

Program in Molecular Biophysics

2018 – 2019 Student Handbook

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PMB Graduate Student Milestones by Year

Year One

The first year in PMB has many more items, times, and dates than in subsequent years. For this reason, we have created a google calendar that displays times, dates, and locations of courses, modules, rotations, and other important items. We (Doug and Nicole) will try to keep this first-year calendar up-to date, although some changes may not make the calendar (for example, if a course or module instructor moves a lecture or meeting time, I will not likely know about it), so if you are in doubt, check with your instructor or with Doug or Nicole.

You can either access this calendar by giving me (Doug) your gmail address, and I will give you read permissions through your google calendar app (the calendar is called "PMB First year") or you can simply click on the URL below:

https://calendar.google.com/calendar/embed?src=blf1urcol9i0fu1jj887i8lk84%40group.calendar.google.com&ctz=America%2FNew_York

Here is a summary of the first year and dates.

Fall Semester

| | |
|--|---|
| On-line Safety Course (MyLearning) | Aug 27 – 29 |
| On-line "Avoiding Plagiarism course (MyLearning) | Aug 27 – 29 |
| Computer Boot Camp and Statistics Module | Aug 30 – Oct 5 |
| Physical Chemistry of Biological Macromolecules | Aug 30 – Dec 7 |
| Proteins and Nucleic Acids 1 | Sep 4 – Dec 6 (Final Dec 18) |
| Biophysics Seminars | Sep – Dec |
| Rotation 1 | Oct 8 – Dec 13 (rotation talks on Dec 14) |
| Self-study in Biochemistry, Cell & Molecular Biology | |

Intersession

| | |
|---|-----------------|
| Spectroscopy Module | Jan 3 – Jan 10 |
| NMR Module | Jan 14 – Jan 25 |
| Continue self-study in Biochemistry, Cell & Molecular Biology | |

Spring Semester

| | |
|--|--|
| Proteins and Nucleic Acids 2 | Jan 25 – May 3 |
| Rotation 2 | Jan 28 – Mar 15 (rotation talks on Mar 19) |
| Rotation 3 | Mar 18 – May 3 (rotation talks on May 7) |
| X-ray Module | May 8, May 13 – May 15 |
| Single Molecule Module | May 20 – May 24 |
| Biophysics Seminars | Jan – May |
| Continue self-study in Biochemistry, Cell & Molecular Biology for Proficiency evaluation | |
| Join Thesis Laboratory | May 10 |
| Proficiency Evaluation | May 16 – 17 |

Summer

| | |
|------------|-----------------|
| MD Module | May 29 – June 4 |
| RCR Course | TBA |

Year Two

Fall Semester

Elective*

Biophysics Seminars

Intersession

RCR Workshop

Spring Semester

Elective*

Biophysics Seminars

Graduate Board Oral Examination April/May

*Only one full semester elective (equivalent to three academic electives) is required, and can be taken either in the fall or spring semester. Courses taught at the School of Medicine are typically half semester course, so two of those courses are needed to complete the elective requirement. Ideally, the elective will be taken in the second year, although in extenuating circumstances, a student may wish to take a specialized elective course that is essential to his/her thesis that is only offered in the student's third year. Courses required from the first-year proficiency evaluation

count as electives. Electives (and third-year requests) must be approved by both the student's thesis advisor and by the PMB program director, Doug Barrick.

Year Three

Fall Semester

Thesis Proposal Oct –Dec

Intersession

RCR Workshop

Year Four

Fall Semester

Thesis Advisory Committee Meeting Nov

Intersession

RCR Workshop

Year 5 to Final Year

Fall Semester

Thesis Advisory Committee Meeting Nov

Intersession

RCR Workshop

Spring Semester

Thesis Advisory Committee Meeting May

Final Year

Fall Semester

Thesis Advisory Committee Meeting Nov (as applicable)

Intersession

RCR Workshop (as applicable)

Spring Semester

Thesis Advisory Committee Meeting May (as applicable)

Private thesis defense to thesis committee

Submit final dissertation to MSEL

Thesis seminar (mandatory one-month waiting period from date of private defense)

Administration

Administrative Structure

Dr. Doug Barrick is the Director of the Program in Molecular Biophysics (PMB). Dr. Juliette Lecomte is the Co-director. They are jointly responsible for the day-to-day operations of the program. Major policy questions and serious issues concerning the status of individual students are addressed by the PMB Steering Committee, a standing committee with PMB faculty representatives from all four schools.

School and Departmental Affiliation

Although the faculty members of PMB come from many departments, all students in the program are enrolled in one of only two departments.

- All first-year students (except MD/PhD candidates) are enrolled in the Thomas C. Jenkins Department of Biophysics in the School of Arts & Sciences on the Homewood Campus and register there.
- If a student chooses (usually in May of the first year) a faculty thesis advisor at the School of Medicine or the School of Public Health (the East Baltimore Campus), that student must register in and transfer enrollment to the Department of Biophysics & Biophysical Chemistry in the School of Medicine.

There are a few important issues that arise because of PMB's interdivisional character.

- The health insurance carriers for students at the two campuses are similar but are not identical. Students who register in the School of Medicine must make sure that their insurance is transferred.
- The East Baltimore Campus has a system of ID badges. It is difficult to get into the buildings at off hours without a badge. Students doing rotations in East Baltimore must request a badge from Teri Pennington in the Department of Biophysics & Biophysical Chemistry, WBSB 608E. This badge is needed even if a student has a Homewood photo ID badge.

Summer Registration

To maintain full-time student status (for tax and undergraduate loan deferment purposes) students must register for research during the summer session.

Financial Support

It is expected that financial support covering living costs and tuition will be made available to all accepted students throughout their education, provided that satisfactory progress towards the degree is being maintained. Most PMB students are provided with stipend and tuition support for their first two years by an NIH training grant. From the start of year three to completion of degree, stipend and tuition expenses are borne by research grants to the student's thesis advisor. If financial emergencies should arise during a student's thesis research (due to interruption in external funding to the thesis advisor, for example), every effort will be made by the program to

help support student expenses, although in such situations, it is expected that support will primarily be provided at the departmental level.

Employment

Pre-doctoral fellowships are regarded as full-time employment. Neither departmental nor NIH rules permit additional employment of any kind.

University Computer Policy

The University's policy for student use of shared information technology resources is available online. This policy has been officially adopted by Johns Hopkins University. Similar criteria apply to **all** students affiliated with Hopkins biophysics graduate programs. Consult the following website for additional detail:

<http://it.jhu.edu/policies/>

Leave

PMB follows NIH policies for vacations, holidays, parental, and sick leave. See section 11.2.13.1 of http://grants.nih.gov/grants/policy/nihgps_2013/

Vacations and Holidays

Trainees and fellows may receive the same vacations and holidays available to individuals in comparable training positions at the grantee or sponsoring institution. Trainees and fellows shall continue to receive stipends during vacations and holidays. **At academic institutions, the times between semesters or academic quarters (e.g., winter, spring, and summer break) are considered an active part of the training period.**

As such, students are to receive **10 days** of vacation each year, plus normal University holidays, such as Thanksgiving while they are on the training grant. Spring and fall break are **not** considered University holidays. Once students are off the training grant their vacations are negotiated with their faculty advisors.

Sick Leave

Trainees and fellows 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 office in response to a written request from the Program Director, countersigned by an Authorized Organization Representative in the Johns Hopkins Sponsored Projects Office. Sick leave may be used for medical conditions related to pregnancy and childbirth. In rare cases, students require extended medical leave. The leave-of-absence policy is described in detail on page 16.

Parental Leave

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.

Either parent is eligible for parental leave. This leave is available to new parent trainees regardless of whether leave is available to their spouse/partner. The use of parental leave must be approved by the training Program Director.

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.

Administrative Contacts

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Student Advising

Academic Advisor

Students are advised to discuss questions about the program, minor academic problems, and other issues that may arise with the PMB academic advisor. Dr. Doug Barrick will serve as academic

advisor for first-year PMB students for the 2018–2019 academic year. Dr. Bertrand García-Moreno will serve as academic advisor for all other PMB students.

Faculty Research Interests

It is important that new students have an opportunity to learn about current faculty research interests. An annual retreat for the Hopkins biophysics community is held in the fall, giving first-year students a full picture of the research taking place in PMB laboratories and a chance to think about rotation possibilities. Students should identify PMB faculty/research programs they are interested in and set up one-on-one meetings to discuss research, thesis mentorship, and rotation possibilities. Students set up their own rotations, with the first rotation based on the rotation schedule given on page 3.

Participation in Scientific Meetings

Annual Retreat

The annual retreat is sponsored by the Institute for Biophysical Research (IBR) and brings together IBR laboratories from departments throughout the Schools of Arts & Sciences, Engineering, Medicine, and Public Health. Both platform presentations and a poster session are scheduled, and students and postdoctoral fellows are strongly encouraged to participate. The retreat gives faculty and students within the Institute the opportunity to hear about current research in other laboratories.

The 2018 retreat will open on Thursday, September 6 with the keynote address, followed by a cookout. A full day of talks and poster sessions are scheduled for Friday, September 7 at the Sheppard-Pratt Conference Center, a few miles north of the Homewood campus.

Travel to Meetings

The training grant provides limited funds to allow students to attend meetings. Such travel is not an automatic right, but has to be justified (to present a poster for example). Students must apply to the Director for permission. To minimize cost, we encourage students to attend meetings in Baltimore or DC. Typically, students will be able to attend one meeting during their two years on the training grant. Students no longer supported by the training grant are **not** eligible for training grant travel support. Funds are allocated on yearly basis and cannot be rolled over.

Program Requirements

General Expectations

In their first year, students are expected to divide their time equally between coursework and rotation laboratory work, *spending approximately 25 hours on each during the first rotation. For rotations two and three (spring semester), students should shift additional effort (~35 hours) to their rotation work, given the lighter course-load in the spring, and the shorter duration of these two rotations.* The most important decision made during the first year is the choice of a thesis advisor,

so attention to rotation work is essential. The first summer is normally devoted entirely to thesis research. Less coursework is required in the second year, with the expectation that students will spend 75% or more of their time conducting thesis research in the semester they take their elective, and 100% in all other semesters. The first thesis review will take place in the fifth semester, where students will be evaluated on research progress made in their second year, as well as their ability to articulate the importance of their thesis project. Subsequent thesis reviews will occur on a yearly (year 4) and half-yearly (years 5 and beyond) basis. The written thesis must be approved by the Thesis Defense Committee, and the student must defend their thesis in a private examination. One month from approval and successful examination, the student can give their public thesis seminar, submit their thesis along with any corrections to the library.

In addition to these PMB-specific milestones, there are general university-wide responsibilities that graduate students at Johns Hopkins University are expected to adhere to, as well as rights that graduate students can expect. A detailed list of these rights and responsibilities, which include subjects such as accessibility, academic freedom, and professional relationships with advisors and other students, are available at

http://web.jhu.edu/administration/provost/initiatives/phd_board/rights_responsibilities

Core Courses

As of August 2017, the following courses are required of all entering PMB students. Because of curriculum upgrade, some changes may apply, to be communicated when available.

- Physical Chemistry of Biological Macromolecules (*García-Moreno & staff, Homewood*)
- Proteins and Nucleic Acids 1 (*Woodson/Bowman, Homewood*)
- Proteins and Nucleic Acids 2 (*Berger, SOM*)
- Introduction to Computing Course (*Bowman & staff, Homewood*)
- Mandatory Safety Course (*on-line*)
- Avoiding Plagiarism Module (*on-line*)
- Mandatory Responsible Conduct of Research Course (*Evans, Homewood*)
- Modules in Molecular Biophysics (*Barrick & staff, Homewood*)
- Biophysics Seminar (*Lecomte, Homewood*)
- Elective I

All students are expected to attend every lecture and turn in assignments on time. Failure to attend classes could result in a failing grade for the course or a probation period.

Seminars

Seminars at the University serve as more than just a set of unrelated talks on specialized topics. Each department's seminar series is put together as a whole, integrating speakers and topics into a single series. As a whole, the seminar series knits the department together, providing a common intellectual experience for students, postdocs, faculty, and staff. During your scientific career, you

should make it a priority not only to attend the seminars that are of interest to you personally, but to attend your department's seminar series as a whole.

To help establish this habit, there are requirements for attending seminars in PMB. During their first year, students are required to the biophysics seminars on the campus where they are doing their rotations, and all named lectures and *Chalk It Up* series (see below). Homewood biophysics seminars are held on Mondays, 12 noon; SOM biophysics seminars are held on Wednesdays, 1:30 PM. **Repeated absences will result in a failing grade for the seminar course.**

During their second year, students are required to attend the biophysics seminars on the campus where they are doing their thesis work, and all named lectures and *Chalk It Up* series (see below).

Beyond the second year, students are expected to attend as many seminars as possible, and all named lectures and *Chalk It Up* series (see below).

Policy on Grades

- Students must receive a grade above a C+ in any of the required courses or the course must be repeated.
- Failure to receive a grade above a C+ in two required courses is grounds for termination from the program.
- Failure to receive a grade above a C+ in a required course a second time is grounds for termination from the program.

During each semester, students must keep a grade point average of 3.0 (B) for all courses. Falling below the GPA of 3.0 for one semester will result in a warning to the student; falling below it for two semesters is grounds for termination from the program (see Probation and Dismissal from the Program, below).

This requirement is not intended to discourage students from taking advanced courses in other disciplines, such as physics, chemistry, and mathematics. Such courses can be exempted from the "B" requirement by arrangement with the Academic Advisor and Program Director.

Academic Integrity and Student Conduct

Students are expected to know and abide by University policies governing student conduct and academic integrity. Those who impair the University's mission are subject to expulsion.

- **Academic Integrity:** In all aspects of their work, students assume an obligation to conduct themselves in a manner appropriate to the Johns Hopkins University's mission as an institution of higher education. A student must refrain from acts that he or she knows, or under the circumstances has reason to know, may impair the academic integrity of the University. Violations of academic integrity include, but are not limited to: cheating, plagiarism; submitting as one's own the same or substantially similar work of another; knowingly furnishing false information to any agent of the University for inclusion in the academic records; dishonesty in discharging teaching assistant duties; falsification; forgery.
- **Student Conduct:** The University expects all students to respect the rights of others, and to refrain from behavior that impairs the University's mission of teaching, research/scholarship, and

outreach to the local, national, and international community. Violations of appropriate student conduct may include, but are not limited to: harassment (physical or verbal), intimidation or verbal abuse, actions that are a danger to one's own personal safety or that may harm others, and actions that destroy, impair, or wrongfully appropriate property.

A Johns Hopkins University guide, Academic Ethics for Undergraduates, is included as an appendix to the PMB Student Handbook. While the guide is written for undergraduates, the principles regarding academic integrity apply to all students in the University.

Procedures for handling allegations of misconduct by full-time and part-time graduate students in the Schools of Arts & Sciences and Engineering can be found at

<http://homewoodgrad.jhu.edu/academics/policies/>

Responsible Conduct of Research

NIH requires that all fellows receive training in the responsible conduct of research. PMB students must take a Responsible Conduct of Research (RCR) class offered during summer of their first year and organized by the University on the Homewood campus. PMB students who enter the program via the School of Medicine (usually MSTP students) must take an equivalent RCR Seminar Series that is presented on that campus.

In addition, all trainees and fellows beyond the first year must attend a yearly mandatory RCR workshops, organized by PMB faculty. These workshops take place at the beginning of the calendar year during intersession.

Laboratory Rotations

Perhaps the most important decision each student will make in their time at Hopkins is which lab they will conduct their thesis research in. The three first-year thesis rotations are the primary means by which students will inform this key decision. Thus, the main goal of each rotation is to give the student experience with particular research and the feel for a laboratory. Each student is required to complete three laboratory rotations during their first academic year. The first rotation is ten weeks in length, whereas the second and third are seven weeks in length (see page 3 for dates for 2018/2019). The increased length of rotation 1 reflects the higher course-load in the first semester. Students are expected to put about half their time and effort (~25 hours) into rotation 1, and significantly more (~35 hours) into the shorter rotations 2 and 3. Although these rotations are short on the time-scale of scientific discovery, students should strive to advance their projects and make scientific discoveries in each.

All three of these rotations must be performed in the laboratories of PMB faculty members, without exception.

Students are expected to choose at least one rotation on the Homewood campus and one on the East Baltimore campus. The order in which students select their three rotations should be determined primarily by their long-term (i.e., thesis) interests. Secondary considerations include availability of individual faculty members and coordinating with the interests of other first-year students. To accommodate such scheduling issues, students should be pro-active in talking with

the faculty they are most interested in early to express their interests. Students will each meet one-on-one with the Program Director and Codirector (Barrick & Lecomte) in late August to discuss interests and availability, and to help facilitate rotation scheduling.

At the end of each rotation period, students will present 10-minute talks with their rotation advisors and other 1st-year students present. All other PMB faculty and students will be invited to attend.

Students are expected to choose a laboratory and begin their thesis research following the completion of their third rotation. In unusual circumstances, the Program Director may authorize a fourth rotation (see Probation and Dismissal from the Program, below). Occasionally, incoming students spend part of the summer before their first year working in the laboratory of a PMB faculty member. These students are registered as graduate students but *the summer period does not substitute for one of the student's three rotations*. However, such students may choose to do their first (or a subsequent) rotation in that same laboratory.

First-year PMB students meet individually in January with Dr. Bertrand García-Moreno to review their overall progress and adjustment to graduate school. Dr. García-Moreno also discusses each student's first rotation experience and possible trajectory to ensure that s/he is on a path toward identifying a thesis advisor and lab.

Rotation Evaluations

The rotation advisor must complete a form evaluating the student's effort, interest, comprehension, and skill. This form will become part of the student's departmental academic file. An evaluation with unsatisfactory rankings will result in a warning letter to the student, and a second rotation with unsatisfactory rankings is grounds for dismissal (see Probation and Dismissal from the Program, below). The form is appended at the end of the handbook.

It is expected that students will work diligently during each rotation, regardless of their choice of thesis laboratory.

Biochemistry, Cell and Molecular Biology Placement Evaluation

Proficiency in biochemistry, cell and molecular biology is tested formally with an oral examination, in mid-May of the first year. Students who have never taken courses in these areas are welcome, but not required, to take courses during their first year. Tutorials or self-directed study provide alternative avenues for preparing for the exam. Any student who does not pass the exam in May will be given the opportunity to study during the summer and take it again in September. Performing poorly on the exam will not jeopardize a student's standing in the program, but it is a requirement that PMB students must meet before receiving their degree.

The proficiency examination functions as a placement evaluation. If a student performs poorly in one or more areas, the examiners will recommend coursework to help the student gain a better understanding of those areas. Another purpose of the proficiency examination is to provide the students with an opportunity to experience an oral exam similar to the Graduate Board Oral examination required by the University.

Seminar Series

It is an essential part of the educational process for students to attend seminars, both in the area of biophysics and in other areas. Some of these are listed below.

- Thomas C. Jenkins Department of Biophysics seminar series comprises the required course *Biophysics Seminar* (AS250.601-602) mentioned above. Homewood students are expected to continue to attend this Monday noon seminar series after their second year.
- The Department of Biophysics & Biophysical Chemistry sponsors a series of seminars from invited outside speakers. These are held on Wednesdays at 1:30 PM in the School of Medicine. PMB students enrolled in the Department of Biophysics & Biophysical Chemistry are expected to attend these seminars.
- *Chalk it up to Biophysics* seminars are held four to five times per year, as part of the Jenkins Department of Biophysics seminar series and as part of the Department of Biophysics & Biophysical Chemistry Series. They are presented by PMB faculty and emphasize the conceptual basis behind the work of an individual laboratory. Students past their second year are expected to attend. Attendance is mandatory for first- and second-year students.
- *Student-invited seminars.* PMB students are offered the opportunity each year (usually in the spring semester) to invite one speaker of their own choosing. Past speakers have included David Baker, Dorothy Kern, Erin O'Shea, Stephen White, Elizabeth Rhoades, Michael Levitt, and Eric Greene. Each year, two senior students are identified to organize the speaker selection and visiting schedule.
- The seminar course *Topics in Macromolecular Structure and Function* (ME100.804), offered by the Department of Biophysics & Biophysical Chemistry, meets Wednesday mornings at 9:15. The seminar course has a different theme each semester, and classes (seminars) are presented by both students and faculty covering different topics relevant to the theme. Auditors are welcome.

Graduate Board Preliminary Oral Examination

- **Oral exam requirements:** The Graduate Board of Johns Hopkins University requires all Ph.D. programs to administer an oral examination to their students. For PMB students this examination is a preliminary one, to be taken in April/May of the second year.

The GBO examining committee consists of five primary members, with two alternates. The Graduate Board requires that three members of the examining committee be from outside the student's department. To comply with the spirit of the rule, PMB uses three of the examining faculty from outside the campus where the student is enrolled (outside examiners), and two faculty from within that campus (inside examiners). PMB composes examining committees for students performing thesis research on the Homewood campus and for students working on the East Baltimore campus. The composition of the committees is decided by the Program Director in accordance with the spirit of the Graduate Board.

It is PMB's policy that the student's faculty advisor cannot be a member of the examining committee and cannot be present during the examination. The advisor will be asked to make a brief

presentation about the student to the examining committee prior to the examination while the student is not in the room.

- **Scope of the exam:** The preliminary oral examination is designed to test the breadth and depth of the student's knowledge and reasoning abilities. The exam does not focus extensively on the student's thesis research area, although GBO committees often ask for a brief description of their project to provide some background. Although the topics covered in the GBO can in principle be quite broad, the PMB GBO focuses first and foremost on molecular biophysics. The materials that students have encountered in their first-year curriculum, and in particular, biomolecular structure, function, physical chemistry, and methods of inquiry related to these topics are central. Students can also expect some coverage of material from the proficiency evaluation, though the central focus is molecular biophysics.
- **Setting up the oral exam:** Students will be notified of when they are scheduled to appear by the program administrator.
- **Outcome of the oral exam:** The Graduate Board requires that the GBO examining committee report the results of the examination in written form. The reporting form allows for a "pass", "conditional pass", or "fail." An option to retake may also be offered. If the decision is a "conditional pass," the conditions (nature of the work, deadline, etc.) will be stipulated by the committee at the end of the examination.

Thesis Proposal

The first thesis review occurs at the end of the 5th semester (October–December). This review is composed of a public presentation outlining the thesis project and a question–answer session with the Thesis Review Committee. (See "Third-year thesis review", page 17, for details).

Leave of Absence (Homewood Campus Policy)

Graduate students may apply for up to four semesters of leave of absence (not including the summer term) when medical conditions, compulsory military service, or personal or family hardship prevents them from continuing their graduate studies. Financial difficulty alone does not warrant a leave. To be approved for a leave of absence (LOA), graduate students on the Homewood campus must complete the LOA application, available on the Graduate Board website

<http://homewoodgrad.jhu.edu/academics/graduate-board/policies-and-forms/>

Students must provide the proper documentation for their given situation:

- **Medical Condition:** a letter from a physician (this may be a letter from a doctor at the Student Health and Wellness Center), the Counseling Center or the Office of Student Disability Services
- **Military Duty:** a letter or verification from the Armed Forces
- **Personal or Family Hardship:** a letter from the applicant explaining the hardship

During a leave of absence, students do not receive a stipend, regardless of whether they are supported by the training grant, by funding from their advisor, or through their own fellowship. A leave of absence will be granted for a specific period of time, not to exceed a total of two years.

When approved for a leave of absence, the Chair of the Homewood Graduate Board will notify the student. During the leave period, a student may not be enrolled at another university. Before applying, students should consult their department for information regarding funding for when they return from their LOA. Prior to requesting the LOA, it is also highly recommended that the student contact the Health Insurance Coordinator in the Registrar's Office for information on how the LOA will affect their health insurance coverage. When on an approved LOA there is no tuition charge; the period of leave is simply regarded as an interruption of the degree program.

A student on a leave of absence is not to make use of any University services or facilities (e.g., counseling center, health center, library, athletic facilities, etc.). Moreover, a student on a leave of absence is not to work on his or her research, either in the laboratory (here at Hopkins or at the laboratory of a collaborator) or remotely via electronic means. Nor should a student generate written content related to his or her thesis; this includes manuscripts to be published, and thesis material.

The PMB Director may decline to approve a student's request for a leave of absence, in which case the student may appeal directly to the Graduate Board or the Dean of Graduate Education.

Returning from Leave of Absence (Homewood Campus Policy)

When returning from leave of absence, a graduate student must complete and submit the Application to Return from Leave of Absence before registering for classes. The form must be accompanied by a letter (from one of the sources below) for their given situation that explains what progress has taken place in the student's absence that would enable him/her to be successful upon return.

- **Medical Condition:** a letter from a physician (including the Student Health and Wellness Center), the Counseling Center or Office of Student Disability Services
- **Military Duty:** a letter or verification from the Armed Forces
- **Personal or Family Hardship:** a personal letter

Any additional letters of support (e.g., from an advisor, department chair, etc.) are welcome. When approved for returning from a leave of absence, the Chair of the Homewood Graduate Board will notify the student.

Importantly, given that students are not permitted to work on their thesis while on leave, students must return to full-time status prior to resuming and completing their thesis research and dissertation.

Leave of Absence (East Baltimore Campus Policy)

The stipulations for leave of absence on the East Baltimore campus are similar to those on the Homewood campus and are currently under revision. Contact the Program Director or the Biophysics and Biophysical Chemistry staff for additional information if needed.

Probation and Dismissal from the Program

The program Director, Co-director and faculty will make every effort to help a student who is performing poorly. However, if a student's performance remains unsatisfactory, the Director or thesis review committee will take the following actions:

The student will receive a letter of warning and may be placed on probation.

If the student's performance does not improve, s/he will receive a second letter stating a fixed date of termination from the program.

Before a student is terminated from the program, the Steering Committee will be consulted to review the grounds for dismissal.

Unsatisfactory performance includes both coursework grades that are below expectations and unsatisfactory rotation evaluations (see Policy on Grades and Rotation Evaluations, above). In addition, if no mutually agreeable arrangements for thesis research between a PMB faculty member and a student have been made by the end of July in the first year, the Director will consult with the Steering Committee as to whether the student should be permitted to continue looking for an advisor or asked to leave the program.

Thesis Requirements

Thesis Advisor

Students are expected to choose a thesis advisor from among the PMB faculty at the conclusion of their third rotation. This is a critical choice for both student and advisor, and it should be made with care. Faculty are not required to accept all students interested in their laboratories. In unusual circumstances, the Director may authorize a fourth rotation (see Program Requirements).

Annual Thesis Reviews

To ensure progress toward degree, every student undergoes regular thesis reviews. The first review is administered by the Thesis Review Committee (TRC). Subsequent reviews are administered by the Thesis Advisory Committee (TAC). The frequency is once a year in Year 3 (by the TRC) and 4 (by the TAC), and twice a year beyond Year 4 (TAC).

All students enrolled in the program must have a yearly thesis review unless the advisor, student, and thesis committee chair all agree it is not necessary. In general, the only circumstance in which a thesis committee meeting is not necessary will occur when (i) the student has completed all work to be included in the thesis, (ii) the student is actively writing the thesis, (iii) the TAC has previously indicated that the student was likely to graduate within six months. In this case, the TAC and student will agree on an outline of the thesis.

Actual writing of the dissertation is monitored by the advisor.

Third-year thesis review

As a rule, the student's first thesis review will occur in the fall of their third year. At this meeting, a thesis proposal will be evaluated. In addition to their coursework, second year students are expected to spend a significant amount of time in the laboratory to prepare for the review.

The first thesis review is scheduled toward the end of the fall semester by the Homewood office. To accommodate the number of students, there are two core Thesis Review Committees (TRC). One committee meets with students in East Baltimore and the other committee meets at Homewood.

The reviewing group will consist of the core group of two PMB faculty (both from the same campus as the student, for scheduling reasons), the thesis advisor, and two ad hoc **PMB** faculty reviewers chosen by the student and thesis advisor. At least one ad hoc member must not be a core committee member. Students will be asked to provide three names of possible ad hoc reviewers in order of preference but, before submitting the names, each student must first ask the three faculty if they are willing to serve as ad hoc reviewers. Every effort will be made to assign the first faculty members listed, although scheduling may preclude it in some cases.

The student must provide a 5-page research proposal to the TRC one week prior to the review. The student should also arrange a meeting with the thesis advisor to discuss matters related to the Individual Development Plan required by NIH and fill the IDP questionnaire (information included in appendix).

Format: Third-year thesis reviews will be unique in that they will begin with a public presentation (seminar format) describing the thesis project. The presentation is expected to last ~30 minutes. The date of each student's seminar will be determined by the Seminar Coordinator based on the student's course schedule and on the available dates.

Following the presentation, the TRC will meet with the student in private to discuss the thesis proposal and preliminary data. This phase of the third-year thesis review should take 30-45 minutes. The student will bring the filled IDP questionnaire to the meeting for discussion with the committee.

Outcome: The committee chair will write to the student a letter summarizing the committee discussion and any recommendations or requirements. The TRC can require that a student provide periodic written reports or have an additional thesis review during the year.

Mid-stage thesis review

In years four and beyond, the object of the thesis review is to provide detailed discussion and specific guidance about the ultimate content of the thesis. The Program Director must approve the Thesis Advisory Committee (TAC) composition prior to the first meeting.

The TAC will consist of the student's advisor, the two ad hoc members of the TRC, and one more faculty. There is no restriction as to which campus TAC members are drawn, but **the TAC must be composed of PMB training faculty**. Rare exceptions may be considered if additional expertise relevant to the thesis topic is absolutely required and is not represented by any of the training faculty. In any case, members of the committee must appear on the list of faculty approved to serve on GBO committees by the Homewood Graduate Board or the equivalent office at the School of

Medicine. The TAC will meet with the student in the Fall of Year 4 and Year 5, and then every six months until they hear the final thesis defense, at which time a fifth member will be added.

Prior to every review, the student should arrange a meeting with the thesis advisor to discuss matters related to the Individual Development Plan required by NIH and fill the IDP questionnaire (information included in appendix).

Format: TAC meetings will consist of a closed presentation to the TAC presentation of less than 30 minutes. This presentation should include relevant background, results, challenges, and future plans to complete the thesis. This presentation will be interrupted by questions and suggestions from the committee. The meeting end with a discussion of the student's long-term plans after leaving PMB, and steps the student has taken to acheive those goals. In total, the meeting should last no longer than 1.5 hours. The student must provide a one-page research summary at least one week in advance. The student will bring the filled IDP questionnaire to the meeting for discussion with the committee.

Outcome: The committee chair, appointed by the Program Director, will write the student a letter summarizing the discussion and any specific recommendations. This letter will become part of the student's permanent record.

It is the responsibility of each student to schedule his or her TAC meeting within a given window of time, i.e., October–November in the fall and April–May in the spring. No review can be scheduled during June–August. The Academic Program Administrator will keep track of each student's committee meetings in the same way s/he keeps track of student GBOs.

Career Counseling and Individual Development Plan (IDP)

Fourth-year students are required to attend the annual NIH Career Symposium normally held in May. The requirement is repeated in year six. Third and fifth year students are welcome to attend as well.

Starting in the fall of the fourth year, the TAC will expect to hear from each student about career and training plans following completion of his/her dissertation, as well as long-term plans. If a student plans to do a postdoc, the student should plan to begin discussing general research areas and any thoughts on specific labs that are of interest. If a student is considering a non-postdoc path, the committee will want to hear details about the student's interests and any initial investigations into the chosen area.

Thesis Defense Committee (TDC) and Final Oral Examination

The final oral examination committee, or Thesis Defense Committee (TDC), must consist of five faculty members (plus one alternate). The TDC will be composed of the four members of the student's TAC plus one additional faculty member and one alternate of the student's choosing. **The TDC must be composed of PMB training faculty.** Exceptions will be considered if additional expertise is absolutely required. In any case, members of the committee must appear on the list of faculty approved to serve on GBO committees by the Homewood Graduate Board or the equivalent office at the School of Medicine.

Two of the five members of the TDC will serve in the official capacity of "readers" of the thesis. In all but the rarest of circumstances (which must be approved by the Program Director), the primary or "first" reader is the student's advisor. In consultation with the student's advisor, the student chooses one faculty member from the remaining four TDC members to serve as second reader, and must obtain approval from that member. As described below, the two readers vouch for the thesis in its entirety in a letter to the graduate board. As such, the two readers must read the thesis in its entirety. **This is particularly important for the advisor (first reader)**, who should read the thesis and provide necessary edits to make the thesis presentable **prior** to its circulation to the TDC.

To ensure balance, the committee composition must be approved by the Program Director. The Program Director will choose the committee chair. Once the committee is approved and the advisor agrees that the thesis is ready to be distributed, the student may schedule the exam. It is the student's responsibility to contact the faculty members on the exam committee and to schedule the date, time and place of the exam. **Students who have scheduled their defense must provide the information to Nicole Goode as soon as available.** All five committee members and the alternate receive a copy of the dissertation **at least two weeks prior to the exam.**

The final oral exam is a closed-door exam and serves three purposes:

- To evaluate the quality of the dissertation (if approved, the 1st and 2nd readers would sign a letter of acceptance addressed to the Graduate Board at this time);
- To determine that the student's knowledge in the immediate scientific area of his/her dissertation is sufficient; and
- To authorize the student to go forward with presenting the thesis seminar.
- If the exam committee concludes that the student's knowledge is insufficient or the dissertation needs additional work, the student can be asked to return for a re-examination. The student's final exam committee has the authority to ask for substantial changes in the thesis.

The student should be prepared to make a presentation during the final oral exam which highlights the major findings of the dissertation, approximately 40–50 minutes in length. The presentation should not be the same as the one-hour thesis seminar (see below). TDC members are expected to interrupt throughout the presentation to discuss various points and again, in this regard, the defense presentation differs from the public thesis seminar. In general, this oral examination will last 2 hours.

It is the intention of the Steering Committee that the examining faculty conduct a rigorous assessment of the student's scientific knowledge and evaluate the dissertation research in a substantive and critical manner. Therefore, to allow time for any thesis revisions the committee may require, **there is a mandatory minimum wait period between the final oral exam and the thesis seminar.** The normal wait period is one month. In extraordinary circumstances related to the student's next position and the extent of necessary revisions, the TDC may allow a shorter wait period.

Thesis Approval

The final thesis must be approved, in a form specified by the Graduate Board, by two thesis readers, one of whom is normally the advisor. The student and advisor decide on the faculty member most suited to serve as 2nd reader. **The 2nd reader must be a PMB faculty.** If the final oral examination committee approves the student's dissertation, the two readers will sign the letter accepting the thesis at that time. This letter is then submitted to the Graduate Board. There are many detailed requirements about the format and submission of the thesis. Guidelines are available from Nicole Goode or Casey Jacobs.

Thesis Seminar

After the student has passed the final oral exam and the readers' letter accepting the thesis has been submitted to the Graduate Board, the student is required to present a seminar on the work contained in it. The seminar will be scheduled after the thesis has been approved and announced by the department granting the degree. The thesis seminar should be scheduled at a time when a majority of the faculty from the TDC can be present.

Granting of Degree

The Chair of the Thomas C. Jenkins Department of Biophysics or Director of the Department of Biophysics & Biophysical Chemistry will consider that a student has fulfilled the requirements for the Ph.D. and sign the Certificate of Completion granting the degree only after the following conditions have been met:

- Passing the final oral examination. (Note: this examination is a program requirement, not a Graduate Board requirement. Each student satisfies the Graduate Board Oral requirement by passing the Graduate Board Oral exam (GBO) taken at the end of the second year.)
- Submission to the Graduate Board of an approval letter signed by two readers accepting the thesis as partial fulfillment of the requirements for the Ph.D.
- Submission of the student's final thesis to the MSEL in time to meet the Graduate Board deadline.
- Presentation of the student's thesis seminar.

General Resources for Graduate Students

Office of KSAS Graduate Affairs

The Office of KSAS Graduate Affairs addresses the needs and concerns of KSAS graduate students and helps develop policy with the KSAS Dean's Office. Renee Eastwood is the current Director for KSAS Graduate Academic Affairs, rseitz5@jhu.edu.

Graduate Representative Organization

The GRO is an organization that represents the Homewood graduate students. The GRO coordinates graduate student orientation, advocates for student concerns, organizes social events and sports tournaments, etc. For more information, visit <http://gro.jhu.edu/>, gro@jhu.edu.

Graduate Student Association

The GSA is the major graduate student organization of The Johns Hopkins University School of Medicine. For more information, visit

http://www.hopkinsmedicine.org/som/students/life/graduate_student_association.html,
gsa@jhmi.edu.

Student Health & Wellness Center

The Student Health and Wellness Center provides confidential health care to the Homewood campus community. The clinic is located at 1 East 31st Street, Suite N200. The health care staff consists of board certified/eligible physicians, nationally certified nurse practitioners, a licensed nurse, medical assistants/technologists, and a nurse mid-wife. The center is open Monday through Friday from 8:30 AM to 5:30 PM. During the academic year, it is also open on Saturdays from 11:00 AM to 2PM. For more information, visit <http://web1.johnshopkins.edu/~shcenter/>.

Counseling Centers

The Counseling Center at Homewood offers individual and group counseling, consultation and referral services, and help with career decision-making. Services are confidential and free of charge. The Counseling Center is located at 3003 N. Charles Street, Suite S200 and open Monday through Friday from 8:30 AM to 6:00 PM. 410-516-8278. For more information, visit <http://web.jhu.edu/counselingcenter>.

Students on the East Baltimore campus are eligible for services through the Johns Hopkins Student Assistance Program (JHSAP). 443-287-7000, jhsap@jhu.edu. For more information, visit <http://jhsap.org/>.

Sexual Assault Response & Prevention

Johns Hopkins University is committed to promoting a safe and supportive environment for each and every member of our community. The website provides clear and consolidated information on sexual assault policies and available services and support in the event of an incident of sexual assault. Sexual Assault Helpline 410-516-7333, <http://sexualassault.jhu.edu/>.

Office of Institutional Equity

This office oversees concerns relating to sexual harassment, discrimination/compliance, and disability services. <http://web.jhu.edu/administration/jhuoie>; Wyman Park Building, Suite 515, office telephone 410-516-8075, disability support services 410-516-8949.

Johns Hopkins University Career Center, Homewood campus

The Johns Hopkins Career Center serves all full-time students (freshmen through PhD candidates) in the Krieger School of Arts & Sciences and the Whiting School of Engineering. <http://studentaffairs.jhu.edu/careers/>; Garland Hall, Suite 389, 410-516-8056, career@jhu.edu.

JHMI Professional Development Office

The PDO works with graduate students, postdoctoral fellows, and early-career faculty in the Schools of Medicine, Nursing and Public Health. <http://pages.jh.edu/~pdo/>; 1830 Building, Suite 2-106, 410-502-2804, jhmipdo@jhmi.edu.

Disclaimer: **This is not a legal document.** This booklet presents current guidelines and practices in the Program in Molecular Biophysics. The Directors and Steering Committee reserve the right to modify requirements, create new ones, and otherwise alter graduate program practices without advance notice.