

MASTER'S PROGRAM IN PHARMACOLOGY & DRUG DEVELOPMENT and PHD PROGRAM IN PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS

Program Guide
2020-2021

NOTE: Due to COVID-19 restrictions, some timelines, deadlines and requirements may be modified.



Graduate School of
Biomedical Sciences

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The requirements described in these guidelines may be amended or altered by the Graduate Program. Note that GSBS-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 GSBS Catalog (<https://gsbs.tufts.edu/studentLife/schoolCatalogs>), which has the official degree requirements and course listings, and the GSBS Student Handbook (<https://gsbs.tufts.edu/studentLife/StudentHandbook>), which contains important information about topics such as the GSBS 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://GSBS.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.

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 GSBS'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.

KEY PROGRAM CONTACTS

Emmanuel Pothos, Program Director

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James Baleja, Student Advisor

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David Greenblatt, Admissions Director

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Brent Cochran, Alexei Degterev, Amy Yee, Graduate Seminar Directors

Jaharis 708	617-636-0442	Brent.Cochran@tufts.edu
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Najla Fiaturi, Translational Pharmacology & Journal Club Director

M&V 514	617-636-6883	Najla.Fiaturi@tufts.edu
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Karen Hatch, Program Coordinator

ST 514	617-636-6940	Karen.Hatch@tufts.edu
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Smaro Panagiotidou, Graduate Student Council Representative

Jaharis 8	617-636-6788	Smaro.Panagiotidou@tufts.edu
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Helia Mojahedyazdi, Graduate Student Council Representative

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Kevin Su, Journal Club Student Coordinator

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Ian Langer, Journal Club Prep Student Coordinator

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Yue Shu, Journal Club Prep Student Coordinator

Jaharis 321		Yue.Shu@tufts.edu
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Ian Langer, IT Student Coordinator

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Graduate Student Council Representatives. Two representatives are elected by the students to serve as the program's representatives to the GSBS Graduate Student Council (GSC). The GSC organizes activities, including the Annual Relays, and the GSC Officers are ad hoc members of the GSBS 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 GSBS Catalog for the year in which students were admitted lists these required courses (<https://gsbs.tufts.edu/studentLife/schoolCatalogs>). 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. Courses may be chosen from any GSBS program or from other schools that allow cross-registration.

Remediation

Remediation mechanisms are at the discretion of program Faculty and course directors and should be clearly stated in the course syllabus. Remediation is offered only to failing students and for them to only achieve the minimum passing grade.

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 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.

Senior PPET and PDD students are expected to present their research as part of the Graduate Seminar. Student presentations during the annual program retreat are also part of the Graduate Seminar. 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 GSBS Handbook (<https://gsbs.tufts.edu/studentLife/StudentHandbook>).

A Master's PPET 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 GSBS. 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 and techniques of current interest in the field of Pharmacology, to allow students to assess the suitability of different laboratories 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 semester-wide 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.

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 GSBS Laboratory Rotation Evaluation Form from the website (<https://GSBS.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 and Program Director. The Program Director posts the student grade for the rotation assigned by the rotation faculty mentor only after the rotation evaluation report is submitted to the program.

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 GSBS website (<https://GSBS.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 GSBS 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. The thesis advisory committee members decide whether the outside examiner proposed by the student is suitable. This decision should be made unanimously, and the committee needs to consider potential conflicts of interest.

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 should be research-based and is written under the guidance of a faculty mentor. At the end of the spring semester of the first year, students submit their top three choices for a thesis mentor and after their assignment to a lab select a research topic to focus on. By January 1 of their second year, they need to also select one other thesis committee member from the PDD facul-

RESEARCH, CAREER PLANNING, AND THESIS

ty 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://GSBS.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 GSBS website (<https://GSBS.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 GSBS 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.

RESEARCH, CAREER PLANNING, AND THESIS

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 thesis defense is the culmination of the thesis process and consists of both a public presentation of approximately 45-60 minutes, followed by a closed discussion period with the committee and outside examiner. The public presentation is the opportunity for the student's lab and the GSBS community at large to hear about the thesis research project and ask questions or make comments. Consequently, all public presentations will take place as follows:

- In Boston for students in Boston or Medford labs
- In Portland for students in Maine Medical Center Research Institute Labs
- In Bar Harbor for students at The Jackson Laboratories

Public presentations should also be available via WebEx or Zoom for faculty and students on different campuses. For those students who may be working at affiliated (non-Tufts/MMCRI/JAX) labs, the defense should take place at the location the student was originally placed.

It is expected that all members of the Thesis Advisory Committee (TAC) plus the approved outside examiner will be physically present at both the public presentation and closed discussion. However, if necessary and unavoidable, up to one committee member may be remote for the presentation and discussion.

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 GSBS Time from Thesis Defense to Completion Policy, governing thesis revisions and continued receipt of a stipend, is in the Student Handbook (<https://gsbs.tufts.edu/studentLife/StudentHandbook>).

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 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	508-839-8788	sawkat.anwer@tufts.edu
William Bachovchin	617-636-6881	william_bachovchin@tufts.edu
James Baleja	617-636-6872	jim_baleja@tufts.edu
Robert Blanton	617-636-7678	rblanton@tuftsmedicalcenter.org
Jeffrey Blumberg	617-636-3334	jeffrey.blumberg@tufts.edu
Andrew Bohm	617-636-2994	andrew.bohm@tufts.edu
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Mary C. Wallingford	617-636-5982	Mary.Wallingford@tufts.edu

LIST OF PROGRAM FACULTY

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LIST OF GRADUATE STUDENTS

LIST OF PPET GRADUATE STUDENTS

4th Year	Advisor	Phone
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5th Year		
Alamoudi, Mariam	Amy Yee	617-636-6851
Panagiotidou, Smaro	Mercio Perrin	617-636-6788
6th Year		
Alqurashi, Roaya	Amy Yee	617-636-6851
7th Year		
Deliyiannis, Chris	Bill Bachovchin	617-636-6882

LIST OF MS PDD GRADUATE STUDENTS

1st Year	Advisor	Phone
Alshagawi, Mohammed		
Asiabaka, Loveth		
Chang, Zhenyu		
Ding, Yiwen		
Hu, Jingwen		
Huang Xuejain		
Li, Chunhui		
Li, Lingyun		
Li, Qiy		
Li, Zhen		
Lu, Xinyi		
Omorodion-Riley, Iziegbe		
Xu, Lishan		
Zhang, Yuxin		
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Langer, Ian	Bohm	617-636-2994
Li, Siyu	Baleja/Greenblatt	617-636-6872 / 617-636-6949
Lin, Weiyu	Blanton	617-636-7678
Ma, Qianni	Chishti	617-636-2103
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Oye, Keyede	Chishti	617-636-2103
Shu, Ye	Zeng/Greenblatt	617-636-0984 / 617-636-6949
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Wang, Shiyun	Pothos/Degterev	617-636-6778 / 617-636-0495