

Graduate Student Handbook

Cell, Molecular, Developmental Biology and
Biophysics Graduate Program

The Johns Hopkins University
Baltimore, MD

This handbook is subject to change and corrections.

August 2017

This manual is designed to provide graduate students (and faculty) with information about the policies of the Cell, Molecular, Developmental Biology and Biophysics (CMDB) graduate training program.

TRAINING PROGRAM POLICIES

The Ph.D. training program has five components: coursework, lab rotations, teaching, a qualifying exam (Graduate Board Oral Exam) and thesis research.

A. STUDENT STIPENDS

All students accepted into the program are provided stipends. During the first year of study, graduate students are guaranteed a 12-month research fellowship (currently set at \$31,936), a scholarship covering the full cost of tuition (currently set at \$52,170 and waiver of the University matriculation fee of \$500 as long as satisfactory academic progress is maintained. Each student is required to maintain health insurance. The Johns Hopkins University student health insurance plan is provided by the program or by the student's research mentor. If the Hopkins plan is not elected, students must sign a waiver indicating that they have outside health insurance comparable to the University plan.

In the second year of study, graduate students are provided a teaching assistantship as long as satisfactory academic progress is maintained.

During the third and subsequent years of study, support will be provided students who passed their graduate board oral exams by the required time and meet annually with their thesis review committees to ensure that normal academic progress is maintained.

Students are encouraged to apply for fellowships from the National Science Foundation and the National Institutes of Health. All fellowship applications should originate through Johns Hopkins Research administration. Please contact the Biology Department administration in order for assistance with the fellowship. Any student receiving a fellowship (during the years of Departmental support) will receive a supplement in recognition of their achievement. Applications for these fellowships can be obtained on the appropriate websites:

NSF http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201&org=NSF

NIH http://grants.nih.gov/training/F_files_nrsa.htm

FORD FOUNDATION <http://sites.nationalacademies.org/PGA/FordFellowships/index.htm>

B. COURSE WORK

Our academic program aims to give students a broad training in the modern biological sciences. In the first year, four core courses are offered in molecular biology, cell biology, biophysics, and developmental biology and genetics as well as a quantitative biology immersion "bootcamp". The core curriculum covers the fundamentals in each area at a rigorous, graduate level. They are intended to provide all students with a common ground of

discourse and discussion, and a foundation for more advanced scholarship and research in an area of the student's choosing. In addition, a one-semester seminar provides an overview of the research interests, philosophies and practices of the training faculty.

Entering students are required to take a fixed curriculum consisting of nine classes during the first year (see descriptions below). Students who have successfully completed the first-year curriculum (with a GPA of 3.0 or higher, calculated cumulatively, and also calculated separately for rotations and for courses) must then take four additional electives during the remainder of their thesis work to fulfill all their course requirements. During year two students are required to take a mandatory elective entitled: 020.687: Foundations and Applications of Molecular Biology. A list of current elective classes can be found on the CMDB website. Choices of courses and seminars should be made in consultation with a student's advisor and/or the Director of the CMDB Graduate Program. All electives must be taken during either Fall or Spring semesters. Tuition support is not provided for Summer courses, thus costs associated with courses taken during the Summer will be assumed by the student.

If a graduate student wishes to enroll in a course that is not offered by either the participating departments or is not listed on the pre-approved electives site, permission must be given in writing by the CMDB Program Director in order for the course to count towards the course requirements for the Ph.D. degree. If the course is not intended to count towards the Ph.D. requirements, permission to enroll must be obtained from either the student's advisor or the CMDB Program Director. Classes offered by Johns Hopkins Medical Institutions will be approved on a class by class basis to determine its acceptability and weight as an elective.

REMAINING IN GOOD ACADEMIC STANDING

Letter grades are given for graduate coursework and will be recorded on the graduate transcript. Students are also evaluated at the end of each rotation period (see evaluation form in the Appendix). Letter grades for performance during the rotation period are assigned by the faculty mentor. Rotations grades count similarly to course grades for calculating GPA and evaluating academic standing. The CMDB Program Director will review the performance of all first year students at the end of the first semester. Any student receiving one grade of C+ or lower in a course or rotation, or with a combined GPA less than 3.0, will be placed on probation with written notification. Any student who receives two grades of C+ or lower during the first year, who has a combined GPA less than 3.0, or who fails to otherwise meet the conditions of their probation, will be dismissed from the program.

For students in all years, grades and a list of those requirements that have been met will be available on the program website at the end of each semester. A student may request to see their grades at any time. A grade of B- or better must be obtained in all courses in order to fulfill the requirements for a Ph.D. A student may only retake courses to improve a grade once. Students must maintain a Grade Point Average of 3.0 to remain in good academic standing. If a student has not attained a 3.0 average in Core CMDB courses by the end of the second year, he/she will not be allowed to take the GBO and will be dismissed from the program. Students must also make satisfactory progress in their thesis research, and in completing other requirements for the Ph.D. degree (e.g. teaching requirements and passing the GBO exam), to remain in good academic standing. Students who do not meet the above requirements will be

placed on probation and will be dismissed from the program.

APPEALS TO DISMISSAL

A student may appeal the dismissal or funding withdrawal decision within five business days, to the Chair of the CMDB Executive Committee (currently Drs. Rejji Kuruvilla and John Kim), with a letter stating why he/she feels this decision is unmerited. The Executive Committee will render a decision on the appeal within five business days. The student may then appeal that decision within five business days to the cognizant Dean, again, with a letter stating why he/she feels this decision is unmerited. In the case of funding withdrawal, the program will continue funding the graduate assistant during the appeal process, provided that the graduate assistant continues with his/her assistantship duties. The student's visa and registration status will not be affected until the appeal process is complete. If the student believes the decision was made in an arbitrary or capricious manner, he/she may file a grievance following the Homewood Grievance Policy:

(http://www.grad.jhu.edu/downloads/HwGrievancePolicy_Final.pdf).

If the decision is made to dismiss an international student, immigration regulations require that the student depart the country within fifteen days. This does not preclude the student from filing a grievance.

THE FIRST YEAR CORE CURRICULUM

The 9 first year courses are described below. A list of approved electives can be found on the CMDB webpage at <http://cmdb.jhu.edu>.

1. 020.601 Current Research in Bioscience (Fall)

This course involves 20 minute sessions with each member of the training faculty. It is designed to acquaint incoming graduate students with the research topics and research philosophy of each laboratory. This class helps students choose future rotations. More generally the course provides a range of perspectives on the future of specific fields and strategies for success in science. No grades will be given in this pass/fail course, but attendance is mandatory.

2. 020.607 Quantitative Biology Bootcamp (Fall)

Quantitative and computational methods have become essential to modern biological research. The goal of this course is to provide an introduction to basic skills that will enable students to employ these methods. Students will learn how to work in a command line shell and use software to perform analyses of large biological datasets. Students will learn basic programming using the Python language. Throughout the course students will apply the skills learned to practical analysis problems emphasizing parsing and working with biological data formats, exploratory data analysis and visualization, and numerical and statistical methods.

3. 020.617 Quantitative Biology Lab I (Fall)

This computer lab is designed for first year CMDB graduate students to enhance their quantitative skills for fall core courses. This course will cover quantitative and computational analysis of biological datasets, emphasizing molecular biology. In a hands on lab setting, students will carry learn to perform essential analyses including assembly of genomes, detection of DNA methylation, analysis of transcription factor binding and motifs, detecting genome variation, measuring expression of genes, and understanding genome evolution.

4. 020.668 Advanced Genetics and Molecular Biology (Fall)

This course examines modern concepts in genetics and molecular biology. The course focuses on the mechanisms controlling replication, recombination, transcriptional, post-

transcriptional, translational, and post-translational regulation. Lectures will have three parts: a student-led paper presentation, a discussion about the concepts surrounding a topic, and a discussion of modern techniques to experimentally probe the topic.

5. 020.686 Advanced Cell Biology (Fall)

Advanced Cell Biology covers a wide range of topics, but in general builds from cellular levels of organization, organelles, membrane traffic and cell division, to consider cell interactions with one-another and with their environment.

6. 020.699 CMDB RCR Training (Fall)

The Training Faculty of the CMDB Graduate Program are committed to demonstrating to our trainees our serious attitude toward ethical conduct and the responsible practice of scientific research. In addition to the University led class, we developed a specific, CMDB faculty-led Responsible Conduct of Research course for first year students along with an annual discussion session for all graduate students, postdoctoral trainees and CMDB faculty

The Fall 2017 series will include:

1. Success in graduate school-This session will provide tips on managing your graduate career.
2. Authorship and Peer Review, Citations and attributions This session will provide the basic philosophy of determining authorship on manuscripts, meeting abstracts, and so forth. Ethical conduct in the peer review process will also be discussed, in particular how to recognize a conflict of interest. How to appropriately give credit for ideas and previous studies in both written and oral communication. Plagiarism.
3. Animal and Human Experimentation. This session will focus on seeking the proper system for the research question, designing experiments with humane and legal considerations in mind, and obtaining proper approval for all procedures.
4. Scientific Record Keeping. This session will emphasize the importance of producing a clear and logical record of all research activities, and keeping a record of ALL experimental procedures, experiments, and results. Storage and access of large datasets and databases is another emerging area of relevance to this topic.
5. Appropriate handling of data. In this session we will discuss appropriate and inappropriate ways to handle and publish data, including electronic image manipulation, data quantification and use of statistics.
6. Appropriate handling of scientific reagents. We will discuss a scientist's responsibilities toward preserving, organizing and sharing reagents both before and after publication.
7. The scientist as a responsible member of society. We will discuss how a scientist should conduct oneself within a lab, a department and an international scientific community. Issues include confidentiality, sharing of unpublished data, collaboration and competition.
8. Misconduct/Fraud. What constitutes misconduct and fraudulent behavior, and how to report such activity, will be the topic of this discussion.
9. Conflict of Interest. Recognizing and reporting activities that may constitute a conflict of interest by another party, as well as considerations for collaborating with an industrial partner, will also be discussed.
10. Intellectual Property. The growing area of interest in developing projects that may lead to a patent or a start-up venture make this topic an important one for discussion by trainees.
11. Teaching. We will discuss policies and practice for ethical behavior in conducting classes, grading exams and assignments, confidentiality and academic integrity.

12. Mentorship. We will discuss the role and responsibilities of a mentor, both from the perspective of what they should expect from a mentor, but also how they should behave as a mentor
13. Fellowship applications-In this session a specialist from the Johns Hopkins will provide information on successful fellowship applications, focusing on the personal statement.

This class will be held on Wednesdays from 10:45-11:45AM.

We will hold an annual session for all CMDDB students and faculty (and will also include postdoctoral fellows). This session will focus on different aspects of the RCR, including updates on any new RCR issues that have emerged. Such sessions are currently held at our annual retreat. This annual session will provide ongoing training in and awareness of scientific ethics.

7. 020.618 Quantitative Biology Lab II (Spring)

This computer lab is a continuation of the fall quantitative biology lab for CMDDB graduate students. This semester will cover quantitative and computational modeling of selected topics from biophysics, cellular biology, and developmental biology

8. 020.674 Graduate Biophysical Chemistry (Spring)

Graduate Biophysical Chemistry will provide an overview of protein and nucleic acid structure, fundamentals of thermodynamics and kinetics, ligand binding, folding and stability of macromolecules, and the principles of biophysical methods such as fluorescence spectroscopy, NMR and X-ray crystallography. Students interested in pursuing biophysical research, who have taken undergraduate physical chemistry, may opt to take a two semester series in Molecular Biophysics (250.689-690). Similar topics are covered in the two semester series, but with greater emphasis on mathematical and quantitative analysis. Students wishing to pursue this option should consult with the CMDDB Program Director.

9. 020.637 Genomics and Development (Spring)

Genomics and Development covers the processes of fertilization, cleavage, gastrulation, organogenesis and gametogenesis with emphasis on the molecules involved and how these processes can be studied using molecular genetics.

10. 020.687 Foundations and Applications of Molecular Biology (Fall, Year 2)

An advanced course for graduate students in the biological sciences that stresses fundamental principles and analysis. It is generally focused on gene and protein structure and function.

Elective Coursework

Graduate students may enroll in any course listed on the pre-approved electives site as part of their elective requirement. Furthermore, any two professional development classes may count towards the Ph.D. requirements, but permission to enroll must be obtained from both the student's advisor and the CMDDB Program Director). Any career electives should preferably be taken by senior students close to graduating, 4th year and above.

C. ROTATIONS & SELECTION OF RESEARCH ADVISOR

1. LABORATORY ROTATIONS

The laboratory rotation system has been designed so that each graduate student may be exposed to a variety of research projects and techniques and also to the research approach of a variety of professors. Rotations should not be viewed only as an opportunity to preview a

potential thesis research laboratory, but also as an opportunity to learn interesting and valuable new information. During the first year, students are required to do rotations in at least four different laboratories. (Students have the option of doing additional rotations during the Summer before or after the first year). Students should register for each laboratory rotation under a course entitled "Introduction to Research" (020.823-826). To ensure maximal supervision, only one CMDB student may rotate in a lab during each rotation period.

Dates for the four rotation periods are in the Appendix

Students may do their rotations in the laboratories of any members of the CMDB Training Faculty. A complete list of the training faculty can be found on the web at <http://cmdb@jhu.edu>.

Dr. John Kim, (CMDB Co-Director) is responsible for rotation assignments. These assignments are based primarily on preferences expressed by the students. Preferences for laboratory rotations should be given to the CMDB Co-Director at least four weeks prior to the start of the next rotation. Students are **REQUIRED** to contact prospective rotation advisors before submitting their requests to the CMDB Co-Director.

One purpose of rotations is to give students an opportunity to sample various labs in which they might want to do their thesis research. Students should pay attention both to the nature of the research in the lab and to the philosophy and organization of the lab. For example, a person who craves a great deal of independence may not be happy in a lab with a great deal of structure and vice versa. Rotations also provide research training and experience. For example, a rotation is good way to learn specific techniques or to become familiar with a particular model system. Students should plan their rotations to their advantage.

Rotation faculty advisors are asked to orally review a student's performance at the end of the rotation, and to submit a written evaluation and grade. Rotations grades count similarly to course grades for calculating a student's GPA and evaluating academic standing. Students are also required to present their rotation project as a short talk at the end of each rotation. All first year students are expected to attend these rotation talks, which are also attended by faculty and other members of the program.

Summer rotations are available to CMDB students in advance of the matriculation year. This rotation will not count as one of the 4 rotations required by the program.

2. SELECTION OF RESEARCH ADVISOR

A research advisor is usually chosen at the end of the fourth rotation. To prevent decisions being made prematurely, **no agreements between a faculty member and a student regarding joining a lab for thesis work may be made prior to the end of the last rotation period.** During the final week, students may approach prospective thesis mentors to express interest in thesis work and to discuss potential projects. To formally join a laboratory, written permission from the proposed research advisor is required (see appendix). This form will be emailed to you during the last week of the 4th rotation. **Only training faculty affiliated with the CMDB program are eligible to be mentors for CMDB students, without exception.** If a student fails to find a mentor by August 31st, they will be asked to leave the program. Graduate students should be mindful that each mentor may accept 2 new students per year to join his/her lab per year.

D. PARTICIPATION IN CMDB AND DEPARTMENTAL EVENTS

A number of academic activities occur on a regular basis that constitute a large portion of the training experience in the CMDDB Graduate Program. Progress Reports, departmental seminars and Colloquia present opportunities for one's horizons to be broadened and to be exposed to a wide array of subjects and experimental approaches. **As a significant adjunct to individual thesis training, student attendance at these activities is mandatory.** In addition, individual labs or groups of investigators with shared interests also have group meetings, journal clubs and other intellectual activities in which a student is expected to participate.

Progress Reports are held in Mudd 100 each Tuesday at noon and involve research talks from students in the CMDDB program and postdoctoral fellows in the Biology Department. All CMDDB students are required to present a Progress Report each year after their second year (see below). Students are expected to regularly attend the Progress Report talks.

Seminars. The Biology Department (Thursdays at 4PM), Biophysics Department (Mondays at 12PM), Chemistry Department (Wednesdays at 4PM) and Carnegie Institution (Mondays at 12:15PM) each sponsor seminar series which include talks by visitors from other universities. Attendance at seminars is strongly encouraged, and **attending at least one seminar per week is required.** Notices concerning seminars in other departments are located on the bulletin board across from Mudd 100 and on each department's web pages. The schedule can be found on the Biology Department website at www.bio@jhu.edu or a Hopkins-wide seminar listing can be found at <http://www.hopkinsmedicine.org/scical/>.

Biology Colloquia are held once a month during the academic year. This series involves members of the CMDDB Training Faculty. These talks commence at 4:30PM on the first Wednesday of each month (with a few exceptions) and **attendance by CMDDB students is required.**

CMDB Program Retreat. During the Fall semester, there is a retreat for all CMDDB students along with faculty, postdoctoral fellows, and research associates from the Biology Department, and training faculty from Carnegie, Chemistry, and Biophysics. During the retreat, members of the Training Faculty will present short talks about the research that is currently being conducted in their laboratories. Graduate students and postdoctoral fellows also present their work at a poster session. In addition to the stimulating science, the retreat offers a chance for CMDDB students to become acquainted with training faculty and other members of our scientific community in a relaxed and enjoyable atmosphere. **CMDB students are expected to attend and participate in the retreat during each of their years in the program.**

Career Fridays. Each month during the academic year the CMDDB program will sponsor a speaker who has chosen a career path that is outside the traditional research university track. Students are invited to explore these options presented to them through this network.

E. TEACHING

During the second year of graduate school, each student must teach in one undergraduate-level Biology or Biophysics course (with a corresponding lab course) for each of two semesters. **Students are expected to be serious and conscientious regarding their teaching responsibilities,** as this is an excellent learning experience and is an important aspect of the university's mission. Students who excel in their teaching responsibilities are eligible for departmental teaching awards. Students who do not successfully complete the teaching requirements will be placed on probation and may be subject to dismissal from the program.

Teaching assignments for second year students are made by Dr. Emily Fisher.

Additional teaching opportunities are available for students beyond their 2nd year. These teaching assistantships for Biology courses are assigned by the departmental administrator.

F. GRADUATE BOARD ORAL EXAMINATIONS

The Homewood Graduate Board requires all Ph.D. students to pass a comprehensive oral examination prior to award of the degree. The objectives and purposes of the oral exam can be found at the Graduate Board website (<http://homewoodgrad.jhu.edu/academics/graduateboard/>).

The CMDB program requires students to take the Graduate Board Oral (GBO) examination before the end of the January during the second year of study (i.e. by January 31st of that year). In order to be eligible to take the GBO examination a student must have a cumulative grade point average of 3.0. In addition, a grade of B- or better must be earned in all required courses. (This means that while one or two B- grades will not necessarily doom you, you must in turn have some grades better than a B to satisfy the GPA requirement). However, students who have a GPA of 3.0 or below can only take the GBO by permission of the CMDB Director(s). Graduate students entering in Fall 2017 will be allowed the option of taking their GBO exams by the end of year 1 (i.e., July 2018). Graduate students entering in the class commencing Fall 2018 will be required to take their Graduate Board Oral exams by July 31, 2019. The oral examination is designed to test the breadth and depth of a student's knowledge and his or her reasoning abilities. The student should be judged based on their performance during the oral examination.

The possible outcomes of a GBO are: unconditional pass, conditional pass, and fail.

A conditional pass is given when a student's exam performance indicates weakness in one or more specific areas in which a specific remedy can be identified to correct the weakness (typically writing a paper, taking a course, or giving a seminar). The conditions required by the committee must be successfully completed by the deadline stipulated by the committee, which should be no later than six months after the original exam date (for conditions requiring a longer time frame, such as courses only offered the following spring, the committee can stipulate such a deadline). **When a student is required to take a course to fulfill a GBO requirement, this course must be taken for a letter grade and the student must receive a B- or better.** Note: only the GBO committee can decide when the conditions have been met and a student has fulfilled the conditions and successfully passed the GBO examination. The student's advisor, CMDB Program Director and Department Chair can offer advice, but do not make this decision. Therefore, the student should contact the Chair of their GBO Examination Committee if they have any questions about whether they are appropriately meeting the conditions this committee has set for them.

A fail is given when the overall performance on the GBO exam is unsatisfactory and/or no specific remedy for the weaknesses is readily identifiable. If recommended by the GBO Examination Committee, students may be allowed to retake the GBO examination **one time only** within six months of the original exam date. Students will be re-examined by the same GBO committee unless written approval is obtained from the CMDB Program Director. A second failure results in an immediate dismissal from the CMDB program.

1. COMPOSITION OF THE EXAMINING COMMITTEE & SCHEDULING

The GBO examining committee consists of five members plus two alternates. The Graduate Board, which is a JHU committee that oversees GBO exams and approves examiner committee composition, requires that two or three members be from outside the student's home department. The Graduate Board has in the past invalidated GBO exams administered by a

committee with an incomplete attendance or with the incorrect composition. Therefore, the exam should not begin until the ENTIRE committee is present. If a committee member is unable to attend, they must be replaced by the appropriate alternate committee member before beginning the exam. The advisor is not a member of the examining committee, but may be a silent observer in the exam.

As of Fall 2016, every GBO committee should be represented by expertise in the following areas; cell biology, molecular biology and genetics, biophysics, developmental biology and /or computation (if appropriate). The committee will still consist of 5 members plus two alternates (see eligibility in matrix below). The student in consultation with their mentor will propose a GBO committee with the appropriate representation.

CMDB training faculty are listed according to their research interests at <http://cmdb.jhu.edu/>, and you can avail of this to help with your selections, which will now have to be approved by the CMDB Program directors. Please note that faculty interests may not be limited to any one area. Thus, for example, a committee member who serves as a cell biologist on one GBO committee could be used for any of the other areas on another exam, if they have the expertise.

At least one outside member of the committee must be an Associate Professor or higher so that he/she may serve as chairman of the examination committee.

Advisor Department	Inside Members	Outside Members
Biology	If 2 Biology If 3 Biology	3 Other JHU Departments*/Carnegie maximum of 2 2 Other JHU Departments*/Carnegie maximum of 1
Biophysics	If 2 Biophysics If 3 Biophysics	1 Other JHU Department* and 2 Biology 2 Biology
Carnegie	If 2 Carnegie If 3 Carnegie	1 Other JHU Department and 2 Biology 2 Biology
Chemistry	If 2 Chemistry If 3 Chemistry	1 other JHU Department* and 2 Biology 2 Biology
NIH	If 1NIH If 2 NIH	2 Other JHU Departments* and 2 Biology 1 Other JHU Departments* and 2 Biology

- * **Carnegie & NIH are not JHU Departments and cannot be used to meet this requirement**

(For students in GPP, a maximum of 2 NIH investigators may serve on the committee as inside members.)

The student's research advisor should select the members of the committee and convey the list of possible examiners to the Academic Affairs Administrator via the GBO exam sheet which delineates all fields represented by the potential examiners. The program directors will approve the committee. The Academic Affairs Administrator will then contact faculty, schedule the exam and complete the required paperwork. The paperwork is sent to the Graduate Board at least three weeks in advance. The Graduate Board approves the committee and returns a copy of the examination form to the Department. The Academic Affairs Administrator will confirm the appointment of the committee members and notify them of the date, time and place of the examination via email.

The examination must be taken prior to the start of the fourth semester in residence (i.e., this deadline date is January 31st for students starting the program in Fall 2017 (with the option of taking it at the end of year 1.) Students starting in Fall 2018, will be required to complete the GBO exam **by the end of July 2019**). Any exemptions to this deadline must be obtained in writing from the CMDB Program Director. If the student is required by his/her committee to be retested, the requirement must be satisfied within six months of the date of the examination. **All examinations must take place on the Homewood Campus**

2. STUDYING FOR THE EXAM

Students should keep in mind that the GBO is a test of general knowledge and scientific reasoning, and is not based solely on the thesis research. Although some questions will deal with issues directly related to the subject of the thesis research, many questions are only peripherally related to this topic. Students should assume that any issues related to topics covered by any of the core courses are possible subjects for questioning by the committee.

To successfully conduct research in biology and biophysics, a solid, general background in chemistry, biochemistry, molecular, cellular and developmental biology is essential. As a starting point, you might review concepts in a text such as "Molecular Biology of the Cell" and a rigorous biochemistry text. Another very good suggestion is to choose a half dozen key papers in your field and read the methods sections of each in detail, making sure that you understand why each experimental approach was taken, how the experiments were designed, and how the authors were (hopefully) able to draw definitive conclusions. One piece of advice for studying: concepts are more important than details. Don't waste time memorizing facts: they won't be useful in the exam and you'll forget them in 2 months.

An example:

Should you memorize the name of every protein in a ribosome? No.

Should you try to understand what a ribosome is and what it does? Yes.

Many students form study groups, as well as participate in 'mock' GBO exams administered by more senior students. These types of activities, as well as the day-to-day process of engaging in scientific discussions with your peers, lab mates, and seminar speakers, all contribute to preparation for doing well in the GBO exam.

3. PROCEDURE OF ORAL EXAMINATION

Remind the members of your committee of the place and time of the exam.

As a courtesy to committee members not on campus, the academic program coordinator will provide parking passes at the exam.

The academic program coordinator will make arrangements in advance and have your academic folder brought to the examination.

Part 1: Pre-exam closed committee meeting (generally 5-15 minutes)

Student leaves the room (but advisor stays). There will be a general discussion of the student's progress in the first two years, strengths or weaknesses, and organization of the exam.

Part 2: Main part of the exam (generally ~90 minutes total)

The choice of format is up to the committee and will be agreed upon at the beginning of the exam. In most cases the committee will allow the student to choose the format. With format (a), some type of timer should be used to signal the presentation time limit.

The exam is designed to assess whether the student is ready to pursue full time research toward a Ph.D. thesis. This entails knowledge of background literature, understanding of limitations and risks to available approaches, and an ability to design control experiments that will be needed to provide definitive information.

Rule 1: Don't panic during questions. If you get asked a question that you can answer, answer it. If you get asked a question that you can't answer, you might suggest how you would find out (experimentally or in the library). If you get asked a question that you don't understand, ask the questioner to rephrase the question until you understand what is being asked. If you know the answer, but can't think of the specific name for something, admit it but describe what you do know – knowing something is better than knowing nothing.

Part 3: Post-exam closed committee meeting.

Student and advisor leave the room. Members of the committee discuss the student's strengths and weaknesses, performance on the exam, and any other issues that might be relevant to the transition to full-time research status. If there are significant deficits, the committee should decide on a course of action, either failing the student or giving a "conditional

pass" (spelling out specific conditions). If there are less significant deficits, the committee may decide on specific suggestions for the student or advisor.

Part 4: Post-exam meeting with student and advisor.

Student and advisor come back into the room. Generally the chairperson gives a general summation of the results of the exam.

Although it is not a formal part of the GBO exam, it may be valuable to the student to:

- (1) critique his or her own performance in the presentation and questions
- (2) express any deficits that they feel they have in their graduate preparation and ask for suggestions regarding how to rectify the deficits (no one is perfect!).

Next, each member of the committee should give a few comments to the student that sum up strengths and weaknesses in the proposal and of the student's presentation. These should be kept very short (a minute or so each) if the student did very well in the exam and passed, and may be longer if the student had significant deficits.

Finally, the chairperson of the committee should explain to the student any conditions for passage or re-examination, and the written exam record should be filled out by the chairperson and signed by the committee members. The student and mentor will be given a copy of any specific conditions that need to be satisfied in the event of a 'conditional pass'. **Only the GBO committee can decide when the student has satisfied these conditions.** The chair of the GBO committee is responsible for communicating with the chair of the Graduate Board regarding the outcome of the exam, and also informs the Graduate Board in writing when the conditions have been satisfied. It is the responsibility of the student to communicate with the GBO committee chair to ensure that the conditions are understood and met. Students who do not resolve the conditions their GBO exam by the deadline stipulated by the committee (usually within six months of the exam date) are subject to dismissal from the program.

Results of the oral examination should be recorded on the graduate board oral examination form that the chair of the committee receives. This form is subsequently recorded by the program office, Graduate Board, and finally by the Registrar. (See Academic Program Coordinator for these guidelines and forms.)

G. THESIS RESEARCH & YEARLY REVIEWS

1. FORMAT OF THESIS RESEARCH PROPOSAL (6-10 PAGE LIMIT)

The thesis proposal should be written in the format of an NIH postdoctoral fellowship grant application. The proposal should include sufficient information to permit an effective review without reviewers having to refer to the literature. Brevity and clarity in the presentation are important. The proposal (including any tables or figures) should not exceed 10 pages single-spaced with one inch margins and a font size of 12 and should be distributed to Thesis Committee 2 weeks prior to the Thesis Proposal Meeting (first Thesis Committee meeting) which occurs before the end of the second year.

Writing an effective grant/thesis proposal entails knowledge of the background literature, understanding the basis of, limitations to, and inherent risks in the available approaches, and an ability to design controlled experiments that will be needed to provide definitive information. Students should prepare the initial proposal with only minimal guidance and input from the

thesis advisor, but after that, the level of involvement of the advisor is at the discretion of the advisor. Some advisors take this as an opportunity to teach their students grant writing skills. Additionally, students should learn from this grant writing experience the value of writing and re-writing multiple drafts, and are encouraged to read each others' proposals to make constructive criticisms regarding clarity and logic. Multiple rounds of editing and polishing are absolutely necessary for the final document to be clear and easy-to read for a broad audience, as is typically the case for most grant applications.

i. Specific Aims. State the specific purposes of the research proposal and the hypothesis to be tested. (<1 page)

The "specific aims" section should begin with a short introductory paragraph which provides some context of the work in the overall field of study: why is this field of study important and what are the current outstanding questions. There should then be an enumeration of specific aims (generally 2-5 aims). Each aim should center on an experimental goal or biological question that can be summarized in one or two lines. After each specific aim, a few sentences of explanation should give a summary of the approaches that will be taken toward the experimental goal. At the very end of the specific aims section, it is useful to have a paragraph describing how the proposed research will fit into the larger realm of research in the long run. This section often includes potential applications or experimental directions that may be beyond the scope of the proposed time period, but which demonstrate the long-term significance of the proposed work.

ii. Background and Significance. Describe the background research necessary to understand the proposed work and why it is significant (3-4 pages).

Assume that the reader is a scientist, but not necessarily one who works in your specific field. Review only those previous studies that are directly relevant to your proposed work; this is not a general review of the field but specific information to help the reader understand your proposal. You should provide them with a working understanding of what is known and, importantly, what is not known. Explain the significance the proposed work will have in our understanding of biological processes and in practical applications.

iii. Preliminary Studies. Describe your initial studies that support or provide proof of principle for your proposed research. (1-2 pages). Include a description of any studies that support the plausibility of your proposed research direction and the hypotheses you put forward and/or the feasibility of the approaches that you will use. Include only those data that are directly relevant for the proposal, and do so succinctly (this is a grant proposal, not a research paper). Include figures of the most relevant data.

iv. Research Design and Methods. Provide an outline of research design and the procedures to be used to accomplish the specific aims and a tentative sequence for the investigation (4-5 pages).

This is the central core of your proposal. The goal of this section is to describe the experimental approaches that will be used to address each specific aim, including a concise description of experimental design for "standard" approaches, as well as a full description of any novel experimental designs that you propose. When using established procedures, provide a brief description and then cite relevant literature for details. For each experimental direction, you should note the nature of conclusions that might be drawn, the types of control experiments that will be needed to support these conclusions, and the potential experimental problems or ambiguities that might be encountered, along with alternative strategies to circumvent these problems. Provide some framework for how you will prioritize experiments.

v. Bibliography (not included in page limit).

2. ANNUAL THESIS REVIEWS

CMDB students are required to have their Annual Committee Meeting within ONE MONTH of their Progress Report. (For students working in Carnegie labs, this is their CMDB, Mudd Hall, Progress Report). Students should do their best to have their Committee Meeting on the same day as their Progress Report, since the faculty would have just heard all about their progress. However, if scheduling conflicts arise, students can have the meeting any time in the following month. Students should remember to schedule this meeting well ahead of time--once the PR schedule is out, you know when you should have your meeting and you can contact the faculty to put it on their schedules.

Exceptions to the above policy:

-2nd year students do not give PR and are required to have their first committee meeting by August 31st of their second year (but DON'T wait until August!).

-5th year students are still required to have their "Thesis Plan Meeting" by December 31st of their 5th year. Since more senior students tend to have earlier progress reports, it will hopefully still be possible to couple this to your PR.

Note: senior students (beyond 5th year) who have not yet scheduled their thesis defense (i.e. a firm date in the upcoming weeks, agreed upon by the committee) are still required to give PR and have annual thesis committee meetings within one month of their PR.

In the second year of study and beyond, all students in the CMDB program are required to have an annual Thesis Committee meeting. A student's review for a particular academic year must be completed by August 31st. No exceptions to this requirement will be made unless the student has a SCHEDULED thesis defense date. Students are responsible for setting up the meetings of the committees, which should be held on the Homewood Campus. If a student fails to meet this requirement, stipend and tuition support will not be provided for the upcoming semester and a student may be terminated from the program.

As of September 2016, students are required to sign in on the CMDB website to schedule their exam. The link to the form is on CMDB website at: <http://cmdb.jhu.edu/resources-for-current-students/>. Each month the Academic Affairs Administrator will remind the chair and the committee of any exam that they are assigned to at least one week prior to the exam. The chair will be sent a list of the duties and the appropriate form for each exam so that the committee meeting can be conducted efficiently. All results will be reported to the Director and Deputy Director of Graduate Studies.

Thesis Committee

After a student has chosen a laboratory for thesis research and has passed the GBO exam, he/she, in consultation with the research advisor, will select a minimum of two additional faculty members to serve on the Thesis Committee. Often, these two faculty members were also on the student's GBO committee, but this is not required. All committees will be approved by the program directors. All committees must have a chair. The chair will be designated by the program directors. Students who are scheduling their thesis meetings should inform the Academic Affairs Administrator prior to the exam for the above approvals. All students are required to send their thesis proposals/progress outlines and completed self-assessment forms

to their committee at least two weeks ahead of the scheduled meeting. Once the thesis committee is approved and a chair designated, it should remain in place throughout the student's career at Johns Hopkins. However, if changes are necessitated, approval of the students' advisor and the Graduate Program Director is required for a student to change the members of their Thesis Review Committee. The Academic Affairs administrator will notify the selected chair of the committee in advance, as well as notify he/she of their responsibilities.

2nd Year: Thesis Proposal Meeting

In the summer of the second year, students have their first committee meeting where they present their detailed thesis proposal and preliminary data to the committee. At this time the student is expected to have a strong knowledge of the relevant background literature, experimental procedures planned, and possible alternative approaches that may be required for their project. Students should write a Thesis Proposal and include any additional preliminary data in support of their proposal. The student should also prepare a ~20 minute presentation that describes the background, preliminary data and the specific aims of their proposal. Thesis committee members should ascertain whether the student has sufficient command of the significance of their project and relevant background literature, along with knowledge of the approaches that they propose to use and alternatives that may be needed. The committee should also discuss the merits of the proposed work and the research plan. **Students MUST complete their Thesis Proposal Meeting before the end of their second year (August 31st), but are also advised to have this meeting as early as possible, and should avoid scheduling the meeting at the end of the summer.**

3rd and 4th Years: Thesis Committee Meeting

In subsequent years, the student's annual committee meeting is usually coupled with the student's progress report which provides a convenient forum for updating the thesis committee on the thesis research. The student should prepare a short (~2-3 pg.) summary of the progress to date and plans for the coming year, and distribute this summary to the committee members one week before the thesis committee meeting (along with the Student Self-Assessment, below). As in the 2nd year, the thesis committee will be chaired by the senior most faculty member that is not the thesis advisor. This policy remains in effect through the duration of the training. The thesis committee is expected to evaluate the student's general knowledge and progress on their thesis research, as well as to offer both general and specific advice on the current research (see Annual Review Evaluation form). **If a student is unable to schedule their Committee Meeting on the same day as their Progress Report, they must schedule their meeting within 4 weeks of their Progress Report.**

Student Self-Assessment)

In order to provide the student with more feedback about their progress in the program, advancement as a scientist, and success in advancing their career goals, students are required to conduct a self-assessment (<http://cldb.jhu.edu/files/GraduateStudentAssessment.pdf>) prior to each committee meeting in the 2nd year and beyond. Since committee meetings tend to focus on the research project rather than the student, the goal of the self-assessment is to allow the student to evaluate their own progress, and prompt their committee to discuss this progress (in addition to discussing the research project). Committee members should review the student's self-assessment, and provide necessary feedback and suggestions for how the student might make improvements and further advance their career goals. The student self-assessment should be forwarded to the committee members at least one week prior to the committee meeting.

Beginning of 5th Year: Thesis Planning Meeting

In keeping with a general goal of graduation in 5-5.5 years, a special 'Thesis Plan Meeting' will be held after 4-4.5 years of study (by December 31st of the 5th year). **This meeting also serves as the annual Committee Meeting for the student for that year.** In collaboration with the thesis mentor, the student should prepare a detailed thesis outline and a plan for graduation in 12-18 months. The outline should include a clear description of the chapters to be included in the final Thesis, an indication of which experiments have been completed and which are still in progress. The student should also be prepared to discuss plans following graduation to receive advice and input from the committee for how to prepare for and obtain a desired position. The plan should be distributed to the committee members one week before the meeting. Students should also complete a Student Self-Assessment as they would do for any Thesis Committee meeting.

Thesis Defense Approval Meeting ("4-6 month meeting")

The final thesis defense approval committee meeting should be 4-6 months prior to the anticipated thesis defense date, and the committee must officially approve the thesis content and outline at this time in order for the student to schedule their thesis defense (see below). **The Thesis Committee should also ensure that the student's thesis research will result in a MINIMUM of one, first-author publication which is a requirement of the CMDB program.** It should be the goal of every student and advisor to hold the Thesis Defense Approval meeting and the Thesis Defense by the end of the student's 6th year in the program. Results of the meeting must be reported to the Academic Program Coordinator so that the student will have approval to schedule their Thesis Defense. A student is expected to conduct their Thesis Defense within 6 months of the successful completion of this meeting. Committee members should not give their approval at this meeting unless a successful Defense is possible within this time. If a student is unable to schedule their thesis seminar within 6 months of their Thesis Defense Approval meeting, they are required to reconvene their Thesis Committee within one month and present a revised timeline for finishing their Thesis and scheduling their Defense. If a student has completed their Thesis Defense Approval Meeting but not yet scheduled their Thesis Defense, they are still required to present their Progress Report as scheduled. If a student does not conduct their Thesis Defense Approval meeting during their 6th academic year, then they are still required to conduct a Thesis Committee Meeting by August 31st of that year.

Final Thesis Defense (see below)

3. PROGRESS REPORTS

Every graduate student in their third year of study and beyond must present a progress report of their research during the academic year. No exceptions to this requirement will be made unless the student has a SCHEDULED thesis defense date. This series was organized to provide students and post-docs with an opportunity to present their results and to promote interaction between laboratories. Graduate students (beyond the second year) and postdoctoral fellows from all labs will give talks (25 minute talk and 5 minute question period) based on their work. Graduate students are encouraged to utilize this talk as a preliminary presentation for their Annual Thesis Review. The progress reports are held on Tuesdays at 12:00 PM in Mudd 100. Each summer, the Progress Report Coordinator will schedule the talks for the next academic year in conjunction with the research advisors. As with the annual thesis review, failure to participate in the progress reports by August 31 of each year will result in a termination of stipend and tuition support.

4. EVALUATION OF THE PERFORMANCE OF GRADUATE STUDENTS

At the end of each academic year, the Program Director of the training program will convene

the entire Training Faculty to discuss the progress of all graduate students. For first year students, performance in laboratory rotations and the students' coursework record will be evaluated after the first semester by the Program Director, and at the end of the first year by the Training Faculty. As discussed above, any student who receives two grades of C+ or worse during the first year will be dismissed from the program. Any student who has a combined GPA less than 3.0, or who fails to otherwise meet the conditions of a probation, may be subject to dismissal from the program. The performance of students in the second year and beyond will also be reviewed by the CMDDB Program Director and the training faculty. Close attention will be paid to the outcome of the annual thesis reviews, as well as to the completion of other degree requirements (above). Students failing to make adequate progress (i.e., receive an unsatisfactory review on their annual committee meeting or in their semester grade for research) will be placed on probation. The student will be required to assemble their thesis committee within 60 days of the probation notice. The thesis committee will draft the terms of the probation if they concur with the evaluation of failing research progress. The student will then have 6 months to remediate the situation. Students on probation must reconvene the thesis committee as soon as possible after 6 months (but no later than 7 months) to assess the student's progress. Failure to comply with the terms of the probation or failure to assemble the committee meetings within the designated time frames will result in dismissal from the program. Students entering the sixth year or greater of graduate study must present a plan for completion of study, and obtain permission to continue in the program signed by the Program Director, in order to register.

5. FINAL GRADUATION REQUIREMENTS

Upon completion of the thesis research and preparation of the thesis in the form specified by the Graduate Board, a public seminar of the thesis research is given followed by an oral examination by four knowledgeable and recognized experts in areas related to the research. Specific steps must be completed while preparing the final thesis and scheduling the thesis defense (see Graduation Checklist and Timeline in the Appendix). Before beginning this process the student should check with the Academic Affairs Administrator to be sure that all other academic requirements are met.

• FINAL THESIS DEFENSE COMMITTEE

The final Thesis Defense Committee will ordinarily include the research advisor, the two members of the annual thesis review committee and one additional member. One member of this committee must be from outside the department in which the student has performed his/her thesis work. (The committee must be approved in advance by the Graduate Program Director). The committee will select a Chair from among its members. All committee members, except the thesis advisor, are eligible to Chair, but priority in selecting a Chair will be given to seniority. A final committee approval must be obtained one month prior to the schedule thesis seminar.

For students that have been conducting their research as non-residents (i.e, GPP students and students whose labs have relocated), the following standards should be followed:

- a. The readers for their thesis should be their PI as primary reader and one current CMDDB faculty member as second reader.
- b. The defense must be held here at Hopkins, and at least two of the thesis committee members should be current CMDDB faculty.

c. The PI should return for the defense and serve on this committee (and counts as an outside member).

d. The committee should consist of four faculty on their thesis approval committee (as usual), with the additional member(s) coming from CMDDB or their current institution or other outside members. However, all thesis committee members should be present for the defense.

- **DISSERTATION**

The dissertation must be written and given to the primary and secondary readers (see below) at least 5-6 weeks in advance of the scheduled thesis defense. A revised version must be distributed to the entire Thesis Defense Committee 2 weeks prior to the scheduled thesis defense. University-wide rules for the dissertation format can be University-wide rules for the dissertation format can be obtained The Graduate Board or from the following website:

<http://guides.library.jhu.edu/content.php?pid=450528&sid=3765608>

After the thesis has been successfully defended, the final dissertation should be submitted electronically. See instructions below:

Go to <http://etd.library.jhu.edu> and sign in with your JHED credentials. You will be asked for some basic information about yourself (email, phone, address--none of this will be made public), some information about your academic program (department, defense date, advisory committee), and a description of your thesis or dissertation (title, abstract, keywords). You then upload a PDF/A of the dissertation and wait for us to approve it or contact you for formatting

Graduate students will be required to send an email with the following item:

the title of their dissertation typed in the body of the email with correct spelling and punctuation . The email should be sent to the following address: homewoodgradboard@jhu.edu. This email from a degree candidate will allow the Graduate Board to verify that the submission of a dissertation degree requirement has been met. Any student needing a letter verifying the completion of their degree requirements must send the above email before the Graduate Board will process your request.

It is customary to include first-author papers in a thesis as long as you include a description at the end of the chapter about your contributions vs. other author contributions. The situation for non-first author papers is less clear and I'm less comfortable with including them in the same format as published. If you contributed a significant part of the "story" as an independent scientist, then it ought to be possible to revise the chapter to include just your part of the story. However, if you contributed just a small part of the whole story, then it is not clear it is a thesis "chapter" and can go as an appendix to the thesis. If your part of the story cannot be understood without the data from others, then you can include this other data in a separate section of "Results from Collaborators". However, your discussion should emphasize your part of the story.

- **READER'S LETTER**

The thesis advisor is ordinarily designated the Primary Reader of a thesis. One of the other members of the thesis committee is to be designated the Secondary reader. Prior to circulating a thesis to the rest of the thesis defense committee, the thesis must be approved by both the Primary and Secondary Readers. The Readers must sign a letter recommending acceptance of the dissertation. A sample letter can be found in the Appendix. This letter must

be filed at least two weeks advance of the thesis defense. **A copy of this letter must accompany each copy of the thesis given to other members of the defense committee.** This means that the readers must approve the thesis at least two weeks before the scheduled thesis defense. Therefore the student must have the thesis written early enough to allow the readers time to read it and the student to make appropriate modifications (i.e. at least 4 weeks before the scheduled thesis defense).

For those students from non-JHU affiliated programs (i.e., GPP-NIH, etc.), students must have a member of the training faculty designated as a reader. Any deviation from this policy would require special permission from the graduate board.

• **THESIS SEMINAR AND FINAL DEFENSE**

The Thesis Defense consists of public thesis seminar followed by a private final examination administered by the Thesis Defense Committee. The thesis seminar is open to all members of the scientific community and should take the form of a scientific seminar targeted to the broad audience of scientists represented in the CMDB program. Family and guests are also welcome to attend. The final examination includes only the student and the Thesis Defense Committee and should encompass a rigorous defense of the thesis and address any final concerns of the committee members.

A seminar notice should be given to the Academic Affairs Administrator at least one week prior to the seminar so that it may be posted. All examinations and seminars are to be held on the Homewood campus.

The following times should be avoided when scheduling the thesis seminar to ensure that the maximum number of program members can attend (Fall 2017 schedule):

UPDATE	Monday	Tuesday	Wednesday	Thursday	Friday
9:00AM-10:00AM	X	X	X	X	open
10:00AM-11:00AM	X	X	X	X	open
11:00AM -12:00PM	X	X	X	X	X
12:00PM-1:00PM	x	X	x	X	open
1:00PM-2:00PM	x	X	x	X	open
2:00PM-3:00PM	open ^a	X	x ^b	X	open
3:00PM-4:15PM	open	open	open	X	open
4:00PM-5:00PM	open	open	open*	X	open

* Do not schedule on first Wednesday of each month during academic year due to Biology Department Colloquia.

^a Mudd 100 is open after 1:30PM on Monday

^b Mudd 100 is open after 2:30PM on Wednesday.

• **APPLICATION FOR GRADUATION**

An application for graduation must be completed on line. Please see the Registrar's website, Commencement information for this form.

• **PUBLICATION REQUIREMENT**

Students graduating from the CMDB program are required to have a minimum of one first author research paper published as a result of their thesis research (but students should aim for several publications). The student's Thesis Committee should ensure that this

publication requirement will be met at the time of the “Thesis Defense Approval meeting” (4-6 month meeting). Students and their advisors should ensure that at least one first author research manuscript has been submitted from the student’s thesis research within one year of the Thesis Defense.

PAYROLL ISSUES FOR GRADUATING STUDENTS

Ph.D. candidates have officially completed their degree requirements AFTER the Graduate Board approves his/her candidacy - and - AFTER the President has signed off on the official degree roster. This occurs three times during the academic year (in late November or early December, in May and in September).

Once Ph.D. candidates have completed their degree requirements and have all appropriate documentation approved and signed they must be removed from the University payroll system (or) receive a post-doctoral appointment with a student payroll status change (or) be hired into a staff position.

INTERNATIONAL STUDENTS AND VISAS

If you are planning on staying at JHU after graduation **you must apply for OPT at least 90 days** in advance of your graduation date.

The paperwork for OPT takes time to be processed. Thus, completing the paperwork well in advance is essential when the EAD card is needed. For that reason, the student and the department must join in a discussion about when he or she will be finishing the dissertation so that an accurate estimated 'completion date' can be reported on the application for OPT.

GRADUATION CHECKLIST AND TIMELINE

	Hold 'Thesis Planning' meeting	End of 4th year/beginning of 5th year of study
	Check with Academic Affairs Administrator to make sure all course and other requirements have been met	6 months prior to completion
	International students that wish to remain in U.S. should apply for optional curriculum training (OPT) at Office of International Students and Scholars	6 months before completion
	Preliminary Thesis Approval Meeting	4-6 months before completion
	Assemble Thesis Defense Committee. Schedule thesis defense date & secure rooms. Decide on thesis "readers". Submit all of above to Graduate Program Director for approval.	2 months before completion
	Submit completed thesis to Primary and Secondary Readers	5-6 weeks before seminar
	Prepare "Readers Letter" and obtain Readers' signatures. Submit to Academic Affairs Administrator.	4 weeks before seminar
	Present revised thesis with a copy of the reader's letter to defense committee	2 weeks prior to the thesis seminar
	Prepare seminar notice and give to Academic Affairs Administrator	1 week before Seminar
	After thesis seminar and exam: 1. Submit thesis electronically when in final format. If graduating in the fall, this should be before the tuition grace period deadline (usually end of October for Fall and Mid February for Spring) if possible. 2. Fill out application to graduate.	

GRADUATE PARTNERSHIPS PROGRAM AT NIH

The following requirements are designed specifically for graduate students enrolled in the GPP/NIH program:

LAB ROTATIONS

GPP/NIH students will do two rotations at Homewood during their first year. After that time, GPP/NIH students may choose to do their final rotations in different laboratories at GPP/NIH. A GPP/NIH rotation may also be completed the summer before matriculation.

COURSEWORK

Core courses and the ethics course must be completed at Johns Hopkins University. Electives may be taken at JHU or NIH (with permission of the CMDB Program Director). When possible, GPP students are encouraged to complete all required electives by the end of the 2nd year to qualify for non-resident tuition status.

TEACHING

One semester of teaching must be performed at Johns Hopkins Department of Biology during the second semester of the student's first year of study. The second teaching requirement is available to GPP students at NIH under the direction of Dr. Philip Wang. This TAship must be signed up for in advance and an agreement form must be on file with the CMDB program office.

GRADUATE BOARD ORAL EXAMINATION

The graduate board oral examination must be taken in the second year of study. GPP students have 8 months from the date that they join a thesis lab to complete the GBO. The deadline for completing the GBO is April 30 of the 2nd year of study. (See Section F pgs. 10-14 entitled "*Graduate Board Oral Examinations*" for further information. For the 2018 entering class, the GBO will be taken after the first year of study (i.e., before July 31, 2019.)

JHU ADVISOR

Rejji Kuruvilla and John Kim are the Homewood Advisors for the NIH students for the Academic year 2017-2018. They will monitor the GPP student's progress during their time as graduate students.

GPP ADVISOR

Kevin O'Connell and Kumaran Ramamurthy are the Graduate Partnerships Program Advisors for GPP students. They are the liaisons between the CMDB program and GPP.

THESIS PROPOSAL MEETING

In the summer of the second year, students have their first committee meeting where they present their detailed thesis proposal and preliminary data to the committee. (See section – on page for more information).

ANNUAL REVIEWS

From year 3 and beyond in the program, students must give a Progress Report and have an annual view of their progress. See “*Annual Review*” section. The Annual Review/Progress Report talk must be performed at Mudd Hall. At least one member of the CMDB program must be a member of the Annual Review Committee.

FINAL GRADUATION REQUIREMENTS

To graduate from the program, students must complete the following requirements: a) submit an approved dissertation, b) submit a reader’s letter attesting to the publishing capabilities of the dissertation, c) thesis defense, and d) present a final seminar. See Section on “*Final Graduation Requirements*”.

The following schedule outlines the GPP program by year:

Year #	Location
Year 1 Lab Rotations Coursework Teaching (Semester 2)	JHU/NIH JHU JHU
Year 2 Teaching (Semester 1) Coursework* Thesis Research Graduate Board Oral (by April 30) Thesis Proposal Meeting (by Aug. 31) Student Self Assessment	NIH or JHU NIH or JHU NIH JHU JHU
Year 3 Thesis Research Annual Review/Progress Report (by Aug. 31) Student Self Assessment	NIH JHU
Year 4 Thesis Research Annual Review/Progress Report (by Aug. 31) Student Self Assessment	NIH JHU
Year 5 Thesis Research Thesis Planning Meeting (by 12/31)/Progress Report	NIH JHU
Year 5 and Beyond Complete Graduation Requirements	JHU

* Teaching and electives may be permitted during the first year with approval of CMDB and JHU/GPP Directors, with the stipulation that a full effort is expended on TA duties and that satisfactory progress is made in coursework and rotations.

EMAIL ACCESS AS AN ALUMNI

After you graduate, Johns Hopkins allows you email access for life. Please go to Alumni Association's website for further instructions: <http://alumni.jhu.edu/alumniemailmigration/injhed>.

OTHER POLICIES & PROCEDURES

ADVISING

The CMDB Program Director serves as the advisor to entering students until they choose a research advisor. After this time, students seeking additional advice, or who have grievances, should also contact the CMDB Program Director.

TIME LIMITS

The graduate program has been designed so that a student who is working in a proficient manner should be able to finish coursework and the dissertation in ~5 years. Failure to adhere to the following time constraints and policies will result in a forfeiture of tuition support and stipend:

A. Graduate students must choose a research advisor no later than August 31 of the first year. Any deviation from this policy needs permission in writing from the CMDB Program Director.

B. The graduate board oral examination should be completed no later than January 31 of the second year. Any deviation from this deadline needs permission in writing from the CMDB Program Director. For classes entering in 2018, the GBO must be completed by July 31, 2019.

C. A student in the sixth year of graduate study and beyond is required to obtain permission to register each semester in writing from the CMDB Program Director. To obtain permission to register, complete a "Permission to Register" form and have it signed by the thesis mentor and the CMDB Graduate Program Director. The CMDB Program Director will require an update regarding the student's status and graduation plans. The signed form must be submitted to the Academic Affairs Administrator to maintain your student status. (See the Appendix for an example of the Permission to Register form).

FULL-TIME STATUS, VACATION AND LEAVE

Academic and University Calendars. Graduate students are required to be in residence "full time", which is defined as a minimum of 40 hours per week. Graduate students may observe official holidays listed on the JHU Holiday Calendar. Graduate students are required to remain in residence when classes are in session and also when classes are not in session, except for official university holidays. For example, graduate students remain in residence during breaks in the Academic Calendar (e.g. January Intersession, Spring Break, and Summer Recess) and the non-holiday period between Christmas and New Year's Day. First year students continue their laboratory rotations and take the required "Responsible Conduct in Research" course during Intersession. More senior students will be conducting thesis research during these times.

Vacations and Holidays. Trainees may receive the same vacations and holidays available to individuals in comparable training positions at the recipient organization. Trainees will continue to receive stipends during vacations and holidays. At academic institutions, the time between semesters or academic quarters generally is considered an active part of the training period and is not considered to be a vacation or holiday.

Sick Leave and Other Leave. Trainees may continue to receive stipends for up to 15 calendar days of sick leave per year. Under exceptional circumstances, this period may be extended by the NIH awarding IC in response to a written request from an AOR. Sick leave may be used for the medical conditions related to pregnancy and childbirth.

Parental and Sick Leave. The following NIH policy is in force for graduate students:

This notice revises the parental leave policy for the Ruth L. Kirschstein National Research Service Awards (NRSA). Current NRSA policy allows trainees on institutional research training grants (T32, T34, T35, and the NRSA component of T90), and fellows on individual research training fellowships (F30, F31, F32, and F33) to receive stipends for up to 30 calendar days of parental leave per year for the adoption or the birth of a child. Effective immediately, NIH is revising the policy as follows: Trainees and fellows may receive stipends for up to 60 calendar days (**equivalent to 8 work weeks**) of parental leave per year for the adoption or the birth of a child when those in comparable training positions at the grantee organization have access to this level of paid leave for this purpose. Either parent is eligible for parental leave. The use of parental leave must be approved by the training Program Director.

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Accordingly, the amount of vacation time allowed is decided by the head of each individual lab. In general, and in keeping with JHU and NIH guidelines, students should restrict vacation time to no more than three weeks, or 15 weekdays, per year.

Students should notify their supervisor about vacation time well in advance and receive approval. Students should notify their advisor in a timely manner when requiring sick leave and should provide medical documentation when appropriate. Students should also notify their advisors well in advance when planning parental leave.

LEAVE OF ABSENCE

Leave of Absence status is granted to those students who must temporarily suspend their studies due to military duty, significant medical conditions, or personal or family hardships. Any graduate student requesting a Leave of Absence must complete an application and submit it for approval by the Program Director and by the Graduate Board. The Leave of Absence is granted for a maximum of two years. Stipends will not be issued during leave of absence. Students on Leave of Absence requesting re-entry into full-time status must complete an application and submit it for approval by the Program Director and by the Graduate Board. Please see the Academic Affairs Administrator for the application form.

Compliance and remedies.

Graduate students who fail to maintain full time status, who exceed the maximum levels of leave, or who fail to comply with other time limits or program policies will be subject to termination with cause and/or dismissal from the CMDB program, unless the situation is remedied. Remedies must be negotiated and agreed upon in writing by the graduate student, the research advisor (if applicable), and the Program Director. Remedies may include forfeiture of stipend, alternative status, or another reasonable accommodation. If the issue is unresolved, students should seek assistance from the Disabilities Office, if they believe accommodation could be arranged, to permit reentry into the graduate program.

MASTER'S DEGREE

The program in Cell, Molecular, Developmental Biology and Biophysics does not grant the M.A. degree except in special cases. The Master's Degree is only given to those students who choose not to remain in the program. The Master's degree is not automatically awarded and is given at the discretion of the Executive Committee. The terminal Master's Degree cannot be given to a student on Leave of Absence.

In some cases, it will be appropriate for a student who is dismissed from, or elects to leave the CMDB program to receive a Masters degree from Johns Hopkins. This is solely at the discretion of the CMDB Program Director(s) in consultation with the student's thesis advisor and thesis/GBO committee. The criteria upon which this decision will be based include:

-the student's academic performance. A student must be in good academic standing according to the CMDB Handbook in order to receive a Masters Degree.

-the student's research. The student must have demonstrated strong dedication to research and made a significant contribution to a research project. Rotations do not count as such a significant contribution.

-the student's teaching. The student must have completed all required teaching responsibilities in an acceptable manner.

-the successful completion of the Graduate Board examination. Students with unresolved conditions are not eligible for the Masters Degree until the condition is resolved.

In practical terms, this means that students who leave the CMDB program after their first year are not eligible for a Masters Degree, while students leaving after their second year or beyond *MAY be eligible IF the above criteria are met.*

If a student is approved to proceed to a Masters Degree, they are required to write a Masters Thesis and have this approved by their thesis advisor and the CMDB Program Director(s). The Masters Thesis should have:

-at least 20 pages not including figures and references (single spaced, no more than 12 pts font with maximum 1.25 inch margins)

-thorough referencing which is NOT included in the 20 page minimum

-A first chapter that is a thoughtful and complete introduction to the relevant research problem

-At least one research chapter, written in the format of a scientific paper, although the introduction may be shortened to avoid duplication of material covered in chapter one

-Sufficient data to document the accomplished research

NON-RESIDENT STATUS

Non-resident status is designed for those students who have completed all program requirements except for the thesis research, and have left the campus to pursue their research

(i.e., advanced NIH/GPP students). To register for this status please obtain a form from the Academic Affairs Administrator. This change in status must be approved by the Program Director and the Graduate Board.

LAB TRANSFERS

Occasionally, there are times when a student will decide that their choice of thesis lab/mentor is not conducive with their successful progress toward a PhD, or a thesis mentor decides that their lab is not the proper place for a particular student. These are extreme situations that should only be reached after all other efforts to find a way to work together have been exhausted. However, just as the initial decision for a student to join a lab is a mutual decision between the student and the faculty member, both the student and the faculty member can terminate this relationship if absolutely necessary. It is the job of the Graduate Program Director to act as confidential advisors to both the students and the training faculty and as mediators between these two parties. Students and mentors are encouraged to seek out the Program Director(s) at the first signs of difficulty, well before the situation becomes so serious as considering the termination of the working relationship. In the event that the issue involves a Program Director and his/her student, the Chair of Biology or another member of the Program Executive Committee should be consulted as the confidential mediator.

Student Initiated Transfers

Students must first obtain permission of the CMDB Program Director before they are allowed to change thesis labs. Students are **STRONGLY ENCOURAGED** to seek the guidance of the Program Director(s) and other faculty and staff as they consider these decisions. In addition, the student should have a clear plan for their new thesis research and potential thesis advisors. Students are not allowed to be without a thesis lab for more than two weeks, and preferably they would switch to a new lab immediately upon leaving their old lab. Once they have decided upon a new thesis lab, there will be a probationary period of six weeks during which they and their new advisor decide whether the student will conduct their thesis research in the new lab. If so, the student and advisor should sign a "Thesis Research Advisor Selection Form" and submit it to the CMDB Program Academic Coordinator. The new thesis lab will be responsible for future funding for the student. If the student will not join the current lab, the student may be permitted to identify one additional lab to consider for their thesis lab. In this case, there will be a probationary period of 4 weeks during which the student and their new advisor decide whether the student will conduct their thesis research in the new lab. The CMDB Program will only provide a maximum of 12 weeks of funding for students who decide to switch labs. If, after 12 weeks, the student has failed to find a new thesis lab, funding will be withdrawn and the student may be dismissed from the CMDB Program.

Faculty Initiated Transfers

CMDB faculty must first obtain permission from the CMDB Program Director before they are allowed to dismiss a student from their lab. Faculty are **STRONGLY ENCOURAGED** to seek the guidance of the Program Director(s) as they consider these decisions. Once such a decision has been approved, the faculty member may be liable for funding the student for up to 12 weeks as the student seeks a new thesis lab. If a student is dismissed from their thesis lab with the permission of the CMDB Program Director, they can appeal this decision

to the Program Executive Committee. If a student is dismissed from their thesis lab, then the requirements for finding an alternate thesis lab described in "Student Initiated Transfers" above apply.

SAFETY PROCEDURES

Johns Hopkins policies on laboratory safety, biohazards, radioactive materials, disposal of hazardous chemicals and training requirements can be found on the Health, Safety and Environment website:

<http://www.hopkinsmedicine.org/hse/>

CHEMICAL SPILLS ext. 68798

ESCORT VAN ext. 68700 FIRE

ext. 911

INJURIES ext. 60450 RADIOACTIVITY

ACCIDENTS ext. 67278

SECURITY ext. 67777

LASER SAFETY

https://hpo.johnshopkins.edu/hse/policies/156/11034/policy_11034.pdf

SUSTAINABILITY

The Johns Hopkins Sustainability Network is the network of students, staff and faculty who are committed to promoting sustainability in their operations and among the larger Johns Hopkins community. Read more:

http://sustainability.jhu.edu/join_the_network/about_the_network/.

The Biology department offers battery and writing utensil recycling (bins are located in Mudd 144). Other recycling bins: paper, cans / bottles and food containers are available throughout our buildings.

**The Johns Hopkins University
Krieger School of Arts & Sciences/Whiting School of
Engineering**

**PROCEDURES FOR HANDLING ALLEGATIONS OF MISCONDUCT BY FULL-TIME &
PART-TIME GRADUATE STUDENTS**

Established March 2006

The Krieger School of Arts and Sciences (“KSAS”) and the Whiting School of Engineering (“WSE”) full-time programs and Engineering for Professionals (“EP”) establish the following procedures to address instances of misconduct by all graduate students enrolled in full-time, part-time or non-degree (special student) Krieger School of Arts and Sciences and Whiting School of Engineering graduate programs. The procedures in this document do not apply to Krieger School Advanced Academic Program students. Their policy is contained in the Advanced Academic Programs Code of Conduct posted on the web at www.advanced.jhu.edu/ethics/index.html.

The goal of these procedures is twofold: (1) to ensure the highest level of professional conduct by graduate students, and (2) to provide a fair, deliberative, and efficient process for resolving allegations of misconduct by graduate students.

GRADUATE STUDENT MISCONDUCT

Graduate student misconduct covered by these procedures includes academic misconduct including, but not limited to the following: cheating or facilitating cheating; plagiarism; reuse of assignments; unauthorized collaboration; alteration of graded assignments; knowingly furnishing false information to any agent of the University for inclusion in academic records; unfair competition; lying; and falsification, forgery, alteration, destruction or misuse of official University documents or seal. Graduate student misconduct also includes the failure to comply with University or governmental rules, regulations, and laws, and the disregard of the norms of expected conduct, including nonacademic conduct that would adversely affect the integrity and reputation of the University as a whole or the Krieger and Whiting Schools. A non-exclusive list of examples appears in Appendix A. These procedures do not apply to research fraud, including the intentional falsification or fabrication of data or results, misconduct in the application of research procedures so as to bias results, and other deceptive research practices which are all addressed under the WSE and KSAS Procedures for Dealing with Issues of Research Misconduct.

POLICY

Misconduct by graduate students is unacceptable. It is the responsibility of all full-time, part-time or non-degree (special) graduate students to adhere to strict standards of integrity in their professional and scholarly activities, as well as to high standards of conduct in their nonacademic activities, and to report acts of misconduct when they are known or are suspected to have occurred. It is the responsibility of the faculty and other supervisors of

scholarly activities to monitor carefully the academic and other scholarly activities of graduate students under their supervision and to subject these activities to rigorous evaluation. KSAS and WSE have established these procedures to ensure an environment for graduate students that encourages, fosters, and maintains integrity in both academic and nonacademic activities, and that preserves the reputation for excellence that is the proud heritage of the Johns Hopkins University.

At least once a year, the chairs of academic departments, chairs of academic programs and the directors of degree-granting centers (from this point on referred to as “departments” and “department chairs”) at the Krieger and Whiting Schools are responsible for informing the graduate students in their departments about the WSE and KSAS Procedures for Dealing with Issues of Research Misconduct, the WSE and KSAS Policy on Conflict of Commitment and Conflict of Interest and this Policy on Graduate Student Misconduct, and for distributing these policies in their departments. (In the Engineering for Professionals (EP) division, the Associate Dean will hold this responsibility.) At this same time, they should advise their faculty, students, and staff of their personal and individual responsibilities for the integrity of the research and scholarly activities in which they participate – regardless of the level of participation.

PROCEDURES FOR ADDRESSING AND RESOLVING ALLEGATIONS OF MISCONDUCT BY GRADUATE STUDENTS

The Cognizant Dean (the Vice Dean for Education in the Whiting School, the Associate Dean of Engineering for Professionals, or the Vice Dean for Humanities, Social Sciences, and Graduate Programs in the Krieger School) shall be responsible for updating this Policy and these procedures, and may institute procedures different than those outlined herein, based on the specific nature of the matter at issue, but only with the consent of the Johns Hopkins University Office of the General Counsel (“General Counsel’s Office”).

I. Reporting Responsibilities

Any instructor who suspects a full-time, part-time or non-degree (special) graduate student has engaged in misconduct covered under this procedure shall report that suspicion to the instructor’s department chair, or the Cognizant Dean (defined as the Dean listed above which serves the school in which the student is enrolled). Any staff member or student who suspects a full-time, part-time or non-degree (special) graduate student has engaged in misconduct covered under this procedure shall report that suspicion to the instructor of the related course, if related to a course, or to the Cognizant Dean for suspected misconduct that is not related to a specific course. The person to whom the report is made shall advise the persons bringing or raising allegations of misconduct that there will be no retaliation or recriminations for allegations made in good faith. Any chair or director to whom a report has been made shall advise the Cognizant Dean of the report, preferably in writing.

II. Informal Resolution of Misconduct Not Related to a Specific Course

If a full-time, part-time or non-degree (special) graduate student is suspected of misconduct outside a course, the department chair or the chair's designee of the department in which the student is enrolled shall review the evidence and the facts of the case promptly with the graduate student. If, after speaking with the graduate student(s), the department believes that misconduct has occurred, the department may either (a) settle the case directly with the graduate student with appropriate notification to the Cognizant Dean or (b) promptly notify the Cognizant Dean in writing, setting forth the details of the case. If the student and

the department cannot agree to a resolution within these parameters, or if the department believes the matter calls for a penalty that would affect a student's attendance in the program (e.g., suspension or expulsion), or if the alleged misconduct is a second or subsequent offense, the department must submit the matter to the Cognizant Dean for resolution, in accordance with Part IV below. If the department is uncomfortable making the initial investigation, the matter may be referred immediately to the Cognizant Dean as described above.

III. Informal Resolution of Academic Misconduct in a Specific Course

If a full-time, part-time or non-degree (special) graduate student is suspected of academic misconduct in a specific course, the faculty member responsible for the course in which the misconduct is alleged to have occurred shall review the evidence and the facts of the case promptly with the graduate student. If, after speaking with the graduate student(s), the faculty member believes that academic misconduct has occurred, the faculty member may either (a) settle the case directly with the graduate student with appropriate notification to the Cognizant Dean, or (b) promptly notify the Cognizant Dean in writing, setting forth the details of the case. (For EP, the faculty member will speak directly with the program chair.) In matters resolved directly between the faculty member and the graduate student, the penalty may not exceed failure in the course and may not include a notation on the permanent transcript. If the student and the faculty member cannot agree to a resolution within these parameters, or if the faculty member believes the matter calls for a more severe penalty, or if the alleged academic misconduct is a second or subsequent offense, the faculty member must submit the matter to the Cognizant Dean for resolution, in accordance with Part IV below.

IV. Responsibilities of the Cognizant Dean

The Cognizant Dean has the responsibility for ensuring the resolution of allegations of graduate student misconduct -- whether raised to the Cognizant Dean by a faculty member, student, or staff member or by any other source, within or outside the University. Such allegations may be resolved through inquiries and/or hearings.

In the event that the student is from the same department as the Cognizant Dean or if the Cognizant Dean believes that s/he is unable to exercise independent judgment for any reason, the responsibility for proceeding to a resolution of the allegation will be referred to another dean or senior faculty member.

V. Inquiry

The resolution of allegations of misconduct (except cases of academic misconduct that are resolved pursuant to section II above) includes two principal phases: (1) an inquiry and (2) a hearing. Persons who have personal interest in the resolution of an allegation of graduate student misconduct may not participate in any way in any proceedings undertaken to address the allegation, except as witnesses.

The inquiry is the initial step after an allegation of graduate student misconduct is made. Its purpose is dual: It is intended to determine whether the allegation warrants a full hearing, and, no less importantly, it is intended to identify and provide prompt termination of accusations of misconduct that are patently groundless, frivolous, or apparently malicious and for which no supporting evidence exists.

An inquiry generally involves fewer people, and is less formal and time-consuming than a hearing. After the Cognizant Dean receives an allegation of misconduct by a graduate student, the Cognizant Dean shall review the allegation, including a review of available documents and interviews with the accuser, the accused graduate student and other witnesses.

If the inquiry finds an allegation to be without merit, the accused graduate student shall be informed -- within two weeks of the finding and in writing -- of the outcome of the inquiry.

If the inquiry finds an allegation to have a reasonable basis, the Cognizant Dean shall review the evidence and the facts of the case promptly with the accused graduate student. After speaking with the accused graduate student, the Cognizant Dean may either (a) settle the case directly with the graduate student with appropriate notification to the Dean, or (b) promptly convene a Hearing Panel to consider the matter. In matters resolved directly between Cognizant Dean and the accused graduate student, the penalty may not include expulsion. If the Cognizant Dean believes the matter calls for expulsion, he/she must convene a Hearing Panel.

VI. *Hearing*

A hearing will be conducted after an inquiry has concluded that sufficient grounds exist to warrant full consideration of the allegation(s) and possible disciplinary action, and the Cognizant Dean and the accused graduate student have not reached a settlement of the matter. The purpose of a hearing is to determine whether misconduct has occurred and/or the appropriate sanction for misconduct.

The Cognizant Dean shall convene a panel to consider the allegation(s) of misconduct, which shall comprise three members--two faculty members and one graduate student ("Hearing Panel"). (For EP only, this panel will consist of two faculty members and a senior level administrator.) The faculty members selected for the Hearing Panel must have their primary appointments in departments other than the department in which the graduate student is enrolled and must otherwise be able to exercise independent judgment in the matter. In cases of alleged academic misconduct related to a specific course, the primary appointments of the faculty members on the Hearing Panel must be in departments other than that in which the faculty member bringing charges of academic misconduct has his/her primary appointment.

The Cognizant Dean will establish a date and time for the hearing, and shall notify the accused graduate student, the person bringing the charges and the members of the Hearing Panel in writing no less than five days prior to the date of the hearing. The accused graduate student and person bringing the charges will be responsible for notifying their respective witnesses of the date and time for the hearing.

The notification to the accused graduate student shall include a statement of the allegations in sufficient detail to inform the graduate student of the charges against him/her. The accused graduate student shall be informed promptly of any amendment(s) to the original allegation(s). The accused graduate student also shall be advised of the identities of the members of the Hearing Panel and may request the substitution of a member if the graduate student has reason to believe the member is unable to exercise independent judgment in the matter.

In advance of the hearing, the accused graduate student will have the opportunity to view all documents relating to the charges of misconduct that will be submitted to the Hearing Panel. The person bringing the charges will deliver all documents to the Cognizant Dean before notice of the hearing is sent out.

The unexcused failure or refusal of the accused graduate student and/or any witnesses to attend the hearing shall not prevent the hearing from proceeding or the Hearing Panel from making a decision based upon the information available to it.

The Hearing Panel shall consider all relevant information relating to the alleged misconduct, including documents and testimony of witnesses. The Hearing Panel shall conduct a careful review of the allegations, through appropriate procedures that shall afford a fair opportunity to the accuser and the accused graduate student to present pertinent information and views to the Hearing Panel. Throughout the hearing, the accused graduate student shall be afforded the opportunity to respond to questions related to his/her activities and conduct, and to provide whatever additional information he/she wishes the Hearing Panel to consider in reaching its decision in the matter.

The hearing shall be recorded. Deliberations of the Hearing Panel will not be recorded.

After the conclusion of the hearing, the Hearing Panel will evaluate the information presented at the hearing and determine whether the graduate student is responsible for the alleged misconduct, and if so, the appropriate sanction to be imposed. The Hearing Panel will notify the accused graduate student and the Cognizant Dean of the decision, and the Cognizant Dean will notify the accuser. The Hearing Panel shall produce a written report of its decision that should include a statement of the allegation(s), a summary of the testimony and documents considered, the substance and analysis of the evidence, the Hearing Panel's conclusion, and the sanction imposed. The Hearing Panel's final report shall be presented to the Cognizant Dean for notification.

VII. Confidentiality

All materials and information related to an inquiry and/or a hearing into an allegation of graduate student misconduct shall be kept confidential to the maximum extent possible -- to protect both the accuser and the accused. Therefore, as few individuals as feasible shall be involved in resolving allegations of graduate student misconduct. In addition, all records of allegations, evidence, and proceedings shall be maintained in sequestered and/or confidential files. Persons serving on Hearing Panels must be mindful of their obligation to maintain confidentiality before, during and after a hearing.

VIII. Notifications

A. To the Accused Graduate Student Regarding an Inquiry: Within two weeks after the initiation of an inquiry, at a time deemed appropriate by the Cognizant Dean, the Cognizant Dean shall notify the accused graduate student of the commencement of an inquiry. The notification to the accused graduate student shall include a recitation of the allegations. The accused graduate student shall be informed promptly of any amendment(s) to the original allegations.

If the inquiry finds an allegation to be without merit, the accused graduate student shall be informed -- within two weeks of the finding and in writing -- of this outcome.

B. Regarding the Outcome of a Hearing: At the conclusion of the deliberations, the Hearing Panel shall notify the accused graduate student and the Cognizant Dean for Academic Affairs informally of its decision. The Hearing Panel shall prepare a written report of its conclusions. A copy will be placed in the student's file and a copy will be provided to the student upon request.

C. Notifications to Other Interested Parties: The Cognizant Dean shall keep the Dean and the General Counsel's Office apprised of the progress of all inquiries and hearings pertaining to graduate student misconduct. After the conclusion of the hearing, the Cognizant Dean will notify the accuser of the decision of the Hearing Panel.

IX. Appeals

If there is no response from the accused graduate student within two weeks of the date of the decision of the Hearing Panel, it will be presumed that the findings of misconduct have been accepted by the accused graduate student. If the accused graduate student contests the Hearing Panel's decision, he/she may do so, on procedural grounds only. The appeal must be in writing, must set forth the grounds for the appeal, and must be received by the Dean of the school in which the accused graduate student is enrolled within two weeks of the date of the decision of the hearing panel. The decision of the Dean shall be final.

X. Role of Legal Representatives

Legal counsel are not permitted to be present during any pre-hearing inquiry, the hearing itself or meetings of a hearing panel constituted under these procedures. Any person accused of misconduct may, if s/he chooses and at her/his expense, consult with legal counsel before and after institutional proceedings.

The General Counsel's Office will not act as the prosecutor or defender of the accused, but will act as an impartial legal advisor to the academic and administrative offices of KSAS or WSE and the University to ensure adherence to the established University policies and procedures, including this procedure, and to ensure procedural fairness to the accused, the accuser, and the witnesses.

XI. Exclusivity of Procedure

This Policy and the procedures set forth herein shall be the exclusive mechanism in and at KSAS and WSE for resolving allegations of graduate student misconduct other than research misconduct handled under the School's Procedures for Handling Allegations of Research Misconduct. A person sanctioned under this Policy and/or through these procedures may not invoke any other procedure or bring the matter before any other body of the University in an effort to gain a re-adjudication of the allegations.

XII. No Creation of Rights

Nothing in this Policy or these procedures is intended to or does in fact create any rights or process not otherwise recognized at law or by the University, and the Policy and procedures shall not be construed as creating any such rights.

EXAMPLES OF ACADEMIC MISCONDUCT

Academic misconduct is the act of stealing ideas, thoughts, and words. Any act that violates the spirit of authorship or gives undue advantage is a violation. Although no list can be entirely comprehensive, the following non-exclusive examples are the most common types of academic misconduct.

CHEATING ON EXAMINATIONS

- Use of unauthorized materials (e.g., notes, books) during an in-class or take-home examination
- Consultation of unauthorized materials while being excused (e.g., on a restroom break) from an examination room
- Discussion of an exam's contents during its administration
- Copying answers from another student
- Obtaining an examination or answers to an examination prior to its administration
- Studying from an old exam whose circulation was prohibited by the instructor

PLAGIARISM

- Submission of the same or substantially similar work of another person, such as an author or classmate
- Use of the results of another student's work (e.g., exam, homework, computer code, lab report) while representing it as your own
- Improper documentation of quotations, words, ideas, or paraphrased passages taken from published or unpublished sources

REUSE OF ASSIGNMENTS

- Submission of the same or substantially similar assignment to fulfill the requirements of more than one course

IMPROPER USE OF THE INTERNET

- Plagiarism from a published or unpublished Internet source
- Improper documentation of an Internet source
- Use of paper writing services or paper databases on the Internet

IMPROPER USE OF ELECTRONIC DEVICES

- Consultation of unauthorized electronic devices (e.g., calculators, cellular phones, computers, PDAs) during examinations
- Use of electronic devices to communicate within or outside an examination room (i.e., 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 examinations

UNAUTHORIZED COLLABORATION

- Collaboration when solving homework problems or writing lab reports, computer programs, or papers unless explicitly approved by the professor

ALTERATION OF GRADED ASSIGNMENTS

- Submission of an examination or assignment for a regrade after making changes to the original answers or text

FORGERY AND FALSIFICATION

- Falsification or invention of data in a laboratory experiment
- Citation of nonexistent sources or creation of false information in a written assignment
- Attributing to a source ideas or information that is not included in the source
- Forgery of university documents, such as letters and transcripts
- Impersonating a faculty member

LYING

- Request for special consideration from professors 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
- Claiming falsely to have completed and/or turned in an assignment
- Falsely reporting an ethics violation by another student

FACILITATING ACADEMIC DISHONESTY

- Intentionally or knowingly aiding another student to commit a violation of academic conduct
- Allowing another student to copy from one's own examination paper during its administration
- Providing copies of course materials whose circulation was prohibited (such as exams or assignments) to students enrolled in or planning to take that course
- Taking an examination or completing an assignment for another student, or permitting another student to do so on one's behalf

UNFAIR COMPETITION

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

EXCEPTIONS

In some cases, exceptions to the above examples may apply. For example, some instructors assign problem sets or laboratory projects with the intention that students will work together or form study groups. In these cases, all collaborating partners should be noted on a submitted assignment.

Some instructors may accept assignments completed for another course. Students must secure written permission from the instructor to do so. Other instructors expect or encourage students to consult old exams and write new exams accordingly. Instructors should be certain that access to these exams is universal by placing them on reserve at the MSE Library.

To know what constitutes cheating for a particular course, students must ask the professor of the course for clarification. The general policy should be set forth during the first class of each semester and should be explained in the course syllabus. Students are expected to ask for clarification of unexplained or ambiguous areas. Ignorance of policies is not a valid excuse for cheating.

In general, it is important to remember the distinction between copying and collaborating. It is cheating to copy another's work and turn it in as your own. Professors, however, often encourage students to compare solutions or class notes with each other, to analyze differences in outcomes, to discuss methods, and to ask for explanations. Cheating requires no engagement or understanding, while collaboration promotes interactive learning.

This is not a legal document. This booklet presents current (September 2016) guidelines and practices for the Cell, Molecular, Developmental Biology and Biophysics (CMDDB) graduate program. The Program Director and participating Department Chairs reserve the right to modify requirements, create new ones and otherwise alter graduate program practices without advance notice.

APPENDIX

1. Academic Calendar
2. Important Dates for the 2017-2018 academic year
3. CMDB Administration and Committees
4. CMDB Program Forms:
 - THESIS RESEARCH ADVISOR SELECTION FORM
 - GBO FORM
 - GBO REPRESENTATION FORM
 - THESIS PROPOSAL MEETING (Year 2)
 - ANNUAL REVIEW FORM (Year 3 and 4)
 - THESIS PLANNING MEETING (YEAR 5)
 - PRELIMINARY THESIS APPROVAL FORM
 - SAMPLE READER'S LETTER FOR THESIS APPROVAL
 - FINAL THESIS DEFENSE APPROVAL FORM
 - PERMISSION TO REGISTER
 - ELECTIVE PERMISSION FORM
5. Annual Review Meeting Tips
6. Science Outreach Certificate

2017-2018 Arts & Sciences and Engineering

<u>Academic Calendar</u>	
<u>2017</u>	
Wednesday, August 23	Arts & Sciences Orientation for new graduate students
Thursday, August 24	Arts & Sciences Orientation Part II CMDB Program Orientation
Friday, August 25	Safety Training
Monday, August 28	First day of Bootcamp
Monday, September 4	Labor Day
Tuesday, September 5	First day of CMDB classes
Friday, October 20, Saturday, October 21	CMDB Retreat at Hershey Lodge
Monday, November 20- Sunday, November 26	Thanksgiving Vacation
Friday, December 8	Last day of classes
<u>2018</u>	
Monday, January 29	First day of classes
Friday, May 4	Last day of classes
Tuesday, May 22	CMDB program Hooding Ceremony
Thursday, May 25	University Commencement

Regularly scheduled activities

Weekly events

Progress Reports: Tuesday noon, Mudd 100

Departmental seminars:

Monday 12:15pm – Rose Auditorium, Carnegie Institute

Monday 12pm – Mergenthaler 111, Biophysics

Tuesday 4:15pm – Remsen 233, Chemistry

Thursday 4pm – Mudd 100, Biology

Monthly events

Biology Colloquium: First Wednesday 4:30pm – Mudd Auditorium

ROTATION DATES FOR ACADEMIC YEAR 2017-2018

Rotation #	Beginning Date	End Date	Presentation 1	Presentation 2
1	September 5, 2017	November 1, 2017	November 2, 2017	November 3, 2017
2	November 6, 2017	January 17, 2018	January 18, 2018	January 19, 2018
3	January 22, 2018	March 21, 2018	March 22, 2018	March 23, 2018
4	March 26, 2018	May 23, 2018	May 24, 2018	May 25, 2018

Choosing a thesis lab

Dates for approaching potential thesis advisors: May 21,-25, 2018

Dates for committing to a thesis lab (or choosing 5th rotation): May 28, 2018

CMDB PROGRAM ADMINISTRATION

NAME	Title	PHONE	ROOM	EMAIL
Rejji Kuruvilla	CMDB Co-Director	(410)516-7844	Mudd 36A	rkuruvilla@jhu.edu
John Kim	CMDB Co-Director	(410)516-3286	UTL 389	jnkim@jhu.edu
Steven Farber	Admissions Director	(410)246-3072	Carnegie	farber@ciwemb.edu
Joan Miller	Academic Affairs Administrator	(410)516-5502	Mudd 144	joan@jhu.edu

CMDB COMMITTEES

Executive Committee

Bertrand Garcia-Moreno
Vincent Hilser
Rejji Kuruvilla
Yixian Zheng
John Kim
Mark Van
Doren

Retreat Committee

Robert Johnston

Graduate Student Representatives

Alexis Ceasrine	aceasri1@jhu.edu
Raghav Goyal	rgoyal7@jhu.edu
Caitlin Pozmanter	cpozman1@jhu.edu
Benjamin Clarkson	bclarks1@jhu.edu
Sarah Hadyniak	shadyni1@jhu.edu
Jessica Kirshner	jkirshn3@jhu.edu
Jeremiah Miller	jmill3082@jhu.edu
Neta Shwartz	nshwart1@jhu.edu

PROGRAM IN CELL, MOLECULAR,
DEVELOPMENTAL BIOLOGY AND BIOPHYSICS
144 Mudd Hall/3400 N. Charles Street
Baltimore, MD 21218

THESIS RESEARCH ADVISOR SELECTION FORM

Date

_____ has permission to join my laboratory
NAME OF STUDENT

to perform thesis research and I agree to support her/him.

Student Signature

Advisor Signature

JOHNS HOPKINS UNIVERSITY - GRADUATE BOARD
Oral Examination for the Ph.D. Degree

Exam: Preliminary Final Department: _____
 Proposed Date of Examination: _____ Hour: _____ Location: _____
 Candidate's Full Name: _____ Student ID #: _____

The committee is made up of five members and should be set up according to departmental policy concerning the # of "inside" departmental members that may serve; some departments allow 3, others only 2. Select the remaining members from other JHU Ph.D. granting departments, at least one of which must be of Professor or Associate ranking. Exceptions must have Graduate Board approval. Two alternates **MUST** be listed – one in each column.

Members from "inside" department: Faculty's Name 1. _____ 2. _____ 3. _____ "Inside" Alternate 1. _____	Members from "outside" departments: Faculty's Name and Department Rank 1. _____ 2. _____ 3. _____ "Outside" Alternate 1. _____
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Proposed Examination Approved By:

<i>Department/Program Chair</i>	<i>Date</i>	<i>Graduate Board Chair</i>	<i>Date</i>

Report of Results

Signatures of all examiners present must appear below:

Unconditional Pass Conditional Pass (Explanation required) Fail (Explanation required)

(If additional space is needed, attach sheet.)

<i>Chair, Examination Committee</i>	<i>Date of Examination</i>
1. _____	3. _____
2. _____	4. _____

Chairperson: send this form to the Graduate Board Office, located in the Wyman Park Bldg. Suite G1,
directly following the examination

Revised July 2005

JOHNS HOPKINS UNIVERSITY

CMDB Graduate Program

GBO EXAM COMMITTEE MEMBERSHIP APPROVAL FORM

NAME OF STUDENT:

	BIOCHEMISTRY/ BIOPHYSICS	CELL BIOLOGY	DEVELOPMENTAL BIOLOGY	MOLECULAR BIOLOGY/GENETICS
INSIDE				
INSIDE				
INSIDE				
OUTSIDE				
OUTSIDE				
OUTSIDE				
ALTERNATE INSIDE				
ALTERNATE OUTSIDE				

- ***Computation can be substituted for one of the above fields if appropriate.***

JOHNS HOPKINS
UNIVERSITY

PROGRAM IN CELL, MOLECULAR,
DEVELOPMENTAL BIOLOGY AND BIOPHYSICS

Graduate Student THESIS PROPOSAL MEETING (Year 2)

NAME: _____

ADVISOR: _____ DATE: _____

EVALUATION OF THESIS PROPOSAL: ___ Excellent ___ Satisfactory ___ Unsatisfactory
Comment (please also provide specific feedback to the student on the proposal draft itself):

Does the Thesis Proposal need to be revised and resubmitted to the committee?

___ Yes ___ No If Yes, Due Date: _____

EVALUATION OF PRELIMINARY DATA/PROGRESS ___ Excellent ___ Satisfactory ___ Unsatisfactory
Comment:

EVALUATION OF STUDENT'S KNOWLEDGE OF:

Project Significance/Big Picture ___ Excellent ___ Satisfactory ___ Unsatisfactory
Comment:

Background Literature ___ Excellent ___ Satisfactory ___ Unsatisfactory
Comment:

Experimental Procedures/Alternative Approaches ___ Excellent ___ Satisfactory ___ Unsatisfactory
Comment:

Career Options Discussion:

ADDITIONAL RECOMMENDATIONS:

SIGNATURES:
Student:

Advisor:

Chair: _____
Committee Members:



PROGRAM IN CELL, MOLECULAR,
DEVELOPMENTAL BIOLOGY AND BIOPHYSICS

GRADUATE STUDENT ANNUAL REVIEW (Years 3 and 4)

NAME: _____ YEAR OF STUDY: _____

ADVISOR: _____ DATE: _____

PROGRESS: _____ SATISFACTORY _____ UNSATISFACTORY
(Please complete each item in detail)

EVALUATION OF PROGRESS REPORT TALK:

Overall knowledge of research field:

Description of progress during the last year:

Description of experiments to be carried out during next year:

Estimate of time & experiments to be completed for PhD:
(For students who have been in the program for at least 4 years)

Describe any problems:

Career Options Discussion:

Recommendations:

Chair: _____

Student:

Advisor:

SIGNATURES OF REVIEWERS:



PROGRAM IN CELL, MOLECULAR,
DEVELOPMENTAL BIOLOGY AND BIOPHYSICS

**GRADUATE STUDENT ANNUAL REVIEW – Thesis Planning Meeting Form
(beginning year 5)**

NAME: _____ YEAR OF STUDY: _____

ADVISOR: _____ DATE: _____

PROGRESS: _____ SATISFACTORY _____ UNSATISFACTORY
(Please complete each item in detail; use back of page or additional sheets if needed.)

EVALUATION OF PROGRESS REPORT TALK:

Overall knowledge of research field:

Description of progress during the last year:

Description of experiments to be carried out during next year:

Evaluation of preliminary thesis outline:

Evaluation of plan for graduation in 12-18 months::

Career Options Discussion/Advice to help student make plans for after
graduation:

Describe any problems:

Recommendations: Chair: _____

Student:

Advisor:

SIGNATURES OF REVIEWERS:

**PRELIMINARY THESIS DEFENSE COMMITTEE APPROVAL
FORM**

Name of Student

has met with his/her thesis committee on _____.
Date*

We approve the commencement of the thesis writing.

Career Options Discussion:

* This date must be approximately 4-6 months prior to the completion of all thesis requirements.

Signatures of Thesis Committee

Chair: _____

SAMPLE READERS ' LETTER



(MUST BE ON READER'S DEPT. LETTERHEAD)

Date (4 weeks prior to defense)

Graduate Board
The Johns Hopkins University
Baltimore, MD 21218

Dear Graduate Board Members,

The undersigned have read the dissertation submitted by **(FULL NAME OF STUDENT)** entitled **(DISSERTATION TITLE)** and recommend its acceptance in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

We certify that this dissertation is a significant contribution to knowledge. We believe that the thesis is worthy of publication (a)* in its present form or (b)* with slight modifications).

Sincerely,

Name of First Reader
Title
Department

Name of Second Reader
Title
Department

* Pick the appropriate phrase.

THESIS DEFENSE APPROVAL FORM

Name of Student

has permission to schedule their Thesis Defense on _____.
Date

Signatures of Thesis Committee

Chair: _____

JOHNS HOPKINS
UNIVERSITY
PROGRAM IN CELL, MOLECULAR,
DEVELOPMENTAL BIOLOGY & BIOPHYSICS

PERMISSION TO REGISTER*
*(*for any student in their 6th year of study and beyond)*

Name of Student: _____

Year of Study: _____

Fall/Spring Semester, _____ (year)

Anticipated Graduation Date: _____

Date: _____ **Advisor Signature:**

Date: _____ **Program Director Signature:**

PROGRAM IN CELL, MOLECULAR,
DEVELOPMENTAL BIOLOGY AND BIOPHYSICS

CMDB ELECTIVE PERMISSION

(Attach Syllabus)

Name: _____

Course#: _____

Course Title: _____

Course Location: _____ Instructor Name: _____

Justifications

What are the main topics covered?

How is this related to your project?

Signature of Program Director: _____ Date: _____

This class has been approved/disapproved for elective credit.

Number of credits approved: _____

FULL TIME STATUS COMPONENTS FOR CMDB GRADUATE STUDENTS*

YEAR 1

FOUR ROTATIONS
FOUR CORE CLASSES
RESPONSIBLE CONDUCT IN RESEARCH CLASS
THESIS MENTOR SELECTION
GBO starting with class entering in 2018

YEAR 2

TEACHING IN AN UNDERGRADUATE LABORATORY CLASS
THESIS RESEARCH
GRADUATE BOARD ORAL EXAM BY JANUARY 31 OF 2ND
YEARTHESIS PROPOSAL MEETING BY AUGUST 31 OF 2ND
YEAR SELF ASSESSMENT

YEAR 3

THESIS RESEARCH
ELECTIVE CLASSES
ANNUAL REVIEW/PROGRESS REPORT
SELF ASSESSMENT

YEAR 4

THESIS RESEARCH
ELECTIVE CLASSES
ANNUAL REVIEW/ PROGRESS REPORT
SELF ASSESSMENT

YEAR 5

THESIS RESEARCH
ELECTIVE CLASSES
THESIS PLANNING MEETING/ PROGRESS REPORT
SELF ASSESSMENT

YEAR 5.5

THESIS RESEARCH
PRELIMINARY THESIS APPROVAL MEETING
PROGRESS REPORT
SELF ASSESSMENT
THESIS WRITING
THESIS SEMINAR
FINAL THESIS
DEFENSE

Failure to meet any of these components it will jeopardize their status as a full time student in the CMDB program.

* A normal week of 40+ hours should be maintained for full time status.

How to Conduct an Annual Committee Meeting

Student turns into each committee member at least one week before meeting:

1. Completed Student/Mentor Evaluation (student and mentor should complete and discuss this prior to meeting)
2. Written update on thesis work

Format: Abstract—brief background and overall update of project Aims—more detailed explanations of findings, and current and future experiments (option: color code experiments based on completeness (in progress vs. to be completed))

Committee Meeting

-Student presentation: Progress Report + additional detailed data for committee meeting OR presentation specific for the meeting (go over all data included in written update)

Things student and committee members should consider and discuss:

1. Can the student manage time in lab effectively and prioritize experiments? (can the student handle experiments and TAing/mentoring at the same time? Does the student complete necessary things by set deadlines? Is the student set to graduate in a timely manner? Does the student have a realistic idea of when they will graduate?)
2. Is the student a successful mentor to younger students?
3. Do the PI and student have a good relationship? Is communication open and often?
4. Is the student attending and participating in conferences?
5. Discuss student's writing skills and suggest improvements
6. Discuss student's presentation skills and suggest improvements
7. Does the student have a general idea of how their work would be published? Does the student have a paper outline?
8. Is the student being proactive about their future career? Have they started considering all of their options? Have they done research on career fields or potential postdocs? Are they starting to network at conferences? Do they have an updated CV? If necessary, are they getting experience/training in an area that will help them in their future career?
9. Does the students recognize their own weaknesses? Are they (and their mentor) working to improve these areas? Constructive criticism is always helpful.

AAAS Individual Development Plan (resource for science careers):

<http://myidp.sciencecareers.org/>

CMDB Outreach Certificate

Objective:

We offer a certificate of recognition to Graduate Students in the CMDB program that have demonstrated a commitment to scientific teaching/service in their local community.

The overall goals of this project are as follows:

- Encourage wider participation in established science outreach programs, and bolster the impact of these programs in our local communities.
- Diversify the CMDB student body by recruiting minority students into scientific careers and/or the CMDB graduate program (e.g. by supporting our SURE program).
- Demonstrate the CMDB program's commitment to diversifying the scientific community. This would also make the CMDB program more attractive to minority student candidates.
- Provide further outreach opportunities for CMDB students seeking careers in science teaching or science policy.

Description of certificate:

CMDB students who qualify for the Science Outreach Certificate will be recognized as follows:

- Presentation of the certificate to the graduating student during the CMDB hooding ceremony.

Qualifications for Certificate:

Students must complete a total of 50 hours of service during their graduate career. These 50 hours must come from participation in pre-approved outreach activities.

Pre-approved Science Outreach Activities:

- BIOEYES (run by Dr. Steve Farber)
- BALTIMORE TALENT DEVELOPMENT HIGH SCHOOL (run by MINDS)
- BIO REU (JHU Biology Department's summer undergraduate research program). Only scientific activities unrelated to lab duties will qualify, such as presenting journal clubs or a poster presentation workshop.
- TUTORING (science, not-for-profit)
- JUDGING SCIENCE FAIRS
- SCIENCE POLICY (contact Joanna Fox)
- Further activities may be granted approval by a committee comprising of Dr. Steve Farber, a MINDS member or student who has completed the 50-hour service commitment and the JHU CMDB program coordinator.

Book keeping logistics

The coordinator for each pre-approved outreach activity will document volunteer hours. A record of accumulated hours will be made each year during the student's annual review.

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