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**Program Policies**

**Graduate Program in Cellular and Molecular Physiology**

**The Johns Hopkins University School of Medicine**

## **TABLE OF CONTENTS**

- 1) Mission Statement
- 2) Application and Admissions
- 3) Leadership, Faculty, participation
- 4) Program Requirements
- 5) Students of Faculty Who Leave the School of Medicine
- 6) Other Activities
- 7) Other Policies
- 8) Other Resources

## **[School of Medicine Graduate Program Policies and Guidelines](#)**

### **CMP-specific Appendices/Links:**

- A. Honor Code
- B. Cellular and Molecular Physiology Program Contract for Participating Faculty
- C. [Policy on Annual Academic and Professional Development Discussions for PhD Students and Their Faculty Advisor](#)
- D. [Policy on Mentoring Commitments for PhD Students and Faculty Advisors](#)
- E. [JHU Mentorship Commitments of Faculty Advisors and PhD Students](#)

## **1) Mission Statement**

The Cellular and Molecular Physiology Graduate Program (CMP) awarded its first PhD in 1954. The mission of the Cellular and Molecular Physiology Graduate Program is to provide advanced and rigorous research training in cellular and molecular physiology and to prepare students for leadership roles in academia and industry.

## **2) Application and Admissions**

The CMP accepts students for graduate study leading to the degree of Doctor of Philosophy. Candidates for the degree of Master of Arts in Physiology are not accepted, although an MA degree can, in some circumstances, be awarded to students who do not complete their PhD studies. The goal with the application and admissions process is to identify those applicants with the best potential to make important contributions to the discipline of physiology, and to become leaders in their fields. The number of students admitted each year is determined by the Chair of the Department of Physiology.

### Program/Application Requirements

Applicants must have a bachelor's degree or equivalent in a science or engineering discipline, and are expected to have a year of chemistry, biochemistry, physics, mathematics (including calculus) and significant course work in one or more areas related to the biological sciences. Strong research experience is a significant positive factor for admission. GRE scores are no longer required. Three letters of recommendation are required for application. We recognize that some students may have unusual backgrounds, such as training abroad, which is not directly comparable to most US applicants, and thus exceptions can be made for students who are judged to have exceptional potential.

### Application

The CMP program uses an online application form and process shared by graduate programs operated by the Office of Graduate Biomedical Education. Fees from applications to the CMP program go to the Office of Graduate Biomedical Education to offset their costs for running the program. The application deadline for the CMP program is generally in early December every year.

### Admission Review Process

The program typically has far more applicants than there are positions in the program – in recent years there have been more than 40 applicants for 2-4 positions. Thus, there is an initial “triage” review by the CMP Program Director to eliminate applicants who are not competitive. Following this triage all applications are reviewed by the Admissions Committee, occasionally with input from other faculty with regard to specific students. The most promising applicants are brought to campus for interviews with CMP faculty. International students not presently in North America are interviewed by telephone or video conferencing. Based on review of academic records and results of the interviews with faculty, the Admissions Committee ranks the applicants in accordance with their potential to achieve the goals of the program. The maximum number of students admitted each year is determined by the Chair of the Department of Physiology. Offers are made to students on a rolling basis, and in accordance with the Council of Graduate Schools policies to which Johns Hopkins is party.

### Transfer Students

CMP does not encourage transfers, and students can only transfer into CMP from another institution as part of the normal admission process. These students must satisfy all the CMP requirements including rotations. At the discretion of the Program Director, significant earlier research experience may be used to waive one rotation and earlier course work may be used to waive some or all CMP course requirements. For students who move to Johns Hopkins with their advisors, admission may occur at any time during the year, although students must still meet admissions requirements for the CMP program. The approval of the CMP Program Director is required for non-CMP graduate students at Johns Hopkins to transfer their research training to a mentor within the CMP. The student must still satisfy all CMP requirements, although some accommodation for variations in early course work may be appropriate.

### Matriculation

Students will matriculate in the fall of each academic year, the exact date being set by the School of Medicine Calendar (last week in August). However, with the Program Director's approval, incoming CMP students may choose to matriculate early to work in a faculty member's lab during the summer prior to the start of their first academic year. Early matriculants must identify an available mentor for their summer research, and the mentor

must pay the student's stipend and health insurance during this time. A summer research effort of this type will make the student eligible to waive their regular spring rotation, and enter a thesis laboratory early.

### Diversity

The CMP program values students from all backgrounds and strives to maintain a diverse student body.

### **3) Leadership, faculty, participation**

#### Leadership

CMP is a small program and is run in an open fashion with ongoing consultations and discussions among the faculty on program related issues. This allows CMP to have a compact organizational structure. The primary responsibility for operation of the program lies with the Program Director, who is appointed by the Chair of the Department of Physiology. The Admissions Committee consists of the Program Director and at least two additional faculty in the department. The Policy Committee meets as needed to oversee major policy initiatives such as curriculum and qualifying exam changes.

**Program Director:** Dr. Steven M. Claypool

**Department Chair:** Dr. William B. Guggino

**Academic Administrator:** Madeline McLaughlin

**Admissions Committee:** Drs. Steven Claypool, William Wong, Shuying Sun

**Policy Committee:** Drs. Steven Claypool, William Wong, and Svetlana Lutsenko

#### CMP Faculty: Membership

Faculty members with primary appointment in the Department of Physiology are automatically members of CMP. To further enrich and broaden the program, other faculty members may wish to join and/or be invited to join CMP. Such faculty are subject to an evaluation process that assesses the suitability of their research programs for training CMP graduate students, their level of funding to support graduate student training, and their stated level of interest in contributing to the overall mission and activities of CMP. On a rolling basis, the primary faculty in the Department of Physiology will review faculty candidates for membership in the CMP program. Approval will require a majority vote. Upon approval, incoming CMP faculty are required to read the Cellular and Molecular Physiology Program Contract for Participating Faculty (**Appendix B**) and provide the Program Administrator and Program Director a signed and dated copy.

#### Expectations for Faculty Participation

Program participation is required for continuing membership in the CMP program. In addition to mentoring students in their labs, program members are expected to participate annually in serving on oral exams, interviewing perspective students during recruiting, and in additional activities including: teaching in core or elective courses, serving on thesis committees, serving on the admissions committee, and attending student rotation presentations. Other opportunities include serving on the policy committee, running a core or elective course, and organizing events that enrich the experience of CMP students.

The CMP program reviews faculty participation annually. Faculty members who have not contributed during the past academic year may receive a letter from the director reminding them that their membership in the program is dependent on participation, and are given one more year to engage. Failure to participate can result in labs being closed to new students or dismissal from the program.

#### 4) Program Requirements

##### Overview of Program Requirements

###### Year One

- Five Core (BCMB) Courses
- Organ Systems Physiology
- Research Ethics Course
- Current Physiology
- Primary Source Readings and Analysis (Journal Club with Pharmacology students)
- Research
- Research Seminars
- Physiology Journal Clubs
- Three Laboratory Rotations (Research)

###### Year Two

- Graduate Board Examination (Between Jan 1 and March 31<sup>st</sup>)
- Research
- Research Seminars
- Physiology Journal Clubs
- Have initial Academic and Professional Development Mentor-Mentee Meeting
- Have first Thesis Committee Meeting by August 15<sup>th</sup>.

###### Years Three and Higher

- Annual Academic and Professional Development Mentor-Mentee Meetings
- Annual thesis Committee Meetings (done on a yearly basis)
- Four Electives (to be completed before graduation)
- Student Individual Development Plans
- Research
- Participation in Research Seminars
- Physiology Journal Clubs
- Research Ethics
- Dissertation and Thesis Seminar

###### Year One Requirements

The goal of the first year CMP curriculum is two-fold. First, it is designed to provide students with a broad and up-to-date knowledge base in the cellular and molecular underpinnings of modern physiology. Second, students should acquire a broad understanding of human organ level physiology and be able to integrate advanced cellular and molecular biology concepts.

###### Courses:

###### **Analysis of Macromolecular Energetics, Structure and Function**

The course will cover (1) macromolecules, (2) physical chemical principles dictating their biological behavior, and (3) methods to study them. Macromolecular interactions and functions are interpreted through a framework that combines theoretical concepts with experimental illustrations thereof. Key methods include: X-ray crystallography, nuclear magnetic resonance, cryo-electron microscopy, mass spectrometry, absorption and emission spectroscopies, hydrodynamic methods, and single-molecule approaches. Lectures will focus on practical applications of the methods, experimental design, data collection, and elementary aspects of data analyses.

###### **Molecular Biology and Genomics**

This course covers the Molecular Biology and Genomics of both prokaryotes (using E. coli as the model organism) and eukaryotes, with a focus on "model organisms" including yeast, flies, worms, mice, and humans. Both the Molecular Biology (reductionist) perspective and the Genomics (systems biology) perspective will be provided on each topic, and there will be heavy emphasis on mechanism and regulation of fundamental processes in biological information transfer DNA->RNA-> protein. This lecture module will cover

genes and genomes, transcription and RNA, replication, chromosome structure and function, and genome instability.

### **Principles of Genetics**

Genetics covers fundamentals principles of genetics, focusing primarily on yeast, the fruit fly, and the mouse. Problem sets are an integral learning tool in this course.

### **Pathways and Regulation**

This course will cover the principles of membrane transport, bioenergetics, metabolic pathways, cell cycle and cell death with particular emphasis on regulatory mechanisms including receptor-mediated signaling, small GTPases, lipid molecules, kinases and phosphatases.

### **Cell Structure and Dynamics**

The objective of this course is to provide the basics of cell biology, including the structure, function and biogenesis of cellular organelles. Also covered are essential concepts on the cytoskeleton, cell-cell and cell-extracellular matrix interactions, cell motility, chaperones, and protein turnover.

### **Organ Physiology**

The course provides a basic understanding of the many different aspects of the internal structure and function of the body. It aims to present a comprehensive survey of the complex interrelationships that exist between the structure and function of cells and organs.

### **Additional Requirements**

#### **Current Physiology** (Wednesdays from 12-1 pm)

Students are required to attend all Physiology Department Seminars, which will be posted throughout the department. Also, students are required to attend 12 luncheons with seminar speakers. For six of the seminars, the students will be required to read a relevant paper from the speaker's lab prior to the seminar (a relevant paper can be found by searching the web). After the seminar, students will write and submit a 1-page (12 point, Times New Roman) document describing 1 or 2 "next experiments", which significantly extend or otherwise enhance the findings of a part of the seminar they attended. (Dr. Steven Claypool will review the 1<sup>st</sup> seminar summary for formatting.) The objective of this exercise is to go beyond understanding the work that was presented by the speaker, and encourage students to think about gaps in knowledge, formulate the next important questions, and design experiments that move a field forward. Grades will be based upon attendance (50%) and the summaries (50%).

#### **Introduction to Responsible Conduct of Research (ME:800.811)**

This first-year course incorporates discussion on topics such as: (a) the scientist as a responsible member of society, (b) research misconduct, (c) data acquisition and management, (d) authorship and publication practices, (e) mentor and trainee responsibilities, (f) use of animals in research, (g) conflicts of interest, (h) collaborative research and (i) human subjects protection. By inviting graduate students from a variety of training programs, the course provides a forum for students to share their experiences. Attendance is required for all sessions.

#### **Primary Source Reading and Analysis**

Students will receive articles in their inbox, which they should read prior to the group meeting. Students should be prepared to discuss the information and also present an article at a scheduled date.

#### **Research Seminars** (Every other Friday from 12-1pm; alternating weeks with Physiology Journal Clubs.)

Speakers are faculty, postdocs, and graduate students within the Department of Physiology. First year students will do a presentation based on work done during lab rotations.

#### **Physiology Journal Clubs** (Every other Friday from 12-1pm; alternating weeks with Research Seminars.)

CMP students are required to attend the student run journal club. Articles are provided for discussion and students and postdocs will lead discussion on a rotating basis.

#### **Grading**

Students who receive one or two grades of C, must re-take the course/s the following year and receive a "B-" or higher grade. Students who receive more than two grades of C or one D (or below) will be reviewed by the Admissions Committee and are subject to dismissal from the program. First year students receiving a C or lower in a first-year elective have the option of repeating the same course or enrolling in a different first year elective course the following year.

If a first-year student receives three or more "C" grades or below in the Core Courses and first year electives, they will be counseled by the Director of the Cellular and Molecular Physiology Graduate Program, at which time, the status of the student's enrollment in the program will be discussed.

### **Lab Rotations:**

Research represents the core of the training experience in the CMP program, and has two phases – the laboratory rotations and the dissertation research. Research in the first year is in the form of three research rotations in different laboratories. The purpose of the research rotations are, in order, to allow students and mentors to identify a good match for subsequent thesis research, to provide the student with technical and scientific skills in several specialized areas of physiology, to strengthen social interactions within the program and its member laboratories.

**Eligible Faculty for Lab Rotations.** Rotations must be done with faculty who are members of CMP. This includes all faculty members with primary appointment in the Department of Physiology as well as those from other Departments who have been accepted into CMP. An updated list of faculty can be obtained from the Academic Administrator or Program Director.

**Students will do three laboratory rotations.** These will engage the student in different research projects in three different laboratories working in different areas.

**Familiarity with the research of the faculty.** At the start of the semester, the office will arrange appointments of 30-60 minutes between the students and each faculty member to give the student an opportunity to learn about the research goals of that laboratory and to discuss possible rotation projects.

**Prior to each rotation cycle, faculty will be asked to indicate whether or not their lab is available in the next rotation.** Acceptance of a rotation student implies that the student will be considered for thesis work in that lab. A student may rotate in a lab to gain experience in a specific technique even though that lab is not open for thesis work, as long as this is made explicit prior to the rotation. The Program Director will assign students to rotations, and if unusual circumstances arise will consult the faculty. No more than one CMP student may rotate in any lab at the same time.

**First rotation.** After meeting with all faculty, the student will submit the names of three faculty members with whom they would like to do a rotation to the Program Director. The student may include a brief statement of why they desire a rotation in a particular lab. There is a limit of one CMP student per lab for the first rotation.

**Second rotation.** The student will submit a rank-ordered list of three faculty with whom they would like to do a rotation, with the highest preference listed first. The student must speak with each faculty member on the list before submitting a name. The student may include a brief statement of why they desire a rotation in a particular lab. There is also a limit of one CMP student per lab for the second rotation.

**Third rotation.** The student is free to choose any CMP-affiliated laboratory. The Director must be informed of the students' choice one week before the beginning of the third rotation. There is no limit on how many CMP students can rotate in a given lab, as long as the faculty member agrees.

**Duration of rotations.** The rotations cumulatively last approximately 10 months. All rotations together should not exceed 12 months, i.e., the student must select a lab for thesis work before the beginning of the second year of the program.

**Rotation Presentations.** Students will present results from each of their rotations at the Friday Seminar series, as scheduled by the program.

**Research Credits.** Students will register for Research in Physiology. Grades will be assigned by the Program Director with input from the faculty

**Lack of progress.** A student who fails to enter a thesis laboratory before the start of their second academic year is not making adequate progress, and may be dismissed from the program.

**Evaluations.** The mentor will provide a written evaluation of the student's progress to the Program Director at the end of each rotation.

**Lab Selection.** At the end of the third rotation, students are asked to select a laboratory for their thesis. In rare occasions, and with the permission of the Program Director, students may be allowed to do a fourth rotation. To continue with their training, [PhD students are required to have a research dissertation advisor](#).

### **Student Advisor During the First Year**

During the first year, the CMP Program Director serves as the student's advisor.

### **Year Two Requirements**

#### **Graduate Board Examination:**

It is University policy that all students successfully pass a Qualifying Oral Examination (GBO). CMP students shall schedule and take this examination between January 1<sup>st</sup> and March 31<sup>st</sup> of their second year. Students should arrange at least one mock GBO as a requirement before their actual GBO Oral Exam; students should arrange it themselves. At the beginning of the exam, students should be prepared to give a short (5-10 minutes is standard) overview of their proposed thesis research. The exam typically takes two hours, but students should allow three hours, when scheduling.

The goals of the exam are to test the depth and breadth of knowledge as covered in the first-year coursework and to examine the student's ability to design and interpret experiments.

#### **Structure of the Oral Exam Committee**

The Graduate Board Oral Examination is conducted by five faculty members. The committee consists of three "inside" members who must be a part of the Cellular and Molecular Physiology (CMP) Graduate Program, and two outside members who are not affiliated with the program. Faculty holding joint and secondary appointments with the Department of Physiology are considered as "inside" the department. Two alternates must also be selected, one from inside and one from outside the Program. At least one examiner from outside the department must be an Associate or Full Professor, and the senior outside faculty member will serve as Chair of the Oral Exam Committee (as determined by the Graduate Board). The advisor may not be included on this committee.

#### **Selection of the Oral Exam Committee**

Students may, with input from their preceptor, suggest the members for this committee to the Program Director by submitting a list of prospective names prior to scheduling the exam. Since the mandate of the committee is to test the breadth and depth of the students' knowledge, there should be a diversity of expertise on the committee. Faculty members whose research spans disciplines may fill the requirement of any of their areas of expertise. If you propose an Oral Exam Committee which the Program Director feels is too narrowly focused, you may be asked to broaden the scope by suggesting alternate members on your list and resubmitting. Alternatively, the Program Director may select other members. While the student is allowed input into the selection of the committee, the final composition of the committee is determined by the Program Director.

#### **Outcomes for the Exam**

The result of the examination will be either Unconditional Pass, Conditional Pass, or Fail. An Unconditional Pass is self-explanatory. A Conditional Pass means that the committee noted a deficiency that needs to be addressed to ensure the student has the necessary foundation for success. A Fail does not mean immediate dismissal. Instead, the student is typically given an opportunity to retake the exam with the same or a new committee. Other conditions will be stated on the Oral Examination form. A second Fail will result in dismissal from the program.

#### **Dissertation Research:**

The goal of the dissertation research is to provide the student with mentored training in how to perform advanced research in physiology. Through this training the student should develop the skills and knowledge that will allow them to become a successful independent scientist. This includes being able to understand difficult problems, pose well stated hypotheses, design experiments to test specific hypotheses, perform and interpret experiments, present findings orally and in written form, communicate with other scientists, collaborate with other scientists, evaluate science productively and critically, and other skills expected of a PhD. Research progress will be monitored regularly via Annual Academic and Professional Development Mentor-Mentee Meetings (described below), thesis committee meetings, and through grades for the research course.



To continue with their training, [PhD students are required to have a research dissertation advisor](#). Students will generally be assigned to a laboratory after their third rotation, based on mutual agreement with the head of the lab. Research toward a PhD thesis will be performed under the guidance and direction of a program faculty member. Together, they will define the focus and direction of the proposed dissertation research.

### **Research Seminars**

There are currently two seminar series in the Department, a Wednesday seminar normally given by prominent scientists from outside the department and a Friday seminar given by faculty, students and postdoctoral fellows associated with the Department of Physiology. Beginning in the first year, and continuing throughout their education CMP students are expected to attend both of these regularly. Students are also expected to present progress on their research during the Friday seminar at least every other year.

### **Physiology Journal Clubs**

CMP students are expected to participate in the student run journal club that is held on alternating Fridays.

### **Annual Academic and Professional Development Mentor-Mentee Meetings:**

Johns Hopkins University requires all PhD programs to have a policy in place for an annual discussion between each PhD student and their advisor(s) that covers the student's academic progress and professional development goals. This is also known as an Individual Development Plan or IDP. In accordance with this [Policy on Annual Academic and Professional Development Discussions for PhD Students and Their Faculty Advisor \(Appendix C\)](#), the two parties must complete the on-line IDP form which can be accessed at the [PhD Student Academic Progress Tools](#) login page. This page has links to both the IDP Forms and the Thesis Committee Tracker.

**Details for the SOM process for annual IDP meetings, please visit the [How-To Page](#).**

- 1. The graduate program informs their students and advisors of the annual requirement**, including any deadlines specific to the program or a cohort. At a minimum, the IDP process should be completed annually and before the thesis committee meeting.
  - Students who do not yet have a thesis advisor may complete this process with their program director or academic advisor.
  - Students who have two thesis advisors may complete this process with both.
- 2. Student and advisor complete separate IDP forms:** Access for each party is obtained at the [PhD Student Academic Progress Tools](#) login page; the role is selected when accessing the form through single sign-on (with JHED ID).
  - The form includes questions on the student's research project and progress, their professional development, the mentoring relationship with the advisor, the overall lab/research team environment, and an evaluation of competencies.
- 3. Student and advisor Meet to Discuss and Plan:** After both forms are complete, Student and Advisor can access them in a combined view. Student and Advisor meet to discuss their responses and develop an action plan for the upcoming year.
- 4. Student confirms that the meeting took place by submitting a meeting date.**
- 5. Student shares action plan with thesis committee:** For students who have thesis committees, the final action plan developed under #3 above should be shared at their next thesis committee meeting.

The **Thesis Committee Meeting Form** on the [Thesis Tracker](#) has a box to complete has a box to check to ensure that the annual mentoring meeting has been held. Additionally, at the end of the thesis committee meeting, the advisor must leave the room so that the student can talk alone with the committee members.

### **Thesis Committee:**

The thesis committee consists of the advisor and a minimum of three additional faculty (typically full-time Johns Hopkins faculty that are assistant professors or above; faculty at other institutions may be also considered although this could complicate scheduling thesis meetings) who are knowledgeable in the relevant field of

study and whose expertise may be beneficial to the student's project. There are no other restrictions on the composition of the committee, but it must be approved by the student's advisor. The first thesis meeting should take place as soon as practical after successfully completing your Oral Exam and required courses, but not later than August 15th at the end of the second year. Thesis meetings typically last ~90 minutes. They can be shorter but should not be longer.

#### Prior to the first thesis meeting only:

- A thesis proposal, typically in the format of an NIH fellowship application, is prepared and distributed to the thesis committee 1 week before the actual meeting. If the student has previously written a fellowship in the format of a different funding agency, this may be used in lieu of the NIH format (max length 6-7 pages).
- A Thesis Committee Chair is selected by the student. The Thesis Chair will complete the online Thesis Tracker information (accessed at the [PhD Student Academic Progress Tools](#) login page) for the committee to sign.

### **Years Three and Up Requirements**

#### **Thesis Committee:**

For every thesis committee meeting after the first one, a brief description of progress made in the year since the last thesis committee meeting will be prepared and distributed to all Thesis Committee members at least 1 week in advance of the meeting. **Meetings must be held once per year following the initial meeting.** Students will receive an email reminder from the Academic Program Administrator and/or Thesis Tracker approximately 60 days prior to this deadline. If the student fails to hold his/her annual meetings by the established date, they can be placed on academic probation with a stated deadline to hold the thesis meeting. A [thesis committee tracker](#) form that outlines progress of a student should be completed and signed by the Thesis Chair and signed by all committee members, the student and their mentor. The CMP Academic Administrator and Program Director track the completed thesis committee tracker forms for any follow-up needed. Students beyond Year 5 are required to hold thesis committee meetings every 6 months as they near completion of their dissertation research.

#### **Electives:**

Four (4) electives must be completed as a part of the degree requirements. These 4 electives must be completed by the end of Year 5. Courses must be germane to the student's studies in physiology, as determined by the Program Director. For credit, an elective course must involve at minimum 12-24 classroom hours, or equivalent. Up to one required elective can be satisfied by a course taken outside of Johns Hopkins. For a course to satisfy an elective requirement it must be relevant to the student's course of study, of high educational quality and substantive in terms of effort (such as summer courses offered by MBL and CSHL; approved on-line courses). Credit will be granted if a student receives a grade of B- or higher or a Pass. Also, two of the four elective requirements may be satisfied for those students who earned a Master's degree prior to matriculating into CMP. This decision is at the discretion of the Program Director and will be based on whether such prior coursework met CMP standards for an elective, the subject matter, and the final grade. For more information on this and related procedures, students are encouraged to review the SOM [Course Waiver Policy](#) and [Non credit to Credit Policy](#).

#### **Mentoring Guidance and Expectations**

Johns Hopkins University is committed to a culture of quality mentoring for all students. The [Policy on Mentoring Commitments for PhD Students and Faculty Advisors](#) (**Appendix D**) provides mechanisms to support a climate of excellence in mentoring for PhD students; and the [JHU Mentorship Commitments of Faculty Advisors and PhD Students](#) (**Appendix E**) outline mentoring expectations that should be discussed by advisors and their students. The CMP program ensures that these mentorship commitments are disseminated and discussed via the following mechanisms:

- As part of onboarding our incoming CMP students, the CMP Policy Book is provided in advance of a meeting with the Program Director who discusses the program's mentor and mentee expectations;
- When new faculty join the CMP program, they are provided a copy of the CMP Policy Book, and referred specifically to review the **Mentoring Guidance and Expectations** section and the relevant associated documents which are provided as Appendices. Any questions about mentor expectations are discussed with the Program Director;

- New faculty members are required to attend workshops on mentoring graduate students provided by the SOM;
- When students join their dissertation labs, both the student and assigned thesis advisor are provided a current CMP Policy Book (as part of the lab placement documents) and encouraged to review the requirements and expectations associated with this new phase of their graduate training.

If a student(s) has question or concerns related to their own thesis advisor, they should reach out to the CMP Graduate Program Director (Dr. Steven Claypool); if their thesis advisor is also the CMP Graduate Program Director, they should initiate contact with thesis committee members, the Assistant Dean, the Associate Dean, or the University Ombuds. For more information on this and related issues, students are encouraged to review the SOM [Conflict Resolution Procedures in the Context of the Relationship Between Faculty Mentors/Advisors and Graduate Students](#).

### **Dissertation:**

Usually in year four or five, the student's thesis committee agrees that the student is nearing completion of his/her research. When a student receives a “**final phase**” check at the thesis committee meeting, they are expected to complete any remaining experiments, write their thesis, and get approval from their PI and reader (in the form of a signed readers’ letter) within 6 months. The student's research is usually published in one or more scholarly journals prior to the dissertation being written. The institution requires that the dissertation is a “publishable body of work.”

Writing the Thesis. The dissertation research culminates in the writing of a PhD thesis. Approval to begin writing a dissertation is given by the thesis advisor, in consultation with the thesis committee. The Thesis shall be prepared in accordance with institutional guidelines. Per institutional requirements, the final dissertation must be approved by two faculty members.

Thesis Seminar. Following completion of the dissertation, the student will present their work at an open seminar. With approval of the Program Director, this seminar may under some circumstances be given prior to the final submission of the dissertation.

Time To Degree: The progress of biomedical research is unpredictable. Therefore, the time it takes each student to complete the doctoral degree will vary. Each student’s research progress will be evaluated by the student’s preceptor on a regular basis, and by their thesis advisory committee on an annual or semi-annual basis. The Program expects most students to complete their degree within 5 years of entering the Program, with some students finishing in the 6th year. A terminal Master’s degree will be given if the Ph.D. is not complete by the end of Year 9, unless the Policy committee approves an extension due to extenuating circumstances. Students must be in their final phase for the Ph.D. thesis research requirement no later than 6.5 years. Note that official Leave of Absence is not included in the total training time.

### **Masters of Science Degree**

A student has the option to leave the CMP Program with a Master of Science degree if:

- 1) They have successfully completed all first-year requirements and unconditionally passed the qualifying exam, or
- 2) They have successfully completed all first-year requirements and write a Master's thesis on research completed in year two.

### **5) Students of Faculty Who Leave the School of Medicine**

Students whose thesis advisors have left the institution may continue their project at Hopkins under the supervision of a new CMP mentor. Students who have chosen a mentor, but have not passed their GBO, are expected to transfer to the new institution if they intend to follow their mentor. In some instances, students who have chosen a mentor and successfully completed their oral exams and two full years at JHU may remain in the CMP program while carrying out research with their mentor at another institution. They are required to return for yearly thesis committee meetings and to present the formal thesis seminar at the end of their training. For more information on this and related issues, students are encouraged to review the SOM [Mentoring oversight and support of PhD students whose thesis advisors are less than 50% full time employees \(FTEs\) or less than 50% available on site at JHU](#).

## 6) Other Activities

### Teaching Skills

Students interested in gaining teaching experience may request this of the Program Director. With the approval of the student's mentor, teaching duties will be provided as available.

### HIPPA Training and other Institutional Requirements

The Johns Hopkins School of Medicine requires a number of courses, depending on the type of research a person is engaged in. This includes courses on the privacy of health care information (HIPPA), safety rules for various types of research, etc. Students shall complete these courses as required for their specific area of research.

## 7) Other Policies

The CMP adheres to all institutional policies set forth by the relevant governance structure, including the Johns Hopkins University Doctoral Board, the School of Medicine MA-PhD Committee. These include:

### Vacation and Leave of Absence Policy

This section describes overall academic policies. PhD student workers are encouraged to also review section "PhD Student Employee Union and Collective Bargaining Agreement" for more information.

Currently, beyond the official University holidays and breaks, students may take 15 days (3 weeks) of vacation. Additional time off may be granted by mentor. In addition, it is CMP policy that students must notify their mentor at least 4 weeks in advance when they plan a vacation of 5 weekdays or more. It is also the students' responsibility to schedule any vacations in a way that they continue to make satisfactory progress in their research. Further, unused holidays cannot be accrued and later used as vacation or time off without approval of the mentor prior to the holiday in question. Likewise, unused vacation cannot be accrued to later years without prior approval of the mentor.

For medical leave of absence, health insurance will be paid for by the program or sponsor for up to one year. Students are allowed up to 2 years total medical leave of absence. If a medical leave of absence is longer than 2 years, students are required to reapply to gain re-admission to their graduate program. The policy on [New Child Accommodations for Full Time Graduate Students and Postdoctoral Trainees](#) which includes a [parental leave form](#) as an appendix.

For more information on this and related issues, students are encouraged to review the JHU [Leave of Absence Policy](#) and the [Procedures for Graduate Student Leave and Leave of Absence](#).

### Mistreatment and Misconduct

The CMP shall provide a training environment that is free of abuse and misconduct. Allegations of mistreatment and or misconduct will be investigated by the Program Director, and referred to the appropriate institutional office as needed. In the case where the Program Director is conflicted, the Chair of the Department shall be responsible for the initial investigation. For more information on this and related issues, students are encouraged to review the SOM Conflict resolution policy: [Conflict Resolutions Procedures in the Context of the Relationship Between Faculty Mentors/Advisors and Graduate Students \(GBEPR033\)](#).

### Policy for Remediation, Probation, and Dismissal

The CMP Graduate Program Policy for Remediation, Probation, and Dismissal addresses consequences of student underperformance. Failure to meet any Program requirement by the specified deadline can result in placement of the student on probation. Dismissal from the CMP Graduate Program is a possible consequence of failing to successfully complete probation terms. Students may also be subject to dismissal without a formal probation period under certain circumstances. For more information on this and related issues, students are encouraged to review the SOM [Policy for Graduate Student Remediation, Probation, and Dismissal](#).

### Internships

A student who has completed their 1<sup>st</sup> year required courses, passed their GBO examination and held their first thesis committee meeting is eligible to pursue an internship opportunity either through the Johns Hopkins University School of Medicine Biomedical Careers Initiative (BCI) or elsewhere. As outlined in the SOM [Procedure to Request and Complete Student Internship](#), such opportunities should be pursued *after obtaining*

approval in advance from his/her faculty mentor, the Program Director and the Associate Dean for Graduate Student Affairs. Students who secure internship opportunities independently of BCI must register the internship with BCI and follow all BCI procedures for completing an internship. Students may also receive compensation as teaching assistants (TA) or graders for JHU courses and/or through tutoring for students in the Program. These are considered excellent opportunities to gain teaching experience. Extenuating circumstances may be considered on a case-by-case basis, and procedures for obtaining outside employment in these cases will adhere to the “Graduate Student Employment and Consulting Policy”.

#### Biomedical Career Initiative (BCI)

The [Biomedical Careers Initiative](#) (BCI) works closely with the Professional Development and Career Office (PDCO) to actively promote career development. BCI offers internship opportunities, networking events, and seminars exploring the broad range of career options available to Ph.D. graduates.

### **8) Other Resources**

#### Well-Being Resources

At Johns Hopkins, the health and wellness of students are of utmost importance to us. As part of the overall umbrella of the Johns Hopkins [Student Health and Well-Being services](#), [Mental Health Services](#) (MHS) provides confidential support for students through goal-oriented counseling, psychiatric care, consultation, and referrals to appropriate and accessible services and resources, both on and off campus. Students also have access to a range of workshops, groups, and online resources, which can be found on the MHS [website](#). Support is available 24 hours a day, 7 days a week through the Behavioral Health Crisis Support Team. Licensed clinicians can be reached via the Access Line at 410-516-9355, and mobile crisis co-response is available within JHU’s Baltimore campus’ footprints.

#### Accommodations

The School of Medicine Student Disability Services provides accommodations and services to students with disabilities. To request accommodations, complete the [SDS Online Initial Form](#). Questions related to your request and/or the process can be emailed to [SOM-SDS@jhmi.edu](mailto:SOM-SDS@jhmi.edu). If possible, students are strongly encouraged to request accommodations, which are not retroactive, before courses begin. Accommodations can be requested at any point in the semester they become necessary. Prospective students can contact [SOM-SDS@jhmi.edu](mailto:SOM-SDS@jhmi.edu) to request accommodations for their interview, and/or after matriculation. These communications are confidential.

#### University Policies

All the current School of Medicine policies are on the [Policy Finder](#). [NOTE: CMP Faculty and Students, please review the Policies and Procedures annually.]

## PhD Student Employee Union and Collective Bargaining Agreement

Information about the TRU-JHU PhD Student Union and the Collective Bargaining Agreement (CBA) can be found on this website: <https://provost.jhu.edu/education/graduate-and-professional-education/phd-union/>.

- PhD students in the Cellular and Molecular Physiology PhD program who receive work appointments and/or health insurance premium subsidy through Johns Hopkins University are under the Collective Bargaining Agreement dated March 29, 2024-June 30, 2027.
- This agreement has established wages, work hours, benefits, and conditions of appointment, many of these are described below.
- Eligible PhD students will be contacted by the Union and may elect to join the union and pay dues or pay agency fees. All eligible PhD students are under the CBA, regardless of Union membership.
- This agreement only covers work, which is limited to 20 hours per week on average for base funding. A PhD Student Employee may voluntarily elect to participate in supplemental-funded activities beyond the 20 hours per week on average.
- Academic policies are defined elsewhere in the handbook/catalogue/program materials.

This is just a summary, not the actual terms of the CBA. To review the actual terms of the CBA please click on the [link](#)). Not all elements of the agreement are summarized below, please reach out to the program director with questions.

### CBA Summary

- Compensation
  - Academic year (AY) 24-25: \$47,000 effective July 1, 2024
  - The hourly appointment rate will be \$25.41/hour, at minimum for teaching/research supplemental appointments.
  - Minimum 5 years of guaranteed funding for all PhD student employees in the School of Medicine.
  - PhD student employees with external awards paid through the University will have their compensation increased to the minimum rate during a period of guaranteed funding.
- Benefits
  - Enrollment information will be available through [HR Benefits for Students and Learners](#) and communications will be sent in advance of benefits election periods.
  - Paid by the University
    - The University will pay the premiums for University Student Health Benefits Plan (SHBP), including dental and vision coverage, employee coverage for employees in full-time resident status during the terms of full appointments.
    - PhD student employees will receive subsidies of \$4,500 per child per year for eligible children under 6 years and \$3,000 per child aged 6-18 years or adult dependent, with a maximum of \$12,000 per family per year, in installments throughout the year.
  - Reimbursed by University/Departments
    - The University will pay the cost of the health insurance premiums for eligible dependent children and spouses unable to work in the US, including dental and vision. Reimbursement procedures will be available on the [HR Benefits website](#).
    - International students will be eligible to apply to a yearly fund to cover required visa fees.
    - Students will be eligible for reimbursement for MTA All Access College Transit Passes or DC U-Passes. Registration and enrollment information will be available on the [HR Benefits website](#).
- Time Off/Vacation/Leaves
  - All University holidays are recognized.
  - PhD student employees have at least 15 vacation days per year. Additional time can be given by a supervisor.
  - PhD student employees receive 15 sick days per year with an additional 5 days if the student is primary caregiver.

- PhD student employees receive 5 days of bereavement leave for the passing of immediate and extended family members and close friends, with 1 additional day for those needing international travel.
- International PhD student employees who are required to travel out of the country in order to maintain their immigration status necessary to be able to continue their program at the University are eligible for up to fourteen (14) days off with pay during the period of such travel.
- PhD Student Employees who are new parents are eligible for 8 weeks of paid leave following birth or adoption, with an additional 4 weeks for the birthing parent. NOTE: PhD students who are new parents and want academic accommodations should follow the New Child Accommodation [policy](#).
- Leaves of absence, including family leave, medical leave, and personal leave, are governed by the University's [Leave of Absence Policy](#).
- Work Hours
  - No PhD student employee shall be required to perform work for more than 20 hours/week on average.
  - Teaching Assistantship (TA) hours are included in the 20 hours of work that may be assigned regardless of whether the TA is part of an academic requirement or not.
  - Academic coursework, exams, and research related to your academic learning and dissertation are not considered work and are not included in the work hour limitations.
  - There are no restrictions on work external to Hopkins except when decreed by funding source or visa status as long as academic progress is not impeded.
  - All work appointments (baseline funding or supplemental funding) require an appointment letter. Appointment letters will define the expectations and requirements of the teaching, research, or other University activity appointment. Students should contact the CMP program director, [Dr. Steven Claypool](#) with any questions.
- Union Representation
  - All PhD Student Employee directory information will be sent to the Union unless restricted. Supplemental information will require a FERPA consent form available on SIS self-service.
  - Union Representatives are current PhD Student Employees who are elected/selected to help their fellow PhD Student Employees navigate work-related disciplines, grievances, and other procedural/policy issues. Contact TRU-JHU with questions about your division's specific Union Representatives.
  - TRU-JHU Contact Information
    - Website: <https://trujhu.org/>
    - Phone: (443) 281-9462
    - Address: TRU-UE Local 197, PO Box 41149, Baltimore, MD 21203
    - Email: [trujhu@gmail.com](mailto:trujhu@gmail.com)

## Cellular and Molecular Physiology Graduate Program

### Academic Ethics Policy and Honor Code<sup>1</sup>

The strength of the scientific community depends on academic and personal integrity. At Johns Hopkins University and in the Physiology Graduate Program, we expect students to be aware of, and adhere to, the Johns Hopkins University non-academic [Student Conduct Code](#). Ethical violations are taken seriously and may result in dismissal from the Physiology program. This document was assembled to educate each student regarding such violations, and gives definitions and examples below.

Academic ethics violations include any action or attempted action that may result in creating an unfair academic advantage for oneself or an unfair academic advantage or disadvantage for any other member or members of the academic community. Academic ethics violations include a wide variety of behaviors such as cheating on exams, plagiarism, re-use of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, unfair competition, infringement of the rights of others, altering academic documents or transcripts, gaining access to materials before they are meant to be available, and helping another individual to gain an unfair academic advantage. Nonexclusive examples of academic ethics violations are listed below.

If you witness an academic ethics violation, you also have an obligation to report it to a course director, faculty advisor, CMP Director (Dr. Steven Claypool), or Associate Dean for Graduate Student Affairs (Dr. Peter Espenshade). If you are not sure whether a violation occurred, you can confidentially consult with any of these same people. These matters are handled with discretion.

Questions regarding this Policy can be addressed to CMP Graduate Program Director. We want you to clearly understand the program's expectations of you and the ethical standards that students and faculty follow. ***Ignorance of this Policy will not be accepted as an excuse.***

#### **Note Regarding Outside Courses**

Students in this Program may enroll in courses in one or more other University divisions or schools. Students are subject to this policy not only when enrolled in School of Medicine courses, but also when enrolled in courses in other University divisions or schools. Academic ethics violations in the context of those "outside" courses will be subject to and resolved under this policy.

#### **Note Regarding Research Misconduct**

Research misconduct is defined as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. Research misconduct does not include honest error or differences of opinion. For a complete definition, refer to The Johns Hopkins University [Academic Integrity Policy \(johnshopkins.edu\)](#). The Policy applies to all University faculty, trainees, students, and staff engaged in the proposing, performing, reviewing, or reporting of research, regardless of funding source. Allegations of research misconduct regarding a student should be referred to the Research Integrity Officer for assessment under that Policy, but may also be directed to the department chair or Dean of the responsible unit where the alleged research misconduct occurred. The procedure for addressing allegations of research misconduct at the School of Medicine is

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<sup>1</sup> This Policy was adapted from the equivalent document of the Pharmacology Graduate Program at JHMI provided by Dr. Caren Freel Meyers.



additionally governed by the Johns Hopkins University School of Medicine Procedures for Dealing with Issues of Research Misconduct. If a violation of this Policy is suspected, the case will be turned over to the office of the Associate Dean for Graduate Student Affairs, and a disciplinary hearing will be held if warranted. If it is determined that a student has violated any component of the honor code, he/she is may be subject to one or more sanctions, including without limitation dismissal from the Program.

## **ACADEMIC ETHICS VIOLATIONS & DEFINITIONS**

### **Plagiarism**

Examples of plagiarism include:

- Use of material produced by another person without acknowledging its source (including but not limited to an internet source)
- Submission of the same or substantially similar work of another person, such as an author or fellow student
- Improper documentation of quotations, words, ideas, or paraphrased passages taken from published or unpublished sources (including but not limited to an internet source)
- Use of another person's work (e.g., lab data, experiments) and representing it as one's own
- Unauthorized submission of a paper as original work when the paper has received credit in another course
- Paraphrasing of another person's characteristic or original phraseology, metaphor, or other literary device without acknowledgment

Remember that any words taken verbatim from a source must be cited and contained within quotation marks. Even if you have paraphrased an idea from a source you must provide the appropriate citations. For help with citations, the Hopkins' Eisenhower Library has this resource: <http://guides.library.jhu.edu/citing>. IT@Hopkins and the Welch Medical Library provide free subscriptions to [Refworks](#) to all Hopkins affiliates.

### **Cheating**

- Use of unauthorized materials (e.g., devices, notes, books) during an in-class or take-home examination
- Consultation of unauthorized materials while being excused (e.g., on a bathroom break) from an exam room
- Copying answers from another student or allowing another student to copy your answers
- Unauthorized discussion of an exam's content during its administration
- Obtaining an examination or answers to an examination prior to its administration
- Studying from an old exam whose circulation was prohibited by the instructor
- Acting as a substitute for another or utilizing another as a substitute during an evaluation of any type
- Any unauthorized dissemination, reproducing, displaying, sharing, or transmitting of any course material content (e.g., slides, recordings, tests, exams), whether for compensation or not, such that other student(s) have access to such materials
- Use of paper writing services or paper databases on the Internet
- Consultation of unauthorized electronic devices (e.g., calculators, cellular phones, PDAs, computers) during exams
- Use of electronic devices to communicate within or outside an examination room (e.g., use of cellular phones is not permitted during an exam)
- Storage of test answers, class notes and other references in electronic devices for use during exam
- Improper use during examination of email, text paging, beaming, and instant messaging
- Collaboration on take home assignments, exams, or papers, unless explicitly approved by the course director
- Submission of an examination or assignment for regrading after making changes to the original answers

## **Forgery and Falsification**

- Falsification or invention of data in laboratory experiments or data analysis
- Citation of nonexistent sources or creation of false information
- Attributing to a source ideas or information not included in the source
- Forgery of university documents, such as academic transcripts and letters of reference

## **Lying**

- Request for special consideration from faculty or university officials based upon false information or deception
- Fabrication of a medical or emergency excuse as a reason for needing an extension on an assignment or for missing an examination
- Falsely claiming to have completed and/or turned in an assignment
- Falsely reporting an ethics violation by another student
- Impersonating a faculty or staff member.
- Failing to identify yourself honestly in the context of an academic obligation.

## **Facilitating Academic Dishonesty**

- Intentionally or knowingly aiding another student to commit a violation of academic conduct
- Allowing another student to copy from one's exam during administration of the exam
- Providing copies of course material whose circulation was prohibited (e.g., exams or assignments) to students enrolled in or planning to take that course
- Taking an examination or completing an assignment for another, or permitting one to do so

## **Unfair Competition**

- Willfully damaging the academic efforts of other students
- Stealing another student's academic materials (e.g., book, notes, assignment, computer disks, etc.)
- Denying another student needed resources such as hiding library materials or lab equipment

## **HONOR CODE**

### **Infringement on the Rights of Others**

- Using behavior that jeopardizes the rights, health, safety or welfare of members of the JHU community, or jeopardizes the orderly functioning of University related activities
- Assault, destruction or defacement of property, theft, and disruption of classes or other events

### **Violation of any of the rules and regulations of the Johns Hopkins University and the School of Medicine**

**PROCEDURES**

Violations of this Policy will be resolved pursuant to the School of Medicine [Academic Integrity Policy \(johnshopkins.edu\)](http://johnshopkins.edu).

As a Cellular and Molecular Physiology graduate student at The Johns Hopkins University School of Medicine, I pledge to follow the Policy outlined above. By signing, I acknowledge reading and understanding this Policy.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Appendix B:

**Cellular and Molecular Physiology Program**  
**Contract for Participating Faculty**

To be included as Participating Faculty with the Cellular and Molecular Physiology graduate program at the Johns Hopkins School of Medicine, we ask that you annotate, read, and sign the following agreement:

(Name)

(Rank)

(Primary Departmental Affiliation)

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(Research interests)

I confirm that I wish to accept a position as participating faculty in the Cellular and Molecular Physiology graduate program. I have the financial resources to support students and am pleased to offer my mentorship to students in this program. I have read the Cellular and Molecular Physiology Policy book and will adhere to the expectations of mentorship and ensure that students performing research in my laboratory will complete the requirements of the program within the timeframe set forth in the Policy book. Once the student and I have formed an appropriate thesis project, to occur by the end of their 2<sup>nd</sup> year, we will select at least three other faculty members to serve on the student's Thesis Advisory Committee. This committee will meet annually to discuss goals, progress, and provide career advice/guidance to the student. I also agree to meet with the student once per year prior to the annual Thesis Committee Meeting to discuss their *individual Development Plan*. If the student applies for and receives outside funding, I will pay any supplement necessary to bring the student's stipend up to the current University-mandated stipend level. I understand that failure to comply with these requirements, or inability to support students, will be grounds for removal from the program.

We are pleased to welcome you to the Cellular and Molecular Physiology graduate program and look forward to working with you!

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(Signature)

[Please attach your NIH Biosketch]