



Sackler School of
Graduate Biomedical Sciences

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

Program Guide
2018 – 2019

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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 (<https://sackler.tufts.edu/studentLife/sacklerCatalogs>), which has the official degree requirements and course listings, and the Sackler School Handbook (<https://sackler.tufts.edu/studentLife/sacklerStudentHandbook>), 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 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 (<https://sackler.tufts.edu/academics/PDD>). 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 717	6778	Emmanuel.Pothos@tufts.edu
James Baleja Student Advisor	M&V 614	6842	Jim.Baleja@tufts.edu
David Greenblatt Admissions Director	M&V 304	6997	DJ.Greenblatt@tufts.edu
Brent Cochran Alexei Degterev Amy Yee Program Seminar Directors	Jah 708 M&V 716B Jah 614	0442 0491 6851	Brent.Cochran@tufts.edu Alexei.Degterev@tufts.edu Amy.Yee@tufts.edu
Najla Fiaturi Translational Pharmacology & Journal Club Director	M&V 514	6883	Najla.Fiaturi@tufts.edu
Karen Hatch Program Coordinator	M&V 701	6940	Karen.Hatch@tufts.edu
Smaro Panagiotidou, Graduate Student Council Representative	Jah 8	6788	Smaro.Panagiotidou@tufts.edu
Yehya Barakatalroudaini Graduate Student Council Representative	St 324	3478	Yehya.Barakat@tufts.edu

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 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 (<https://sackler.tufts.edu/studentLife/sacklerCatalogs>). 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 (<https://sackler.tufts.edu/studentLife/sacklerStudentHandbook>).

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. 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.

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.

PDD-MS Rotation Reports

PDD-MS students should download the Sackler School Laboratory Rotation Evaluation Form from the website (<https://sackler.tufts.edu/studentLife/currentStudents/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.

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 (<https://sackler.tufts.edu/facultyResearch/predoctoralTrainingGrants>). 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 the Thesis Advisory Committee

PhD Student Thesis Advisory Committees

PhD students select their 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 PDD 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 <https://sackler.tufts.edu/studentLife/currentStudents/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 the Associate Dean 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 spring 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 (<https://sackler.tufts.edu/studentLife/currentStudents/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, thesis formatting guidelines 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 thesis 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 (<https://sackler.tufts.edu/studentLife/sacklerStudentHandbook>).

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. In the second semester of year two, all PDD students must attend a meeting with the Associate Dean where they will receive instructions on all aspects of the process used to complete the degree, thesis formatting guidelines and information about Commencement Ceremonies at Tufts University.

Publication

PhD and MD/PhD students are required to submit their thesis work as first authors to a peer-reviewed journal indexed in PubMed before defending their thesis.

List of PPET Graduate Students

Year in School	Student	Advisor	Phone
3 rd Year	Alrubiaan, Sumaiah D.	Amy Yee	6-6851
	Bogis, Ahlam	Amy Yee	6-6851
4 th Year	Alamoudi, Mariam	Amy Yee	6-6851
	Panagiotidou, Smaro	Mercio Perrin	6-6788
5 th year	Alqurashi, Roaya	Amy Yee	6-6851
	Bawazeer, Mona	Theo Theoharides	6-6898
6 th year	Collins, Will	David Kaplan	6-4320
	Holloway, Joseph	John Coffin	6-6526
	Ledoux (Sarig), Tamar	Mercio Perrin	6-6788
7 th year	Deliyiannis, Chris	Bill Bachovchin	6-6882
	Gross, Amanda	Theo Theoharides	6-6898

List of MS PDD Graduate Students

Year in School	Student	Thesis Lab	Phone
1 st year	Baca, Paulina		
	Calitri, Roberto		
	Dong, Qianqian		
	Hou, Qingfa		
	Li, Lu		
	Liu Piewen		
	Lou, Yaijing		
	Nair, Sanjana Chandrasekharan		
	Parthak, Anushree Sanjay		
	Tian, Shuang		
	Zhang, Dingqiang		
	Zhang, Qingchen		
2nd year	Almehmadi, Khulood	Theoharides	6898
	Barakatalroudaini, Yehya	Reijmers	3478
	Butabayeva, Aliya	Chishti	2103
	Chen, Yuxi	Zeng	2107
	Li, Zongrui	On Leave	
	Margosian, Victoria	Bachovchin	6882
	Wang, Zixu	Yee	6851
	Wei, Zixuan	Greenblatt	6949
Zhang, Yahan	Cochran	6744	

List of Pharmacology Program Faculty

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

Name	Phone	Email
Sawkat Anwer	9-8788	sawkat.anwer@tufts.edu
William Bachovchin	6-6881	william.bachovchin@tufts.edu
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Jeffrey Blumberg	6-3334	jeffrey.blumberg@tufts.edu
Andrew Bohm	6-2994	andrew.bohm@tufts.edu
John Castellot	6-0303	john.castellot@tufts.edu
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Li Zeng	6-2107	li.zeng@tufts.edu