CONTENTS

This handbook outlines the requirements for the Ph.D. degree in Pharmacology with relevant information for M.S. and M.S.T.P students. This includes requirements for course work, laboratory rotations, qualifying examinations, and completion of degree, together with advice on the selection of a thesis advisor and a thesis committee. There is also general information on matters necessary for your life as a graduate student.

A. Pharmacology and the pharmacology graduate program 3
B. Pharmacology graduate program directory 3
   Pharmacology Administrative Staff 5
C. The PhD program 6
   Admission and registration 6
   Timetable 6
   Graduation requirements 6
   Courses 6
   Teaching Requirement 8
   Research rotations and choosing a mentor (thesis advisor) 9
   Preliminary examination 9
   Thesis and Dissertation Committee 10
   Individual Development Plans 10
D. The MSTP program 10
   Graduation Requirements 10
E. Masters Degree Program in Pharmacology 11
   Overview 11
   Admissions 11
   Course Requirements 11
F. Extended Educational Opportunities 12
   Pharmacology and Experimental Therapeutics Career Day 12
   Certificate Programs 12
   Global Outreach Programs 13
G. Departmental scholarly and related activities 13
   Wednesday lunchtime seminars 13
   Friday student seminars 13
   The annual pharmacology retreat 13
   Pharmacological Sciences Training Program (PSTP) 13
   Alumni weekend 13
H. Financial matters (for PhD/MSTP students) 14
   Stipends 14
   Graduate Student Research Assistantships 14
   Pharmacological Sciences Training Program (PSTP) 14
   Travel funds to attend National Meetings 15
   Rackham Awards and Other Fellowships 15
   Tuition 15
   Health Care Benefits 16
I. Leave, Absences and Vacations 16
J. Essential On-Line Resources  
- Graduate Student Handbook Policies and Procedures  
- PIBS Curriculum Guide  
- Dissertation Handbook  
- Grad-Tools  

K. Student Associations  
- Pharmacology Student Group  
- Rackham Student Government (RSG)  
- The Association of Multicultural Scientists (AMS)  

L. Useful Campus Resources  
- CENTER FOR STATISTICAL CONSULTATION AND RESEARCH (CSCAR)  
- CENTRAL STUDENT GOVERNMENT AIRBUS  
- COMPUTING ON CAMPUS  
- COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS)  
- DEPARTMENT OF PUBLIC SAFETY (DPS)  
- EMERGENCY PREPAREDNESS & ALERT  
- MULTI-ETHNIC STUDENT AFFAIRS (MESA)  
- OFFICE OF THE OMBUDS  
- OFFICE OF STUDENT CONFLICT RESOLUTION (OSCR)  
- SAFERIDE  
- SERVICES FOR STUDENTS WITH DISABILITIES (SSD)  
- SEXUAL ASSAULT PREVENTION AND AWARENESS CENTER (SAPAC)  
- SPECTRUM CENTER  
- STUDENT EMPLOYMENT  
- STUDENT LEGAL SERVICES (SLS)  
- UNIVERSITY HEALTH SERVICES (UHS)
A. PHARMACOLOGY AND THE PHARMACOLOGY GRADUATE PROGRAM

The Pharmacology Program offers the Doctor of Philosophy (Ph.D.) and Master of Science (M.S.) degrees, through the Rackham School of Graduate Studies.

Pharmacology is the scientific study of drugs, their physiological effects and how they are used in the clinic. Pharmacology encompasses pharmacokinetics, the study of the absorption, distribution and metabolism of drugs and pharmacogenomics, the study of genetics on drug action and drug pharmacokinetics.

Pharmacology students are involved in the detailed studies of drug action using a variety of genetic, molecular, biochemical, and animal studies. Students can be involved in all aspects of pharmacology from the discovery of new drugs, to studies of interactions of drugs with their target molecules (proteins and nucleic acids) to translational studies aimed at moving drugs from the original concept to the clinic. Students can focus on the pharmacology of the nervous system, on the pharmacology of the cardiovascular system, on cancer pharmacology and/or on basic studies underpinning all aspects of pharmacology including signal transduction, structural biology and drug metabolism. Students also have the opportunity to carry out interdisciplinary research across diverse research areas.

The goal of our graduate program is to train the next generation of pharmacologists for careers in academia, government, biotech firms and both small and large pharmaceutical industries. To do this we provide a rigorous but supportive learning environment and individual mentorship from our faculty that comprises the very best academic pharmacologists.

B. PHARMACOLOGY GRADUATE PROGRAM DIRECTORY

Office
Department of Pharmacology
Room: 2301 MSRB III
Phone: 734-647-3123

Department Interim Chair
Lori Isom, PhD
Room: 2301 MSRB III
Email: lisom@umich.edu
Phone: 734-764-8166

Graduate Program Director
John Traynor, PhD
Room: 1220A MSRB III
Email: jtraynor@umich.edu
Phone: 734-647-7479
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Room: 5039 BSRB
Email: skfisher@umich.edu
Phone: 734-763-4376

MSTP Contact
Leslie Satin, PhD
Room: 5128 Brehm Center
Email: lsatin@umich.edu
Phone: 734-615-4084

Departmental Administrator
Dennis Ondreyka
Room: 2301 MSRB III
Email: ondreyka@umich.edu
Phone: 734-764-8166

Student Services Administrator:
Eileen Ferguson
Room: 2301 MSRB III
Email: Effergie@umich.edu
Phone: 734-764-8166

Graduate Program Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
<th>Room</th>
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<tbody>
<tr>
<td>John Traynor (Chair)</td>
<td><a href="mailto:jtraynor@umich.edu">jtraynor@umich.edu</a></td>
<td>734-647-7479</td>
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<td>1301D MSRB III</td>
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<tr>
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<td>734-615-4084</td>
<td>5128 Brehm Center</td>
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</tbody>
</table>

Isaac Dripps (Graduate Student Representative): drippsis@umich.edu

PIBS Office
Phone: 734-647-7005
Email: pibs@umich.edu
**Pharmacology Administrative Staff**

The Department of Pharmacology staff members are here to help you with needs outside your laboratory. All staff members are located in 2301 MSRB III.

### Areas of Responsibility

<table>
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<tr>
<th>Responsibility</th>
<th>Contact</th>
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</thead>
<tbody>
<tr>
<td>Registration, stipend payments, health care issues, and general student matters</td>
<td>Eileen Ferguson</td>
</tr>
<tr>
<td>Room scheduling, Seminar set up</td>
<td>Phone: 734-764-8166</td>
</tr>
<tr>
<td></td>
<td>Email: <a href="mailto:effergie@umich.edu">effergie@umich.edu</a></td>
</tr>
<tr>
<td>Building and Laboratory access and keys and ID card replacement/renewal.</td>
<td>Denise Gakle</td>
</tr>
<tr>
<td>For keys a requisition form needs to be completed and taken to the Key Office on the main Campus. A refundable $5.00 deposit will be charged for each key.</td>
<td>Phone: 734-764-9248</td>
</tr>
<tr>
<td></td>
<td>Email: <a href="mailto:dmgakle@umich.edu">dmgakle@umich.edu</a></td>
</tr>
<tr>
<td>Visa Information; Financial matters</td>
<td>Ingrid Shriner-Ward</td>
</tr>
<tr>
<td>Ordering Laboratory equipment/supplies. Most students will need to familiarize themselves with ordering procedures to obtain laboratory supplies. Please also ask someone in your lab.</td>
<td>Phone: 734-647-3123</td>
</tr>
<tr>
<td></td>
<td>Email: <a href="mailto:ingridw@umich.edu">ingridw@umich.edu</a></td>
</tr>
<tr>
<td>Photocopying: Department photocopier and personal computers are available for student use. The cost of personal photocopying is 10 cents per page</td>
<td>Dar-Weia Lao</td>
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<tr>
<td></td>
<td>Phone: 34-764-9949</td>
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<td></td>
<td>Email: <a href="mailto:dwliao@umich.edu">dwliao@umich.edu</a></td>
</tr>
<tr>
<td>Computers, software and internet</td>
<td>Dar-Weia Lao</td>
</tr>
<tr>
<td>Grants and Travel Awards/ Summer students</td>
<td>Dennis Ondreyka</td>
</tr>
<tr>
<td>Building and Equipment issues</td>
<td></td>
</tr>
<tr>
<td>Personal and confidential matters</td>
<td>Phone: 734-764-8166</td>
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<td></td>
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![Image of staff members]
A. THE PhD PROGRAM

ADMISSION and REGISTRATION
All Students enter the Department of Pharmacology through the Program in Biomedical Sciences (PIBS) gateway admissions department: (http://medicine.umich.edu/medschool/education/phd-programs/phd-admissions).

Students must be registered full time for the fall and winter terms. There are no registration requirements for the spring, summer, or spring/summer terms. However, a student must be registered for the full term in which he or she will defend the dissertation; this may include the spring/summer term. The University of Michigan Academic Calendar (http://www.ro.umich.edu/calendar) has information on deadlines and other important dates.

Before registering for classes students should speak with the appropriate Program Director (Dr. John Traynor or Dr. Leslie Satin). For overrides and specific registration information or other questions of problems please contact Eileen Ferguson. If you change your address please update the information in Wolverine Access: (https://wolverineaccess.umich.edu/f/u24I1s13/normal/render.uP).

TIMETABLE

Pre-Candidacy
Lab Rotations (2 or 3 ) Complete by end of Year 1
Decide on Mentor and Lab By end of Year 1
Coursework finished Winter semester Year 2
First Student Seminar Winter Semester Year 2
Preliminary Examination May Year 2

Post-Candidacy
Thesis Committee Formed Beginning of Year 3
First Committee meeting Fall Semester Year 3
Thesis Defense and Graduation Year 5

GRADUATION REQUIREMENTS

COURSES

A Total of 36 Rackham course Credits is required for Graduation.
Students must maintain a B average. Students failing to maintain this grade will be placed on academic probation and given a semester to raise their grades to the required standard. For general guidelines on Rackham graduate requirements, see: http://www.rackham.umich.edu/current-students/policies/doctrinal.
Up-to-date descriptions of all of the courses listed below are available on the Pharmacology Website:
http://www.pharmacology.med.umich.edu/Pharmacology/Course_Descriptions.html.

Year 1: Fall Semester
PIBS 503 - Research Responsibility and Ethics (1 Credit)
PIBS 800 - Seminar (1 Credit)
PIBS 600 - Biomedical Sciences Independent Study (Research Rotation; 3 Credits)
Pharmacology 601 - From Molecules to Patients: Basic Quantitative Principles of Pharmacology (3 Credits)
Pharmacology 646 - Student Seminars (0.5 Credits)*
One Elective chosen from:
- Physiology 510-Systems and Integrative Physiology (4 Credits)
- Human Genetics-541 Molecular Genetics (3 Credits)
- Cell and Developmental Biology -530 Cell Biology (3 Credits)
- Biological Chemistry 550-Macromolecular Structure and Function (3 Credits)
Other possible electives are listed on the Pharmacology Web Page:
http://www.pharmacology.med.umich.edu/Pharmacology/Electives.html

Year 1: Winter Semester
PIBS 800 - Seminar (1 Credit)
PIBS 600 - Biomedical Sciences Independent Study (Research Rotation; 3 Credits)
Pharmacology 612 - Antimicrobial & Cancer Pharmacology (2 Credits)
Pharmacology 614 - Autonomic Pharmacology (2 Credits)
Pharmacology 615 - Seminar in Molecular Neuropharmacology (2 Credits)
Pharmacology 616 - Cardiovascular Pharmacology (2 Credits)
Pharmacology 617 - Endocrine Pharmacology (2 Credits)
Pharmacology 646 - Student Seminars (0.5 Credits)*
Electives (1-3 Credits) chosen from:
- Pharmacology 621-Translational Pharmacology (2 Credits)
- Pharmacology 625-Translational Pharmacology Journal Club (1 Credit),
- Pharmacology 622-Translational Research (2 Credits)
Or the electives listed above for the fall semester, Year 1

Year 1: Spring/Summer Semester
PIBS 600 - Biomedical Sciences Independent Study (Research Rotation; 3 Credits)

Year 2: Fall Semester
Pharmacology 502 - Introduction to Scientific Communication (2 Credits)
Pharmacology 646 - Student Seminars (0.5 Credits)*
Pharmacology 990 - Pre-candidacy Research (6 Credits)
Electives - chosen from above listings (3 Credits)

Year 2: Winter Semester
Pharmacology 646 - Student Seminars (0.5 Credits)*
Pharmacology 990 - Research (9 Credits)
Students on the PSTP training grant (see previous page) must also take courses specific to that program during this semester.

Preliminary (Qualifying) examinations are taken in this semester (see below for more details).

**Year 3 onwards**
Pharmacology 646 - Student Seminars (0.5 Credits)*
Pharmacology 995 - Research (9 Credits)

Students on the PSTP training grant (see previous page) must also take continuing courses specific to that program.

* **Pharmacology 646 - Student Seminars**: This seminar course provides students with the confidence and ability to present their work clearly and succinctly to an audience and is considered the most important course offered in the department. Consequently it is a required course throughout the student’s entire time in the graduate program.

First-year PIBS students who are pharmacology primaries are required to attend Pharmacology 646 and register for Pharmacology 646, section 002 for 0.5 credits. Students in year two and beyond register for Pharmacology 646, section 001.

Second-year students and above are required to give one seminar presentation per year on their own research. A second-year student may instead discuss research that is ongoing in the laboratory in which they are working or present a paper on a related topic.

Students are guided in this endeavor by the course faculty (Drs. Fisher, Traynor, Osawa and Pratt) who work with the students before the presentation, and subsequently provide a critique after the presentation. Students are provided with a list of seminars before the start of each academic year. It is the student’s responsibility to contact one or more of the course faculty to arrange to practice the seminar.

Tuesdays afternoons (2-4pm) during the fall and winter semesters have been reserved in the Pharmacology seminar room (5915 Buhl, MS II) for these practice sessions. For further information and a key to the room please see Eileen Ferguson.

Students may opt out of this presentation in the year in which they present their thesis defense. However, in order to opt out, a scheduled defense date must be in place by the time the 646 schedule is prepared for the current year.

**TEACHING REQUIREMENT**
Teaching is a valuable and integral part of graduate training in pharmacology. During the third year of study, all students are expected to assist in the teaching of pharmacology in the department and will be encouraged to take course work that will complement the chosen field of specialization.
RESEARCH ROTATIONS AND CHOOSING A MENTOR (THEESIS ADVISOR)
Three different research rotations, each of one semester duration, are necessary before deciding on a mentor. The purposes of these experiences are to allow the student to choose a research mentor/laboratory for their thesis research and to expose the student to multiple methods of research inquiry, areas of research investigation, and technologies.

The research rotations are normally conducted in the fall, winter and spring semesters of the students first year. However, PIBS offers student's the opportunity to start early and so the first rotation may be conducted in the summer semester before formal classes start. Detailed descriptions of faculty and their research are available on the pharmacology web page: http://www.pharmacology.med.umich.edu/Pharmacology/Faculty.html
If you are having difficulty choosing a mentor for whatever reason please consult Dr. Traynor as soon as possible.

At the end of the final research rotation students should be in position to choose a mentor for their thesis work. Again if there are difficulties please contact Dr. Traynor.

PRELIMINARY EXAMINATION
The preliminary examination for advancement to doctoral candidacy in Pharmacology is an oral exam based on a short research proposal chosen by the student; the topic may or may not be related to the student's own research topic. Students are asked to conceive and design their own research project. Each student initially submits a research idea to the Graduate Program Committee which then chooses an Examination Chair and a three-member examination committee. The examination committee comprises members of the Pharmacology faculty (but not the student’s thesis advisor) and may include a non-Pharmacology faculty member who is an expert in the research are chosen. The exam is given in May of the student's second year. The purpose of the oral exam is to evaluate and strengthen the student’s abilities to conceive and organize an original research project, and to discuss that project in a critical manner with other scientists. Progress to candidacy is determined by the GPC based on the examination performance and general performance in all other parts of the program. A student who fails will be allowed one more attempt to achieve candidacy. Complete guidelines for the preliminary examination are provided on the department's web page:
http://www.pharmacology.med.umich.edu/Pharmacology/PhD_Requirements.html

THESIS AND DISSERTATION COMMITTEE
To graduate each student must write and defend a dissertation based on his/her original research. This defense includes a seminar on the topic of the dissertation and a closed, oral defense in front of the dissertation committee.

Students should have a doctoral thesis committee formed within three months of completing the preliminary examination. The committee should comprise the student’s thesis advisor, one “cognate” member from another department in the University and at least two other members of the academic faculty. At least two of the members of the committee must hold appointments in the Pharmacology department. Please see Eileen Ferguson to complete a thesis committee form, have it signed by Dr. Traynor and submitted to Rackham. For detailed guidelines on forming your dissertation committee
The committee need not initially contain the cognate member, although this is required by the start of the 4th year of study. **However, a full basic committee must be in place before fall registration of the year in which they pass their preliminary examinations. Students who do not have a committee in place, with the dissertation committee form properly submitted to the Eileen Ferguson will not be able to register for fall and will not receive a stipend.** Note however, that students may, at any time, switch or add committee members.

Students are required to have a meeting of their thesis committee once each year, preferably within two months of their 646 seminar. **A student who has gone over a year without a committee meeting will not be able to register for the next term and will not receive a stipend.** For each committee meeting the student should prepare a progress report since the last meeting and a list of future experiments with a timetable for their completion. Thesis committee meetings generally last about two hours and include an oral presentation by the student, discussion of the project and an assessment of the student’s progress. Any concerns can be raised and discussed with the student and/or mentor at this time. The meeting should conclude with the development of a clear and specific forward plan based on the discussions. A report of each meeting should be sent to Dr. Traynor using the “Progress Report Form” available from Eileen Ferguson. This report should be prepared by the student in conjunction with his/her mentor.

**Remember** that the function of the committee is to guide and support you throughout your research and writing. Committee meetings are more important when things are not working than when they are. Regular committee meetings can serve to reduce the time to degree.

**INDIVIDUAL DEVELOPMENT PLANS**
Pharmacology graduate students should initiate an Individual Development Plan (IDP) at the beginning of their second year in the graduate program. The IDP is an on-line tool accessible through the PIBS website: http://sitemaker.umich.edu/pibs.tracker/home. This is intended to help students monitor progress toward completing their graduate training, including identifying skills and strengths but also areas for improvement as well as helping make decisions about possible career paths. The online IDP tool also provides a mechanism for students to communicate ideas or problems with their mentors in a neutral setting.

Students are asked to initiate their IDP by December of their second year. Updates will be requested every spring or summer.

**B. THE MSTP PROGRAM**
MSTP students enter the Pharmacology Program after their M2 year and are considered to be at the same level as PIBS students entering the second year.
Graduation requirements
MSTP student’s requirements are the same as for the PhD students as listed above except for the following:

- The MSTP students take their preliminary exam after one year in the Ph.D. program, on the same schedule as the Ph.D. students.
- The MSTP students do not have a teaching requirement.
- The MSTP students do not undertake research rotations but choose a mentor on entering the program.
- The MSTP Students do not take a full course load: Courses required are:

Pharmacology 601 - From Molecules to Patients: Basic Quantitative Principles of Pharmacology (3 Credits)
Pharmacology 646 - Student Seminars (0.5 Credits per semester)

And two of the following:
Pharmacology 612 - Antimicrobial & Cancer Pharmacology (2 Credits)
Pharmacology 614 - Autonomic Pharmacology (2 Credits)
Pharmacology 615 - Seminar in Molecular Neuropharmacology (2 Credits)
Pharmacology 616 - Cardiovascular Pharmacology (2 Credits)
Pharmacology 617 - Endocrine Pharmacology (2 Credits)
Pharmacology 621/625 - Translational Pharmacology (2 Credits)/Translational Pharmacology Journal Club (1 Credit),

C. MASTERS DEGREE PROGRAM

OVERVIEW
The MS degree program is designed to be flexible and to serve a variety of career objectives. Examples of individuals who might benefit from the MS degree Program are those who desire to enter the Pharmaceutical Industry, those already in the Pharmaceutical Industry who would like to increase their opportunities for advancement, teachers at Community Colleges wishing to extend their skills, those who are planning to enter a career in Government Agencies (such as FDA) and also, individuals who desire to obtain a higher degree prior to entry into Medical, Dental or Veterinary Schools or a PhD program. The MS degree program involves a mixture of coursework and independent research (or literature review) and may be taken on a full- or part-time basis. In approved cases, it may be possible for the research component to be conducted off-campus. Much of the coursework for the MS degree is the same as that taken by Pharmacology PhD students.

ADMISSION
Applicants to the MS program are expected to have a minimum cumulative GPA of 3.0 in major science courses (Biology, Biochemistry, Physiology, Chemistry, Physics etc.) from a University or College of recognized standing. Applicants must submit a completed online application and fee, official transcripts from previous academic records, three letters of
recommendation and a statement of purpose. International applicants, whose native language is not English, must demonstrate a proficiency in English by providing official TOEFL scores in accordance with Rackham Graduate School requirements. The application deadline is May 1st for a start date of September. The link to the application may be found here: http://www.rackham.umich.edu/prospective-students/admissions.

COURSE REQUIREMENTS
If pursued on a full-time basis, the MS degree takes TWELVE months to complete and requires a minimum of 33 course credits.

Fall Semester
PIBS 503-Research Responsibility and Ethics (1 credit)
Pharmacology 605-MS Degree Research (5 credits)
Pharmacology 601-Principles of Pharmacology (3 credits)
Pharmacology 614-Autonomic Pharmacology (2 credits)
Pharmacology 621-Translational Pharmacology (2 credits)
Pharmacology 646-Special Topics (1 credit)

Electives: One of the following:

- Biological Chemistry 550-Macromolecular structure and function (3 credits)
- Physiology 510-Principles of Systems and Integrative Physiology (4 credits)
- Cell Biology 530-Cell and Developmental Biology (3 credits)
- Pharmacology 622/625-Translational Research (2 credits)/Translational Pharmacology Journal Club (1 credit)

Winter semester
Pharmacology 605-MS Degree Research (7 credits)
Pharmacology 612-Antimicrobial/Cancer Pharmacology (2 credits)
Pharmacology 615-Molecular Neuropharmacology (2 credits)
Pharmacology 616-Cardiovascular Pharmacology (2 credits)
Pharmacology 617-Endocrine Pharmacology (2 credits)
Pharmacology 646-Special Topics (1 credit)

Spring/Summer semester
Completion of MS degree research
Submission of written thesis
Short Oral Presentation of Research Project or Literature Survey

The Research Project provides the student with an intense, in-depth research experience. Under specified circumstances, students who are engaged in scientific research outside the University and whose supervisor has an active collaboration with a faculty member within the Department of Pharmacology may be permitted to conduct the research component of the MS degree off-campus. For those MS students whose primary focus is not laboratory research, an in-depth review of the research literature may substitute.
Students may be permitted to take the course on a part-time basis, if needed, to accommodate their other personal commitments.

**D. EXTENDED EDUCATIONAL OPPORTUNITIES**

**Pharmacology and Experimental Therapeutics Career Day:** This takes place each May and provides students with information about careers especially non-traditional career paths. There are talks and panel discussions with academic faculty from large and smaller schools, biotechnologists, medical writers, patent attorneys, etc.

**Certificate Programs:** The department encourages students to take advantage of the opportunities offered by the University to extend their educational experiences. These include a variety of certificate programs to prepare students for future careers, for example: Translational Research Education Certificate: (https://www.michr.umich.edu/education/predoctoral/trec) Graduate Teacher Certificate (http://crlt.umich.edu/um.gtc/introduction_to_program) Science, Technology and Public Policy Certificate (http://stpp.fordschool.umich.edu).

**Global Outreach Programs:** There is also the chance to take part in global outreach programs, such as teaching in Ethiopia. See http://globalreach.med.umich.edu/ethiopia-platform

**E. DEPARTMENTAL SCHOLARLY ACTIVITIES**

Students are expected to attend the following events

**Wednesday Lunchtime Seminars:** Each week a distinguished speaker is invited to the department to give a seminar on his or her work. Students are given the opportunity to have lunch with the visitor and are strongly encouraged to so.

**Friday Student Seminars:** These are the 646 class seminars (see course requirements above) and are compulsory for all students. All faculty attend these seminars which provide an excellent learning experience.

**The Annual Pharmacology Retreat:** The Pharmacology Retreat brings together faculty, students, postdocs and staff for a program of scientific discussion and social interactions. The event includes a poster session, talks by trainees and faculty and a keynote address from a recent departmental graduate student who talks about his or her life since graduation as well as giving career advice to current students; the student’s mentor is also asked to speak about how the students work has influenced the direction of their lab.

The graduate student winner of the **Anthony Liu Award for the Outstanding Published Paper** is recognized at the retreat with the presentation of a plaque and a check for $1000. The retreat is generally held for one day in the fall and includes breakfast, lunch and finished off with a fun off-campus site event.
Pharmacological Sciences Training Program (PSTP): This training program holds a symposium once per year for all faculty and students in the Department of Pharmacology, Departments of Medical Chemistry and Pharmaceutics in the College of Pharmacy and several other Medical School Units. Two speakers are invited: one is a nationally or internationally renowned scientist while the other is recognized for their work and knowledge in research ethics. Pharmacology students are encouraged to present their research in the form of posters and/or short talks and there is a lunch with all students and faculty. This is an excellent opportunity to network and develop interdisciplinary collaborations. The PSTP symposium is organized entirely by students providing a unique experience to plan and execute a scientific meeting.

Alumni Weekend: Each year the Pharmacology Alumni Steering Committee visits the department to review the department and to present the Outstanding Alumnus Award. Visiting alumni from all walks of pharmacology (there are more that 270 of them!) come to the department to meet with the students. This provides an opportunity not only to network with experienced pharmacologists in a variety of different careers, but also provides a forum for the students to discuss ways to improve the program.

F. FINANCIAL MATTERS (for PhD/MSTP students)

Stipends, if available, are paid on a monthly basis. If you have a GSRA appointment you will be paid on the last working day of each month. If you are paid through financial aid (a non-GSRA appointment), the standard monthly disbursement calendar provides payment dates (you can request the most recent calendar from Eileen Ferguson). Your stipend will be sent to the address the University has on file for you or arrangements can be made to have it directly deposited into your bank account. Once you declare the Department of Pharmacology as your department, we will cover registration and mandatory fees ($97.19/term) for the fall and winter terms. If you wish to use the campus recreation facilities, you will need to buy your own user pass during the months you are not officially enrolled as a student (May-August). Some mentors will pay for the summer recreation facilities user pass, if asked.

If at any time you do not receive your stipend payment, please contact Eileen Ferguson immediately. We will do whatever we can to ensure the quickest method of payment. Emergency loans for a maximum of $100.00 can be obtained from the Financial Aid Office at the Student Activities Building.

Any questions related to stipend payments, student bills, insurance supplements, etc., should be directed to the Eileen Ferguson. If you receive a student bill indicating a balance owed, notify her as soon as possible; do not wait until the following month or semester. By that time a financial hold will have been placed on your account and you will be unable to register. A $30.00 late charge may be assessed and a negative service indicator established if payment is received after the due date or if payment is received in less than the amount due. A negative service indicator will prevent you from registering, and/or from receiving an official transcript, diploma, and financial aid.
If you have questions regarding your taxability status you should call the IRS at 800-424-1040, or visit the university finance office online at http://tax.umich.edu.

**Graduate Student Research Assistants (GSRA)**
A Graduate Student Research Assistantship is an appointment that may be provided to a student in good standing in a University of Michigan graduate degree program, who performs personal research (including thesis or dissertation preparation) or who assists others in performing research that is relevant to his or her academic goals. Pharmacology’s policy is to appoint students as GSRAs once they have: a) selected a laboratory in which to perform their dissertation research; and b) federal research funds are available. Students holding a GSRA appointment during the summer months, when students are typically not enrolled, will see Medicare and Social Security taxes withheld. At the time of writing, this amounts to approximately $125 per month for a single person. Depending on the individual’s tax situation, a student will likely receive most of this money back after filing a tax return for the year.

**Pharmacological Sciences Training Program (PSTP)**
Students are appointed to this training grant after selection by the Pharmacological Sciences Training Program (PSTP) Biology Track subcommittee and approved by the Parent Committee. Students are appointed at the end of their second year. Tuition and health care are largely covered under the PSTP and supplemented by the students mentor to bring it up to the currently approved level ($28,500). More information on the PSTP is provided at https://sites.google.com/a/umich.edu/pstp/

**Travel funds to attend National Meetings**
Attendance and presentations at national conferences such as the American Society of Pharmacology and Experimental Therapeutics (www.aspet.org) and the Society for Neuroscience (www.sfn.org) is strongly encouraged. Grants to attend such conferences are available from the department (see Eileen Ferguson) and Rackham (see below) as well as the societies themselves.

**Rackham Awards and Other Fellowships**
There are a number of opportunities for Pharmacology graduate students to compete for fellowships, both through the University of Michigan as well as external funding sources. The Rackham Graduate School has many funding opportunities for Ph.D. students. Detailed descriptions can be found on the Rackham website: (http://www.rackham.umich.edu/funding/).

In addition, federal and private foundations offer fellowships with application deadlines throughout the year. Pharmacology strongly encourages graduate students to apply for these funding sources as part of their training experience. Dr. Traynor and Eileen Ferguson maintain a list of funding opportunities.

**Tuition**
Tuition for a GSRA with a 25% or greater appointment fraction for four or more consecutive months will be fully covered and applied directly to the student's account. Tuition is also covered in full for non-GSRA appointments.
Health Care Benefits
Students with a 25% or greater appointment fraction for four or more consecutive months are eligible to participate in the University's Health Care programs and life insurance plans (coverage to be effective on initial date of appointment). Both Health Care and dental coverage Option I are paid for by the student's funding source. Students with a financial aid appointment are eligible for health care, which is processed by the department.

G. LEAVE, ABSENCES AND VACATIONS

Leave and Absences
Guidelines and policies for official Leaves of Absence can be found on the Rackham Graduate School website:
http://www.rackham.umich.edu/current_students/doctrional_students/phd_students/unders
tandingregistration/leaveofabsence/

All requests for official Leave of Absence of up to one year must be submitted to the Eileen Ferguson and will be considered by the Graduate Program Committee. Leave may be taken for medical or personal reasons. A formal letter indicating the reason and duration of the leave must be submitted to Dr. Traynor. Students on leave for more than one year will be expected to reapply for admission to the Program if they desire to return to graduate studies.

Unapproved absences are not allowed. Students that are not engaged in full-time work, including coursework, research and other relevant scholarly activities, will not be considered in good standing in the Program and will be subject to dismissal. The mentor and program director will meet with the student in poor standing to discuss the absences and sub-par performance and outline a plan for remediation during a probation period. After the probationary period, the student's work in the laboratory, productivity, participation in programmatic activities and attendance at critical research meetings will be evaluated by the Graduate Program Committee, which will make a final recommendation.

Vacations
Students can take two full weeks of vacation (10 business days) of their choice per year (in consultation with their thesis mentor). Additional vacation days include recognized Federal holidays, Season Days (i.e., the 4 working days that fall between Christmas Day and New Year’s Day), and other times when the University is officially closed. Your thesis mentor and/or the PIBS Director if you are a first year student must approve any exceptions.

H. ESSENTIAL ON-LINE RESOURCES

Graduate Student Handbook Policies and Procedures, Horace H. Rackham School of Graduate Studies http://www.rackham.umich.edu/policies/academic_policies/

Dissertation Handbook; A Guide to Preparing and Submitting your Doctoral Dissertation

Gradtools - Rackham (www.gradtools.umich.edu). This is a special set of on-line tools in the CTools environment to help Rackham doctoral students as they work toward their degrees. Included is a Dissertation Checklist. Students are encouraged to make use of this helpful resource.

I. STUDENT ASSOCIATIONS

Pharmacology students meet as a group at noon on the first Wednesday of each month (at the same time as the departmental faculty meeting) to discuss all, and any, aspects of their graduate experience. Decisions/suggestions for improvement etc. made at these meetings are communicated to Dr. Traynor as head of the Graduate Program Committee for consideration by the department.

Rackham Student Government (RSG): This serves as a conduit between the student body and the Rackham Graduate School, the University administration, the State Legislature, and even the Federal Government. RSG also hosts and funds social events. RGS is a founding member of the Student Advocates for Graduate Education (SAGE), a coalition that works to lobby State and Federal decision makers on behalf of graduate and professional students. The current President of RSG is Pharmacology Graduate Student Phillip Saccone. See Phil and/or https://rsg.umich.edu/

The Association of Multicultural Scientists (AMS): This is a graduate student-run organization supported by the PIBS program to promote diversity within the graduate programs through the recruitment and retention of historically under-represented groups. AMS has been in existence as a recognized organization at the University since 1991. Its primary role is to assist the membership in the successful completion of the Ph.D. by offering programs and support which will meet academic, social and professional needs in an atmosphere of cultural context and comfort. The current Vice-President is Pharmacology Graduate Student Ariell Joiner. See Ariell and/or http://umich.edu/~amsweb/AMS/Home.html

J. USEFUL CAMPUS RESOURCES

CENTER FOR STATISTICAL CONSULTATION AND RESEARCH (CSCAR)
The Center for Statistical Consultation and Research (CSCAR) provides free statistical consulting to graduate students with the design, planning, analysis, and presentation of research studies. CSCAR also presents workshops on statistical methods, statistical software, qualitative data analysis and geographic information systems. Visit the CSCAR web page www.umich.edu/~cscar/workshops/
CENTRAL STUDENT GOVERNMENT AIRBUS
Leaving town and need a ride to/from the airport, but don't want to break the bank in doing so? The CSG Airbus program is a fairly priced and convenient alternative to a taxi or other shuttle services. It runs during Fall break, Thanksgiving break, Winter break and Spring break https://csg.umich.edu/airbus/

COMPUTING ON CAMPUS
The website below will help orient you to all of the computing options on campus. Here you can locate information ranging from the location of computer labs to computer sales for personal use. http://www.umich.edu/computing.php
- **MPrint**: Web-based printing service, which allows campus community members to print from Internet enabled on, or off, campus computer to any net-worked campus printers. http://mprint.umich.edu/
- **Virtual Sites**: Allows you to use the software on Campus Computing Sites remotely from any Mac or Windows computer with an internet connection. http://virtualsites.umich.edu/
- **Web File Managing**: Gives you secure access to your U-M IFS space from any computer with an internet connection. http://mfile.umich.edu/
- **Webmail**: provides secure access to your mail from any computer with internet access. http://www.mail.umich.edu/
- **Registering your laptop**: The University of Michigan Department of Public Safety offers a free Laptop Registration Program to deter theft or assist in the recovery of stolen property. See https://www.police.umich.edu/register_property.php.

COUNSELING AND PSYCHOLOGICAL SERVICES (CAPS)
Counseling and Psychological Services (CAPS) is committed to creating an environment based on values of multicultural, multi-disciplinary and multi-theoretical practices that allow UM’s diverse student body to access care, receive high quality services and take positive pathways to mental health. CAPS is involved in activities and services that strengthen our campus to be supportive, engaged and, ultimately, connected around student mental health. The work of CAPs revolves around clinical service delivery, prevention and education, mental health wellness, research and data work, and training a new generation of professionals. CAPS work involves information, services, and tools to help students, staff, faculty, and family members.

DEPARTMENT OF PUBLIC SAFETY (DPS)
The DPS website contains information about police services as well as other units such as parking enforcement, Communications Center and Criminal Investigations. http://police.umich.edu/

EMERGENCY PREPAREDNESS & ALERT
The Office of Emergency Preparedness provides resources, guidance, and training to the University community in matters related to emergency preparedness, response, and recovery. http://www.umemergencypreparedness.umich.edu/index.shtml. UM Emergency Alert http://www.umemergencyalert.umich.edu/ is a mass, urgent notification system, comprised of a variety of methods by which the University can notify students, faculty and staff of an active, major campus emergency. In order to receive these urgent notification alert messages students may register two telephone or cell phone numbers and a device
to receive text messages. Additionally, the University automatically will register all student umich email addresses. You can register your contact information via Wolverine Access: https://wolverineaccess.umich.edu/, under Student Business.

MULTI-ETHNIC STUDENT AFFAIRS (MESA)
The Office of Multi-Ethnic Student Affairs and the William Monroe Trotter Multicultural Center serves as resources and support for diverse student populations in the campus community. They strive to engage and empower students in all of their identities by implementing programs that foster intercultural leadership and strengthen community development. http://mesa.umich.edu/

OFFICE OF THE OMBUDS
The Ombuds office is a place where student questions, complaints and concerns about the functioning of the University can be discussed confidentially in a safe environment. The Office offers informal dispute resolution services, provides resources and referrals, and helps students consider options available to them. The Office operates independently as a supplement to existing administrative and formal dispute resolution processes and has no formal decision-making authority. The Office is not an advocate for either side in a dispute. Instead, the Ombuds Office is an impartial advocate for fair and consistent treatment. http://www.umich.edu/~ombuds/index.html

OFFICE OF STUDENT CONFLICT RESOLUTION (OSCR)
OSCR provides a variety of programs and services designed to support a safe, just and peaceful community, and to help Michigan students learn how to manage and resolve conflict peacefully. http://oscr.umich.edu/

SAFERIDE:
If you find yourself without a safe way home at night, call SafeRide (734-647-8000) and listen to the menu options below to pick the appropriate option for your time and location. Riders may use the SafeRide services once per evening and they must present a valid U-M ID.

SERVICES FOR STUDENTS WITH DISABILITIES (SSD)
University of Michigan takes great pride in the academic and personal achievements of its many students with disabilities. The University is committed to providing equal and integrated access for students with disabilities. http://www.umich.edu/~sswd/

SEXUAL ASSAULT PREVENTION AND AWARENESS CENTER (SAPAC)
SAPAC provides educational and supportive services for the University of Michigan community related to sexual assault, dating and domestic violence, sexual harassment, and stalking. http://www.umich.edu/~sapac/

SPECTRUM CENTER
With sexual orientation, gender identity and gender expression as their framework, the Spectrum Center is committed to enriching the campus experience and developing students as individuals and as members of communities. http://spectrumcenter.umich.edu/
STUDENT EMPLOYMENT
Visit the student employment site and apply for part-time Work-Study and regular (non-Work-Study) jobs.
https://www.studentemployment.umich.edu/Cmx_Content.aspx?cpId=11

STUDENT LEGAL SERVICES (SLS)
Student Legal Services (SLS), a unit of The Division of Student Affairs, is a full service law office available to currently enrolled students at the University of Michigan. Student Legal Services is staffed by attorneys who are licensed to practice in the State of Michigan as well as the United States District Court and the Sixth Circuit Court of Appeals.
http://www.studentlegalservices.dsa.umich.edu/

UNIVERSITY HEALTH SERVICES (UHS)
UHS is a health care clinic located on the central campus of the University of Michigan. With approximately 70,000 visits per year, UHS is a highly utilized campus resource part of the Division of Student Affairs. Please note that UHS is not the UM Health System (hospitals and clinics). http://www.uhs.umich.edu/