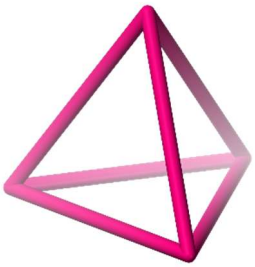
INTERDISCIPLINARY BIOMEDICAL GRADUATE PROGRAM (IBGP)

STUDENT HANDBOOK

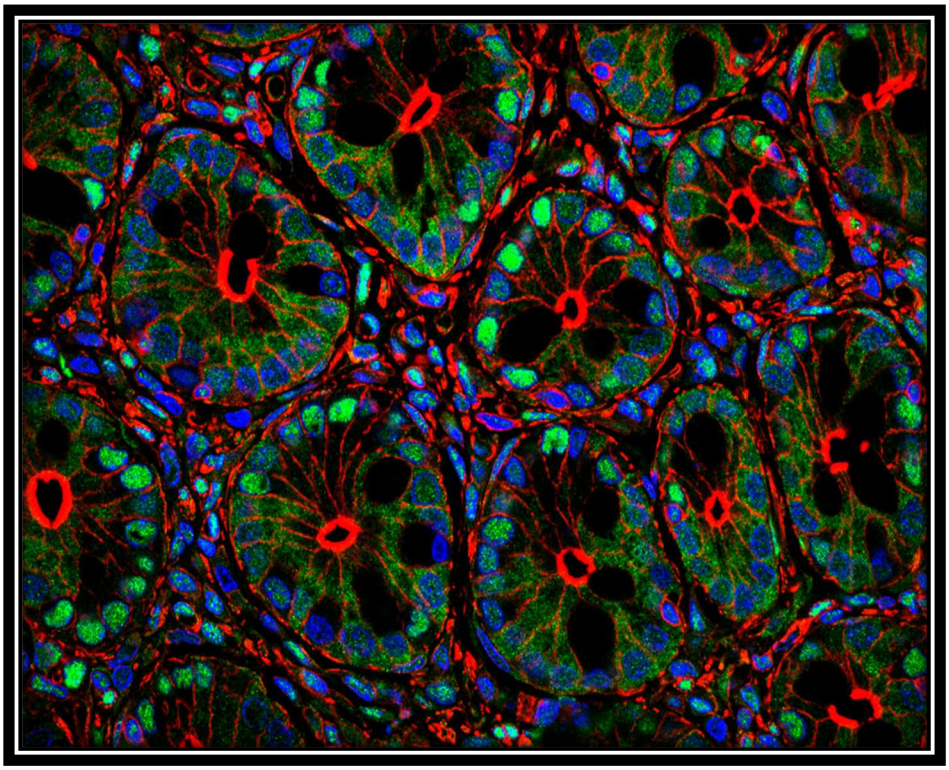
2025-2026 ACADEMIC YEAR

(August 2025)



Research training connecting key disciplines

- *Cell Biology & Molecular Physiology*
- *Cellular & Molecular Pathology*
- *Molecular Genetics & Developmental Biology*
- *Molecular Pharmacology*



FOREWARD

Welcome to the Interdisciplinary Biomedical Graduate Program of the University of Pittsburgh School of Medicine. This handbook provides useful information pertaining to the Interdisciplinary Program and progress toward your degree. The material contained within the handbook is as current as possible; however, many areas change, so please read any future memos and/or e-mails you might receive to remain abreast of such changes.

Direct all questions and/or suggestions concerning your handbook to:

Office of Graduate Studies
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M240 Alan Magee Scaife Hall
412-648-8957 (phone)
412-648-1077 (fax)
gradstudies@medschool.pitt.edu
School of Medicine Graduate Studies website: www.somgrad.pitt.edu

A copy of the handbook will be posted on the website www.gradbiomed.pitt.edu.

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For information on university equal opportunity and affirmative action programs, please contact: University of Pittsburgh, Office of Institutional Engagement and Wellbeing, Clyde Wilson Pickett, Vice Chancellor, 4200 Fifth Avenue, Pittsburgh, PA 15260 (412) 648-7860.

INTERDISCIPLINARY BIOMEDICAL GRADUATE PROGRAM

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE

GRADUATE STUDENT HANDBOOK

2025-2026 ACADEMIC YEAR

Table of Contents

School of Medicine
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Interdisciplinary Biomedical Graduate Program (IBGP)
Degree Granting Programs

Cell Biology & Molecular Physiology Graduate Training Program (CBMP):

Director:		
Gerry Hammond, PhD	S327 Biomedical Science Tower ghammond@pitt.edu	412-383-2215
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Sarah Biancardi	S362 Biomedical Science Tower Sab181@pitt.edu	412-624-3177

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Director:		
Andrew W. Duncan, PhD	327 Bridgeside Point II duncana@pitt.edu	412-624-5302
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Program Coordinator:		
Amanda Bytzura	S417 Biomedical Science Tower amb430@pitt.edu	412-383-2075

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Director:		
Judith Yanowitz, PhD	A222 Magee Womens Institute yanowitzjl@mwri.magee.edu	412-641-7843
Co-Director:		
Andrey Parkhitko, PhD	W1054 Biomedical Science Tower parkhitk@pitt.edu	412-383-4739
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Tija Jacob, PhD	W1351 Biomedical Science Tower tcj11@pitt.edu	412-648-8136
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SCHOOL OF MEDICINE

Interdisciplinary Biomedical Graduate Program

Training tomorrow's science professionals

Summary of Interdisciplinary PhD Programs & Course Catalog

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Interdisciplinary Biomedical Graduate Program

Core Requirements (22 credits completed during year one)

INTBP 2000 **Foundations of Biomedical Science** (Fall) 6 Credits
INTBP 2005 **Foundations Journal Club** (Fall) 2 Credits
MSCMP 2280 **Basic Understanding of Professionalism as related to Graduate Education** (Fall) 1 Credit
INTBP 2290 **Scientific Ethics and the Responsible Conduct of Research** (Summer) 1 Credit
INTBP 2013 **Biostatistics** (Summer) 3 Credits
INTBP 2010 **Laboratory Research Rotation** (Fall, Spring, Summer) 3 Credits each (3 Rotations Required)

After preliminary evaluation at the end of year one, students transfer into one of the four specialized PhD programs

Program-specific Requirements (6 - 11 credits during years one and two)
See Table on pp. 6-7 for course listings

Electives (typically 3 – 9 credits during years one and two)
INTBP 3240 (F) 2 Cr **Grant Writing for Graduate Studies**

See Table on pp. 6-7 for additional details

32 credits of course work required for PhD

Comprehensive Exam
See individual programs for details

Teaching Practicum
See individual programs for details

PhD Thesis Proposal
See individual programs for details

PhD Dissertation Research (Every term, 1-14 credits) **40 credits of research required for PhD**

72 total credits required for PhD

PhD Program	**CBMP** **Cell Biology & Molecular Physiology**	**CMP** **Cellular & Molecular Pathology**	**MGDB** **Molecular Genetics and Developmental Biology**	**MPHL** **Molecular Pharmacology**
Program Requirements	MSCBMP 2880 (Sp) 3 Cr. **Cell Biology of Normal and Disease States** MSCBMP 2885 (Sp) 3 Cr. **Imaging Cell Biology in Living Systems** MSCBMP 2851-56 (A) 1 Cr. **Research Seminars** MSCBMP 2875 (A) 1 Cr. **Experiments and Logic in Cell Biology** INTBP 3240 (F) 2 Cr. **Grant Writing for Graduate Studies**	MSCMP 2280 (F) 1 Cr. **Basic Understanding of Professionalism as Related to Graduate Education** MSCMP 2730 (Sp) 3 Cr. **Molecular Mechanisms of Tissue Growth & Differentiation** MSCMP 2750 (F & Sp) 1 Cr. (5 semesters required) **Pathology Research Seminar** INTBP 3240 (F) 2 Cr. **Grant Writing for Graduate Studies** MSCMP 2740 (Sp) 3 Cr. **Molecular Pathobiology** OR MSCMP 3710 (F) 3 Cr. **Cancer Biology & Therapeutics** **OR** MSCMP 3790 (F) 3 Cr. **Basics of Personalized Medicine**	MSMGDB 2525 (Sp) 2 Cr. **Developmental Mechanisms of Human Disease** MSMGDB 2535 (Sp) 2 Cr. **Model Organisms** MSMGDB 2550 (F & Sp) 1 Cr. **Research Seminar** INTBP 3240 (F) 2 Cr. **Grant Writing for Graduate Studies**	INTBP 3240 (F) 2 Cr. **Grant Writing for Graduate Studies** MSMPHL 2310 (Sp) 3 Cr. **Principles of Pharmacology** MSMPHL 2350 (F & Sp) 1 Cr. **Research Seminar** MSMPHL 2360 (Sp) 3 Cr. **Biology of Signal Transduction** MSMPHL 3360 (F) 2 Cr. **Molecular Pharmacology** MSMPHL 3310 (F) 3 Cr. **Cancer Biology & Therapeutics** OR MSPHL 3375 (Sp) 3 Cr. **Neuropharmacology** OR MSMPHL 2370 (Sp) 3 Cr. **Drug Discovery** (only offered in even years – i.e. 2020, 2022) MSMPHL 3320 (F & Sp) 1 Cr. **JOURNAL CLUB** MSMPHL 3341 (Sp) 1 Cr. **Career Development**
Electives **Students may take electives from their program and from others. They should consult with their advisor and program director in designing their plan of study.**	MSCBMP 2840 (Su) 1 Cr **Regulation of Membrane Traffic** MSCBMP 2870 (Sp) 5 Cr **Histology** MSCBMP 2895 (Su) 2 Cr. **Cellular Physiology of the Kidney**	MSCMP 2760 (Sp) 3 Cr. **Introduction to Tissue Engineering** MSCMP 2770 (Sp) 3 Cr. **Biomaterials & Biocompatibility** (only offered in odd years) MSCMP 3730 (F & Sp) 1 Cr. **Topics in Experimental Neuropathology** MSCMP 3735 (F) 3 Cr. **Extracellular Matrix in Tissue Biology and Engineering** MSCMP 3740 (Sp) 3 Cr. **Stem Cells**	MSMGDB 3530 (Sp) 3 Cr. **Genome Instability and Human Disease** (only offered in even years- i.e. 2020, 2022) MSMGDB 3540 (Alt F) 3 Cr. **Reproductive Development from Model Organisms to Humans** (only offered in odd years- i.e. 2019, 2021) MSMGDB 3560 (Alt Sp) 2 Cr **Molecular Mechanisms of Longevity & Aging** (only offered in even years- i.e. 2022, 2024)	MSMPHL 3330 (Sp) 3 Cr. **Genome Instability and Human Disease** (only offered in even years- i.e. 2020, 2022) MSMPHL 3750 (Sp) 3 Cr. **Angiogenesis** MSMPHL 3310 (F) 3 Cr. **Cancer Biology & Therapeutics** OR MSPHL 3375 (Sp) 3 Cr. **Neuropharmacology** OR MSMPHL 2370 (Sp) 3 Cr. **Drug Discovery** (only offered in even years – i.e. 2020, 2022)

		MSCMP 3750 (Sp) 3 Cr. **Angiogenesis** MSCMP 3760 (F & Sp) 1 Cr. **Research Seminar in Regenerative Medicine** MSCMP 3770 (Sp) 3 Cr. **Cell Therapy**		*Other electives from across the IBGP as deemed appropriate by mentor, student and program director.
Teaching Practicum	Optional	Optional	Optional	Optional
Comprehensive Examination	**Format: Research Grant Proposal** **Topic: Student's thesis research** **When: Fall semester of third year**	**Format**: Grant Application **Topic**: Student's anticipated thesis research; feedback from exam is then used to finalize the thesis proposal **When**: No later than 16 months after matriculating to CMP	**Format:** Research Grant **Topic:** Student's thesis research **When:** Spring term of second year	**Format**: Research Proposal **Topic**: May be derived from anticipated thesis, but must be distinct from any funded or recently submitted grant proposal of the thesis advisor. **When**: Spring term of second year.
Thesis Proposal	Required	Required	Required	Required

INTERDISCIPLINARY BIOMEDICAL SCIENCES (INTBP)

3000 Foundations of Biomedical Science (Fall) 6 Credits
Course Directors: Saleem Khan, Yang Hong, Jonathan Coleman, Michael Tsang, Meir Aridor, Tija Jacob, and Jane Wang
Primary objectives of the course are to explore mechanisms controlling cell, tissue and organ function, and to develop an understanding of the experimental evidence supporting these concepts through an integrated presentation of material from biochemistry, cell biology, genetics, pathology, pharmacology, and physiology. The development of critical thinking skills will be emphasized through an evaluation of experimental evidence and reading of the primary literature. The course will consist of both lectures and small group discussions (Workshops).

3005 Foundations Journal Club (Fall) 2 Credits
Course Director: Irina M. Bochkis
Contemporary approaches to problem solving in biology, as well as principles underlying modern methods of biomedical research will be integrated with the lecture component of the course through an analysis of mechanisms underlying biological phenomena. Students will discuss papers and critically analyze data in areas covered by the Foundations course.

2010 Laboratory Research Rotation (All) 3 Credits
Course Director: Saleem Khan
This lab is designed to introduce the student to relevant laboratory methods as well as the layout and conceptualization of experiments. The course will serve to acquaint the student with the laboratory process, and to facilitate his/her selection of a lab for dissertation research. Students are required to register for and complete rotations through three different laboratories, thereby ensuring broad exposure to method and practice.

2011 Lab Research Rotation Supplement (All) 2 to 4 Credits
Course Director: Saleem Khan
Course supplement to INTBP 2010 for those students initiating their first rotation in summer.

2013 Fundamentals of Biostatistics (Summer) 3 Credits
Course Director: Sylvia Liu, Dhivyaa Rajasundaram, and Saleem Khan
Experimental biologists formulate hypothesis and models, design experiments, collect data and conduct analysis to draw conclusions. Deep understanding of biological principles requires D2K-The translation of DATA INTO KNOWLEDGE that transcends first-order conclusions. This course for first year PhD Students in the biomedical sciences will examine basic principles of experimental design, together with measurement and sources of experimental error. The course will provide a practical 'hands on' introduction to the quantitative tools required for experimental research using cellular, molecular and systems-based methods. Topics will include: goals of experimental design, making measurements, principles of parametric and non-parametric statistical inference, use of MS Excel, GraphPad PRISM and R, design of publication graphics and a brief introduction to big data approaches. Students will work in small groups to construct capstone projects by making 'YouTube' style videos to illustrate key principles of experimental design and analysis.

2090 Directed Study (All) 1 to 9 Credits
Course Director: Saleem Khan
This course provides the student an opportunity to carry out a specific laboratory project in any area of interest in degree-granting programs under the Interdisciplinary Biomedical Graduate Program.

2290 Scientific Ethics and the Responsible Conduct of Research (Summer) 1 Credit
Course Director: Jonathan Beckel, Sanford Leuba, and Saleem Khan
The course is an introduction to the basic ethical issues that arise in the course of conducting scientific research. It is intended for graduate students and fellows in the biomedical sciences who have completed two semesters in the graduate school. The course will be composed of lecture presentations followed by discussion of relevant issues in small groups.

3240 Graduate Student Writing Seminar (Fall) 2 Credits

Course Director: Daniel Devor

This course will give students hands-on grant writing experience, as they will prepare an F31 pre-doctoral NRSA grant application. NIH-produced videos will explain the process of grant approval and provide practical tips for successful applications. Students will learn to present their scientific ideas and data in a clear, concise, and objective manner for the reader through faculty and student feedback. Three small-group presentations are required and include a specific aims proposal, the approach portion of the grant application, and changes made following feedback.

CELL BIOLOGY AND MOLECULAR PHYSIOLOGY (MSCBMP)

2800 MS Thesis Research (All) 1 to 14 Credits
Course Director: Gerald Hammond
A directed research project, which results in a thesis for a master's degree.

2840 Regulation of Membrane Traffic
(Summer) 2 Credits
Course Directors: Jeff Brodsky
Course analyzes membrane/protein traffic along both the biosynthetic & endocytic pathways. Emphasis placed on how this traffic is regulated. Topics include the role of g-proteins (both heterotrimeric & small), coat proteins (coatomer 1 & 2 & adaptions), signal transduction cascades (PKC, PKA, IP3, etc.), & snare complexes in protein trafficking. Also, we will discuss the role of the cytoskeleton in transporting cargo & signal transduction. Membrane traffic in several specialized cell types will be covered including polarized epithelial cells, cells of the immune system, & neurons. **Note: CBMP Students are required to take either Cell & Molecular Physiology OR Regulation of Membrane Traffic.

2852 Research Seminar/Membrane Trafficking (Fall & Spring) 1 Credit
Course Directors: Meir Aridor and Gerald Hammond
Advanced research seminar with journal club format specializing in current aspects of membrane trafficking.

2853 Research Seminar/Reproductive Physiology (Fall & Spring) 1 Credit
Course Director: William Walker
Advanced research seminar with journal club format specializing in current aspects of reproductive physiology.

2855 Research Seminar/Molecular Physiology (Fall & Spring) 1 Credit
Course Director: Tom Kleyman
Advanced research seminar with journal club format specializing in current aspects of molecular and cellular physiology.

2870 Histology (Spring) 5 Credits
Course Director: Steven Truschel
The objective of this lecture/lab course is student comprehension of the relationship between cell structure and organ function, and the application of the knowledge to the identification of light and electron microscopic images of cells and organs. All the major organ systems of the body are included.

2875 Experiments and Logic in Cell Biology (Fall & Spring) 1 Credit
Course Directors: Adam Kwiatkowski and Gerald Hammond
In this course students will review and critique data presented by their colleagues on a weekly basis. Students will critically evaluate and provide constructive suggestions on the experimental data and design, in terms of alternative rationales, interpretations, and next experiments.

2880 Cell Biology of Normal & Disease States (Spring) 4 Credits
Course Director: Adam Kwiatkowski
The semester-long course in cell biology and physiology of normal and disease states will explore three exciting topics in current day cell biology and physiology. The course, which meets twice a week (1.5 h each session), will be taught through both lectures and in class discussions of primary literature and will cover basic biology, the cellular basis of disease processes, and recent advances in translational research that may lead to cures for common disease processes. The section on stem cell biology, diabetes, and translational research will focus on understanding how cells divide and how all of the body's different tissues stem from a master cell with the potential to generate all of the different cell types present in the body. In addition to understanding normal stem cell biology, the potential for use of stem cells to regenerate organs and to cure ailments such as diabetes will be explored. The section on cellular polarity will explore early events in polarity establishment including endocytic signaling and establishment of specialized membrane domains in epithelia and neurons. Further discussion will focus on disease processes such as autosomal dominant kidney disease, an ailment characterized by altered and dysfunctional polarity. The third section will examine ion channels and disease: CFTR and cystic fibrosis. This section will explore the role of RAD in protein quality control, the traffic and transport of CFTR, the functional role of CFTR and the epithelial sodium channel in the lung, and promising new therapies to alleviate the morbidity and mortality associated with CFTR mutations.

2885 Imaging Cell Biology in Living Systems (Spring) 3 Credits

Course Director: Simon Watkins

The focus of this course will be to study relevant problems in Cell Biology, Immunology, Developmental Biology and Neurobiology and how they have been solved using imaging approaches. The use of techniques such as TIRF and high-speed confocal microscopy to address basic problems in endocytosis will be discussed at the organism level. Multiphoton, confocal, FRET, and other approaches will be discussed to understand aspects of cell biology in cell polarity, respiration and organ development in c. elegans, drosophila, zebra fish and mice. In each case, the application will focus on how imaging tools are used to study defined problems in living systems. The course will follow Lecture/Demo/Journal Club format. Lectures will be two parts, the first 1/3 will be a description of the technology, how it was developed and how it works (10-15 minutes) followed by description of the scientific problem and how it was solved. This will be followed by lab demonstrations showing the approach in action. Lectures will be interspersed with a journal club discussion of a relevant paper on each technology. Students will prepare the Journal Club presentations in an alternating fashion. Examination will be a combination of class participation, journal club and written exam.

2890 Directed Study (All) 1 to 9 Credits

Course Director: Gerald Hammond

This course provides students with an opportunity to carry out a specific laboratory project in any area of interest in cell biology and physiology.

2895 Cellular Physiology of the Kidney (Summer) 2 credits

Course Director: Arohan Subramanya

This summer course will provide an introduction to the kidney and lower urinary tract, with emphasis on kidney structure and function. The course, which meets once a week (two hours each session), will be taught through both lectures and in class discussion of the primary literature. Discussion of how bench top findings can be translated to treatments in the clinic will be facilitated by a diverse faculty that includes both basic and physician scientists. You will first learn about the specialized cell types that comprise the kidney and lower urinary tract. Subsequently, you will be introduced to renal stem cells and how they lead to kidney development. Next, you will learn the functions of the kidney, including regulation of water and ion balance. This will be followed by a discussion of the lower urinary tract. Finally, you will learn how drugs can be used to treat kidney dysfunction and how kidney transplants can be used to treat those patients with end-stage renal disease. Summer semesters.

3800 PhD Dissertation Research (All) 1 to 14 Credits

Course Director: Gerald Hammond

After advancement to candidacy for the PhD degree, students enroll in this course to pursue original experimental laboratory research, the results of which will provide the substance of their doctoral dissertation. A minimum of 40 credits of this course are required for the PhD degree in the School of Medicine.

CELLULAR AND MOLECULAR PATHOLOGY (MSCMP)

2280 Basic Understanding of Professionalism as related to graduate education (Fall) 1 Credit

Course Director: Wendy M. Mars

Students will be introduced to the underpinning concepts of Professionalism in the context of graduate education at the University of Pittsburgh School of Medicine. In addition to learning appropriate methods related to professional communication, this will include formal training in activities related to Title IX as required by the University of Pittsburgh.

2700 MS Thesis Research (All) 1 to 14 Credits

Course Director: Andy Duncan

A directed research project, which results in a thesis for a master's degree.

2730 Molecular Mechanisms of Tissue Growth & Differentiation (Spring) 3 Credits

Course Directors: Amanda Clark and Andy Duncan

The course covers the anatomy, embryology, histology, function, and growth regulation (growth factors, receptors, and signaling pathways) of various differentiated tissues (central nervous system, lung, liver, pancreas, urinary and reproductive systems, breast, endocrine system, skin, bone, skeletal muscle, bone marrow). Multidisciplinary lectures are given by the members of the various departments including pathology, cell biology and physiology, medicine, and surgery who have ongoing research in these areas. The course is designed to offer detailed information on specific tissues, tissue-tissue the interactions, and overlapping cellular and molecular pathways that exist in multiple tissues.
**Note: This is a required course for CMP students.

2740 Molecular Pathobiology (Spring) 3 Credits

Course Directors: Tim Oury and Timothy Perkins

This course is structured to introduce students to the integration between basic and clinical research on the molecular pathogenesis of relevant human diseases. The course will provide students with an overview of the natural history of selected diseases, their diagnosis and clinical management. This will be followed by in-depth discussions concerning the pathologic substrate of the disease, with particular attention focused on the molecular mechanisms of disease progression. In addition to current basic science research, students will be exposed to the clinical impact of basic science discoveries upon the development of new therapeutic interventions. Discussions of current research trends and factors that enhance fundability of research projects will ensue. Each disease module will contain lectures from the faculty followed by presentations of current research papers by the students. These research presentations/discussions will be peer reviewed by fellow students and the faculty and form the basis of the final grade. **Note: CMP students are required to take Molecular Pathobiology, Cancer Biology and Therapeutics, or Basics of Personalized Medicine.

2750 Research Seminar (Fall & Spring) 1 Credit

Course Directors: Alejandro Soto-Gutierrez, Andy Duncan and Wendy M. Mars

Students present their research (allowed one time) or a recent research article from a broad range of topics selected by the student in consultation with a faculty advisor. The course meets weekly. Emphasis is placed on careful analysis and critical evaluation of the manuscript as well as the development of teaching and speaking skills needed for scientific presentation. The student is expected to elucidate issues relevant to the topic and to answer questions from other graduate students and faculty. **Note: CMP students are required to take this a minimum of 5 semesters.

2760 Introduction to Tissue Engineering and Regenerative Medicine (Spring) 3 Credits

Course Director: Bryan Brown and Mark Miedel

The purpose of this course is to introduce students to tissue engineering. Tissue engineering is defined as the development and manipulation of laboratory-grown molecular, cells, tissues, or organs to replace and/or support the function of injured body parts. Tissue engineering is highly interdisciplinary and therefore crosses numerous engineering and medical specialties. Upon completing this course, the graduate and undergraduate

students should: understand the basic principles behind human cell and tissue biology; be familiar with the general types of biomaterials used in tissue engineering; understand techniques utilized to design, fabricate, and functionally assess tissue engineering systems; be able to apply the combined knowledge of tissue organization and tissue engineering strategies to design a unique, reasonable tissue engineering solution. This five-part course covers cell and tissue biology, biomaterials, drug delivery, engineering methods and design, and clinical implementation.

2770 Biomaterials & Biocompatibility (Spring, odd years) 3 Credits

Course Director: William Wagner

This course serves as an introduction to biomaterials and biocompatibility and assumes some background in organic chemistry and biology. The first half of the course connects biomaterial applications. The second part of the course introduces biocompatibility issues as they follow from protein adsorption, thrombosis, inflammation and infections. Throughout the course ties are made between the topics of students and clinically relevant materials and device performance.

2780 Special Topics (Fall & Spring) 3 Credits

Course Director: Andy Duncan

One or more student(s) will focus on a selected topic (usually defined by the students) in cellular and molecular pathology and discuss the primary literature pertaining to the topic. Students will be evaluated on their discussions and presentations and write a paper under the direction of a faculty advisor.

2790 Directed Study (All) 1 to 9 Credits

Course Director: Andy Duncan

This course provides the students an opportunity to carry out a specific laboratory project in any area of interest in cellular and molecular pathology.

3700 PhD Dissertation Research (All) 1 to 14 Credits

Course Director: Andy Duncan

After advancement to candidacy for the PhD degree, students enroll in this course to pursue original experimental laboratory research, the results of which will provide the substance of their doctoral dissertation. A minimum of 40 credits of this course are required for the PhD degree in CMP from the School of Medicine.

3710 Cancer Biology and Therapeutics (Fall) 3 Credits

Course Directors: Michelle Wood-Trageser, Sungjin Ko, Laura Stabile, and Roderick O'Sullivan

This course presents biochemical and clinical aspects of cancer biology and therapy and is designed for graduate students training in the basic sciences or medicine. The lectures cover: the biology of normal and neoplastic cells; mechanisms of neoplastic transformation; chemical and environmental carcinogenesis; viral oncogenesis; breast and prostate cancer; chemotherapy; radiotherapy; gene therapy; tumor immunology; and nutrition and cancer.

**Note: CMP students are required to take Molecular Pathobiology, Cancer Biology and Therapeutics, or Basics of Personalized Medicine.

3730 Topics in Experimental Neuropathology (Fall & Spring) 1 Credit

Course Director: Julia Kofler

This course critically evaluates the latest scientific literature concerning diseases of the central nervous system. Emphasis will be placed on methodologies as they are applied to the study of human neurologic diseases. Participants will present scientific papers and lead classroom discussions. This course is open to students of all levels and will include both basic scientists and clinicians (residents, faculty).

3735 ECM in Tissue Biology and Bioengineering (Fall) 3 Credits

Course Directors: Bryan Brown and Mark Miedel

This course presents a comprehensive overview of the biochemical composition of tissue matrix, the receptors that bind and signal through the matrix, and how these matrix interactions are important for basic biology and tissue engineering. Topics include gene expression, mechanistic interactions and cellular interaction/communication.

3740 Stem Cells (Spring) 3 Credits

Course Directors: Kari Nejak-Bowen and Bharat Bhushan

The course entitled "Stem Cells" will provide a comprehensive overview on this intriguing and highly debated topic. The course will focus on the biology of stem cells and their role in health and disease with emphasis on

development, carcinogenesis and tissue engineering. Lectures on various aspects of stem cells from renowned experts will cover both embryonic and adult stem cells. Specific lectures will include stems cells in the blood, liver, brain, muscle, kidney, pancreas, prostate, lung, gut, skin and eye. Students will also be educated on therapeutic cloning as well as bio-ethical issues and existing laws governing stem cell research. Letter grades will be based on midterm and final exams as well as on attendance in the lectures.

3750 Angiogenesis (Spring) 3 Credits

Course Directors: David Gau and Delphine Gomez and Patrick Pagano

This course will provide extensive basic knowledge of developmental, cellular, molecular biology of angiogenesis and most recent advancements in its clinical applications. Topics include: 1. Angiogenesis in physiological and pathological processes; 2. Molecular and cellular regulation of angiogenesis; 3. Current advance in angiogenic therapies. Recent outstanding research publications will also be discussed.

3760 Research Seminar: Regenerative Medicine (Fall & Spring) 1 Credit

Course Director: Paul Monga and Andy Duncan

Research seminar in regenerative medicine is geared towards providing updated information on topics in the field of regenerative medicine, tissue engineering and stem cell applications. Through biweekly seminars, the students will be acquainted to the recent advances in the ever-growing field of regenerative medicine. Experienced faculty will deliver lectures in this seminar series.

3770 Cell Therapy (Spring) 3 Credits

Course Directors: Diana Metes and Rodrigo Florentino

This course is meant to be unlike any other graduate course. This course showcases cell therapy from theory to practice, from the bench to the bedside. In each area of cell transplantation lectures are provided by those who have implemented cell transplantation techniques and moved it to clinical therapy. Most of the lectures in the course are given by those who do patient transplants. Immunology and pharmacology and cellular engineering & Edition will be addressed as it directly relates to cellular therapy. Stem cell biology will not be addressed individually but will be raised in the context of specific applications. It is expected that students will be independently exposed to these related areas in other courses.

Course meetings will consist of lectures, presenting the basic research going into a particular cell therapy area such as animal models used for preclinical studies and the identification on the cell type(s) which are most relevant for the transplants. The lecture(s) in each topic area focuses on the clinical application of that particular cell type for cell therapy for specific disease(s) and covers how the cells are transplanted into patients, the disease states being targeted and the results of the cell therapy. The grade for the course results from attendance at lectures and the submission of a paper in an area relevant to Cell Transplantation / Cell Therapy & Engineering.

3790 Basics of Personalized Medicine (Fall) 3 Credits

Course Directors: Wendy M. Mars, Marie DeFrances, and Christi Kolarcik

Rapid and ongoing discoveries in basic biomedical research are leading to a world where there is a demand for personalized medicine. Nevertheless, on a practical level, it is complicated to translate the findings from the basic scientific arena into clinical practice. This course will show students how findings from basic research can be translated into clinically relevant tests for the diagnosis and treatment of patients. The course will provide an overview of the past, present, and future of basic biomedical research as it relates to this subject.
**Note: CMP students are required to take Molecular Pathobiology, Cancer Biology and Therapeutics, or Basics of Personalized Medicine.

MOLECULAR GENETICS AND DEVELOPMENTAL BIOLOGY (MSMGDB)

2500 MS Thesis Research (All) 1 to 14 Credits
Course Director: Judith Yanowitz
A directed research project, which results in a thesis for a master's degree.

2525 Developmental Mechanisms of Human Disease (Spring) 2 Credits
Course Directors: Susana da Silva and Judith Yanowitz
This course covers principles of developmental biology and how embryonic developmental pathways impinge on human disease. Topics include congenital organ related disease, stem cell based reproductive events relating to disease. Prerequisites: Foundations of Biomedical Science or permission of the course director.

2535 Model Organisms (Spring) 2 Credits
Course Directors: Donghun Shin and Michael Tsang
This course covers the use of vertebrate and invertebrate model organisms in biomedical research. Topics include the use of several models including mouse, rat, zebrafish, xenopus, C. elegans, and Drosophila. Special emphasis will be placed on the strengths that specialized techniques of each organism provide to the research community in understanding the etiology of disease.

2550 Research in Progress (Fall & Spring) 1 Credit
Course Director: Andrey Parkhitko
A weekly Research In Progress Seminar presented by students and post-doctoral fellows. Weekly attendance and participation by all MGDB students are required.

2590 Directed Study (All) 1 to 9 Credits
Course Director: Judith Yanowitz
This course provides the students an opportunity to carry out a specific laboratory project in any area of interest in biochemistry and molecular genetics.

3500 PhD Dissertation Study (All) 1 to 14 Credits
Course Director: Judith Yanowitz
After advancement to candidacy for the PhD degree, students enroll in this course to pursue original experimental laboratory research, the results of which will provide the substance of their doctoral dissertation. A minimum of 40 credits of this course are required for the PhD degree in the School of Medicine.

3530 Genome Instability and Human Disease (Spring) 3 Credits
Course Directors: Elise Fouquerel and Yael Arbely
This course will emphasize the molecular biology and biochemistry of DNA repair (Nobel Prize in Chemistry in 2015), placing these mechanisms into the context of other cellular processes as they pertain to health and disease. More than 40 distinct human diseases are caused by defects in DNA repair, including syndromes of impaired development, immunodeficiency, cancer predisposition, neurodegeneration, and premature aging. Environmental, clinical and endogenous sources of DNA damage will be discussed. An understanding of the fundamental role of DNA repair mechanisms in immunology, oncology, neurology, and aging will be central to all lectures.

3535 DNA Repair Journal Club (All) 1 Credit
Course Director: Tatiana Moiseeva & Logan Myler
A weekly DNA repair focused journal club presented by students and post-doctoral fellows. Special emphasis on recently published cutting edge papers in the DNA repair field.

3540 Reproductive Development from Model Organisms to Humans (Every other Fall) 3 Credits
Course Director: William Walker & Melissa Mann
This course focuses on the molecular aspects of the transition from gamete to a reproductive organism. The course progresses through the building of germ cells, fertilization and stem cell participation to sex determination, gonad morphogenesis, puberty, menopause and pregnancy. This course highlights both human and model organisms to bring together diverse aspects of the cell and developmental biology of reproductive tissues and their impact on disease pathology.

3560 Molecular Mechanisms of Longevity & Aging (Every other Spring, Even Years) 2 credits
Course Director: Arjumand Ghazi
Aging is a fascinating biological process and a topic of profound public-health significance. While humans have searched for the 'Fountain of Youth' since times immemorial, the last three decades have created a phenomenal expansion in our knowledge of the biology of aging. Classical genetic studies in laboratory models coupled with advances in molecular biology, genomics and systems biology have provided unprecedented insights into the molecular mechanisms underlying the age-related decline of our cells, tissues and bodies. These discoveries have provided the solid foundation for the emerging field of Geroscience and the discovery of therapeutic and environmental approaches to delay or even reverse aging. This is a course for those interested in obtaining in-depth knowledge and critical understanding of the molecular underpinnings of aging and the current state of Geroscience research. The course will be conducted in four modules. Module I will provide a historical perspective on aging research with a focus on major discoveries in model organisms and human studies. Module II will involve detailed examination of the molecular hallmarks of aging and Module III will focus on the links between cellular, tissue and organismal senescence. In Module IV, contemporary studies on 'quality of life'/Healthspan and advances in anti-aging therapies will be explored.

MOLECULAR PHARMACOLOGY (MSMPHL)

2310 Principles of Pharmacology (Spring) 3 Credits

Course Directors: Yu Jiang and Alessandro Bisello

This course consists of a series of lectures and tutorial sessions that focus on the general principles of pharmacology. Major topics are principles of pharmacokinetics (including drug absorption, distribution, and metabolism), pharmacodynamics (quantitation of drug-receptor interactions) and mechanisms of action of cardiovascular and autonomic drugs. In addition, this course will include both animal laboratory and human simulator demonstrations that illustrate important pharmacological principles discussed in class.

2350 Research Seminar (Fall and Spring) 1 Credit

Course Director: Tija Jacob and Jonathan Beckel

Beginning in the second year of the program students will be required to attend the Departmental Seminar Series. These seminars are held approximately once a week throughout the fall and spring semesters and include presentations by nationally and internationally recognized visiting researchers in pharmacology and related fields and Graduate Student Seminars. In order to receive credit for the course, students must attend a minimum of 80% of the seminars.

2360 Biology of Signal Transduction (Spring) 3 Credits

Course Director: Guillermo Romero

This course will explore different types of signaling pathways activated by receptor-ligand interactions. Topics to be covered include but are not limited to: G-protein linked receptors, adenylate cyclases, small GTPases, kinases and phosphatases, nitric oxide, phospholipases, steroid hormone signaling, and pharmacological applications of signaling pathways.

2370 Drug Discovery (Spring) 3 Credits

Course Directors: Mark Schurdak, Bruce Freeman, and Francisco Schopfer (Only offered in even years-i.e. 2020, 2022)

Drug discovery is an interdisciplinary science that seeks to identify small molecular and/or biologic probes and to understand at the molecular level how these probes affect macromolecular processes. This course will discuss various topics that are relevant to current approaches and principles in drug discovery including target validation, drug origins, cell-based screening, high throughput screening, proteomic approaches to drug discovery, computational biological aspects of drug discovery and pharmacoinformatics as well as topics in preclinical drug development and intellectual property. The course will include case studies intended to aid Students in a full understanding of the drug discovery process.

2390 Directed Study (All) 1 to 9 Credits

Course Director: Tija Jacob

This course provides an opportunity for students to carry out a specific laboratory project in any area of interest in pharmacology.

3300 PhD Dissertation Research (All) 1 to 14 Credits

Course Director: Tija Jacob

After advancement to candidacy for the PhD degree, students enroll in this course to pursue original experimental laboratory research, the results of which will provide the substance of their doctoral dissertation. A minimum of 40 credits of this course are required for the PhD degree in the School of Medicine.

3310 Cancer Biology and Therapeutics (Fall) 3 Credits

Course Directors: Evan Delgado, Sungjin Ko, Joe Locker and Laura Stabile

This course presents biochemical and clinical aspects of cancer biology and therapy, designed for graduate students training in the basic sciences or medicine. The lectures cover fundamental topics in cancer biology and pathology, the biology of major cancer types, viral oncogenesis, and an overview of cancer therapeutics including chemotherapy, DNA repair-based therapies, targeted therapies, hormonal therapies, and immunotherapy. This course also covers experimental models and databases used in cancer research and the process of cancer drug development.

3320 Journal Club (Fall & Spring) 1 Credit

Course Director: Tija Jacob and Jonathan Beckel

Beginning in the second year of the program students will participate in the Departmental Journal Club. Presentations will be held each week that the Department hosts a seminar speaker (i.e. 2-3 times/month) during the Fall and Spring semester. Students entering their fifth year of study may petition the Program Director to be excused from the Spring Session of the Journal Club. Sixth year students and beyond are not required to enroll in Journal Club although their attendance is encouraged. A log-in sheet will be available at all Journal Club meetings. All students in attendance are required to complete an anonymous peer-evaluation sheet that will be provided to the presenter. Students must inform the Program Director in advance if they are unable to attend a specific Journal Club. Excusable absences from Journal Club include individual or family illness or presentation (i.e. poster, platform talk) at a major scientific conference. Students are allowed two unexcused absence/semester.

3330 Genome Instability and Human Disease (Spring) 3 Credits

Course Directors: Elise Fouquerel and Yael Nechemia-Arbely (only offered in even years- i.e. 2022, 2024)

Mechanisms that maintain genome stability allowed the origin of species. DNA damage is omnipresent and DNA repair and DNA damage tolerance mechanisms are interwoven in systems that control transcription, replication, cell division, signal transduction, cell death and evolution. More than 40 distinct human diseases are caused by defects in DNA repair, including syndromes of impaired development, immunodeficiency, cancer predisposition, neurodegeneration and premature aging. This course will emphasize the molecular biology and biochemistry of DNA repair, placing these mechanisms into the context of other cellular processes as they pertain to health and disease. Environmental, clinical and endogenous sources of DNA damage will mechanisms in immunology, oncology, neurology and aging will be central to all lectures.

The course comprises twenty-nine lectures that will be taught twice a week. Lectures will be fashioned around selected manuscripts and the recent textbook: "DNA Repair, Mutagenesis and Other Responses to DNA Damage (2014) Errol C. Friedberg, Stephen J. Elledge, Alan R. Lehmann, Tomas Lindahl & Marco Muzi-Falconi. Lecturers will include faculty from the Universities of Pittsburgh and Carnegie Mellon who are engaged in laboratory and clinical research at the forefront of the DNA damage and repair fields, as well as distinguished Professors visiting Pittsburgh from other Institutions.

3335 DNA Repair Journal Club (Fall & Spring) 1 Credit

Course Directors: Tatiana Moiseeva and Logan Myler

The course is a journal club on current topics in DNA repair as it relates to human disease, DNA damage processing, genome stability, telomere biology, cancer and aging. Primarily designed for students in the second year of their graduate program and beyond. Presentations will be held twice per month during the fall and spring semester. In order to receive credit for the course, students must attend a minimum of 80% of the sessions, present once per semester, participate in class discussion and complete anonymous peer-evaluations for each presenter. One week prior to presentation, presenters will identify a recent publication in the field and distribute it to their classmates. Presenters must define the hypothesis of the paper, provide background and significance, describe experimental methods used, interpret the data, conclude whether the data support the authors' conclusions and propose future experiments. Grades will be determined by attendance (10%), class participation (20%) and quality of presentation (70%).

3341 Career Development (Spring) 1 Credit

A series of about 8 monthly workshops designed to engage PhD students past their comprehensive exams to take steps to propel their post-PhD career planning through self-reflection, career exploration, relationship building, professional preparation, and networking. The overall goal is to give students the tools necessary to find and pursue their next job with clarity and confidence.

3360 Molecular Pharmacology (Fall) 2 Credits

Course Director: Ferruccio Galbiati

This course examines molecular mechanisms of drug interactions with an emphasis on drugs that modulate cell signaling, cellular responses to drugs and drug discovery. The course will include student participation through presentations and discussion of relevant contemporary scientific literature. Topics include cell cycle checkpoints and anti-cancer drugs, therapeutic control of ion channels and blood glucose, anti-inflammatory agents and nuclear receptor signaling, and molecular mechanisms of drugs used for the treatment of cardiovascular diseases.

3375 Neuropharmacology (Spring) 3 Credits

Course Director: Michael Palladino

This course will broadly review neuropharmacology and neurobiology, study monoamine, cholinergic and GPCR biology, and explore the blood-brain barrier and its significance to neuropharmacology. The course will focus

on the molecular mechanisms of drug action for different classes of compounds including but not limited to; antidepressants, antipsychotics, anti-epileptics, anesthetics, weight loss, stimulants, neuroprotective, addiction, pain and migraine drugs. In addition to the formal lectures the course will emphasize critical reading of the primary literature through journal-club style discussions and cover the most recent treatment and therapeutic avenues being developed for a broad range of neurologic and psychiatric disorders. The course is ideally suited for Molecular Pharmacology and Neuroscience graduate students or any other graduate student with interest in neurological diseases and their treatments. The course is also appropriate for senior undergraduates who have completed 4 semesters of chemistry, 2 semesters of biology, and other relevant upper division course work (e.g. Cell Biology, Physiology or Biochemistry)will provide the substance of their doctoral dissertation.

3750 Angiogenesis (Spring) 3 Credits

Course Directors: David Gau and Delphine Gomez and Patrick Pagano

This course will provide extensive basic knowledge of developmental, cellular, molecular biology of angiogenesis and most recent advancements in its clinical applications. Topics include: 1. Angiogenesis in physiological and pathological processes; 2. Molecular and cellular regulation of angiogenesis; 3. Current advance in angiogenic therapies. Recent outstanding research publications will also be discussed.

Academic Policies and Procedures

The Interdisciplinary Biomedical Graduate Program

As a new student, you are admitted to the Interdisciplinary Biomedical Graduate Program (IBGP) for your first year of study. The IBGP is designed to assist you in identifying a research laboratory, and to encourage your timely progression through the process of obtaining a PhD. The activities of the IBGP are governed by the Steering Committee (comprised of the Associate Dean for Graduate Studies and the four program directors). The operation of the Steering Committee is assisted by subcommittees which are responsible for admissions, curriculum and recruiting. These committees evaluate applications for admissions and recruit new students into the program, coordinate the first-year curriculum, oversee your research rotations, administer the Preliminary Evaluation, and supervise your transfer to a specialized degree-granting program.

Advising and Academic Evaluation

You are assigned a first-year advisor/mentor upon admission to the IBGP. The mentor is a member of the Steering Committee selected by the Associate Dean for Graduate Studies. The first-year advisor/mentor will help you to identify individuals who can provide specialized advice on research rotations, advise you of the various milestones that are a part of the IBGP, assist you in decisions regarding second and third term classes, and sign all your registration forms until you formally transfer to your advisor's lab. Your mentor will represent your interests at meetings of the Steering Committee should there be concerns about your academic progress and will present any requests you may have for waivers of stated requirements. The mentor's role essentially terminates when you move from the IBGP to a specialized PhD granting program.

You will be evaluated by the Steering Committee over the course of the year. At the conclusion of your first year, you will undergo the Preliminary Examination which incorporates several elements including class performance, laboratory rotations and evaluation by rotation mentors. A successful Preliminary Examination will allow you to transfer into a specialized degree-granting program.

If you are not performing at a satisfactory level, remedial action, or consideration for dismissal from the program may be initiated by the Steering Committee.

Curriculum

Four courses in the curriculum are required of all students, while other courses are electives. The *Foundations of Biomedical Science* (INTBP 3000) and *Foundations Journal Club* (INTBP 3005) are the required Interdisciplinary core courses. Foundations classes (including both large and small group sessions) are held on Monday, Wednesday, and Friday mornings of the first (Fall) term and are supplemented with Journal Club (in small groups) on Tuesday mornings. These courses are designed to provide a fundamental overview of the elements of contemporary biomedical science that should be mastered by all students, regardless of their scientific interests. The third course required of all students is *Fundamentals of Biostatistics* (INTBP 2013) which is offered during the Summer term of the first

academic year. Finally, all students are required to take *Scientific Ethics and Responsible Conduct of Research* (INTBP 2290) which is scheduled in the Summer session.

After the first (Fall) term, students enjoy more flexibility in the choice of courses. Each of the degree granting programs offers one or more courses in the second (Spring) term. Students should choose Spring classes based on their own interests and the requirements of the program(s) they are interested in joining. Thus, during the Fall, students should begin to consider which program(s) are of most interest to them, and determine which classes are offered by that program(s) in the Spring term. First-year mentors will help students plan a Spring schedule of classes. There are a wide range of graduate courses offered by the School of Medicine. The most current list is available at https://www.gradbiomed.pitt.edu/current-students/course-information

The Office of Academic Career Development is dedicated to providing professionals in the schools of the health sciences with the tools, resources, and support they need to achieve their full potential as leaders in biomedical research, education, and clinical practice. http://www.oacd.health.pitt.edu/

A minimum of 32 credits of formal course work and 40 credits of dissertation research are required to earn the PhD degree from the School of Medicine. If you have completed all credit requirements for the degree, and are working full-time on a dissertation, you may register, with permission of the Dean, for the *Full-Time Dissertation Study* (FTDS 0000) course. However, it must be the only course to appear on your registration for that term; you may register for no other courses.

Students with a Master's degree may receive advanced standing of up to 30 credits of course work in some circumstances. Such determinations shall be made by the Associate Dean in consultation with the Director of the program in which you decide to pursue a degree.

All students are expected to maintain a minimum cumulative grade point average of 3.00 on a 4.00 scale. If the cumulative GPA falls below 3.00, the student will be placed on academic probation for the next term of registration. If the deficiency is not corrected or vastly improved in this subsequent term, the student may be dismissed at the discretion of the program.

Please be advised that a grade of B or higher is considered a passing grade in core courses; a B- (B minus) is not considered a passing grade, even if the overall GPA is 3.0 or better. The program requires a student to retake a core course in which a grade below B is earned. Students who are allowed to re-take core courses will be placed on probation with guidance on how to return to good academic standing.

Registration

SOM graduate programs will register their students for their first fall term's coursework. The Program Coordinator will remove the advising hold placed by the Office of the University Registrar each term, and register the students for the classes indicated on their Enrollment Forms. After their first term, in consultation with their advisors/mentors, students will complete an Enrollment Form with their signature along with their advisors'/mentors' signature and submit it to their Program Coordinator. The Program Coordinator will remove the advising hold placed by the Office of the University Registrar each term, and then the student can proceed to self-register. Instructions and a tutorial can be found at https://my.pitt.edu/ under "Student Services." Students are required to be registered for each term by the designated registration deadline.

The University is on a trimester calendar: Fall, Spring, and Summer Terms. To maintain your appointment as a full-time Graduate Student Assistant or Researcher requires 9-15 credits in the Fall and Spring Terms and a minimum of 3 credits (and up to 9 credits) in the Summer Term. (Note: if you are deferring undergraduate loans, please check with your lender for minimum credit requirements particularly for the Summer Term.) After officially transferring to a specialized degree-granting program, all students will register with their respective program director and/or program designee.

Research Rotations

Laboratory research is the major component of our PhD programs. Research rotations should be considered an essential resource for learning broad-based skills at the bench as well as an opportunity to focus your scientific interests. Prior to choosing a laboratory, you should speak with your first-year mentor and examine the list of faculty who have space and funding available to take a student in their laboratory. A current list of lab opportunities is available on the IBGP website under **Current Lab Rotation Opportunities** Current Lab Rotation Opportunities | Interdisciplinary Biomedical Graduate Program (pitt.edu)

The Associate Dean and First Year Mentors supervise the selection of laboratory research rotations. Students are expected to complete three (3) research rotations during their first year. A "Laboratory Research Rotation Form" must be completed, signed and returned to the Graduate Studies Office within one week of beginning a rotation. At the end of each rotation, you are required to complete a written report that is prepared in the style of a scientific paper. **Instructions for the rotation report will be provided by the IBGP Program Coordinator.** It is recognized that some rotation projects emphasize concepts and techniques rather than generating a large volume of data. Thus, considerable flexibility in the style and content of the report is possible. The main goal is to generate a written, scholarly account of the scientific principles, questions, and activities undertaken during the rotation period. Rotation advisors will read, comment upon, and discuss changes to the rotation report with the student. When the written report is complete, the rotation supervisor will review the performance of the student and assign a letter grade for the rotation on the evaluation form provided by the Graduate Studies Office.

Performance in lab rotation will be evaluated based on effort in the lab, ability to think independently, communicate effectively with the advisor and lab members, good citizenship in the lab, and a broad understanding of ongoing research in the laboratory. A well-written rotation report summarizing the experiments performed, results obtained, as well as an explanation of the progress of the research participated in, and why or why it failed. It is recognized that some rotation projects emphasize concepts and techniques rather than generating a large volume of data. Thus, considerable flexibility in the style and content of the report is possible. The main goal is to generate a written, scholarly account of the scientific principles, questions, and activities undertaken during the rotation period. Rotation advisors will read, comment upon, and discuss changes to the rotation report with the student. When the written report is complete, the rotation supervisor will review the performance of the student and assign a letter grade for the rotation on the evaluation form provided by the Graduate Studies Office. Lab rotations are part of core requirements for IBGP and failure (a grade of B-minus or lower) in two or more rotations could result in dismissal from the program.

- To receive an A grade in rotation, a student must have performed at an excellent level in at least half of the criteria described above. Special emphasis for grading should be put on:

effort in the lab, an understanding of the ongoing research that the student is engaged in, interpersonal skills, and a well-written rotation report.

- A B grade is appropriate when a student has performed at least to an acceptable level in most/all the criteria
- To receive a C grade or below, a student must have performed at an unacceptable level in a number of the above criteria.

It is expected that the three rotations will be performed in three different laboratories headed by training faculty of the IBGP. This will provide students with an opportunity to identify an area of research interest, to establish a relationship with a potential dissertation advisor, and to learn various laboratory techniques. If a student has completed a master's degree thesis based on original research, a report of this project may be submitted in place of a rotation report upon approval. Requests to modify the rotation schedule must be made, in writing, to the Associate Dean for Graduate Studies. All rotations shall take place in accordance with the following schedule unless a waiver is granted upon petition to the Associate Dean:

Rotation Begins	Rotation Ends & Report Due	Evaluation Form Due
September 15, 2025	December 5, 2025	December 12, 2025
January 5, 2026	March 6, 2026	March 12, 2026
March 30, 2026	May 29, 2026	June 5, 2026

NOTE: Reports submitted after each due date will lose 1/3rd of a grade for each day the report is late. Research Rotation Evaluation forms are due from the rotation advisor, in the Graduate Studies Office, within two weeks after the report due date.

After the completion of the third rotation, a student is expected to have identified a dissertation advisor based on their rotation experiences and mutual agreement with a faculty member. **You should initiate your research in your chosen advisor's laboratory no later than June 13, 2026.** Identification of a dissertation advisor for thesis research is a requirement in order to pass the preliminary examination at the end of first year of a PhD program.

In rare instances, a student may petition the IBGP Director for permission to take a fourth rotation. During this rotation you will be placed on academic probation. By August 7, 2026, your rotation advisor will submit to the IBGP Director an evaluation of your rotation and a recommendation as to whether you should continue your dissertation research in their laboratory. If you match with their laboratory and pass your preliminary examination, your probation status will be removed, and you will become a student in good standing. However, if the fourth rotation does not work out, your performance will be considered unsatisfactory, and you will be subject to dismissal by the IBGP Steering Committee from the PhD program and hence the University of Pittsburgh.

Transferring from the IBGP to a Specialized Degree Granting Program

Upon successful completion of your Preliminary Examination, you will transfer into one of the specialized degree granting programs. The choice of program is likely to be dictated by the choice of dissertation advisor. The process of moving into a specialized degree-granting program should occur as follows:

i) Identify a dissertation advisor. This will come about as the result of your rotation experiences, from exposure to faculty during classes, and from talking to other graduate students. (See *Suggestions on Choosing a Dissertation Advisor* which follows). It is expected that a substantial number of the training faculty will welcome students into their laboratories. However, there are some practical realities that may be encountered. If a laboratory is already full, or if there is not sufficient funding available to support an additional student, a faculty member may not be able to take you.

ii) Identify the appropriate program. Many of the training faculty have appointments in two programs, so the choice of program can be influenced by your choice of the class requirements that best align with your goals.

iii) Petition the Program Director for admission into your chosen program. The Program Director will determine whether you have met the course requirements for the program or may suggest second year classes to take. Once the Preliminary Examination has been completed and the curricular requirements met, the transfer will formally take place.

Clearly, this process will begin before the end of the first year. Students are strongly encouraged to meet with the Program Director of the degree granting program in which they are interested prior to the end of the Fall semester to determine which classes would be most appropriate in the Spring semester.

Please do not hesitate to direct any questions relating to the IBGP or any of the above-described procedures to your first-year mentor or to the Graduate Studies Office.

The most important decision you will make at the University of Pittsburgh is the selection of a dissertation advisor. Please consider the following items which were prepared under the auspices of the University Council on Graduate Study.

Suggestions on Choosing a Dissertation Advisor for Doctoral Students at the University of Pittsburgh

Before starting dissertation research, you must have a major advisor who agrees to supervise your work. In addition, you must form a doctoral committee, subject to approval by the program chair and the dean and be admitted to doctoral candidacy. But the first step is the choice of your major advisor.

You and your advisor must mutually agree on the advising arrangement and the research topic. Both of you should enter the relationship as well informed as possible about the other. In rare and unavoidable circumstances, it may be possible to change advisors during the conduct of your thesis research, but this will affect the timely progress toward degree and could be emotionally draining.

Trade-offs and compromises are to be expected in selecting an advisor. For instance, it might be preferable to choose an advisor whose students take a slightly longer time to complete their degrees if they provide better future opportunities than those of a different faculty member. While some students may be eager to work with a famous full professor, others might fear that the busiest advisors would have the least time for their students. Finally, be aware that procedures for matching students and advisors may vary by program.

To select the best advisor, you might meet with all the faculty members of your program who are willing to take a student and talk with other graduate students in the program about the qualities of the faculty members eligible to direct dissertations. Be cautious about making assumptions and ask questions covering a range of topics. Some questions should best be discussed with the faculty member in question, others might better be asked of advanced graduate students. To help you, consider the following list of questions in selecting a dissertation advisor; the list is not intended to include all mandatory qualities that advisors should possess. Some items pertain more to specific disciplines than to others. Remember, too, that faculty members will have a number of questions to ask you.

Questions To Consider In Selecting A Dissertation Advisor

These questions have been adapted from a document prepared by the Graduate School, State University of New York at Stony Brook, and are put forth by the Office of the Provost.

- Is the advisor an expert in the area of research or scholarship that you intend to pursue? Is his/her critical or theoretical orientation consistent with yours?
- How much freedom will you have in your choice of dissertation topic with this advisor?
- What is the reputation of the advisor within the discipline?
- How responsive is the advisor? How long does it take for him/her to return written material with comments?
- How accessible is the advisor for discussion?
- Is the advisor likely to remain on the faculty for the duration of your degree work?
- How many students does he/she advise? If none, why? If a large number, does this affect the attention that he/she pays to individual students?
- How much time does he/she spend away from campus? Is he/she available during the summer?
- How long do students take to complete their degrees with this advisor?
- What proportion of this advisor's students successfully complete the program?
- What is the placement record of this advisor's students? Where do they get jobs?
- Does the advisor publish with his/her students as first author?
- How many publications does the typical student accumulate with this advisor?
- Do the advisor's students go to disciplinary or professional conferences?
- Do the advisor's students make presentations of their own work at conferences?
- How much interaction is there with other advisees of this faculty member? Does he/she direct a research group or rather a series of individuals?
- How much of the research is collaborative with the advisor and/or other advisees?
- How much involvement is expected in "group" research projects that are not appropriate for inclusion in your dissertation? How much of this contributes to your professional development and marketability?
- How is credit for collaborative work assigned?
- Is the advisor engaged in patentable or saleable work? If so, how does he/she assign credit to the student? Does this work get published promptly?
- Is the advisor's work funded? What are the guarantees of funding for the advisor's students?

- Does the advisor assist his/her students in obtaining their own funding from outside sources such as fellowship programs?
- Does the advisor have good relations with other faculty in the program?
- Does the advisor have a reputation for ethical behavior?
- Are the advisor's work habits and "laboratory culture" compatible with your own?

Graduate Milestones

The University tracks your progress toward the degree by means of a series of Graduate Milestones. Successfully completing each milestone is a University requirement for the PhD degree. The following are the School of Medicine milestones. Full descriptions follow under the subsequent section, University Regulations Pertaining to Doctor of Philosophy Degrees.

I. *The Preliminary Examination*. Conducted by the Steering Committee at the conclusion of your first year of study. Successful completion of preliminary examination requires that the student must have identified laboratory for their dissertation research. If you are unable to do so, you will be subject to dismissal from the graduate program, and hence, the University of Pittsburgh. The Program Director must sign the Preliminary Examination milestone form.

II. *The Comprehensive Examination*. An oral and/or written examination usually conducted at the end of the second year of study by the student's specialized training program. The advisor is not required to be a member of the student's comprehensive examination committee, but a majority of the committee members must have graduate faculty status at the University of Pittsburgh. A mentor, if included on the committee, must be a non-voting member.

After passing the Comprehensive Exam, the student, in consultation with his/her advisor, selects the dissertation advisory committee members according to the following guidelines passed by the Steering Committee:

a. There shall be a minimum of four members on the dissertation committee in addition to the thesis advisor, thereby requiring a minimum of five committee members.
b. The advisor is not required to be a member of the student's comprehensive examination committee, but a majority of the committee members must have graduate faculty status at the University of Pittsburgh. A mentor, if included on the committee, must be a non-voting member.
c. The dissertation advisor may or may not serve as the chair of the examination committee, and it shall be at the discretion of the training program. This must, however, clearly be stated as the program policy and uniformly applied to all students within the training program.
d. A majority of the committee, including the advisor, must have graduate faculty status, and must be from the student's training program.
e. A minimum of one graduate faculty member from the university community who is not a member of the student's training program must participate on the committee as an external member. The external member cannot serve as the committee chair.
f. The dissertation committee must be approved by the director of the student's training program prior to seeking approval from the Associate Dean for Graduate Studies. This is achieved by completing the Nomination of a Doctoral Dissertation Advisory

Committee. Only upon these approvals may the student convene an Overview/Prospectus meeting and then petition for Admission to Candidacy.

III. *Dissertation Overview/ Prospectus Meeting*. The student's dissertation advisory committee, pending approval of the Associate Dean for Graduate Studies, meets and approves the dissertation proposal at this meeting.

IV. *Application for Admission to Candidacy for the Doctoral Degree*. This is the formal petition from a student permitting them to study toward the PhD degree. It must be approved by the Associate Dean for Graduate Studies.

After being Admitted to Candidacy, the University requires students to meet with their dissertation committee yearly, at a minimum, and report the results in the form of a summary and action plan to the Graduate Studies Office in writing. Most programs require dissertation committees to meet twice a year.

V. *Dissertation Defense Report*. When the dissertation work and written thesis are completed, a public defense is held. The Dissertation Defense Report is signed and submitted to the Graduate Studies Office following the defense.

VI. *Dissertation Approval Report*. The Dissertation Approval Report is signed by your dissertation committee and submitted to the Graduate Studies Office upon completion and approval of all revisions.

University Regulations Pertaining to Doctor of Philosophy Degrees (as taken from the following webpage) https://catalog.upp.pitt.edu/content.php?catoid=189&navoid=17930

Admission to Doctoral Study

In some doctoral programs, the requirements for admission to graduate study and for admission to doctoral study are identical, while other programs require the completion of a master's degree or its equivalent as a prerequisite for admission to doctoral study. Admission to doctoral study does not include any implication concerning "admission to candidacy" for the Doctor of Philosophy degree.

Programs of Study

All PhD programs offered at the University of Pittsburgh should provide a coherent series of courses, seminars, and discussions designed to develop in the student a mature understanding of the content, methods, theories, and values of a field of knowledge and its relation to other fields. Each program should train the student in the methods of independent research appropriate to the discipline and provide an adviser and a committee to guide the student in an extended investigation of an original and independent research project of significance in the field.

The overall form and content of each student's program is the responsibility of the Graduate Faculty of the department or program. To carry out this responsibility, departments or programs must ensure that each student has a major adviser who, in consultation with the student, plans a program of study and research in accord with school and departmental guidelines. The adviser may prescribe additional courses both within and outside the department or program that are essential and/or appropriate to the student's program.

Some doctoral programs may include approved areas of concentration used to define and describe the students' training and expertise within the broader discipline. Such an area of concentration is added to the transcript upon the granting of the degree.

Doctoral level courses are numbered in the 3000 series, but courses numbered in the 2000 series may also be appropriate for doctoral study. Normally, courses numbered below 2000 do not meet the minimum requirements for doctoral study, although they may be taken to supplement a doctoral program.

Students must maintain a minimum cumulative GPA of 3.00 in courses to be eligible to take the preliminary and comprehensive examinations as well as to be graduated.

The requirement of proficiency in the use of foreign languages or other tools of research is at the discretion of individual departments or schools.

Departments or programs are expected to provide students with a copy of school and departmental regulations appropriate for their program and, in turn, students are expected to become familiar with these and to satisfy all prescribed degree requirements.

Credit Requirements

The minimum credit requirement for the PhD degree is met by six terms of registration as a graduate student for 12 or more credits per term or the equivalent number of credits in a reduced load. A minimum of 32 course credits and 40 dissertation credits are required to earn a PhD degree.

If the school requires completion of its master's degree program prior to admission into its doctoral program, at least four terms of registration for 12 or more credits per term or the equivalent number of credits in a reduced load are required as a minimum for the PhD degree. No more than 30 credits may be accepted for a master's degree awarded by another institution to meet the minimum credit requirement. In recognition of graduate study beyond the master's degree successfully completed elsewhere, no more than 12 additional credits may be accepted at the time of admission to meet the minimum credit requirement. (See Acceptance of Transfer Credits at https://catalog.upp.pitt.edu/content.php?catoid=73&navoid=6359). No more than 30 credits may be accepted for a previously earned PhD degree in recognition of master's degree work.

Graduate students already enrolled may, when approved in advance by their department or programs and the dean, spend a term or more at another graduate institution to obtain training or experience not available at the University of Pittsburgh and transfer those credits toward the requirements for an advanced degree at the University of Pittsburgh. In all cases, at least three terms, or 36 credits, of full-time doctoral study or the equivalent in part-time study must be successfully completed at the University of Pittsburgh.

Students must register each term for the number of credits for course work, independent study, or research equivalent to the anticipated use of faculty time and University facilities. A student who has not registered for at least one credit during a 12-month period will be transferred automatically to inactive status and must file an application for readmission to graduate study (and pay the application fee) before being permitted to register again.

Residency Requirement

Students seeking the PhD degree are required to engage in a minimum of one term of full-time doctoral study, which excludes any other employment except as approved by their departments or programs.

Academic Evaluations

Student academic evaluations are required for PhD students and must occur annually.

Preliminary Examination

The preliminary examination will be conducted either at the end of the spring term or during the summer to review the first-year students' performance in courses as well as written evaluations by the faculty members involved in the laboratory rotations. See Research Rotations for more details.

Annual Academic Assessments for students in their second and subsequent years will be conducted at the end of the spring term or during the summer to assess their performance in courses, thesis committee reports, as well as through written assessments by their faculty mentors.

One of three decisions will be made for each student after the annual academic assessment:

- The student may be advanced to the following academic year in good standing
- The student may be conditionally advanced; they would then be directed to specific courses or other requirements that would address the committee's concerns
- The student may be placed on probation for a specified period, and if the conditions of the probation are not satisfied, dismissed from the program for poor academic performance.

Comprehensive Examination

The Comprehensive Examination should be designed to assess the student's mastery of the general field of doctoral study, the student's acquisition of both depth and breadth in the area of specialization within the general field, and the ability to use the research methods of the discipline. In some programs, the comprehensive examination is combined with the overview or prospectus meeting. It should be administered at approximately the time of the completion of the formal course requirements and should be passed at least eight months before the scheduling of the final oral examination and dissertation defense. In no case may the comprehensive examination be taken in the same term in which the student is graduated. Examination results must be reported promptly to the graduate studies office, but no later than the last day of the term in which the examination is administered. A student who is unable to complete all degree requirements within a five-year period after passing the comprehensive examination may be re-examined at the discretion of the department, program, or school.

Doctoral Committee

Before admission to candidacy for the PhD degree, the student's major advisor proposes for the approval of the doctoral program director and the dean a committee of four or more persons, including at least one from another department in the University of Pittsburgh or from an appropriate graduate program at another academic institution, to serve as the doctoral committee. The majority of the committee, including the major advisor, must be full or adjunct members of the Graduate Faculty. The chair of the doctoral committee should be someone other than the dissertation advisor and should also be a member of the Graduate Faculty. This committee must review and approve the proposed research project before the student may be admitted to candidacy.

This doctoral committee has the responsibility to advise the student during the progress of the candidate's research and has the authority to require high quality research and/or the rewriting of any

portion or all of the dissertation. It conducts the final oral examination and determines whether the dissertation meets acceptable standards.

Thesis Committee Meetings are mandatory every six months. At these meetings, the students will present their progress and receive feedback from their thesis advisory committees. Students whose performance is not satisfactory could be placed on academic probation for a defined period with guidance on how to return to good academic standing.

Meetings of the doctoral candidate and his/her dissertation committee must occur every six months from the time the student gains Admission to Doctoral Candidacy. During these meetings, the student will present their progress and receive feedback from their thesis advisory committees. The committee should discuss objectives for the following year and a timetable for completing degree requirements. Students whose performance is not satisfactory could be placed on academic probation for a defined period with guidance on how to return to good academic standing. It is the responsibility of the dean of each school to determine a mechanism for monitoring the occurrence of these annual reviews.

The membership of the doctoral committee may be changed whenever it is appropriate or necessary, subject to the approval of the department chair or program director and the dean.

When a doctoral committee member leaves the University, he or she must be replaced unless the dissertation is almost complete, or the member has an essential role on the committee. In the latter case, the dean's approval should be obtained. When the chair of a committee leaves and cannot be conveniently replaced, a co-chair must be appointed from within the department or program, and the restructured committee requires the approval of the department chair or director of the school's doctoral program and the dean. If the defense takes place within a few months of the chair's departure, the requirement of the co-chair is usually waived.

A retired faculty member may remain as a member or chair of a committee if he or she is spending considerable time in Pittsburgh or its vicinity and is still professionally active. Retired faculty who meet these criteria may also be appointed as a member or as a co-chair (but not chair) of a newly-formed committee. Retired faculty who leave the Pittsburgh area and/or do not remain professionally active should be replaced on committees and the revised committee approved by the department chair or the school's director of doctoral programs and the dean.

Overview or Prospectus Meeting

Each student must prepare a dissertation proposal for presentation to the doctoral committee at a formal dissertation overview or prospectus meeting. The overview requires the student to carefully formulate a plan and permits the doctoral committee members to provide guidance in shaping the conceptualization and methodology of that plan. The doctoral committee must unanimously approve the dissertation topic and research plan before the student may be admitted to candidacy for the doctoral degree. Approval of the proposal does not imply either the acceptance of a dissertation prepared in accord with the proposal or the restriction of the dissertation to this original proposal. The student is responsible for ensuring that all appropriate regulatory approvals are obtained for the proposed research. For example, if the research proposed in the overview or prospectus involves human subjects, that proposed research must be approved by the University Institutional Review Board (IRB) before it may be carried out.

Admission to Candidacy for the Doctor of Philosophy Degree

Admission to candidacy for the Doctor of Philosophy degree constitutes a promotion of the student to the most advanced stage of graduate study and provides formal approval to devote essentially exclusive attention to the research and the writing of the dissertation. To qualify for admission to candidacy, students must be in full graduate status, have satisfied the requirement of the preliminary evaluation, have completed formal course work with a minimum grade point average of 3.00, have passed the comprehensive examination, and have received approval of the proposed subject and plan of the dissertation from the doctoral committee following an overview or prospectus meeting of the committee. In some schools, admission to candidacy is a prerequisite to registration for dissertation credits. Students are informed of admission to candidacy by written notification from the dean, who also states the approved doctoral committee's composition.

Dissertation and Abstract

Each student must write a dissertation that presents the results of a research project carried out by the student. An appropriate research project involves a substantive piece of original and independent research grounded in an appropriate body of literature. It is relevant to an identifiable field as it is currently practiced. It presents a hypothesis tested by data and analysis and provides a significant contribution or advancement in that field. It is the responsibility of the student's doctoral committee to evaluate the dissertation in these terms, and to recommend the awarding of the doctoral degree only if the dissertation is judged to demonstrate these qualities.

Characteristics which a dissertation should demonstrate are: the establishment of a historical context for the presentation of an innovative and creative approach to the problem analysis and solution; a clear understanding of the problem area as revealed by analysis and synthesis of a broad literature base; a well-defined research design; clarity in composition and careful documentation; results of sufficient merit to be published in refereed journals or to form the basis of a book or monograph; sufficient detail so that other scholars can build on it in subsequent work; the preparation of the author to assume a position within the profession.

If the dissertation is the result of a collaborative research effort, the project should be structured in such a way that the student's dissertation results from one, clearly identified piece of work in which the student has supplied the unquestionably major effort. The contributions of the student and the other collaborators must be clearly identified.

Published articles authored by the student and based on research conducted for the dissertation study may be included in the dissertation, if the student's department and school have a written policy that this is acceptable. In any case, the published work must be logically connected and integrated into the dissertation in a coherent manner, and sufficient detail must be presented to satisfy the characteristics of a dissertation. The student should be the sole or primary author of the published work. If the published articles were co-authored, the contribution of the student must be clearly delineated in the introduction so the committee can ascertain that the student's own work satisfies the requirements of a dissertation. Instructions on incorporating articles into the dissertation are provided in the Format Guidelines for Electronic Thesis and Dissertation Preparation at the University of Pittsburgh. https://etd.pitt.edu/etd-format-guidelines

Candidates for the doctoral degree must provide a suitable number of copies of the dissertation, as determined by the doctoral committee and school policy, for review and use during the final oral examination. The general format of the dissertation and the abstract is determined by the Office of the

Provost and is set forth in the Format Guidelines for Electronic Thesis and Dissertation Preparation at the University of Pittsburgh. Specific instructions should be available in the office of the dean of the school. After the final oral examination is successfully completed, the candidate must electronically submit the approved complete dissertation and abstract in final form. The candidate must submit a dissertation approval form, the required agreement with University Microfilms Inc. for the publication of the dissertation on microfilm and for the publication of the abstract in Dissertation Abstracts, and any appropriate fees to the designated student services representative in the dean's office of the candidate's school.

Language of the Doctoral Dissertation

The language in which doctoral dissertations are written shall normally be English. Exceptions may be granted by the student's dean with the approval of the dissertation advisor and committee, but only for sound reasons of scholarship. Permission shall never be granted on the ground of inadequate command of English.

Final Oral Examination

The final oral examination in defense of the doctoral dissertation is conducted by the doctoral committee and need not be confined to materials in and related to the dissertation. Any member of the Graduate Faculty of the University may attend and participate in the examination. The date, place, and time of the examination should be published well in advance in the University Times. Other qualified individuals may be invited by the committee to participate in the examination.

Only members of the doctoral committee may be present during the final deliberations and may vote on the passing of the candidate. A report of this examination, signed by all the members of the doctoral committee, must be sent to the dean. If the decision of the committee is not unanimous, the case is referred to the dean for resolution. The chair of the doctoral committee should ensure that the dissertation is in final form before requesting signatures of the members of the committee.

Academic Appointments for PhD Students

PhD students in the School of Medicine receive academic appointments that provide stipend support, tuition remission and health insurance. **First year IBGP students** receive **Dean's fellowships** through academic appointments as **Predoctoral Fellows** (Certificate Fellows) – Predoctoral Fellows and Trainees Policy. These fellowships are awarded to support entering first year students before they choose a dissertation advisor and join a degree-granting program. To retain the award students must maintain a minimum grade point average of 3.00 while taking a full-time course load (9-15 credits in the Fall and Spring Terms; 3 credits in the Summer Term). Web links provide complete University policies for each type of academic appointment.

In the **second year and beyond**, PhD students in the medical school are supported through academic appointments as –

1. **Graduate Student Researchers** (GSRs) are generally funded through research grants to faculty mentors. Graduate Student Researchers (GSR) Academic Regulations
2. **Trainees** are generally funded through NIH Training grants (e.g. T32) Predoctoral Fellows and Trainees Policy

3. **Predoctoral Fellows** are generally funded through NIH predoctoral fellowships (e.g. F30, F31) Predoctoral Fellows and Trainees Policy

It is School of Medicine's policy that all graduate students receive the same amount of stipend, regardless of educational background or program of study. The only exceptions are competitive individual fellowships that pay higher stipends. Awards with a stipend that is less than the program stipend must be supplemented up to the full school level.

Termination of an Academic Appointment

Termination may result from unsatisfactory academic performance or from unsatisfactory professional conduct or performance. Examples include failure to attend classes regularly, having a GPA below 3.0, failure to carry out assignments, research progress that does not meet the standards of the program, or violations of the University policies for academic or research integrity.

Termination proceedings may be initiated only if the student has been evaluated on a regular basis and has received an appropriate written warning with respect to his or her performance or has violated one or more of the major canons of institutional responsibility or University policy.

Appeals Procedure

Students are entitled to appeal their dismissal. The academic policy for each appointment type has an associated appeal procedure. In general, the student must file a written appeal within a proscribed time period (e.g. ten days). Appeals processes usually flow from the Associate Dean for Graduate Studies to the Dean of the School of Medicine to the Provost. Students considering an appeal should carefully review the policy governing their type of academic appointment (e.g. GSA, GSR, Predoc Fellow or Trainee).

Policies and Resources

The following policies and resources apply to ALL graduate students at the University of Pittsburgh School of Medicine. Students must familiarize themselves with these policies. Ignorance of any policy will not be accepted as an excuse for violation. Policies and Resources can be found at https://somgrad.pitt.edu/policies-and-resources-school-medicine-graduate-students

- Leave of Absence
- Graduate Student Parental Accommodations Guidelines
- Financial Aid

- Educational Enrichment Account (for PhD programs who offer this)
- External Support for Graduate Students
- Tuition
- University of Pittsburgh Code of Conduct
- Academic Integrity Guidelines
- Research Integrity Policy
- Bias/Mistreatment
- Office of the Learning Environment (OLE)
- School of Medicine Ombuds Office
- Title IX
- Biomedical Graduate Student Association
- Graduate Student Unionization
- Drug and Alcohol Policies and Resources
- Building Emergency or Inclement Weather Policy for Students
- University Resources

Bloodborne Pathogens Policy

It is the policy of the University of Pittsburgh to limit or prevent occupational or student exposure to blood and other potentially infectious materials and to provide certain treatment following any such exposure. This document serves to clarify the University program for education, prevention, post-exposure medical treatment and follow-up* provided for employees and students who have been exposed to bloodborne pathogens as a part of workplace or other programmed activity.
*Post-exposure medical treatment and follow-up as defined in the OSHA Standard.
https://www.policy.pitt.edu/cs-01-bloodborne-pathogens-formerly-06-01-03

University Units Supporting Research

1. **Safety**

The **University Radiation Safety Office** is responsible for ensuring that all sources of licensed radioactive material and ionizing radiation producing equipment, which fall under its responsibility, are used optimally and safely. The office also ensures that these sources of ionizing radiation are used in compliance with applicable federal and state regulations and with institutional licenses. The University of Pittsburgh Radiation Safety Program covers all of the main and regional campuses in addition to UPMC Presbyterian/Shadyside, Children's Hospital of Pittsburgh of UPMC, and Magee-Womens Hospital of UPMC. The Radiation Safety Office is responsible for developing and implementing the policies and procedures of the radiation safety program as approved by the University's Radiation Safety Committee. The responsibilities and functions of the Radiation Safety Office include, maintenance of radioactive materials and accelerator licenses and X-Ray machine

registrations, radiation safety training, personnel radiation monitoring, receipt and inventory of radioactive materials, radiation surveys and compliance audits, clinical radiation physics support, radiation safety procedure design and review, radioactive waste disposal.

Located in 3500 Fifth Avenue, Suite 400.
412-624-2728
radsafe@pitt.edu

The Director of Environmental Health and Safety (412-624-9505) should be consulted about proper use, storage, and disposal of hazardous materials, including bloodborne pathogens.
Safety@ehs.pitt.edu

IBC - All proposals for work involving recombinant DNA or gene therapy must be submitted to the Institutional Biosafety Committee (IBC). 412-383-1768 ibc_support@pitt.edu. The IBC Office is responsible for implementing policies and procedures of the IBC in order to help ensure compliance with the *NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules*. The office staff also provides guidance and IBC oversight support for the research community. The IBC is the federally required review board responsible for oversight of research involving recombinant or synthetic nucleic acid molecules conducted at or sponsored by the University of Pittsburgh. The IBC oversight program covers all research at the main and regional campuses in addition to UPMC Presbyterian/Shadyside, Children's Hospital of Pittsburgh of UPMC, and Magee-Women's Hospital of UPMC.

2. Intellectual Property and Technology Management – Innovation Institute

Investigators may have occasion to protect their research findings, both for themselves and for the University, through copyrights or patents. The Innovation Institute Management is the University's hub for activities that promote and foster innovation and entrepreneurship on campus and throughout the Pittsburgh region. The Innovation Institute is built on a foundation supported by education, collaboration, communication, and economic development. The goals of the Institute are to encourage and support innovation and entrepreneurship on campus and in the community, and to foster a culture of innovation and entrepreneurship at Pitt among faculty, staff and students.
http://www.innovation.pitt.edu/, 1st Floor Gardner Steel Conference Center, 130 Thackeray Avenue, 412-383-7670.

3. Office of Research

The Office of Research (OR), a central office reporting to the Senior Vice Chancellor for Research, is charged with assisting faculty, staff, and students in their efforts to promote and secure sponsored research funding. The OR reviews, negotiates, endorses, and provides administrative oversight related to proposals and awards in accordance with all applicable laws, policies and regulations. The Vice Chancellor for Research Operations of the Office of Research serves as the designated University Officer empowered for all sponsored research activities: http://www.research.pitt.edu/; 412-624-7400.

4. Office of Research, Health Sciences

The mission of the Office of Research, Health Sciences (OORHS), is to foster both the emerging and the established research enterprises within and across the six schools of the Health Sciences at the University of Pittsburgh. http://oorhs.pitt.edu/, 412-648-2232.

5. Office of Clinical Research

The mission of the Office of Clinical Research, Health Sciences (OCR), is to promote the growth of clinical research within and across the six schools of the Health Sciences at the University of Pittsburgh. The OCR's mission is to facilitate promotion of an interdisciplinary collaborative environment that fosters the translation of research to the community. A successful collaborative environment will increase the institution's competitiveness for clinical and translational research initiatives, promote the development of junior clinical investigators, facilitate participant recruitment into clinical research studies, and improve health in the community by increasing access to university-based and medical system-wide clinical research Office of Clinical Research, Health Sciences | Office of Academic Career Development | University of Pittsburgh, 401 Scaife Hall 412-648-2332.

6. Recombinant DNA Office

The Pittsburgh Area Institutional Biosafety Committee (IBC) was first registered with the USG in June 1991. A decade later, the IBC was organizationally placed under the Research Conduct and Compliance Office (RCCO), and the committee was provided with administrative support with the establishment of the IBC office. Currently, three full-time personnel for the committee and research community, staff the IBC Office. The IBC is charged with the following responsibilities: Review of ALL research proposals involving recombinant or synthetic nucleic acid molecules, Notifying the Principal Investigator of the outcome of review and committee recommendation(s), Determination of reducing ("Downgrade Request") or increasing the biosafety containment levels (BSL), Conducting periodic reviews ensuring compliance with the *NIH Guidelines,* Approving emergency plans covering accidental spills and/or personnel contamination developed and recommended by University Biosafety Officer(s) and the Department of Environmental Health and Safety, reporting significant problems or violations of the *NIH Guidelines* to the appropriate federal agencies, The IBC may not authorize research experiments involving recombinant or synthetic **nucleic acid molecules that are not covered by the *NIH Guidelines* until the NIH establishes the standard of containment, Performance of other functions as deemed necessary.** For more information, please visit http://www.ibc.pitt.edu/about. The IBC office is located at: Hieber Building, 3500 Fifth Avenue, Suite 202.

7. Research Conduct and Compliance Office

The Research Conduct and Compliance Office of the University of Pittsburgh will oversee and facilitate the conduct of ethical and regulation-compliant research through an integrated system of research review, audit and educational programs http://www.rcco.pitt.edu/ , RCCO Learning Resource Center, 3rd Floor, Room 305 3500 Fifth Avenue.