is ready for examination, the supervisor, in consultation with the Advisory Committee, will assemble a list of proposed examiners. The GSR will submit these names to the Graduate Studies Committee, through the Graduate Studies Chair, for approval. Following approval, the supervisor contacts the potential examiners to discuss availability and identifies a proposed date for the thesis examination, obtains provisional consent from the members of the Thesis Examination Board and submits a completed “Proposed Master’s Thesis Examination Board” form or “Proposed Doctoral Thesis Examination Board” form to the Graduate Studies Administrator. **For an M.Sc.** the “Proposed Master’s Thesis Examination Board” form should be submitted to the Graduate Studies Administrator **at least 4 weeks** before the proposed examination date. The student is responsible for the electronic submission of their thesis to SGPS **at least 3 weeks** before the examination. **For Ph.D. students**, the “Proposed Doctoral Thesis Examination Board” should be submitted to the Graduate Studies Administrator **at least 6 weeks** prior to the proposed date of the examination. The student is responsible for the electronic submission of their thesis to SGPS **at least 5 weeks** before the examination. Examination Board forms are available from the SGPS website www.grad.uwo.ca/current_students/thesis/index.html

To avoid incurring additional tuition costs, all thesis requirements (including submission to SGPS of the revised and accepted thesis following a successful examination) must be completed by the end of each academic term (i.e. Apr. 30, Aug. 31 or mid-Dec. due to the Christmas closing). SGPS allows one week for completion of revisions to the thesis following examination, indicating that the last date for an exam is approximately Apr. 23, Aug. 24 or Dec. 15 (exact dates are available from SGPS website or Graduate Studies Administrator). If academic requirements for the degree are not completed by the end of a given academic term, tuition can be prorated by the Fees Office for the proportion of the final term that a student is registered www.grad.uwo.ca/current_students/student_finances/fees_tuition.html

Program Details: Roles and Responsibilities

The Program will:

1. implement and follow the policies set out by SGPS.
2. provide sufficient information in the Letter of Offer of Admission to new students, including details about sources and amount of financial support (e.g., TA, scholarship, supervisor funding) and any initial program expectations. Information should also be provided about supervision arrangements, and location of laboratory and work space.
3. provide orientation / information sessions for new and continuing graduate students. This includes an overview of program policies and requirements, expected performance and timelines for completion of degree requirements, intellectual property policies, publication and authorship issues, funding, scholarship and TA information (for international students - visa requirements and employment regulations), information on policies regarding proper conduct of research, sexual or any other form of harassment and race relations, information about safety and work place regulations, procedures for complaints and appeals, and information on help lines, advisory offices, and counselling services.
4. ensure that each new graduate student has an identified supervisor, and an Advisory Committee is in place within 6 weeks following initial registration.
5. ensure that arrangements are made for an alternate supervisor if the regular supervisor departs or is absent for an extended period.
6. provide written guidelines of program policies and notification of changes.
7. assess and review each student's academic and research progress, at least on a semi-annual basis, or more frequently if needed. This would include performance on course work and research / thesis progress. The program should provide feedback to the student that may include outlining specific goals and timelines for completion of various components of the degree requirements. Feedback may also take the form of a written contract of expectations. Areas of concern and lack of progress must be clearly identified for the student.
8. identify paths and resources available to students for assistance, and if they wish to raise concerns about their program, supervisor, etc.
9. encourage open communication and feedback between students and supervisors on all issues, including supervisory practices.
10. strive to maintain an atmosphere conducive to scholarly work by graduate students, and help enhance their creativity and productivity.
11. provide mechanisms for monitoring and resolving problems that may arise between graduate students, supervisors and/or members of the Advisory Committee, and do so in

a timely manner. Programs should ensure that these mechanisms are congruent with the established appeals policies and procedures laid out by SGPS and Western.

12. ensure a safe working environment for students, and inform them of all relevant safety and work regulations.
13. ensure that a supervisor has only as many students as he/she can properly supervise.
14. ensure that students are aware of evaluation criteria for all work before it commences.

The Supervisor will

1. make and maintain a strong commitment to devote the time and energy needed to successfully engage in graduate student supervision. As part of this commitment, the supervisor should display the highest ethical standards of behaviour at all times.
2. have sufficient familiarity with the field of research to provide guidance and supervision, or indicate a willingness to gain that familiarity before agreeing to act as supervisor.
3. discuss with the student at the beginning of their program: (a) degree requirements and deadlines, (b) sources of research funding, (c) policies on conduct of research, (d) safety and/or workplace regulations, (e) policies on authorship of publications, (f) ownership of intellectual property, patents and licenses, and (g) race relations, sexual harassment, appeals and any other relevant work place policies and regulations. This may involve a written agreement between the supervisor and student covering these issues.
4. communicate clearly with the student, in writing, details of the financial support provided by the supervisor, including the amount and length of time of financial support and any specific conditions pertaining to this financial support.
5. discuss and formulate with the student at the beginning of their program a plan of study for completion of degree requirements and thesis work, with clear milestones denoting progress. This would include, for example, assisting the student in selecting and planning a suitable and manageable research project, as well as setting a viable time schedule and adhering to it for thesis progress and completion.
6. be available for regular consultation with the student. The supervisor and student should discuss and agree on an appropriate schedule for supervision meetings, and the supervisor should provide constructive and timely feedback to the student. More generally, the supervisor should maintain open communication and feedback with the student on all issues, including supervisory practices.
7. provide regular evaluations and assessments of the student's progress and academic performance. This would include a review with the student and their Advisory Committee of progress on thesis research and any other relevant degree requirements.
8. make reasonable arrangements to ensure that adequate and appropriate research resources are available for the student's thesis project.

9. help ensure that the research environment is safe, healthy, free from harassment, discrimination and conflict. To this end, the supervisor should be aware of all pertinent University regulations and policies covering these issues.
10. provide guidance, instruction and encouragement regarding the research activities of the student. The supervisor should help ensure that the student has access to intellectual resources and research opportunities, and should also encourage the dissemination of research results through publications and conferences.
11. monitor any major discrepancies in advice given to the student by the Advisory Committee and/or supervisor, and attempt to achieve resolution and consensus on the issues.
12. be familiar with graduate program, SGPS and Western policies and procedures on graduate students and supervision, and information on graduate student financial support.
13. make satisfactory alternative supervisor arrangements if away for a prolonged period.
14. inform the program (Graduate Studies Chair or Department Chair), in a timely manner, of serious difficulties that may arise in supervision, including major professional academic disagreements, interpersonal conflicts, or potential conflict of interest situations.

The Advisory Committee and its members shall:

1. in conjunction with the supervisor, help the student develop a program of study, and report on the progress of the student's work by completion of the GSR Report and Advisory Committee Report. Members of the Advisory Committee thus serve to broaden and deepen the range of expertise and experience available to the student and for assessment of the student. As such, membership on this Committee should be determined by consultation between the supervisor, student, and Graduate Studies Committee and Graduate Studies Chair.
2. include a member of the Department's Graduate Studies Committee who serves the role of Graduate Studies Representative (GSR). This individual acts as chair during the Advisory Committee meetings, and is responsible for recording discussions and recommendations resulting from the Committee meeting on the required forms. The GSR also serves as Chair and coordinator of the Comprehensive Examination in the case of PhD students.
3. assist the supervisor with the monitoring process. This includes meetings between the student, supervisor and Advisory Committee at 6-month intervals, or less if recommended by the Advisory Committee, to review progress on the degree requirements and research.
4. provide additional guidance and advice on the student's thesis research project, thus complementing the expertise of the supervisor. The Advisory Committee members should be available to provide other sources of information to the student, and also provide constructive criticism and discussion of the student's ideas as they develop.
5. be reasonably accessible to the student when called upon for discussion of the student's academic progress, consultation on issues related to the thesis research project, and for

general guidance. Advisory Committee members should be reasonably available to meet at the request of the student or supervisor.

The Student shall

1. make and maintain a strong commitment to devote the required time and energy needed to engage successfully in graduate work and research, write a thesis, and contribute fully to the scholarly and intellectual life of the University. The student should show dedicated efforts to gain the background knowledge and skills needed to pursue graduate work successfully, and adhere to the highest standards of ethical behaviour to assure academic integrity and professionalism.
2. discuss with the supervisor at the beginning of the program: (a) degree requirements and deadlines, (b) sources of research funding, (c) policies on conduct of research, (d) safety and/or workplace regulations, (e) policies on authorship of publications, (f) ownership of intellectual property, patents and licenses, and (g) race relations, sexual harassment, appeals and any other relevant work place policies and regulations. This may involve a written agreement between the student and supervisor covering these issues. Thus, the student should become familiar with relevant University policies in these domains.
3. discuss and formulate with their supervisor at the beginning of the program, a plan of study for completion of the degree requirements and thesis work, with clear milestones denoting progress. This would include, setting a viable time schedule and adhering to it for all graduate work, including thesis progress and completion. Any variations to this schedule, including prolonged absences by the student, should be discussed. More generally, the student should maintain open communication and feedback with the supervisor on all issues, including supervisory practices.
4. discuss and agree on, with the supervisor, an appropriate schedule for supervision meetings. This discussion should also include agreement regarding appropriate time-frames for the submission of student materials to be reviewed by the supervisor, and the supervisor providing feedback to the student.
5. be reasonably available to meet with the supervisor and Advisory Committee as requested, and able to report fully and regularly on thesis progress and results. Appendix A has suggestions on format and content for written Advisory Committee Reports.
6. give serious consideration and response to comments and advice from the supervisor and committee members.
7. maintain registration throughout the program and ensure, that where required, visas and employment authorization documents are kept up to date. The student should be aware of and conform with guidelines and requirements from the graduate program, SGPS and Western on deadlines, thesis style, award applications and other academic requirements.
8. pay due attention to the need to maintain a workplace that is safe, tidy and healthy. The student should respect the work and equipment of others, and show tolerance and respect

for others sharing the same facilities. This would include cleaning up work-space when finished, and complying with all safety and work regulations.

9. be thoughtful and reasonably frugal in using resources, and assist in obtaining resources for the research of other group members, when applicable.
10. comply with all ethical policies and procedures governing human or animal research.
11. meet agreed performance standards and deadlines of funding organizations, to the extent possible, when financing has been provided under a contract or grant. This would include adherence to any contractual terms under which the thesis research is conducted.
12. meet terms and conditions of any financial contractual agreements, such as a TA position.
13. inform the program (Graduate Studies Chair or Department Chair), in a timely manner, of any serious difficulties that arise in supervision, such as major professional academic disagreements, interpersonal conflicts, or potential conflict of interest situations.

Financial Support Information

Scholarships and Awards

Each year students who are eligible may apply for various awards to cover all or part of their stipend. Relevant agencies include, but are not limited to, CIHR, NSERC, OGS and CIHR Training program scholarships. In addition, the Department may have internal deadlines, as Department rankings of these applications must be submitted to SGPS. **Students should check the SGPS website https://grad.uwo.ca/finances/external_funding/index.html .**

CGS Masters (CIHRM, NSERCM) are submitted directly by the student through the Research Portal on the SGPS website. The deadlines and application process can be found at https://grad.uwo.ca/finances/external_funding/index.html .

NSERC (Doctoral) applications are submitted directly to NSERC and internally ranked through the department. Application forms and deadlines can be found at https://grad.uwo.ca/finances/external_funding/index.html.

OGS applications are submitted through Graduate Student Web Services Portal. Applications and deadline can be found at https://grad.uwo.ca/finances/external_funding/index.html

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Society of Graduate Studies(SOGS)

Middlesex College, MC8
Telephone: (519) 661-3394, Ext. 83394
Web site: <http://sogs.ca>

Office of the Registrar

Room 1120, Western Student Services Bldg
Web site: www.registrar.uwo.ca

Western Technology Services

Support Services Bldg, Main floor
Web Site: www.uwo.ca/its/helpdesk

Health and Wellness

Web Site: www.uwo.ca/health

International & Exchange
Student Centre

Web Site: <https://iesc.uwo.ca>

Office of the Ombudsperson

Web Site: www.uwo.ca/ombuds

Student Accessibility Services

Web Site: <http://sdc.uwo.ca/ssd>

Parking Services

Support Services Building, Room 4150

Web Site: www.uwo.ca/parking