



Sackler School of  
Graduate Biomedical Sciences

**PhD Program in  
Pharmacology & Experimental Therapeutics  
and  
Master's Program in  
Pharmacology & Drug Development**

Program Guide  
2016 - 2017

## Table of Contents

<b>Welcome and Key Program Contacts</b> .....	<b>3</b>
<b>Curriculum Overview</b> .....	<b>4</b>
Required Courses.....	4
Elective Courses .....	4
Journal Club .....	4
Graduate Seminar.....	4
Research Presentations .....	5
Requirements for a Master's Degree in PPET .....	5
<b>Laboratory Rotations</b> .....	<b>5</b>
Purpose .....	5
Rotation Matching Process .....	5
<b>PhD Qualifying Examination</b> .....	<b>7</b>
Purpose .....	7
Timing of the Qualifying Exam.....	7
Selection of the Qualifying Exam Committee .....	8
Overview of the Qualifying Exam Process.....	8
Format of the Written Qualifying Exam.....	9
Evaluation of the Qualifying Exam.....	10
<b>Research, Career Planning, and Thesis</b> .....	<b>10</b>
Selection of a Thesis Advisor .....	11
Selection of the Thesis Advisory Committee .....	11
Career Planning.....	12
Thesis Advisory Committee Meetings and Assessment of Research Progress.....	13
Thesis Format and Defense .....	13
Publication .....	14
<b>List of PPET Graduate Students</b> .....	<b>14</b>
<b>List of MS PDD Graduate Students</b> .....	<b>15</b>
<b>List of Pharmacology Program Faculty</b> .....	<b>16</b>

The requirements described in these guidelines may be amended or altered by the Graduate Program. Note that Sackler-wide policies supersede program specific policies.

## Welcome and Key Program Contacts

Welcome to the PhD Program in Pharmacology and Experimental Therapeutics (PPET) and the Master's Program in Pharmacology and Drug Development (PDD).

This Program Guide provides key information and guidelines on the requirements of the program. It supplements information contained in the Sackler School Catalog (<http://sackler.tufts.edu/Student-Life/Sackler-Catalogs>), which has the official degree requirements and course listings, and the Sackler School Handbook (<http://sackler.tufts.edu/Student-Life/Sackler-Student-Handbook>), which contains important information about topics such as the Sackler academic and registration policies, professional conduct guidelines, financial matters, and information about student benefits, services, and resources.

This Guide includes a listing of other graduate students in the program and contact information for faculty, staff, and students. You can find information about the research interests and publications of the faculty, as well as up-to-date schedules of seminars, journal clubs and research reports on our website (<http://sackler.tufts.edu/Academics/Pharmacology>). We would greatly appreciate any feedback from you to help us make this Guide more useful.

There are several people who can serve as valuable resources during your graduate training and are willing to discuss any issues or concerns about the program or direct you to the appropriate office. They are listed below, along with information on how to contact them.

Name & Position	Location	Phone	Email
Emmanuel Pothos Program Director	M&V 317	6778	<a href="mailto:emmanuel.pothos@tufts.edu">emmanuel.pothos@tufts.edu</a>
Martin Beinborn Student Advisor	Tupper 7	7740	<a href="mailto:mbeinborn@tuftsmedicalcenter.org">mbeinborn@tuftsmedicalcenter.org</a>
Emmanuel Pothos Qualifying Exam Advisor	M&V 317	6778	<a href="mailto:emmanuel.pothos@tufts.edu">emmanuel.pothos@tufts.edu</a>
David Greenblatt Admissions Director	M&V 304	6997	<a href="mailto:dj.greenblatt@tufts.edu">dj.greenblatt@tufts.edu</a>
Karen Hatch Program Coordinator	M&V 701	6940	<a href="mailto:karen.hatch@tufts.edu">karen.hatch@tufts.edu</a>
Roaya Alqurashi, Graduate Student Council Representative	Jah 601	6851	<a href="mailto:roaya.alqurashi@tufts.edu">roaya.alqurashi@tufts.edu</a>
Vaughn Youngblood Graduate Student Council Representative	M&V 3	6949	<a href="mailto:vaughn.youngblood@tufts.edu">vaughn.youngblood@tufts.edu</a>

The Program Director is elected by the graduate program faculty to administer the educational mission of the graduate program. The Program Director represents the interests of the program on the Sackler School's Executive Council where policy matters concerning the School's programs are discussed and enacted.

The Student Advisor serves as a mentor to the first year students, including providing specific advice on selecting appropriate sites for laboratory rotations, choosing elective courses, and identifying laboratories for thesis work.

The Qualifying Exam Advisor guides the student through the Qualifying Exam process providing advice on topic selection and approaches to constructing the written proposal and oral presentation.

The Admissions Director is responsible for recruiting high quality program candidates, identifying candidates for interview from the applicant pool, arranging for interviews of these candidates with program faculty, and selecting the best candidates (with input from the faculty) to be given placement offers.

The Program Coordinator assists the Program Director in the functioning of the program as needed, as well as helps students schedule rooms, complete forms, plan events, and manage program requirements.

Graduate Student Council Representatives. Two representatives are elected by the students to serve as the program's representatives to the Sackler Graduate Student Council (GSC). The GSC organizes activities, including the Annual Sackler Relays, and the GSC Officers are ad hoc members of the Sackler School Executive Council.

## **Curriculum Overview**

### *Required Courses*

Students complete a series of required didactic courses designed to provide a strong knowledge base for their research. The Sackler School Catalog for the year in which students were admitted lists these required courses (<http://sackler.tufts.edu/Student-Life/Sackler-Catalogs>). In addition, the Catalog contains course descriptions and progression plans for the first and second years.

### *Elective Courses*

Students are required to complete elective courses in addition to the required courses. Elective courses must be approved by the thesis advisor and the Program Director and should be used to explore students' interests and further their understanding of their thesis research fields. Students choose these courses from the list of electives in the Sackler School Catalog. Courses may be chosen from any Sackler program or from other schools that allow cross-registration.

### *Journal Club*

The overall goals of the Journal Club (JC) are to advance the student's skills in critically evaluating scientific literature and improve the student's presentation skills. Students may choose to present JC topics that they are familiar with, or they may wish to gain important experience by choosing topics that are new to them. Students should consult with the course director and faculty of relevant expertise when choosing a topic for presentation.

Attendance in JC is required and students who do not attend regularly will receive a warning; continued absence will result in a failing grade. All PPET and PDD students must register for JC each semester.

### *Graduate Seminar*

The goal of attending the Graduate Seminars is to improve the student's appreciation for how research progress is obtained and to raise awareness of recent advances in the

field. All students must register each semester for graduate seminar except for those PhD students who have registered for PhD Degree Only.

### *Research Presentations*

PPET and PDD students must present an annual report of their research, except those PhD students who have received permission to defend their theses. The Student Research Presentation schedule is provided to students at the beginning of each academic year and will also be posted on the Sackler calendar. Research Presentations are attended by students, faculty, and other interested members of the Program. All students are required to attend these meetings.

### *Requirements for a Master's Degree in PPET*

A student in good standing in the PPET doctoral program who is unable to complete the requirements for the PhD degree may be allowed to write and defend a Master's thesis. Permission to submit a Master's thesis must be obtained in advance from the Program faculty and will only be granted if compelling reasons for leaving the PhD program are provided and if specific guidelines are followed and specific criteria are met. Master's Degree Requirements can be found in the Sackler School Handbook (<http://sackler.tufts.edu/Student-Life/Sackler-Student-Handbook>).

A Master's candidate may only begin writing the thesis after obtaining explicit permission to do so from the thesis advisory committee. The student's thesis must describe original research carried out by the candidate under the supervision of a faculty member, and must form a coherent body of work of publishable quality, even though the scope of the work may not permit publication. The Master's thesis should be presented in the same format as a PhD thesis, as required by the Sackler School. The suitability of the Master's thesis will be determined by the thesis advisory committee after an oral defense of the thesis by the candidate and is subject to ratification by the program faculty.

## **Laboratory Rotations**

### *Purpose*

Laboratory rotations are designed to acquaint students with some of the research projects of current interest in the program, to allow students to assess the suitability of a particular lab for their thesis research, and to allow faculty members to assess the suitability of individual students for work in their labs. A minimum of four lab rotations must be completed during the first academic year by PhD students. PDD-MS students must complete two rotations during their first year.

### *Rotation Matching Process*

Students choose rotations based on their interests and the willingness of the rotation mentor to accept a student. Students are strongly encouraged to choose rotations that expose them to areas of research with which they are not already familiar.

### PhD Match Process

The Sackler School Laboratory Rotation Policy is published in the Sackler Handbook (<http://sackler.tufts.edu/Student-Life/Sackler-Student-Handbook>) and the dates for laboratory rotations are posted on the Sackler website in the Academic Calendar (<http://sackler.tufts.edu/Student-Life>).

Several weeks before rotations begin the Sackler School Dean's Office emails students a list of available faculty laboratories. This email contains a link to a survey in which students are to enter their first, second, and third choices for rotations. The Program Student Advisors meet with students to discuss their possible matches. Information regarding the research areas of program faculty members can be found at the Sackler School website (<http://sackler.tufts.edu/Faculty-and-Research/Sackler-Program-Faculty>). In addition, students should meet with potential mentors during the last three weeks of the immediately prior rotation, but no commitment can be made about whether or not the student may rotate in a lab before all rotation matches are announced. Students should share their interests and mentors discuss the possible projects available in the lab. All students will be notified of their matches simultaneously by their Student Advisors.

Each rotation is evaluated by the rotation mentor. Grades are given for each rotation. When multiple rotations are completed in one semester, the grades are averaged to obtain the grade for the Laboratory Rotations course. If only one rotation is completed in a term, the grade for that rotation is reported as the grade for the course.

#### PDD-MS Match Process

PDD-MS students must complete two semester-based rotations. Students are introduced to program faculty who are accepting students into their labs and are allowed to submit their first, second, and third preferences to the program director and student advisor. Program faculty make rotation assignments taking into consideration students' choices as much as possible.

#### PhD Rotation Reports and Oral Presentation

Two of the four rotations for PhD students must be written up and presented to a rotation committee at a meeting open to all program faculty and students. The first rotation must be written up and presented, and the remaining presentation may be chosen by the student from among rotations 2, 3, and 4. Students should spend the final week of their rotations developing rotation reports and presentations in consultation with the rotation mentors. The following week is typically reserved for students' oral rotation presentations. Exceptions to this timing for individual students may be granted by the Program Director under certain circumstances.

Before the rotation presentations, a student needs to identify a 3-person committee that agrees to review the written report and attend the rotation oral presentation. The committee should consist of the rotation mentor and 2 other program faculty. The final written report should be distributed to the committee at least one week prior to the presentation.

The written report for each rotation should be a short communication based on guidelines available online ("Information for Authors" at the journal web site) for a peer-reviewed journal appropriate to the area being investigated. The particular journal is chosen by the student in consultation with the rotation mentor.

The maximum size of the written rotation report is ten double-spaced pages excluding references. The oral presentation should be no longer than 20 minutes with 10 minutes for questions from the audience.

Given the limited duration of the rotation, a student does not need to produce positive or

publishable results or findings that have adequate statistical power (i.e., a sufficient N). Rather, the student needs to demonstrate a firm grasp of the fundamentals of the research being conducted including background, rationale, hypothesis, design, approach, interpretation of data, and suggestions for future work.

The Sackler School Laboratory Rotation Evaluation Form should be downloaded from the website (<http://sackler.tufts.edu/Student-Life/Information-for-Current-Students/Student-Forms>), printed, and brought to the presentation by the student. Students should become familiar with the grading criteria listed on the forms. Grading will occur following the oral presentation based on the quality of the presentation (by all attending program faculty), the rotation report (committee members only), and performance in the laboratory (rotation mentor only). Based on these evaluations, the rotation mentor will determine a final overall grade for the rotation. The rotation mentor will provide the student with a detailed evaluation of the rotation, the written report, and the oral presentation following the committee review.

For the rotations that the student elects not to write-up and present, the student should provide the Laboratory Rotation Evaluation Form to the rotation mentor in the week prior to the end of the rotation and, once completed, meet with the rotation mentor to review the evaluation.

It is the student's responsibility to ensure the rotation evaluation forms are completed in a timely fashion and forwarded to the Program Coordinator.

#### PDD-MS Rotation Reports

PDD-MS students should download the Sackler School Laboratory Rotation Evaluation Form from the website (<http://sackler.tufts.edu/Student-Life/Information-for-Current-Students/Student-Forms>), print it, and give it to the rotation mentor in the week prior to the end of the rotation. After the mentor completes the form, he or she will meet with the student and review the evaluation. It is the student's responsibility to ensure the rotation evaluation forms are completed in a timely fashion and forwarded to the Program Coordinator.

### **PhD Qualifying Examination**

#### *Purpose*

A Qualifying Examination is given to all doctoral candidates. The purpose of the examination is to determine whether a student: 1) has adequate general knowledge in research, 2) is able to formulate experiments and test biological hypotheses, 3) can critically analyze experimental results, 4) has the ability to communicate both orally and in writing; and 5) has creativity.

#### *Timing of the Qualifying Exam*

The Qualifying Examination must be completed by June 30 of the first year. In case of failure, two more attempts are allowed, to be completed no later than September 1 of the first year. The following outlines the schedule that the student is expected to follow in order to successfully complete the requirements.

<b>When</b>	<b>Student's responsibility</b>
~March 31 <sup>st</sup> (in the 1 <sup>st</sup> year)	Submit the proposed exam committee names to the Qualifying Advisor by this date for approval. Start writing the proposal rationale and specific aims.
~May 1 <sup>st</sup>	<ul style="list-style-type: none"> <li>• Schedule the examination date (typically around June 15) and time with the committee and reserve the seminar room (The Program Coordinator can help with room reservations).</li> <li>• Forward the rationale and specific aims of the research proposal to the committee (1 page maximum) for topic approval.</li> </ul>
~May 15 <sup>th</sup>	Provide a rough outline of the research proposal to the committee for feedback.
1 week before exam	Provide a completed written research proposal to the committee.
examination day	<ul style="list-style-type: none"> <li>• Student gives an oral presentation of their research and is then examined by the committee on the content of the written proposal and the oral presentation.</li> <li>• Each committee member needs to sign the PPET Qualifying Exam Approval Form indicating that the committee has either passed or failed the student. The signed form is sent to the Program Director.</li> </ul>
revision time	This time (typically 1 week) is set aside to allow for any revisions or re-examination as deemed necessary by the examination committee.
June 30th (final deadline)	<ul style="list-style-type: none"> <li>• Deadline for completing entire examination process.</li> <li>• When the examination is completed, the exam committee signs the Sackler School Qualifying Examination Form (<a href="http://sackler.tufts.edu/Student-Life/Information-for-Current-Students/Student-Forms">http://sackler.tufts.edu/Student-Life/Information-for-Current-Students/Student-Forms</a>) indicating the outcome of the Qualifying Exam and forwards it to the Program Director and Sackler School Registrar.</li> </ul>

### *Selection of the Qualifying Exam Committee*

The examination committee will consist of 4 Sackler School faculty members (at least 3 PPET faculty; one can be from another program) who are suggested by the student and approved by the Qualifying Exam Advisor. This committee must be chosen by March 31<sup>st</sup>. The examination committee will conduct the actual examination; however, the presentation will be open to other faculty, students, and staff.

### *Overview of the Qualifying Exam Process*

For the Qualifying Examination, students are required to write and defend orally an original research proposal. The subject of the research proposal should be an area of the student's choice that is related to future thesis work.

The examination is a 2-step process. First, the student writes a research project proposal in the format of an NIH Pre-doctoral Research Training Grant application and submits it to the examination committee for review. Second, there is an oral examination in which the student presents the research proposal to the committee and is then questioned by the committee to assess the student's suitability for a career in pharmacology research (details given below). The format of the written proposal as a training grant application allows the possibility of it being easily modified and submitted to an appropriate granting body to fund the student in their chosen research lab.

The examination will be based on the research proposal submitted by the student. The examination itself will be directed at exploring the rationale, as well as the theoretical and practical basis of the research proposal, including the experiments proposed to achieve the specific aims. However, some of the questions will emphasize basic principles and fundamental knowledge considered essential to carrying out a career in pharmacology research. The emphasis of these questions will be a broad understanding of pharmacological principles rather than technical details. The examination process should be a learning experience for the student in which any areas of weakness that may require further work are identified.

The student will give a 30-minute presentation of the research proposal, including the background, significance, rationale, approach, expected results, interpretation, and future directions. PowerPoint slides should be used; however, hard copies of these materials should be made available to the exam committee. A 15-minute period of open questions and discussion will follow, after which the audience will be excused and the committee will examine the specific knowledge of the candidate.

#### *Format of the Written Qualifying Exam*

The written qualifying examination proposal should represent the best efforts of the student to present his or her own ideas in a clearly written, error-free document. The student is recommended to seek the guidance of a designated faculty member who is permitted to only offer general recommendations to the student about the improvement of the written proposal. The designated faculty member can be the Qualifying Exam Advisor or another faculty member who agrees to serve in this role and is approved by the Qualifying Exam Advisor, but cannot be a member of the qualifying exam committee. Peer review of the written material by other students is also acceptable. The candidate may practice his or her oral presentation only with other students. Feedback from faculty other than the Qualifying Exam Advisor is not allowed.

The research proposal reflects, in part, the student's ability to frame hypotheses and identify research questions of scientific importance. Grant writing and communication skills are important components of successful research.

NRSA F31 Individual Pre-doctoral Fellowship application SF424 format and guidelines will be used, as described and updated in the relevant NIH website. To locate the most current information, google "NRSA F31 Instructions (current year)."

Follow the instructions in the SF424 Fellowship instructions for preparing the Abstract, Specific Aims, and Research Strategy (with Significance and Approach subsections). It is recommended that the Approach includes subsections explaining the rationale/hypothesis, methods, data analysis (including statistics if appropriate),

expected results, and potential limitations/alternative approaches. There should also be some indication of implications of the work and future directions. Please note the Innovation section of the Research Strategy is not applicable as per NRSA F31 guidelines and should be skipped accordingly.

Include sufficient, but concise, information to facilitate an effective evaluation without having to review any previous materials. Be specific and informative and avoid redundancy. Reviewers often consider brevity and clarity in the presentation to indicate a focused approach to a research objective and the ability to achieve the specific aims of the project.

Follow the font size, line spacing, margins and page limits as prescribed in the SF424 instructions: e.g., Abstract - 30 lines; Specific Aims - 1 page; Research Strategy - 6 pages (including all text, tables and graphs). There is no limit to the number of references.

The proposal must be distributed to the committee (and other interested faculty) at least 1 week prior to the presentation.

### *Evaluation of the Qualifying Exam*

The Qualifying Exam is graded on a Satisfactory/Unsatisfactory system. The results of the exam will be one of the following: 1) pass, 2) qualified pass, or 3) failure. In the case of a pass, the student is considered to be in good standing to progress into the 2<sup>nd</sup> year and is eligible to begin working on their thesis.

Under the terms of a qualified pass, the examination committee will outline the specific requirements that the student must meet in order to pass the examination. For example, the student may have to submit a revised research proposal or be re-examined on a specific question. The committee must specify a date by which the student must meet the conditions (typically within one week from the exam) and they must send written confirmation to the Program Director once the student has satisfactorily fulfilled the requirements set by the committee.

In the case that a student fails the exam, the examination committee, after consultation with the PPET faculty, may allow up to 2 re-examinations within a reasonable time, but no later than September 1<sup>st</sup> of the first year. The committee may, at their discretion and dependent upon the nature of the failure, require a new research proposal to be selected and approved. It is expected that the examination committee will remain the same if a re-examination is allowed, although the request for an additional member may be made to the Program Director. According to the Sackler School Academic Policy listed in the Sackler Student Handbook (<http://sackler.tufts.edu/Student-Life/Sackler-Student-Handbook>), failure of the examination (or the re-examinations if allowed) will result in dismissal from the School.

### **Research, Career Planning, and Thesis**

Please note that all PPET PhD students are expected to apply for at least one appropriate pre-doctoral grant/fellowship for which the student is eligible. A common individual training award that PPET students apply for (and have frequently received) is the NIH F31 Pre-doctoral Fellowship. This fellowship is limited to US citizens and permanent residents, and there are some limitations in the areas of research that are funded because not all NIH institutes support this award. A list of other grant and fellowship

opportunities is available from the Program Director and the Sackler School website (<http://sackler.tufts.edu/Faculty-and-Research/Predocotrinal-Training-Grants>). Assistance with this process may be sought from any faculty member. The Qualifying Examination is designed to enable the student to easily adapt the final written document for such a training grant application.

### *Selection of a Thesis Advisor*

Students are matched with thesis mentors in May of their first year after completing their laboratory rotations. The centralized matching system is designed to maximize the chances that students are matched with one of their top choices. Starting in mid-April, students should begin to discuss with potential thesis advisors the range of research projects that may be open to a student. No such discussions should occur at any earlier time. At no time should a student expect, or faculty members provide, any guidance or commitment as to the likelihood that the student would be accepted into the lab. At this stage, all students are afforded an equal opportunity to discuss potential projects with all faculty members who have indicated a willingness to accept one or more students.

During a predetermined period in May, each student will submit a list of his/her first, second and third choices of thesis labs. The student advisor will make known to relevant faculty members the names of students who have listed the faculty member as a first choice. Each faculty member will then have the option to accept the student(s) or to decline. When more than one student asks to be accepted into the same lab and only one space is available, the faculty member has the option of choosing which student to accept. If a student is not accepted into his/her first lab choice, every effort will be made to assure that that student's second choice is successful. In summary, faculty members do not recruit students into their labs and students should not make commitments to faculty members or ask for commitments from faculty members except through the process described above.

MD/PhD students usually select a thesis advisor after completing two summer rotations during medical school and upon entering the program.

A student who chooses a faculty thesis mentor in a research lab that is not part of the PPET can stay within the Program. The student would be required to meet all the requirements of the Program, the thesis advisor would have to be approved by the PPET faculty, and the student's thesis project would have to be judged appropriate for a degree in PPET.

### *Selection of the Thesis Advisory Committee*

#### PhD Student Thesis Advisory Committees

PhD students will select a Thesis Advisory Committee early in the fall semester of their second graduate year, and hold their first TAC meeting before the end of the next semester. MD/PhD students will select a TAC and hold their first meeting during fall of their first graduate year.

The student should choose a committee of at least 4 Sackler School faculty members including at least 3 PPET members. The chosen faculty members must be willing to commit to fully participating in meetings, reviews, and evaluative sessions throughout the research and writing processes. The constitution of the committee and the topic of the thesis must be approved by the PPET faculty.

If there is good cause for the student to delay choosing a committee, the student must present a written summary of his or her reasoning to the faculty for their approval at the next monthly program faculty meeting.

Changes in the committee membership (adding or removing members) require approval by the program faculty. All available thesis materials should be made available to the new committee member for review.

The thesis committee is responsible for identifying an appropriate external examiner for the final thesis defense.

### PDD-MS Thesis Advisory Committees

The Master of Science thesis, either research-based or library-based, is written under the guidance of a faculty mentor. During the first spring semester, students will select a thesis mentor, a research topic, and one other thesis committee member from the PPET faculty as their thesis reader. A library thesis by an MS-PDD student would be permitted only under extenuating circumstances and only with explicit approval of the thesis faculty mentor and the program faculty.

### *Career Planning*

All PhD research trainees must have an Individual Development Plan (IDP) to help them develop their career paths. Tufts has created two forms to assist students in identifying their career goals and the current activities they participate in to achieve them. These forms are available at <http://sackler.tufts.edu/Student-Life/Information-for-Current-Students/Student-Forms>.

- The IDP form is intended help students consider their career aspirations as well as the types of skills and attributes that may affect these aspirations and students' ability to attain their goals. It is not intended to predict or identify careers that match their skills. The document is for students' personal use only. Students are not required to share this document with anyone or provide anyone at Tufts with a copy of the completed document. Students may, however, choose to share the document with mentors who may suggest ways to improve skills that are appropriate to the career path(s) being considered. This document should be a living document and one that is updated as students advance in their training.
- The Training and Career Goals Progress Report form is designed to help students think about what they are learning and how to develop professionally. Students are asked to complete this form with a reflective assessment of their current progress and the plans for reaching both short- and long-term career goals. Note that some questions on the form may not apply depending on a student's stage of training. This annual progress report is designed to provide ongoing documentation of progress made towards career goals. Once a year, students complete this form and submit it to their thesis committees along with their research reports for discussion at a TAC meeting. It is the responsibility of thesis committees to provide advice on the resources that will help students achieve their goals at Tufts and beyond.

IDPs have proven so valuable that NIH has mandated that every trainee that it supports have one. Students can learn about IDPs at this very valuable site, <http://myidp.sciencecareers.org/>. They may also talk with their mentors, Student Advisors, the Program Directors, or Kathryn Lange about career planning, in addition to their Thesis Advisory Committees.

### *Thesis Advisory Committee Meetings and Assessment of Research Progress*

Pharmacology PhD students are responsible for holding their first Thesis Advisory Committee (TAC) meeting before the end of the spring semester of their second graduate year. Pharmacology MD/PhD students must hold their first TAC meeting in the fall semester of their first graduate year.

Subsequently, two meetings a year, one in the fall semester and one in the spring semester, will be necessary for satisfactory performance in the graduate research course. Failure to hold meetings in a timely fashion will result in an Incomplete grade for research for the semester which will become a failing grade if not completed by the end of the subsequent term.

Students should summarize their research progress and plans on the most up to date TAC Evaluation form on the Sackler website (<http://sackler.tufts.edu/Student-Life/Information-for-Current-Students/Student-Forms>). After the Committee meeting, the TAC Chair enters the Committee's assessment on the Thesis Advisory Committee Evaluation form and assigns a grade for Graduate Research. The form is signed by all members and an electronic copy is sent to the Sackler Registrar who records the grade on the student's transcript.

After receiving PPET faculty approval, the student must then present their thesis proposal to the thesis committee for its approval. For this meeting, the student should prepare a written document containing a more detailed version of the specific aims (2-3 pages) and submit it to the TAC at least a week ahead of the meeting. At the meeting the student should give a 20-minute PowerPoint presentation explaining the background, rationale, specific aims, and methods of the proposed thesis work. The committee should identify a chair from among its membership who is responsible for ensuring the functioning of the committee and communicating the committee's recommendations to the student as needed. The thesis advisor cannot be the chair.

The committee should consider at each meeting the project strengths and weaknesses, the realism of the time table, the student's familiarity with the relevant literature, the student's experimental strengths and weaknesses, and the adequacy of advice provided to the student by the PhD advisor and others. Specific comments should be entered on the form by the chair and discussed with the student immediately following the meeting.

A student should feel free to call a meeting of all committee members or any subset thereof at any time should assistance be required. The student should also feel free to consult with individual members of the committee at any time.

### *Thesis Format and Defense*

#### PhD Thesis Format and Defense Requirements

When a student receives permission to defend, he/she should make an appointment to meet with the Associate Dean. Students will receive instructions on all aspects of the process used to complete the degree and information about Commencement Ceremonies at Tufts University.

To complete their graduate studies, students must write a thesis and defend their research in an oral examination. Students distribute their theses to their Thesis Defense Committee members approximately two weeks before their scheduled defense. The chair

of the thesis committee will contact all committee members, including the outside examiner, 48-72 hours prior to the defense to determine if the thesis is generally acceptable to the committee.

The oral defense will consist of a public presentation of approximately 45-60 minutes, followed by a closed discussion period with the committee and outside examiner.

During the deliberations of the thesis examination committee, the committee should determine what revisions need to be made to the thesis document and the amount of time needed to complete those particular revisions. The Sackler School Time from Thesis Defense to Completion Policy, governing thesis revisions and continued receipt of a stipend, is in the Student Handbook (<http://sackler.tufts.edu/Student-Life/Sackler-Student-Handbook>).

#### PDD-MS Thesis Formatting and Reader Requirements

The same thesis formatting guidelines apply for the master's thesis as the PhD thesis, although it is expected that the number of studies included and the size of the thesis should be proportionate to the 1 year the student would have at her or his disposal to conduct experiments. Each Master's thesis is reviewed by the student's faculty mentor and one additional faculty reader, who will make recommendations for thesis revisions as needed.

#### *Publication*

PhD and MD/PhD students are required to publish a first author paper based on their thesis work before defending their thesis.

#### **List of PPET Graduate Students**

<b>Year in School</b>	<b>Student</b>	<b>Advisor</b>
1 <sup>st</sup> Year	Sumaiah Alrubiaan	TBD
	Ahlam Bogis	TBD
2 <sup>nd</sup> Year	Mariam Alamoudi	Amy Yee
	Smaro Panagiotidou	Mercio Perrin
3 <sup>rd</sup> Year	Roaya Alqurashi	Amy Yee
	Mona Bawazeer	Theoharis Theoharides
4 <sup>th</sup> Year	Haifa Almukadi	Athar Chishti
	Will Collins	David Kaplan
	Joseph Holloway	John Coffin
	Tamar Sarig	Mercio Perrin
5 <sup>th</sup> Year	Christina Deliyiannis	Bill Bachovchin
	Amanda Gross	Theoharis Theoharides
	Alexandra Taracanova	Theoharis Theoharides
6 <sup>th</sup> Year	Bina Julian	Alan Kopin

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Year in School	Student	Advisor
1 <sup>st</sup> Year	Rana Alabdali	TBD
	Dalal Alkhelb	TBD
	Nedaa Alomari	TBD
	Mia Angeli	TBD
	Yehya Barakatalroudaini	TBD
	Somayah Bawazeer	TBD
	Bing Dai	TBD
	Kerem Gurol	TBD
	Shreeya Hegde	TBD
	Nicholas Jackson	TBD
	Kenneth Jahan	TBD
	Rulan Jiang	TBD
	Maima Kaiser	TBD
	Aishwarya Kulkarni	TBD
	Kaiqi Li	TBD
	Huqiao Luo	TBD
	Zhijun Ma	TBD
	Heather Tanner	TBD
	Xiao Yu	TBD
	Hamsa Zahrani	TBD
2 <sup>nd</sup> Year	Novera Alam	David Greenblatt
	Sara Algeelani	David Greenblatt
	Caroline Appel	Emmanuel Pothos
	Victoria Frank	Athar Chishti
	Li Lin	Athar Chishti
	Wendi Ni	Alan Kopin
	Carolyn Okure	Athar Chishti
	Yunmi Park	David Greenblatt
	Sam Saliba	Emmanuel Pothos
	Xuzhong Yang	Alexei Degterev
Vaughn Youngblood	David Greenblatt	

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Some faculty are in the process of re-locating offices. Please email the faculty for current office locations.

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