

Department of Biology

Graduate Student Handbook

Academic Year 2023-2024

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Introduction

The Department of Biology Graduate Student Handbook is one of three written resources graduate students can turn to for information and guidance. The Handbook is specific to students in the Department of Biology and primarily addresses the role and responsibilities of the graduate *student*, as opposed to the graduate *employee*. Information specific to the role and responsibilities of Department of Biology graduate *employee* can be found in the General Duties and Responsibilities Statement (GDRS) which can be located on the Division of Graduate Studies [website](#) (along with a paper-copy of the document posted in the main Department of Biology office located in 77 Klamath Hall). The third resource is pertinent to *all graduate employees* at the University of Oregon (UO): the Graduate Teaching Fellows Federation (GTFF), Collective Bargaining Agreement (CBA) which can be located on the Graduate Teaching Fellows Federation (GTFF) [website](#).

Abbreviations

The following abbreviations are used in this handbook:

DAC: Dissertation Advisory Committee
GAC: Graduate Affairs Committee
IAC: Interim Advisory Committee
ION: Institute of Neuroscience
IE²: Institute of Ecology and Evolution
IMB: Institute of Molecular Biology
IDP: Individual Development Plan
INGP: Interdepartmental Neuroscience Graduate Program*
OIMB: Oregon Institute of Marine Biology
QE: Quarterly Exam

*Note: The Interdepartmental Neuroscience Graduate Program (INGP) is an umbrella organization that hosts students from multiple departments including biology. The Institute of Neuroscience is a research institute containing many, but not all, of the laboratories hosting INGP students. All biology students doing neuroscience research are automatically a member of INGP unless they elect otherwise. Biology students in INGP are expected to meet the requirements of both the Department of Biology and INGP, as specified in this document.

Key Biology Department contacts (2023-2024)

Graduate Program Specialist: Jessica Davis (jdavis27@uoregon.edu)
IE² Graduate Affairs Rep: Andrew Kern (adkern@uoregon.edu)
INGP Graduate Affairs Rep: Shawn Lockery (shawn@uoregon.edu)
IMB Graduate Affairs Rep: Diana Libuda (dlibuda@uoregon.edu)
OIMB Graduate Affairs Rep: Richard Emler (remlet@uoregon.edu)

Caveats

The majority of this handbook is applicable only to students entering the PhD program. Students entering the MS program should refer to the [Guidelines for a Thesis Master's Degree](#) section of this handbook, as well as the Master's Degree requirements and policies on the Graduate School's website.

GETTING STARTED

Orientation

A series of orientation activities for incoming graduate students will take place prior to the start of classes. All incoming students are expected to attend, although exceptions may be made for students at OIMB. The activities include required training in lab safety, CPR, first aid, teaching engagement, responsible conduct of research and conflict resolution, as well as workshops on topics relevant to life as a graduate student. In addition, social events, institute retreats, and meetings with Interim Advisory Committees are scheduled for this period. Incoming students will be notified of the orientation dates during the summer prior to their arrival on campus.

Interim Advisory Committee

The Graduate Affairs Committee (GAC) will appoint an Interim Advisory Committee (IAC) for each new PhD student before the beginning of the first term in residence. The committee shall consist of two or three Department of Biology faculty members, including at least one faculty member who is familiar with the requirements of the student's intended area of study. Each student is affiliated with one of four research institutes (IE², IMB, INGP, OIMB), and the committee includes at least one faculty member from the student's admitting institute. At the discretion of the Graduate Affairs Committee, special committees can be assembled for students whose interests span institute boundaries. A meeting between the student and the Interim Advisory Committee will occur before registration for the first term, typically before or during orientation week. The student will be notified of the makeup of the committee and of the meeting arrangements as soon as possible after arrival on campus.

During this meeting:

- 1) The student's background, goals, and plans for a graduate program will be discussed. Recommendations for first-year course work will be provided.
- 2) Advice will be offered to help the student choose lab rotations. It is understood that students will make decisions about winter and spring rotations after starting the program (these rotations do not have to be arranged prior to starting in the fall). The student is responsible for making arrangements for rotations as described in the [Laboratory Rotation Program](#) section of this handbook.
- 3) The nature of graduate teaching assignments will be discussed, and the student will be advised about the process of allocating teaching assignments. Three terms of teaching are required prior to advancing to candidacy. The teaching experience is intended to help the student develop teaching skills. For more information about teaching assignments and expectations, see the [Teaching Requirement](#) section of this handbook.

Unless the student or Interim Advisory Committee requests an additional meeting, this committee meets only once with the student. The student will subsequently meet with the GAC member from their home research institute at the end of each quarter (fall, winter, and spring) to discuss their progress in the program.

First Year Interim Advisory Committee Meeting Report Form (Generic version)

This form can also be found [here](#).

During this meeting the student's background, goals, and plans for a graduate program will be discussed. Advice will be offered to help students choose lab rotations. It is understood that students will make decisions about winter and spring rotations after starting the program fall term. Recommendations for first-year course work will be provided. First-year students typically register for 16 credits.

Date:

Student:

Committee Chair:

Committee Members:

1. Lab Rotation recommendations (Bi601 classes by instructor name in [Course Schedule](#)):

2. Required courses (See Biology Graduate Student Handbook and [Course Schedule](#)):

3. Recommended courses (See Biology Graduate Student Handbook and [Course Schedule](#)):

4. Journal Club recommendations (Typically Bi607 classes in [Course Schedule](#)):

5. Seminar recommendations (Typically Bi507 classes in [Course Schedule](#)):

6. Other topics discussed:

First Year Interim Advisory Committee Meeting Report Form (INGP versions)

Forms for individual tracks within INGP available [here](#).

Registering for Courses

Students typically register after meeting with their IAC's. Students must register for a minimum of 9 credits and a maximum of 16 credit hours each term of the academic year (fall, winter, spring). First-year students typically register for 16 credits including one, graded course each term. For guidance about summer registration after the first academic year, students should consult with their advisor and the Graduate Program Specialist.

Starting with winter term, students may register for the subsequent term as early as week 8 of the preceding term (when registration typically opens). The student will receive one registration reminder from the Graduate Program Specialist, Jessica Davis. Students can review course offerings and register for courses on DuckWeb. In addition to one graded course, students must register for a journal club, a seminar and research credits. Additional details about what to register for can be found in the 'Course Requirements' section of the Handbook.

When registering for 'Research' credits the student will select the number of credits needed to bring their total registration for the term to 16. Navigate to the Student Menu on DuckWeb, then to the Registration menu, then select 'Change Variable Credit/Grading Option.' Their course schedule will be displayed and the student will select the Research section the student is registered for (typically based on the lab the student is rotating in) and change the number of credits from the default of 1 credit, to the number needed to bring their registration for the term up to 16 credits. *Note that if their research mentor is not a faculty member in the Biology department, the student will find their 601 research course among the course listings in their home department.*

It is good practice to review their registration for the term on Duckweb before the 'Drop' and 'Add' deadlines pass (typically the end of week 1 and start of week 2 respectively). Students will be billed for adding or dropping courses after these deadlines have passed.

Accessible Education

The University of Oregon is working to create an inclusive learning environment. If the student has a disability that could impede their learning and research experience, please contact the Accessible Education Center for further

information (360 Oregon Hall; 346-1155 or uoaec@uoregon.edu). They will work with the student to help facilitate their learning experience.

YEAR 1

Year 1 is arguably the busiest and most intensive year of their graduate studies. Students must successfully manage three primary roles and responsibilities in the first year: 1) being a student (e.g., taking courses and exams), 2) being a Graduate Employee (helping to teach undergraduate students), and 3) being a researcher and participating in Research Rotations.

Course Requirements

Incoming students generally follow a specific series of courses depending on the Institute and/or specialty they are pursuing. Requirements for individual students may vary based on the recommendation of the IAC, advisor, and other committee members. Incoming students do not need to register until after their IAC meeting.

- **IMB students** are required, in the **FIRST year**, to take *Molecular Genetics - Bi620* in the Fall and *Advanced Biochemistry - Ch662* in the Winter. In the **SECOND YEAR**, *Scientific Reasoning - Bi610* in the Fall.
- **INGP students in the Development Track** are required, in the **FIRST year**, to take *Molecular Genetics - Bi620* in the Fall and are strongly encouraged to take *Advanced Biochemistry - Ch662* in the Winter. Students in this track are further encouraged to take the other Advanced Development courses as they are offered.
- **INGP students in the Neurons, Circuits & Cognition Program** are required, in the **FIRST year**, to take *Advanced Cellular Neuroscience - Bi610* in the Fall, *Advanced Systems Neuroscience - Psy610* in the Winter, and *Advanced Cognitive Neuroscience - Psy610* in the Spring.
- **INGP students in the Theoretical Neuroscience Program** are required, preferably in the **FIRST year**, to take *Advanced Cellular Neuroscience - Bi610* in the Fall and *Advanced System Neuroscience - Psy610* in the Winter. In either the first or second year, students take one of the following combination of courses:
 - ✓ Sub-track A: *Analysis of Neural Data - Bi4/510* (currently offered every spring), *Machine Learning and Statistics - Math4/510* (currently offered every other fall starting 2022/2023), and one elective course from the list below.
 - ✓ Sub-track B: *Applied Math II: Statistical Learning - Math607* (currently offered every winter starting 2022/2023), *Applied Math III: Neural Networks - Math607* (currently offered every other spring starting 2023/2024), and one elective course from the list below

Students will also take one of the following **elective courses** as part of either sub-track listed above: *Machine Learning - Cis472/572*, *Probabilistic Methods for Artificial Intelligence - Cis573*, *Techniques in Computational Neuroscience -*

Bi485/585, Advanced Modeling in Biology - Bi410, Recurrent Neural Networks Bi610, or another course approved by the student's IAC or DAC. Thus, there are a total of 5 courses required: *Bi610, Psy610*, and 3 chosen from the above lists. In some cases, students may also take different combinations of courses from the sub-tracks listed above with approval by the IAC or DAC.

- **All Biology PhD students** are required to register for, and participate in, one *Journal Club* each term of each academic year. Students are required to make at least one journal club presentation each year, starting in Year 2. See the UO course catalog for current journal club offerings. Students who are off campus for research purposes or have conflicts with teaching assignments are exempt from this requirement. The exemption is given on a case-by-case basis. The student must email the Graduate Program Specialist to request an exemption.
- **All Biology PhD students and OIMB MS students** are expected to attend research seminars. Each research institute sponsors a series of research seminars that are typically given by prominent scientists from other institutions. Students are required to register for seminars in their research area each term that relevant seminars are offered. Students who are off campus for research purposes or have conflicts with teaching assignments are exempt from this requirement. Students who are working remotely away from their home campus are still required to attend seminars at the campus they are visiting, or via remote options, if available. In general, remote attendance (i.e., via Zoom) should be considered a temporary measure and in-person participation, where possible, is expected. The exemption is given on a case-by-case basis. The student must email the Graduate Program Specialist to request an exemption.
- **All Biology PhD students on the Eugene campus** are required to take *Ethics in Life Sciences Research - Bi610* during their **SECOND year**. This course is offered only one term each year. *Advanced Biological Statistics* is a two-part series and is recommended during year two (this course may be required for some students, as determined by the IAC, DAC, or advisor).

Interest Groups

There are many additional seminar-style interest groups that can be taken for credit. For example, “BI507: Sem Dev/Gen Zebrafish” in which all zebrafish researchers present seminars of their ongoing work, “BI607: Sem META” in which META Center researchers present seminars on their ongoing work, and “BI507: Sem Life Sci Trainees” in which graduate students and postdocs present their work. These offerings are generally taken on advice given by the IAC, advisor, and other committee members.

Other course requirements are set by the research institutes, the IAC, and DAC according to each student's interests and goals. Students who are selected to be supported by institutional NIH training programs may have additional course requirements ([see Appendix 4](#)).

Example 1st year fall quarter schedule for an IMB student rotating in the Prehoda lab

BI620: Molecular Genetics	4 credits
BI607: Sem Cell & Dev Biol Jour Club	1 credit
BI507: Sem Molecular Biology	1 credit
Bi507 Sem Life Sci Trainees	1 credit
<u>CH601: Res Signal Transduct (rotation)</u>	<u>9 credits*</u>
TOTAL	16 credits

Example 2nd year fall quarter schedule for an ION student who has joined the Miller lab

BI610: Advanced Biological Statistics	4 credits
BI610: Ethics Life Science	1 credit
BI607: Sem Cell & Dev Biol Jour Club	1 credit
BI507: Sem Neuroscience	1 credit
Bi507 Sem Life Sci Trainees	1 credit
<u>BI601: Res Neural Circuits (thesis)</u>	<u>8 credits*</u>
TOTAL	16 credits

*The number of research credits is variable and depends on the number of seminars/journal clubs/etc. take as many as needed to bring their total credits to 16.

Policy on Registering for Supervised College Teaching

Graduate students do NOT register for Supervised College Teaching except in the unusual circumstance that they are not being paid for teaching.

Quarterly Exams and Compulsory Exercises

Quarterly exams and compulsory exercises are designed to foster intellectual growth in four main respects: (i) breadth of biological knowledge, (ii) critical reading of the primary biological literature, (iii) identification of significant research questions, and (iv) experimental logic and design, including development of research proposals. In most cases, students will take the quarterly exams or exercises offered by their home Institute.

Quarterly exams and exercises will be given letter grades. Consistent with Graduate School policy, a grade of **B or above is considered satisfactory, a B- is considered marginal, and a C+ or lower is considered unsatisfactory.** In INGP, students who earn a B- or lower on either of their two quarterly exercises, must meet with their institute's GAC representative and institute director to discuss whether they should continue in the graduate program and, if so, under what conditions. In OIMB, students who earn a B- or lower on two of their three quarterly exams must also meet with their institute's GAC representative and institute director.

Quarterly Exams and Compulsory Exercises by Institute

IE²

IE ² quarterly examination schedule		
Fall	Winter ¹	Spring ²
No exam	No exam	No exam

IE² currently does not require quarterly exams, although they may be re-introduced in the future in modified form.

IMB

IMB quarterly examination schedule		
Fall	Winter	Spring
No exam	No exam	No exam

IMB does not require quarterly exams.

INGP

INGP quarterly exercise schedule			
Curriculum track	Fall	Winter ¹	Spring ²
All	No exercise	Pre-proposal exercise	Grant Proposal Workshop

¹Due second Thursday of term.

The purpose of INGP quarterly compulsory exercises is to help students develop skills required to produce effective grant proposals, a key skill for anyone preparing for a research career.

For the winter term quarterly exercise, students will be provided with a published neuroscience paper. They will be asked to imagine, then commit to paper, the Specific Aims page for the grant proposal that might have supported the published research. Further details, and the paper, will be given to students one week before the exercise's due date.

The spring term quarterly exercise is to obtain a passing grade in *Bi610 Grant Proposal Workshop*. The goal of the Workshop is to provide training in the identification of viable research projects and the composition of an NIH-style grant proposal to support this project. The Workshop consists of activities such as readings, mini-lectures, discussion groups, pitch days, mock grant review panels, and peer editing. Students are encouraged to develop grant proposals in

the area of their expected thesis work. Proposals are submitted in the final week of Spring term. A grade of B- or better is required to pass the course. It is hoped that these proposals will lead to submission of successful National Research Service Award applications in Year 3 of a student's tenure.

OIMB

OIMB quarterly examination schedule

Fall ¹	Winter ²	Spring ³
No exam	No exam	1 st year proposal exam

¹Week 10. ²Week 10. ³See [below](#).

In the third quarter, PhD students will write a mock proposal (described below).

OIMB quarterly exam (the “mock proposal”):

In Spring of their 1st year, each student will write a “mock proposal.” To ensure that the topic is appropriate, the student must first submit an abstract to the administering faculty member (to be selected by the student) prior to writing, within the first two weeks of the term. This abstract should identify the topic and general approach. Once the topic has been approved by the administering faculty member, the student can complete their proposal and submit it by the last week of the term. Criteria by which the proposals will be judged are the same as those outlined for the *second* year OIMB [Proposal Examinations](#). This exam allows OIMB students to demonstrate ability to identify an important research topic, frame a testable hypothesis and design and interpret experiments to test the hypothesis. Students are encouraged to consult with their peers during preparation of their proposals.

Proposals should be written in the format for Graduate Research Fellowship Program applications submitted to the National Science Foundation or similar guidelines, subject to approval of the faculty member in charge of the exam. The faculty member administering the exam is responsible for providing the guidelines to the students. As with the other exams, the proposal will be given a letter grade.

Laboratory Rotation Program

Choosing an area of research for the PhD dissertation and finding a faculty member to serve as dissertation advisor are crucial tasks that a beginning graduate student must complete during the first year. To aid students in this process, the Biology Department has a lab rotation program. This program exposes students to a variety of biological subdisciplines and research philosophies, and it helps students become integrated into our scientific community by introducing them to the personnel in different laboratories and, in some cases, different Institutes. Through immersion in various lab groups during

the first year, students gain a sound basis for choosing the lab best suited to their interests, personalities and abilities, and begin networking with faculty and other graduate students who will contribute to their research careers. Specifically, the goals of the first-year rotation program are:

- 1) To provide a mechanism for students to establish a relationship with a mentor who will be their PhD advisor.
- 2) To allow students to experience different laboratory environments - providing insight into different organizational styles and intellectual approaches to research topics related to their interests.
- 3) To provide training in different research methods and/or perspectives related to their research interests.
- 4) To enhance students' connection to the rest of the institute/department, ensuring that they are familiar with personnel (students, postdocs, technicians, and faculty members) and resources outside of their home laboratory.

It is common for rotation projects to engage the student in bench work, theoretical research, or fieldwork that advances particular research questions in the host lab. However, it is also acceptable for students to do other types of projects including, (but not limited to) writing a research proposal, meeting weekly with the PI to discuss research papers, writing a literature review, revising a previous manuscript, or applying unique methods from the rotation lab to research problems associated with another lab. In general, rotation projects should not be so personalized that the student fails to engage in the culture of the laboratory or get to know lab members.

Doctoral students are expected to rotate in three different labs during their first year in residence. Exemption from a third rotation may be allowed if (i) the student has already been accepted into a PI's lab and (ii) it is the determination of the student and the PI that the benefits of starting dissertation research one term early (e.g., spring travel for field work) clearly outweigh the educational benefits of an additional rotation. Exemptions shall consist of a signed agreement (usually in the form of an email) from the advisor and must be approved by the GAC member from the student's home research institute and the director of that institute. The approved agreement must be filed with the Graduate Program Specialist before the end of the student's first year.

As soon as it is practical (at least several weeks before the end of the term prior to the planned rotation), students should contact faculty member(s) whose labs they are considering for their next rotation to discuss possible rotation projects and to determine whether a rotation that term will be feasible. Students are encouraged to use the rotation program to explore as wide a range of biological subdisciplines as their interests dictate. They are permitted to rotate in labs of any Institute or Department. Students will rotate in a different lab each term.

OIMB students are also expected to do rotations, but in practice. PhD students in OIMB are admitted to the program on the basis that they already know with which advisor they will be working.

Students entering the program typically contact faculty members in a variety of ways, including email up to several months before of the start of fall term, conversations at their Institute retreat (which occurs in mid-September), and arranging an in-person meeting shortly after the retreat. These contacts may lead plans to rotate in the fall term, or in later terms, depending on the student and faculty member's prior rotation commitments. A similar process is used to arrange rotations in subsequent terms.

Students typically choose a dissertation laboratory near the end of spring term and begin their dissertation research at the start of summer term following their first year. If a student has not selected a dissertation lab by the end of spring term, it may be possible for the student to arrange a fourth rotation in summer term, if approved by the student's GAC representative and the Institute Director. In some cases, a newly admitted student may start research during the summer before beginning the program, resulting in an extended fall rotation or, in rare cases, a full summer rotation (interested students should contact faculty member(s) whose labs they are considering to see whether this is a possibility). For students who choose this option, the dissertation laboratory will still be selected at the end of spring term of the first year.

IMB process for choosing a dissertation laboratory

IMB has formalized the process of matching students with thesis labs with the goal of making it more inclusive, transparent, and efficient. The procedure is as follows:

By the end of week 7 of spring term (Friday 5pm), each IMB student should submit to the IMB GAC representative (currently Diana Libuda) a ranked list of labs that the student is interested in joining. Students should only list labs that they would be happy to join (including labs outside IMB). This may result in a list of just one lab or of up to four labs if the student rotated in four labs (possible if they came early and did a summer rotation) and would be happy to join any of them. **Before making and submitting a list, each student should talk to PIs** to gauge their interest in having the student join and to learn whether they might have to teach in order to join (particularly since that might affect the order of their preferences). IMB PIs will NOT make any commitments prior to the IMB faculty meeting (please do not ask them to do so) but should let students know if they definitely do not have a spot for them. Non-IMB faculty who are listed will be consulted by the GAC to determine their ability and interest in committing to students who have listed them. Do not worry about offending faculty by putting them lower down on their list - we all realize that their choices depend on their current interests and enthusiasms.

IMB faculty will then meet in week 8 to discuss students' choices. Placements will be based on student preferences but will also be informed by the availability of

space and funding and by faculty preferences. Of course, the most straightforward placements will be of students whose top faculty choice also ranks them first and whose lab has space and funding for them. We will make every effort to place students as high on their preference list as possible. At the end of this process, IMB faculty will also formulate potential plans for any students who remain without a match. NO students will be matched with labs that are not on their list.

All IMB students will be notified of the outcome soon after the meeting and will have an opportunity to accept or reject lab offers. Students who do not have a match for whatever reason will meet with the IMB GAC rep (currently Diana Libuda) and their additional Interim Advisory Committee member to discuss potential next steps.

For more information on choosing a dissertation advisor, see [Selecting a Thesis Advisor and Dissertation Advisory Committee](#). **Failure to identify a dissertation advisor (and have them agree to serve in this role) within the first year is regarded as insufficient progress and is grounds for termination** (see [Evaluation of Progress](#)).

The following guidelines for students and faculty member(s) are meant to prevent any misunderstandings about rotation expectations and evaluation:

- 1) At the beginning of each rotation, the student and faculty mentor meet to discuss expectations for the rotation. Expectations should be made as explicit as possible, including a description of what would be deemed passing work. Students should also get a clear understanding of the hours of effort expected from the faculty mentor before starting the rotation. This can vary substantially from lab to lab. Faculty members are reminded that students are typically teaching, taking courses, and taking quarterly exams at the same time they are rotating; thus, they cannot devote their entire effort to lab work. However, students should plan to immerse themselves in their rotation projects. While it is possible that a publication may result from a rotation, this should not be an expectation, nor should a positive scientific result from a project be required for a passing grade in a rotation. Students are expected to devote considerable time and attention to the rotation. Success is based on comprehension of the student's research project for that term, effort, and engagement with the lab.
- 2) During the rotation, the faculty mentor and student should meet on a regular basis. During these meetings, the faculty member provides feedback about the student's performance and whether the rotation is meeting the agreed-upon expectations.
- 3) A rotation lasts only a single term. Thus, at the end of the term, a rotation is over even if the project has not been completed. The student is under no obligation to complete the project at a later time. Similarly, unless the student has made specific arrangements with the faculty mentor, the student should not expect the project to be "saved" in case he or she decides later to join that lab.

- 4) At the end of their rotation, students interested in doing thesis work in their recent mentors' lab are encouraged to discuss this possibility with them.
- 5) At the end of the term, the faculty mentor must provide a written evaluation of the student's performance to the GAC member for the Institute that admitted the student. If a student has not met the expectations for satisfactory progress, this should be reflected in the report. However, because they should have received previous feedback that their performance was inadequate, an unsatisfactory evaluation should not come as a surprise to the student. A summary of the rotation report will be included in the [Quarterly Progress Report](#) prepared by the student's GAC rep.

Rotation Presentations

During Final Exam Week of each term, students present their rotation projects in a symposium of short "rotation talks" scheduled by the Department of Biology. Students rotating in labs on the OIMB campus may present at an OIMB hosted symposium. It is expected that faculty mentors will assist students in preparing their rotation talks (e.g., by critiquing a practice talk). Each student will organize a ten- to twelve-minute talk that includes:

- 1) A brief introduction to the project, relevant background material, and how the project is related to the laboratory's goals.
- 2) Outcome of the research (findings, problems encountered, etc.).
- 3) Description of the next steps to be taken if the project were to be continued. There will be up to five minutes of questions and discussion following the presentation.

Students should understand that giving a talk can be somewhat stressful, but also that the ability to present scientific ideas orally is a critical professional skill. These short presentations in a supportive environment provide early training and exposure to the process of scientific speaking. It is important to clearly state the goal of their project, how it fits into the research of the laboratory in which the student rotates and/or other research plans the student has, and to clearly summarize what the student did, how it worked out, and next steps. The student is not being evaluated on how important the results were, but on how well the student understood their project and can explain it.

Teaching Requirement

All candidates for the PhD degree are required by the department to serve three terms as a Graduate Employee (GE) for courses within our program. First-year students normally serve as a GE for one course during each of the three quarters in the academic year. Exceptions are rare and must be approved by the GAC

member and director from the student's home research Institute. **A student cannot advance to candidacy until the teaching requirement has been fulfilled** (see [Advancement to Candidacy](#)). Students with a strong interest in teaching may serve as a GE for additional terms beyond the required three terms during their graduate career, but only with the consent of their dissertation advisor.

GEs are typically appointed at the following 'full-time equivalent' (FTE) level and corresponding total workload: 0.45 FTE (up to 197 hours per term). The Division of Graduate Studies will provide a workload allocation form when requested by GE's and/or their supervisors.

A written evaluation of the student's work as a teaching assistant will be completed at the end of the quarter by the faculty member with whom they have served as a Graduate Employee. This information will become part of the student's graduate file and a copy will be given to the student.

Students with the required background and qualifications for teaching the course under consideration will be appointed in the following order of priority if students request more GEs than are available for a term:

- 1) Incoming PhD Biology students
- 2) Continuing PhD Biology students
- 3) PhD students from other departments/programs (e.g., Chemistry, ENDS) whose primary advisor is Biology faculty member.
- 4) Current and incoming Biology Master's students
- 5) Graduate students from other departments/programs whose primary advisor is not Biology faculty member, but is a member of IE², IMB, ION, or OIMB.
- 6) Graduate students from other departments.

This policy, as well as with other policies related to Graduate Employees, can be found at <https://gradschool.uoregon.edu/gtf/rights-and-responsibilities/gdrs>.

GE Procedures and Information

GE Workspace: If a room is needed for office hours, review sessions, or a meeting, contact the Department of Biology Administrative Program Assistant.

Computers: A desk equipped with a computer is available in the Biology Office for use by GEs, if needed.

Office Supplies: The Biology Office has supplies and equipment available for instructional purposes. Talk to the Biology Department Administrative Program Assistant in Klamath 77 about supplies needed for their course.

Photocopies and Printouts: GEs are welcome to use the copier in the Biology Office: the required course codes are available from the Biology Department Administrative Program Assistant.

GE Resource Guide: An office manual, with more detailed information about resources and policies, is updated each year. The manual can be found online at GE Resource Guide under the Graduate Studies tab.

GE Absences

Notification

If the student is unable to attend work at the scheduled time or to meet a class as scheduled, the student must notify their supervisor (the instructor assigned to the course if the student is teaching, or the Biology curriculum coordinator if the student is the primary instructor of record for a course) as soon as possible. If possible, the student should notify their supervisor in advance of the scheduled work assignment or class that the student is unable to attend. If the student is able, they should attempt to make contact by both phone and email. Students should not cancel the class without permission from their supervisor. To the extent possible, the student should provide information about where they left off (e.g., in the previous class in the case of a teaching GE).

In the case that the student is unable to directly notify their supervisor, the student may designate someone to make their notification and provide the necessary information to their supervisor using this protocol.

If the student is going to miss more than one work week, the student or their designee must contact the Graduate School. The Graduate School will coordinate with the GE and the department on any adjustment due to the GE's absence.

Substitution

SUBSTITUTION WITH MORE THAN 24 HOURS NOTICE

Any GE who is assigned to cover the responsibilities of an absent GE with more than 24 hours' notice shall have their FTE adjusted in proportion to the amount of time used for the substitution or have their duties adjusted to account for the substitution.

SUBSTITUTION WITH LESS THAN 24 HOURS NOTICE

Sick leave substitution hours are built into their FTE (see Section 5.0, Workload & Work Assignments). The department will attempt to use substitutes evenly. In some cases, expertise in a subject or availability will determine a substitution. Please track their substituting hours and notify the Biology curriculum coordinator if the student believes the student will likely exceed the hours allocated in Section 5.0.

Make-up Work

Generally, for duties missed not related to a class meeting, students should check in with their supervisor to determine when and how the missed work will be made up.

Planned Absence

If the student is planning an approved absence during any working days of the term, the student should be sure their supervisor knows how to reach the student (if possible).

Additional Information

More information about GE rights and responsibilities can be found in the General Duties and Responsibilities Statement (GDRS) which can be located on the Division of Graduate Studies [website](#) (along with a hard-copy of the document posted in the main Department of Biology office located in 77 Klamath Hall) as well as the Graduate Teaching Fellow Federation (GTFF) Collective Bargaining Agreement (CBA) which can be located on the Graduate Teaching Fellows Federation (GTFF) [website](#).

Quarterly Review

The progress of each first-year PhD student is monitored and reviewed by the GAC rep from their home research institute. The GAC rep meets with each first-year student shortly after the rotation presentations (Fall, Winter and Spring quarters of the first year) to discuss the student's progress and plans. The GAC rep then prepares a Quarterly Progress Report that summarizes the student's progress, including a summary of the rotation report, quarterly exam grade, teaching evaluation, plans for future rotations, coursework completed and pending, and any other relevant information. The Quarterly Progress Report will be sent to the student and included in the student's file. Feedback given at these meetings should be taken very seriously. Failure to remedy deficiencies noted in the Quarterly Progress Report can be grounds for termination from the program due to unsatisfactory progress.

Note: In the event that the student's rotation mentor is the GAC rep for the student's admitting Institute, another faculty member will be assigned by the Institute Director to conduct the quarterly evaluation for the student during that particular term.

Selecting a Thesis Advisor

Before the end of spring term, students should speak with faculty members in whose laboratories they wish to do their dissertation research. The final decision is made by mutual agreement between student and dissertation advisor. They should discuss possible dissertation projects and determine whether dissertation work in that laboratory will be possible, with students in IMB submitting ranked

choices for their dissertation labs as described above. The advisor, in agreeing to mentor a student, assumes responsibility to provide space, materials, and equipment for the student's dissertation research. Students may choose to do a fourth rotation over the summer following the first year, if they can identify a lab to host them for such a rotation and receive approval from the GAC rep and institute director. **If a student is unable to secure a faculty advisor or a fourth rotation by the end of spring term, the student cannot continue in the program.** Likewise, students who do a fourth rotation must find a faculty advisor by the end of the summer if they are to continue in the program.

In rare cases, a student may change advisors. This can happen if the research interests of the student change, or if the relationship between the student and advisor becomes unsatisfactory to either party. If any such change is desired by either the advisor or the student, the advisor or student should initiate discussions with the full Dissertation Advisory Committee (DAC). If any concerns arise prior to the formation of the DAC, the concerned faculty member or student should meet with the student's Interim Advisory Committee (IAC). Such meetings can happen in the absence of either the advisor or the student if the other party so desires. The DAC (or IAC) should then pass on any recommendations to the Graduate Affairs Committee (GAC), and the GAC must approve any changes to the student's status. Potential outcomes for the student are: remaining in the same lab and continuing on with thesis work; being permitted to attempt to find a new advisor and thesis project; leaving with a Master's degree if the student is unable to find a new advisor; or leaving with a Master's degree without the option of finding a new advisor. A Master's degree must be recommended by the DAC and can be obtained by working with the Graduate Program Specialist to meet the requirements needed to gain approval from the Graduate School.

If a faculty member wishes to have a student leave their lab, for whatever reason, they do not have the authority to make that decision on their own but must first explain and justify their reasons to the student's DAC who will pass on a recommendation for approval by the GAC.

If a Biology PhD student wishes to pursue thesis research with an advisor in another department, that advisor must first agree to follow the requirements, guidelines, and conventions for attainment of a PhD in the Department of Biology, as specified in The Biology Graduate Student Handbook (current edition). The Graduate Program Specialist will contact advisors outside of the Department of Biology to obtain such agreement prior to the student joining a lab in another department.

Finally, a student can always choose to leave the PhD program if they are so inclined.

A student who joins a lab that is not a member of one of the four institutes (IMB, ION, OIMB, or IE²) is still a Biology graduate student with all of the associated rights and responsibilities. There will be no difference in course requirements, exam requirements, deadlines, progress tracking, or support from the faculty and staff in Biology. It is possible that the student's research contracts will need to be prepared by their advisor's home department (instead of the admitting Institute

office), in coordination with the Biology Graduate Program Specialist, but this is the only difference that the student should experience. If the student's advisor has any questions about the program requirements or procedures, they should contact the Biology Graduate Program Specialist, the Graduate Program Manager, or the Institute's Graduate Affairs representative

Formation of the Dissertation Advisory Committee

Each student has a Dissertation Advisory Committee (DAC), which is responsible for seeing that progress is made toward satisfying all Departmental, Graduate School, and University requirements for the PhD degree. The DAC is also responsible for ensuring that students supported on institutional training programs fulfill the appropriate course requirements ([see Appendix 4](#)).

As soon as a student becomes associated with an advisor (no later than the beginning of the second year of study for the PhD), the student and advisor should discuss the make-up of the DAC. The student must confirm that each potential member of the DAC is willing to serve on their committee and then send the names of all committee members to the Graduate Program Specialist by October 1. DAC membership policies are somewhat complicated, so the student may want to check with the Graduate Program Specialist or Graduate Program Manager to confirm that a faculty member can serve in a particular role before the October 1 deadline.

Detailed committee policies are on the Graduate School website. Students must meet all requirements set by the Graduate School and the Department.

The Graduate Program Specialist must be notified in writing of any changes to the makeup of the DAC.

DAC requirements for INGP, IMB and IE² students

- 1) The DAC consists of five members, one of whom is the student's dissertation advisor. At least four out of the five DAC members must be tenure-track faculty members. A student may request approval for an expert from industry or other company/organization outside academia to serve as a committee member.
- 2) At least three DAC members must be full or associate members of the student's institute. This requirement may be waived for exceptionally interdisciplinary dissertation projects (i.e., projects at the interface of two or more Institutes). The student and advisor must request the waiver in writing (e.g., by email) to the GAC rep for the student's Institute.
- 3) At least two members must be in the Biology Department.

- 4) One must be from outside the Biology Department, but on the UO campus (this is the Institutional Representative, also known as the “outside member”). The dissertation advisor cannot serve as the Institutional Representative. See “Dissertation Committee Policy” on the Graduate School website for the current policy on the Institutional Representative.
- 5) At least four members must be on the UO campus.
- 6) Any non-UO faculty member or non-faculty professional must be approved by the department, CAS, and the Graduate School before they can serve on the committee. The Graduate Program Specialist will submit the request.
- 7) The student will identify one member who agrees to chair the committee; the chair must be in the Biology Department and a full or associate member of the student's Institute. The chair of the DAC cannot be the dissertation advisor. Exceptions to the Institute member requirement must be approved by the GAC rep for the student's Institute. The chair will prepare reports of the [annual DAC meetings](#).

DAC Requirements for OIMB students

The DAC will include five members including at least two members of the OIMB faculty, an Institutional Representative (see “Dissertation Committee Policy” on the Graduate School website for the current policy on the Institutional Rep), and one member of the Biology Department who is not resident at OIMB. That member will serve as the chair of the proposal exam committee and as the chair of the DAC.

Application for Training Program Support

Several training programs available to support a subset of PhD students in the Biology Department. An email soliciting applications to these training programs will be sent to all first-year graduate students in early May. Each student should discuss with their prospective dissertation advisor which, if any, of these training programs is appropriate to apply for, considering the nature of the planned thesis project and whether the advisor is listed as a trainer on the grant.

Students, IAC members, DAC members, and PhD advisors may wish to familiarize themselves with the course requirements of various training programs when planning the student's course work in the early years of their program ([see Appendix 4](#)). Requirements can be fulfilled before or during a student's appointment to the training program.

GTP. Genetics Training Program trainees are required to take: (i) one graded course from each of three areas: Evolutionary genetics, Molecular Genetics, and

Developmental Genetics, (ii) one graded course in statistics or quantitative data analysis, and (iii) the non-graded course Bi 610 Ethics in Life Science Research. A list of eligible required courses is provided [here](#).

MBBTP. Molecular Biology and Biophysics Training Program trainees are required to take four graded graduate-level courses. In addition, they are required to take two non-graded courses, Bi610 Ethics in Life Science Research, and Ch/Bi 610 Career Exploration in the Life Sciences. A list of eligible courses is provided [here](#).

DBTP. Development Training Program trainees are required to take a variety of required courses in genetics, statistics, and ethical research conduct. A list of courses is available [here](#).

Overall Evaluation of Progress Year 1

[Quarterly evaluation](#) of first year students is completed by the GAC rep from their home institute.

In addition, near the end of the first year (or possibly during summer term), the Graduate Program Specialist and the GAC review the files of each first-year student to determine whether the student has made satisfactory progress. The criteria for satisfactory progress include:

- 1) Satisfactory quarterly reports by the GAC rep.
- 2) Three lab rotations have been completed with satisfactory evaluations.
- 3) Satisfactory teaching evaluations.
- 4) GPA \geq 3.0 in graded coursework and no grades of N or I.
- 5) Grades of B- or better on all quarterly exams, with no more than one B- in IE², IMB and ION and no more than two B- in OIMB.
- 6) Identification of a thesis advisor by the end of the summer of year one.

Exceptions to these criteria may be made by the GAC if there are extenuating circumstances. Other issues might arise that are deemed unsatisfactory; if so, these will be documented in writing.

YEAR 2

In year 2, graduate students are still busy juggling roles and responsibilities including being a student, taking courses and completing required exams. However, the roles of Graduate Employee and being a researcher for most will

meld, and instead of being paid to teach, their GE will be assigned based on work the student is conducting in their dissertation lab. In most cases this means a slight raise as Research GE's Full Time Equivalent increases to 0.49.

This section provides a generic outline of Year 2. For details specific to IMB, please refer to [Appendix 5](#).

Dissertation Advisory Committees

Annual DAC Meetings

Students are required to meet with the DAC at least once a year, beginning in year two. Please refer to the section [Annual DAC Meetings](#).

Required Research Clearance for Master's Thesis/Project or Doctoral Dissertation

The Graduate School requires that all students using human or other vertebrate animal subjects in their research to obtain permission (and a protocol number) from the Office for Protection of Human Subjects or the Office of Veterinary Services and Animal Care, respectively, before beginning data collection. **Failure to follow these procedures may result in a recommendation to the Dean of the Graduate School that the University not accept the student's thesis, project, or dissertation.** Protocol forms and a detailed explanation of procedures may be obtained from:

Research Compliance Services
<http://orcr.uoregon.edu>
(541) 346-2510

Animal Welfare Services
<https://aws.uoregon.edu/>

Second-Year Proposal Examination

In the second year, all PhD students will take the Second-Year Proposal Examination or (in the case of IMB) must fulfill specific requirements in lieu of an actual examination. Additional aspects of the Second-Year Proposal Examination that are specific to each research unit are discussed separately below. **It is the *student's responsibility* to schedule their proposal exam and to notify the Graduate Program Specialist of the exam details (date, time, location) at least one week prior to the end of winter term.**

IE²

Students planning to carry out dissertation research in an IE² lab must take the IE² proposal exam. The exam will take place during the second half of winter term (Weeks 6-10). It is the *student's responsibility* to schedule their proposal exam and to notify the Graduate Program Specialist of the exam details (date, time, location, and makeup of committee) by the end of the first week of winter term. For this exam, students will write and defend a proposal on the research they intend to do for their dissertation. The proposal should be **no more than 8 pages** in length, including text and figures but excluding references. This is essentially the format for the NSF Doctoral Dissertation Improvement Grant, but no Broader Impacts section is required. Page limits will be enforced by the proposal exam committee. The oral defense portion of this exam will also include a test of general knowledge in ecology and evolution.

The exam committee will be composed of four faculty members, at least two of whom are members of IE² familiar with the research being proposed. Insofar as possible, there should be significant overlap between the examination committee and the student's DAC. In the event that a DAC member is unable to sit on the proposal exam committee, the student, the IE² GAC representative, and the student's advisor will work together to find a suitable replacement. The proposal will be developed in consultation with the dissertation advisor and anyone else the student desires to consult (including members of the exam committee, if desired). A major function of this exam is for students to develop a clear plan for their dissertation research and to present it publicly.

Although their major advisor cannot participate in the exam as an examiner, he/she is allowed to watch as a completely silent observer. The exam will begin with an oral presentation of the proposal; this will be open to all members of IE², including students. The student's presentation will be followed by a public question and answer session. The remainder of the exam will be closed to all but the student, the examining committee, and the advisor (as a silent observer). The public portion of this exam will not exceed one hour; the closed portion will not exceed two hours. The written proposal must be given to all committee members, and to the Graduate Program Specialist, no later than two weeks prior to the scheduled exam date. This exam will be graded using the pass/revise/fail rubric, as described below.

Grading guidelines

The exam will be graded based on the quality and scope of the written document as well as the student's proficiency in answering general questions about ecology/evolution during the oral portion of the exam. Three outcomes are possible:

PASS- Satisfactory performance as determined by the proposal exam committee.

REVISE - Specific points brought up by the exam committee must be addressed within a set amount of time determined by the committee. The committee will evaluate whether the revision is adequate.

FAIL - An unsatisfactory exam will allow for an automatic retake within a time frame set by the exam committee. The exam committee will specify the basis for the retake and make suggestions for improving the proposal. Students may request that a specific faculty member be replaced on the retake exam committee. No more than one member of the committee can be replaced at the student's request, and the replacement must be approved by the GAC rep. This request should be submitted in writing to the IE² GAC rep at least three weeks prior to the retake exam. Other members of the exam committee may also be changed, at the GAC rep's discretion. A student may call a meeting of their DAC to discuss options available to them if they feel they do not want to retake the proposal exam.

IMB

Instead of an oral exam, all IMB PhD students are required to take and pass *Bi610 - Scientific Reasoning* in the Fall quarter of their second year, followed by a satisfactory DAC meeting in the Winter quarter of their second year. The purpose of the course is to teach students how to write and defend a hypothesis-driven research proposal on a topic that is the same as or is closely related to their thesis research. Some thesis projects, especially at the outset, are exploratory and do not involve testing a specific hypothesis. In this case, students should develop and test a compelling and substantive hypothesis that draws on similar background literature and methods as their thesis research. Students will discuss with their thesis advisor and DAC whether their thesis project is suitable for the proposal format and, if not, should get feedback on alternative hypotheses to use for this purpose.

The purpose of the 2nd year Fall DAC meeting, which the student should schedule to occur within the first three weeks of the Fall quarter (see the IMB Graduate Student Guide to the Second Year in the Appendix), is to have a brief and informal discussion with the student's DAC and thesis advisor as to the direction of the thesis work at large and the suitability of the initial hypothesis or model for their written proposal that will be developed during the *Scientific Reasoning* course; to facilitate this discussion, the student must provide a hypothesis-based abstract to their DAC, developed with their PI during the summer, prior to this meeting.

The purpose of the 2nd year Winter DAC meeting, which the student is responsible for scheduling, is to evaluate whether the student is making adequate academic progress and is ready to focus on their thesis. The criteria by which this will be determined are listed in the "IMB 2nd Year Winter DAC Form" ([see Appendix 3](#)), which the DAC chair will complete at the end of the meeting.

Scientific Reasoning - course outline, evaluation, and feedback to DAC

Communicate about the course with their advisor. The *Scientific Reasoning* course is meant to encourage interactions between the student and advisor, not restrict them. Accordingly, students are encouraged to discuss anything about the project, including questions, hypotheses, approaches, and literature relevant to their thesis research, by writing and/or discussion with their advisor. These discussions should begin during the summer and continue while taking the course. In fact, feedback from the student's PI is built into the course schedule. While the instructor(s) will provide the details for how the course will approach and evaluate the student's effort, the goal is to encourage students to work with their advisor to write the proposal, and the course instructor(s) in formulating a proposal that will be evaluated at the end of the course.

Format of Course Proposal

The instructor(s) will provide details as to proposal format. Generally, the proposals will be written to follow the current NIH F31 Pre-Doctoral Fellowship proposal format.

Course grading guidelines

The instructor(s) will provide details about grading within the course. General areas that will be evaluated include:

Background knowledge. Does the student have in-depth knowledge of the field? Is the student knowledgeable about previous studies that are relevant to the project? This relevance is broadly defined - for example, if the project examines a process in *Drosophila*, is the student also familiar with relevant work done in other systems? Is the student well versed in the techniques required to complete the proposed research?

Choice and statement of research question. Is the research question clearly stated in both broad and specific terms? Is it a substantive question that, if answered, will move the field forward significantly? Is it of the appropriate scope (i.e., can it be answered by a single skilled researcher in a period of ~4 years)? Is a clear and logical connection made between the broad and specific question to establish the significance of the proposal?

Hypothesis or alternative models. Is a clear hypothesis, or alternative models, presented? Is the hypothesis tightly coupled to the specific research question? Is the hypothesis justified based on core knowledge and previous studies?

Experimental approach. Are experiments clearly described? Are experiments feasible? Do experiments clearly test the hypothesis (i.e., will the results support/refute the hypothesis or distinguish between models)? Are the most suitable approaches proposed? Are suitable controls included? Are limitations of the proposed approaches considered?

Course feedback. The course instructor(s) will provide an evaluation of the student's performance in the course that will be sent to the student's Dissertation Advisory Committee (DAC) meeting and will serve as a basis for the Winter DAC meeting (for more information, see [the IMB Graduate Student Guide to the Second Year in Appendix 6](#)).

The scoring sheet to be used by the IMB Exam Committee can be found in [Appendix 3](#).

INGP

The proposal exams for second-year Biology students in INGP will take place during **spring term**. It is the student's responsibility to schedule their proposal exam and to notify the Graduate Program Specialist of the exam details (date, time, location, and makeup of committee) by **Week 10 of Winter term**. Students write and defend in an oral presentation a proposal on the research they intend to do for their dissertation. The written component shall follow the content, page limitations, and formatting guidelines of the National Research Service Awards for Individual Predoctoral Fellows (F31), as spelled out in [Appendix 1](#).

The examination will proceed according to the following schedule.

- 1) One week prior to defense date: Submission of the Specific Aims and Research Plan (email documents to INGP GAC Rep, all members of the student's DAC, and the Graduate Program Specialist).
- 2) The exam can be scheduled anytime during Spring term, with the Friday of Week 10 of the term being the last date possible for oral defense.

The exam committee will be composed of the student's DAC, minus the thesis advisor. If a DAC member is unable to sit on the proposal exam committee, the student, the ION GAC rep, and the student's advisor will work together to find a suitable replacement or allow the exam to proceed with three members.

Proposal document. A major purpose of this exam is to help students develop a clear plan for their dissertation research and to improve their skills in oral presentations. Another purpose is to encourage submission of actual NRSA proposals. Accordingly, the written proposal should be developed in close consultation with the thesis advisor. The product of these consultations should be limited to a detailed outline of (i) the proposed Specific Aims and subaims and (ii) the methods and procedures to be used. It is the student's responsibility to convert this outline to the full narratives of the Significance and Approach sections. This task must be completed without further assistance from the Advisor. However, students are encouraged seek critiques of their proposal from postdoctoral fellows and graduate students.

Oral examination. Students should prepare a 30-minute slide presentation that includes the same key elements as the written proposal. The examination begins with this presentation. Faculty members are encouraged to ask questions at any

time during the presentation. However, it is the job of the Chair to ensure the candidate has enough time to complete their presentation. The examination is limited to 2 hours. The presentation is closed to the public, and the thesis advisor is not permitted to attend.

Grading criteria

The proposal and oral defense will be evaluated with the following criteria:

Choice and statement of research question. Is the research question clearly stated in both broad and specific terms? Is it a substantive question that, if answered, will move the field forward significantly? Is it of the appropriate scope (i.e., can it be answered by a single skilled researcher in a period of ~4 years)? Is a clear and logical connection made between the broad and specific question to establish the significance of the proposal?

Background knowledge. Does the student have in depth knowledge of the relevant background papers necessary to understand the research question posed? Is the student knowledgeable about and fluent in describing previous studies that are relevant to the project? This relevance is broadly defined - for example, if the project examines a process in *Drosophila*, is the student also familiar with relevant work done in other systems? Is the student well versed in the techniques required to complete the proposed research?

Hypothesis or alternative models. Is a clear hypothesis, or alternative model(s), presented? Is the hypothesis tightly coupled to the specific research question? Is the hypothesis justified based on core knowledge and previous studies?

Experimental approach. Are the experiments feasible? Can the scope of the research be completed in the time available? Are experiments clearly described? Do experiments test the stated hypothesis (i.e., will the results support/refute the hypothesis or distinguish between models)? Are the most suitable approaches proposed? Are suitable controls included? Are limitations of the proposed approaches considered? Are alternative approaches discussed?

Passing the exam requires satisfactory completion of each of these key elements. The scoring sheet to be used by the Exam Committee can be found in [Appendix 2](#).

OIMB

Students planning to carry out dissertation research in a lab at OIMB must take the OIMB proposal exam. The student will prepare a dissertation proposal describing the intended dissertation research and encompassing the entire dissertation as envisioned at that time. The proposal should follow the NSF format and should not exceed 15 pages of text and figures.

The proposal must be submitted to the student's DAC members by the end of the first week in January in the student's second year. The oral exam will take place by the end of January in year two. The DAC will serve as the examining

committee, and the chairperson of the DAC will also be the chair of the exam committee.

The exam will focus on the dissertation proposal but may proceed with questioning that moves from the particular proposal to more general topics.

Because quarterly exams are not a part of year 1 for OIMB students, it is important that PhD students have or acquire general knowledge that serves as the broad and fundamental basis for the specific area their proposal. To that end students should prepare for their proposal exam by reading sources recommended by members of their DAC. Because students will be writing their proposal in fall term of year 2, they should also budget time to read more generally up until their proposal exam.

Grading guidelines

The exam will be graded based on the quality and scope of the written document as well as the student's proficiency in answering general questions during the oral portion of the exam. Three outcomes are possible:

PASS- Satisfactory performance as determined by the proposal exam committee.

REVISE- Specific points brought up by the exam committee must be addressed within a set amount of time determined by the committee. The committee will evaluate whether the revision is adequate.

FAIL - An unsatisfactory exam will allow for an automatic retake within a time frame set by the exam committee. The exam committee will specify the basis for the retake and make suggestions for improving the proposal. Students may request that a specific faculty member be replaced on the retake exam committee. No more than one member of the committee can be replaced at the student's request, and the replacement must be approved by the GAC rep. This request should be submitted in writing to the OIMB GAC rep at least three weeks prior to the retake exam. Other members of the exam committee may also be changed, at the GAC rep's discretion. A student may call a meeting of their DAC to discuss options available to them if they feel they do not want to retake the proposal exam.

Retaking the Proposal Exam (all institutes except IMB)

Second-year proposal examinations may be retaken, but only once. The date and format of the retake (written, oral, both) and the role of the student's advisor in required revisions will be decided by the DAC according to the specifics of the individual case. The overall goal of the retake is to help the student formulate a viable research plan and describe it in clear, compelling terms.

If a student does not pass the retake, the student's DAC will review the student's file, and meet with the student soon after the second unsatisfactory proposal

exam to discuss the situation and possible routes for the student. The student's performance in the laboratory, in courses, on quarterly exams, and in teaching will all be considered by the DAC in developing a recommendation. Unless performance outside of the exam context has been exceptional, it is likely that the DAC will recommend that the student leave the program. However, under some circumstances, the DAC could recommend that the student take the proposal exam again. Students who fail the proposal exam may be eligible to receive an M.S. degree upon recommendation of the exam committee and their DAC.

IMB

As stated on the "IMB 2nd Year Winter DAC Form" (see Appendix 3), if any of the ratings on the form is "Unsatisfactory", the student will not be advanced to candidacy. In that case, the student's DAC will decide what further training, if any, may allow the student to advance to candidacy in the future, and the DAC will determine when and by what criteria the student will subsequently be judged ready to advance or not. Note that the DAC may ultimately decide that a student should leave the program, and the DAC has the option to recommend that outcome at the 2nd year Winter DAC meeting itself.

Advancement to Candidacy

Advancement to candidacy is a formal step that indicates that all requirements for the PhD degree, except completion and defense of a dissertation, have been met. It typically occurs at the end of the second year but will be delayed if teaching has been deferred or other requirements have not been fulfilled.

Students must be registered in their term of advancement. If they are not registered, they will be eligible to advance during their next enrolled term. The DAC will recommend that a student be advanced to candidacy when:

- 1) All quarterly exams have been passed.
- 2) Three rotations have been completed with satisfactory evaluations.
- 3) The proposal exam (or, in IMB, *Scientific Reasoning* course and Winter DAC meeting) has been completed satisfactorily.
- 4) The teaching requirement has been fulfilled. Evaluations from supervisors will be used, in part, to determine if this requirement has been met.
- 5) Courses required by institutes, training programs, and advisory committees (IAC and DAC) have been taken - or a plan for their completion has been approved by the DAC.
- 6) A GPA of 3.0 or better has been maintained for graded credits, with no incompletes. A grade of P is required in all required courses taken P/N.

- 7) The second year DAC meeting will focus on the student's ability to perform independent research. At this meeting, the DAC (including the advisor) will evaluate whether or not the student is motivated, working hard, reading the literature, thinking, and having some successes with research. In ION, IE², and OIMB, the DAC will recommend advancement if this meeting is positive and the criteria above have been met. During their 2nd-year, IMB students will have a DAC meeting occur in the Winter quarter, at which time the DAC will take into account the student's performance in the Scientific Reasoning course, their research progress to date, and their fulfillment of course and teaching requirements to determine if the student qualifies for advancement to candidacy.
- 8) The final decision to advance a student to candidacy will be made by the GAC and Graduate School after considering all seven criteria above.

Note: It is only after advancement to candidacy that a student may take dissertation credits (BI 603) - see 1C in the Summary of Departmental Regulations for Graduate Students on page 32.

Evaluation of Progress

Second Year

In the second year, the GAC and the Graduate Program Specialist review progress toward the PhD, and the GAC makes recommendations about continuation in the program. The responsibility for demonstrating satisfactory progress is primarily in each student's hands, and secondarily in those of the advisor and the DAC. The criteria for satisfactory progress for years two and beyond include:

- GPA \geq 3.0
- Grades of Pass or higher on all examinations and pass-fail courses*
- Satisfactory rates of data acquisition, analysis, and/or dissemination
- No unexplained absences
- Prompt responses to emails from the student's advisor and DAC
- Regular attendance at lab meetings
- Regular attendance at departmental seminars and journal clubs
- Giving at least 1 journal club presentation each year
- Meeting with DAC by deadline (unless extension has been approved)

* Regarding incomplete grades: A student may have no more than two incompletes at the end of any term. All incompletes shall be completed within one year of incurring them. No student can be advanced to candidacy until they have cleared all incompletes from their transcript.

Failure to meet these criteria for each year will trigger a detailed review by the Graduate Affairs Committee and may result in termination from the program.

YEAR 3 AND BEYOND

Annual DAC Meetings

Students are required to meet with the DAC at least once a year. Please refer to the section [Annual DAC Meetings](#).

Dissertation Preparation and Timetable

Preparation of a written dissertation takes a considerable amount of time. It is strongly recommended that the student meet with the DAC before writing begins, but after all planned experiments are completed, to ensure that the committee agrees that the experimental work is complete. This meeting should take place three to four months prior to the planned defense. Writing should be done in conjunction with the dissertation advisor, and a polished, well-prepared version of the dissertation must be given to the members of the DAC at least three weeks prior to the scheduled defense.

The Graduate School provides a website to aid in the process of completing requirements for the dissertation defense. There the student will find instructions relating to the process of completing the degree (forms to use, etc.). Students wishing to include in their dissertation substantial portions of material that has been published with or without co-authors, or is intended to be published with co-authors, must seek permission from their DAC and the Graduate School at least one term prior to scheduling their defense. If the student plans to submit a dissertation in journal format style, they must obtain approval from the Graduate School at least one term prior to the defense.

Over the course of their PhD, students must receive a passing grade for at least 18 credits of BI 603 Dissertation. Six of these credits must accrue in the final two terms of the student's tenure. Once the student applies for their degree and then applies for their final oral defense online (through GradWeb), DAC committee members are automatically requested to indicate their agreement to attend. This process may take some time to complete, so begin the process as soon as possible. **It is *strongly* recommended that the student meet with the Graduate Program Specialist, as soon as the student has decided on a term for graduation, to make sure that everything is in order.**

Prior to scheduling, review the "Oral Defense Procedures" on the Graduate School website.

The complete dissertation must be submitted to all members of the DAC at least 1 week before the date of the final oral examination. All of the following conditions must be satisfied before the dissertation is considered complete:

- 1) All sections of every chapter are complete; there are no place holders or other indications of text, figures, or tables to come.
- 2) All in-text references are correctly formatted references and the complete bibliography is included.
- 3) Each figure and table are accompanied by a legend.
- 4) The document has been spell checked.
- 5) In-text pointers to figures (e.g., Fig. 1), tables (e.g., Table 1), and references (e.g., Watson and Crick, 1953) refer to the correct figure, table, or reference.
- 6) The thesis advisor has signed-off on the document indicating that conditions 1-5 have been satisfied.

Exceptions to submission of a completed thesis require approval of the DAC.

Final Oral Examination

This shall consist of an open and public research seminar, followed by a private session of the candidate with members of the DAC. During the one-hour public presentation the candidate should be prepared to defend the dissertation by responding to questions from the audience. The private session with the DAC will serve as the formal final examination. The total time allotted for the defense varies by institute:

IMB - 1.5 hours

INGP - 2 hours

OIMB - 1.5 hours

IE² - 3 hours

If more time will be needed, the student should discuss this with their committee and then make sure that the room is reserved for the correct amount of time. At least 15 minutes will automatically be added to this time for the student to set up and prepare for the defense before the scheduled start time (the student may request additional set up time). Rooms are reserved through the Department of Biology Administrative Program Assistant. For the best selection of rooms, contact the Administrative Program Assistant as soon as a date and time is selected.

Evaluation of Progress

In the third and subsequent years, the GAC and the Graduate Program Specialist review progress toward the PhD, and the GAC makes recommendations about continuation in the program. The responsibility for demonstrating satisfactory progress is primarily in each student's hands, and secondarily in those of the advisor and the DAC. The criteria for satisfactory progress for years three and beyond include:

- Student has advanced to candidacy
- GPA \geq 3.0
- Grades of Pass or higher on all examinations and pass-fail courses
- Satisfactory rates of data acquisition, analysis, and/or dissemination
- No unexplained absences
- Prompt responses to emails from the student's advisor and DAC
- Regular attendance at lab meetings
- Regular attendance at departmental seminars and journal clubs
- Giving at least 1 journal club presentation each year
- Meeting with DAC by deadline (unless extension has been approved)

Failure to meet these criteria for each year will trigger a detailed review by the Graduate Affairs Committee and may result in termination from the program.

Summary of Departmental Regulations for Graduate Students

The following are additional requirements as stipulated by the Department of Biology or are clarifications of Graduate School policies.

1) Course load

- a) Prior to advancement to candidacy, it is recommended that graduate students take a full course load (16 credit hours) during fall, winter and spring terms. These credits include the required Laboratory Rotation Program during the first year, dissertation research during subsequent years, seminars, journal clubs, and courses either required or recommended by the DAC. **Most students do not register for summer term.** If instructed to register for summer, students should check with their advisor and the Graduate Program Specialist BEFORE registering.
- b) After advancement to candidacy, all students must register for a minimum of 9 and a maximum of 16 credits each term unless they are advised to do otherwise by their advisor/DAC. Students in the Biology PhD program are required to register for one journal club each quarter, and for one or two seminars (depending on the research unit). Advanced students may also register for courses as needed to satisfy requirements imposed by training programs or the DAC ([see Appendix 4](#)). Registration for any additional courses will require approval of the advisor.
- c) Students working toward a PhD must complete a minimum of 18 hours of *Dissertation - Bi603* before their degree can be awarded. They may register for these hours after advancement to candidacy, but **MUST** be registered for a minimum of 3 credits of *Dissertation - Bi603* both the term prior to and the term in which the student plans to defend. For a fall term graduation, the “term before” is spring (not summer).

2) Continuous enrollment

- a) A full-time graduate student is required to be enrolled during each term of the regular academic year from the time of first enrollment until the degree is awarded. A student is enrolled as either a student in residence or a student on leave of absence (no fees charged). A leave of absence must be approved by the department and the Graduate School.
- b) A student failing to maintain continuous enrollment will be considered as withdrawn. If such a student wishes to renew studies, he or she must reapply for admission.

3) Financial Support

- a) Financial support is guaranteed for five years provided the student is making “satisfactory progress” toward the PhD degree. Progress is assessed by the GAC on an annual basis.
- b) The guarantee of financial support is limited to PhD candidates.
- c) A student receiving financial support is:
 - 1) expected to devote full time to his or her graduate studies and teaching or research duties,
 - 2) not to be otherwise gainfully employed within or outside the university. In cases of financial hardship, the Graduate Affairs Committee should be consulted. The GAC may waive this rule or make other arrangements.

ANNUAL DAC MEETINGS

DAC meetings should be scheduled during the terms indicated in the table below, at least one week prior to the end of term. DAC meetings are to be scheduled for a minimum of 90 minutes, although 120 minutes is recommended; the full time doesn't have to be used dependent on the desires of the student and the committee. **It is the responsibility of the student to notify the Graduate Program Assistant as soon as the meeting time is set.**

DAC meeting terms by Institute				
	Year 2	Year 3	Year 4	Year 5+
IE ²	S ³	S	W	F
IMB	F ²	W or S	W or S	W or S
INGP	F ²	S	S	S
OIMB	W ¹	W	W	W

DAC meetings are to be held before the end of the indicated term. ¹After the qualifying exam and prior to the beginning of Spring term. ²Prior to this meeting, students must also provide their DAC with an annotated bibliography (a list of 10 key papers from the primary literature (i.e., not reviews), each with a brief summary of the paper's results and significance (i.e., why the paper is included in your bibliography). ³This DAC meeting should occur no later than the first academic year term following the Proposal Exam. For most students this will be Spring term, following a Winter term exam.

Note: It is the *student's responsibility* to schedule DAC meetings and to notify the Graduate Program Assistant of the meeting details (date, time, location) at least one week in advance. Failure to meet with the committee and file a progress report means that the student is not eligible for continued support from any university source in the following academic year.

For IMB and INGP, the purpose of the first DAC meeting in the Fall of the 2nd year is threefold: 1) Give feedback to the student on their current research and their general plans; 2) Evaluate the progress of research and whether the student is progressing at a reasonable pace; 3) Assess and provide feedback on how the student's research plan could be formulated into a successful 2nd year proposal. The final point is meant to ensure the DAC agrees as to the direction and approach being taken towards the proposal exam.

Students may have their DAC meeting after the specified deadline if approved to do so in advance by the chair of their DAC and the GAC rep for the student's institute. The GAC rep should email the Graduate Program Assistant to confirm that they approve of the extension and specify a new deadline for the student's DAC meeting.

The following documents must be delivered to each DAC member and the Graduate Program Assistant at least three days before the DAC meeting: (i) progress report and (ii) a new or updated Individual Development Plan (IDP). As part of the IDP each year, the student is asked to self-evaluate according to the questions in [Appendix 6](#). This should be done in consultation with the thesis advisor.

A template for the progress report and detailed instructions for the IDP can be found online on the [Biology Intranet - Graduate Resources/Forms page](#). There are two IDP documents - one for 2nd year students and one for students in years 3-5. OIMB students are not required to submit the IDP.

Following the meeting, the DAC chair will submit a report to the Graduate Program Assistant. Other members of the DAC must approve the report before it is submitted. One of three recommendations can be made:

- Continuation as a graduate student with support. (In extraordinary circumstances the DAC may recommend continuation without support.)
- Probationary continuation as a graduate student. This recommendation serves as a warning that the student is at risk for termination from the program. Areas of expected improvement must be clearly indicated, a timeline for remedying any deficiencies must be stated, and the means of communicating progress to the DAC (e.g., written report or DAC meeting) should be clearly outlined.
- Termination as a graduate student. This would normally be expected to occur in cases where the student has received a probationary continuation in a previous term but has failed to adequately address one or more areas of expected improvement by the deadline stipulated by the DAC. Termination, including no further payment of stipend, tuition, and fees, is effective as early as the end of the term in which the student failed to meet the terms of the improvement plan.

The GAC cannot make a recommendation of continuation in the program unless the progress report, IDP, and the report of the DAC chair are on file by the end of the term specified in the table.

DAC recommendations are subject to review by the GAC. A student may appeal the recommendation; appeals are heard by the GAC.

A copy of the committee's report is to be placed in the student's file and a copy given to the student. The progress report will also become part of the student's permanent record.

Dissertation Advisory Committee Report Form

Form is also available [here](#).

The Committee Chair should email the completed form to the student, advisor, and relevant departmental office within 1 week after the committee meeting.

Student Name: _____ Date:

Chair: _____ Year in Program:

Part I: Evaluation of Progress

Expectations for each year in the Graduate Program are listed below. Rate the student in each aspect listed for their Year.

Choose: Satisfactory, Some Concern, Considerable Concern, Unsatisfactory

Follow the ratings with a brief narrative that explains areas of concern, lists expectations for the next year.

Part II: Requirements

1. List departmental or training grant course requirements remaining to be fulfilled.
2. Is the teaching requirement completed?
3. Students in their second year and beyond are required to make one journal club presentation annually. Date of most recent journal club presentation (or scheduled date if scheduled for later this year):
4. Has student been approved for research on animal and/or human subjects?

Yes

No

Not Applicable

Part III: Summary of Progress Toward PhD (select all that apply):

Student is on-track to defend a solid thesis and publish at least one first-author manuscript by the beginning of the sixth year.

Some concern about progress in the following areas:

Serious concern about progress in the following areas:

Terminate from PhD program at end of the following term due to sustained failure to meet benchmarks outlined above.

Part IV. Date of next committee meeting, if applicable:

A copy of the committee's report is to be placed in the student's file and a copy given to the student. The progress report will also become part of the student's permanent record.

WORKPLACE CHALLENGES AND SUPPORT

Harassment and Discrimination

It is the policy of the University of Oregon to maintain an environment free of prohibited harassment and discrimination against any person because of age, veteran status, race, sex, color, sexual orientation, ancestry, gender identity, national or ethnic origin, perceived gender, religion, marital or family status, gender, pregnancy-related conditions, disability, genetic information, service in the uniformed services, and the use of leave protected by state or federal law. This includes harassment of, or discrimination against, undergraduates, graduate students, faculty, staff, and any other instructional or research personnel (for example collaborators during field work).

All members of the university community (including graduate students) should become familiar with the University of Oregon's anti-discrimination policy, which can be found at <https://policies.uoregon.edu/vol-5-human-resources/ch-11-human-resources-other/discrimination-complaint-and-response>

The University of Oregon's Office of Investigations and Civil Rights Compliance will investigate complaints of harassment or discrimination, and acts of harassment or discrimination may result in expulsion from the university.

Resolution of Conflicts

There are a number of avenues within the University through which students who experience difficulties can pursue the resolution of conflicts.

Advisor and Departmental Contacts

The first point of contact for graduate students who are having conflicts with other students, instructors, or administrators is their advisor. For first year students who don't yet have a permanent advisor, that person is their rotation advisor. If the conflict is with the advisor or if the student is uncomfortable reporting to their advisor, they can report the conflict to the GAC rep, the Institute Director, the Graduate Program Manager, or the Department Head.

University Contacts and Formal Processes

Students should typically pursue informal resolutions to conflicts within the Institute or the Department (as described above) whenever possible. If after attempting informal resolution the conflict is not resolved, then there are more formal avenues that students can pursue. These include the University Ombuds Program, the GTFF Grievance Process, and The Office of Investigations and Civil Rights Compliance.

The University of Oregon Ombuds Program provides confidential, impartial, independent, and informal conflict management assistance to the University of Oregon community at no charge. The Ombuds Program works with individuals and groups. In addition, the Ombuds Program provides customizable workshops for campus conferences, team meetings, department retreats, or other university events. Finally, the Ombuds Program provides non-identifying feedback to university leadership on trends and concerns in the community.

Employees covered by a collective bargaining agreement have a right to a union representative in certain scenarios. Employees have a right to a union representative during investigatory interviews or questioning when the employee has a reasonable belief that discipline or other adverse employment consequences may result from what he or she says. This does not apply to normal supervisor/employee interactions where discipline is not contemplated, even when the feedback is critical.

The Office of Investigations and Civil Rights Compliance (OICRC) offers the UO community a place to discuss and report issues, concerns, and conflicts regarding discrimination and harassment, including sex or gender-based harassment, stalking, bullying, or violence in accordance with university policy and federal and state laws.

Resources & Support

Accessible Education Center (AEC) - Supports access and inclusion for students with disabilities. Learn more at: <https://aec.uoregon.edu>

American English Institute (AEI) - Offers English language training and teacher training. Learn more at: <https://aei.uoregon.edu/about>

Division of Equity and Inclusion - Houses many of the programs listed on this page and more! Strives to provide resources and support for all members of the UO community. Learn more at: <https://inclusion.uoregon.edu/deiunits>

- Campus and Community Engagement (CACE) - <https://inclusion.uoregon.edu/campus-and-community-engagement-cace>
- Center for Multicultural Academic Excellence (CMAE) - <https://inclusion.uoregon.edu/center-multicultural-academic-excellence-cmae>
- Center on Diversity & Community (CoDaC), Graduate Support - <https://inclusion.uoregon.edu/graduate-support>
- Holden Center for Leadership and Community Engagement - <https://holden.uoregon.edu/about>
- International Student and Scholar Services (ISSS) - <https://inclusion.uoregon.edu/international-students>
- Multicultural Center (MCC) - <https://inclusion.uoregon.edu/multicultural-center>
- Office of the Vice-President of Equity and Inclusion (VPEI) - <https://inclusion.uoregon.edu/office-vice-president-equity-and-inclusion-vpei-our-work>

Duck Nest Wellness Center - Promotes self-care and life-balance strategies related to stress, nutrition, physical activity and general wellness. Learn more at: <https://health.uoregon.edu/ducknest>

Financial Aid & Scholarships - Administers financial aid and scholarships and provides budgeting and money management resources. Learn more at: https://financialaid.uoregon.edu/?_ga=2.91978650.1811313448.1599572255-681610376.1598886969

Division of Graduate Studies - Administers graduate education at the UO. Learn more at: <https://gradschool.uoregon.edu>

Many Nations Longhouse - Serves as a gathering location and place of respite for American Indian students. Learn more at: <https://longhouse.uoregon.edu/about-many-nations-longhouse>.

Mills International Center - Provides guidance, information and programming to promote global understanding. Learn more at: <https://mills.uoregon.edu/about/>

Office of the Dean of Students - Houses many of the programs listed on this page and more! Strives to provide resources and connect communities. Learn more at: <https://dos.uoregon.edu/community>

- LGBT Education and Support Services - <https://dos.uoregon.edu/lgbt>
- Lyllye Reynolds-Parker Black Cultural Center - <https://dos.uoregon.edu/bcc>
- Men's Resource Center - <https://dos.uoregon.edu/mrc>
- Multicultural Center (MCC) - <https://inclusion.uoregon.edu/about-us-1>
- Nontraditional Students - <https://dos.uoregon.edu/nontrad>
- Veterans - <https://dos.uoregon.edu/veterans>

- Women's Center - <https://dos.uoregon.edu/women>

Office of the Registrar - Manages university schedules, course information, and student records. Learn more at: <https://registrar.uoregon.edu/A-Z>

Office of the Vice President for Research and Innovation (VPRI) -Strives to help researchers navigate resources, regulations, trainings, compliance issues and more. Learn more at: <https://research.uoregon.edu>

Ombuds Program - Provides confidential, impartial conflict-management assistance. Learn more at: <https://ombuds.uoregon.edu/what-does-ombuds-program-do>

PE & Rec - Promotes healthy lifestyles through fitness, recreation and participation in sports. Learn more at: <https://rec.uoregon.edu>

Phil and Penny Knight Campus for Accelerating Scientific Impact - Aims to integrate research and entrepreneurship into one enterprise with the goal of accelerating and enhancing the societal benefit resulting from research discoveries. Learn more at: <https://accelerate.uoregon.edu>

Student Food Pantry - Provides free food to students facing food insecurity. Learn more at: <https://www.uoecm.org/the-student-food-pantry.html>

Student Conflict Resolution Center - Provides private, impartial and informal problem-solving support. Learn more at: <https://scrc.uoregon.edu>

Teaching Engagement Program - Offers a wide range of services and support for UO teachers including graduate student instructors. Learn more at: <https://teaching.uoregon.edu>

Tutoring and Academic Engagement Center - Provides a myriad of resources for study skills (including time-management) and writing support. Learn more at: <https://engage.uoregon.edu/>

University Counseling Services - Provides a variety of counseling options to support students' mental health concerns. Learn more at: <https://counseling.uoregon.edu/>

University Health Center - Provides comprehensive medical services including primary care, dental, physical therapy, pharmacy and more. Learn more at: <https://health.uoregon.edu>

UO Basic Needs Resource Guide - Website with helpful links, information and resources for food insecurity, transportation, technology, health care, etc. Learn more at: <https://blogs.uoregon.edu/basicneeds/>

UO Diversity Resources for Students - Website with helpful links, information and student life resources. Learn more at:

UO Libraries Graduate Student Resources and Services - Website with helpful links, information and resources available in the UO Library system. Learn more at: <https://library.uoregon.edu/graduate-services>

GUIDELINES FOR A THESIS MASTER'S DEGREE

The guidelines in this section are primarily for master's students in OIMB and IE². However, the information about graduate school requirements, deadlines, scheduling, and the role of the advisor and committee apply to students in any of the other research units.

The thesis is the end result of independent research and must be written according to the UO Graduate School requirements as set forth in the *Style Manual for Theses and Dissertations*.

The student should also familiarize themselves with the Graduate School requirements for a MS degree with thesis. These can be found on the Graduate School website.

To summarize these requirements, students need:

- 1) A total of 45 graduate level credits, 24 of which must be graded and taken while in residence at the UO. Graded credits do not have to be Biology credits.
- 2) At least 30 hours must be in graduate-level Biology courses.
- 3) Nine credits must be *Thesis - BI 503*. These are usually taken during year two. The student must register for at least one *Thesis - BI 503* credit during their last term.
- 4) At least 9 credits must be 600-level.
- 5) Maintain a 3.00 GPA.

For a Master of Science, there is no language requirement.

IE² Master's with Thesis Track

Students in the track should form a committee comprised of a tenure-track advisor and two other members holding a doctoral degree, at least one of whom must be a faculty member outside of the lab. They should meet with their committee at least a year in advance of their anticipated completion date to

present their proposed research. At this meeting, members of the committee should contribute critical positive suggestions concerning the proposed research and also make clear their expectations for satisfactory completion of the degree.

Students should submit to their committee for preliminary approval a rough, but complete, draft of their thesis at least six weeks in advance of their defense. This timing will allow corrections to be made, if necessary. The formal, final version of the thesis must be sent to their committee at least one week in advance of their defense.

OIMB Master's Program Schedule

Satisfactory performance is required for continuing participation in the Master's Program. The following outline is the ideal sequence of events for a MS student at OIMB. There will be exceptions to this sequence. Some students will need to have individualized programs based on this structure, but with a different timetable. Such students must discuss deviations from this outline with their advisor and formalize a specific timetable.

Fall Term 1

Coursework - Enroll in appropriate OIMB courses in consultation with the advisor.

Seminars - Attendance and participation in a graduate seminar is required during each term in which a student is registered unless field work requires that the student be away from OIMB. Attendance at the Marine Biology seminar on Friday afternoons is also very strongly encouraged.

Winter Term 1

Coursework - Possibly take courses in Eugene. If in Eugene, attendance and participation in a graduate seminar or journal club is required.

Research - Continue exploration of potential research topics. By the end of this term, students should have confirmed their research questions with their advisor.

Spring Term 1

Coursework - Possibly take courses in Eugene. If in Eugene, attendance and participation in a graduate seminar or journal club is required.

Research - Establish a thesis committee, prepare a thesis proposal (see below), and meet with committee regarding the planned research. **Deadlines: By May 15**, establish a 3-person committee, one of whom is the advisor. Also complete the research proposal and have it approved by the advisor. **By May 21**, the thesis advisory committee should have received a copy of the research proposal. **By June 1**, the student should meet with their committee to discuss the research proposal and their overall progress.

Summer Term 1

OIMB courses where appropriate, Marine Biology seminar.

Initiate research if not already started.

Fall Term 2

OIMB courses only if appropriate. Grad seminar and marine biology seminar.

Devote as much time as possible to research.

Winter Term 2

Grad seminar. Continue research.

By January 15: Submit a written progress report on research to the committee.

By February 1: The student should have met with their committee to discuss completion of their degree. At this meeting, research findings and plans for completion will be discussed. The student should outline a schedule for completing their research and writing their thesis.

It is imperative that the student establish a schedule agreed upon by their committee **by February 1**, as many deadlines for revisions and submitting documents to the Graduate School must be met in the final (spring) quarter.

Spring Term 2

Grad seminar. Research.

Thesis preparation, defense, graduation.

Writing a Thesis Proposal - Spring year 1

A proposal should consist of a coherent presentation that includes an Introduction, Statement of Questions or Hypotheses Addressed, Background (if necessary), Methods and Experiments, Expected and Possible Outcomes, Significance, Timetable, and Literature Cited.

- ✓ The Introduction should review the topic that will be addressed in the proposal and include a reasonably thorough literature review of prior studies. The goal of the Introduction is to set up a perspective from which to view the planned research work. Students should avoid discussing every approach or fact known about their planned topic.
- ✓ A Statement of Questions should concisely state the questions to be answered or hypotheses to be tested.
- ✓ Background can contain any additional information necessary to supplement the Introduction which is necessary to introduce or justify the methods and experiments.
- ✓ Methods and Experiments should outline specific experiments or observations to test the hypothesis or hypotheses (or distinguish among alternative hypotheses) mentioned after the introduction. The materials to be used, the exact design of experiments, descriptions of the data to be

collected, and methods of analyzing that data, including statistical tests, should all be covered in this section.

- ✓ Expected and Possible Outcomes should outline the possible outcomes of the planned experiments or observations. The relationship between these outcomes and rejection or confirmation of the hypotheses should be made explicitly.
- ✓ Significance of the proposed research should cover the uses of information gained in the research. The relevance of the research and the answer(s) it yields need to be set into context of science in general and the specific areas of science that the thesis research addresses.
- ✓ Timetable should report the schedule to accomplish the experiments and analyze the results and prepare a thesis. Give appropriate supporting information about start and end times, or how long an experiment is expected to run. Try to give realistic estimates of time to analyze results.
- ✓ Literature Cited should include complete references to all literature cited in the proposal - see a journal or style manual for format.

When the student prepares their proposal, they should consider whether the following are addressed, as these will be the criteria for evaluating their proposal:

- 1) Is the problem (or set of closely related problems) clearly and briefly stated?
- 2) Is there a clear, concise, and complete statement of the hypotheses or models?
- 3) Are the hypotheses or models reasonable? Does the proposal demonstrate knowledge and understanding of the area?
- 4) Is the general outline or plan of the experimental or observational approach clearly stated? What experiments or observations are planned, and what are the possible and expected outcomes?
- 5) What can be concluded about the hypotheses or models from the possible outcomes of the experiments? Are new hypotheses or experiments and observations necessary?
- 6) Are various details of the experiments or observations handled adequately (e.g., feasibility, statistical significance, controls, etc.)? Does the proposal demonstrate knowledge and understanding of the particular area?
- 7) The written proposal should not exceed 3,500 words.

Thesis Preparation

This schedule applies for any quarter the student plans to graduate. The first drafts of the thesis should be given to the advisor on a schedule to be set up between the advisor and the student. After revisions have been incorporated and

the draft approved by the advisor, the student needs to give this draft to the other members of their thesis committee for their feedback and comments. Upon receiving approval of this draft from each committee member, the student may schedule their thesis defense. A revised, penultimate draft of the thesis should be given to all committee members **one week** prior to defending. The public defense should be scheduled **no later than three weeks prior** to the Graduate School deadline for submission of thesis. **No later than one week after** the defense, the student should give the final version of their thesis to their advisor for final approval.

Role of the Advisor

The thesis advisor is the OIMB permanent faculty member most responsible for the oversight of research and preparation of the thesis. That person should be the mentor and should be very familiar with the work and research plan of each Master's student. Besides providing guidance and feedback in all aspects of the research plan and its execution, it is the responsibility of the advisor to establish with the student a reasonable timetable for obtaining a Master's degree.

Role of the Thesis Committee

The 3-member committee (including the advisor) is responsible for evaluating the academic performance of the student, thesis proposal, and the thesis resulting from independent research conducted by the Master's student. The choice of members of the committee should be made according to the research and educational goals of a Master's student. Committee members should be viewed as important resources for proposal execution and evaluation. It is up to the student to tap the resources. Membership on this committee should be discussed between the advisor and student prior to its appointment.

The thesis committee must approve the thesis proposal and the thesis. Each member of the committee is expected to actively participate in the project execution and evaluation and should voice their opinions throughout thesis work.

Master's students may have more than one advisor but, if the student's degree is in Biology, at least one of the advisors who is a tenure-track faculty member in Biology, must sign official paperwork.

APPENDICIES

APPENDIX 1: Detailed Instructions for INGP Second-Year Proposal Examinations

Familiarize themselves with the NIH's requirements for Research Training Plans in NRSA awards. Go to <https://grants.nih.gov/grants/how-to-apply-application-guide.html>, click on

G	General Instructions	Comprehensive guidance for research, training, fellowship, career development, multi-project, and small business applications	HTML / PDF
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Go to section G.430. Carefully read the Research Plan Section, parts (3) Specific Aims and (4) Research Strategy.

Their written proposal shall comprise three or four sections: (1) Specific Aims (1 page), (2) Research Strategy (6 pages), (3) References Cited, and (4) Advisor's role (second-year only). Each section should use all utilize *all* the space allowed.

Their proposal **MUST** conform to the following format, utilizing the templates provided

1. Title Page (1 page)

Provide the title of the proposed research and the name of the Principal Investigator (the student). [Template.](#)

2. Specific Aims (1 page)

State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will have on the research field(s) involved. Most proposal exams have 2, rarely 3, distinct objectives (Specific Aims). Enumerate the Aims and provide a short paragraph describing the specific activities the student will perform, their rationale, and relationship to the overall goal of the research. There is no need to include citations in this section. [Template.](#)

3. Research Strategy (6 pages)

Provide the following content, organized under the HEADINGS and *subheadings* given below. Use all 6 pages. Use figures and tables as needed to illustrate key concepts, preliminary results, research design, and expected results. Each figure should be accompanied by a detailed legend. [Template.](#)

SIGNIFICANCE

This section MUST contain at least the following four subheadings. It is also where the student provides general background and preliminary data that is common to all aims in the Approach.

Challenge. Give the background needed to understand the nature and importance of the scientific questions the student plans to address. State the issues or questions their experiments will address. Explain why their findings will be important to the field.

Barriers to progress. Describe the state of the field in their topic area with particular emphasis on what has been holding the field back.

Transformative approach. Transformative approach. Explain briefly in general terms how the student proposes to overcome these hurdles. Describe the strengths and weaknesses in the rigor of the prior research (both published and unpublished) that serves as the key support for the proposed approach including the model or hypotheses the student plans to test.

Impact. Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.

INNOVATION

This section is omitted in NRSA proposals.

APPROACH

The overall Approach section should be divided into separate sections for each specific aim. Having two aims is usually about the right scope for an NRSA, but having three aims is acceptable. In many cases, aims themselves may be divided into subaims. For each aim or subaim, the student must include the following subsections: Rationale, Preliminary Studies, Approach, Interpretation, and Limitations & Alternatives.

Rationale. Explain why this particular experiment needs to be done. Describe the specific hypothesis the student is testing, if appropriate.

Preliminary studies. Include published or unpublished information on preliminary studies that demonstrate the feasibility of the approach. Site the sources of this information. First-year proposals will rely on published data only.

Approach. Describe the experiment the student will perform. Include an overview of the materials, procedures (including statistics), methods, and manipulations that will be involved in the experiment. This section will be less detailed than the methods section of a paper.

Interpretation. Describe the range of results the student expects, and how the student will interpret the outcomes relative to their hypothesis.

Limitations & Alternatives. Choose 2-4 things that what could go wrong in the Approach, and for each explain what countermeasures are available in each case.

Final summary. At the end of the APPROACH, explain the broader impact of their findings if each Aim is successful. Focus on what will likely be learned and how this will advance the field.

3. References Cited (not included in page limits)

4. Advisor's role (1 paragraph)

Include a statement written by the Advisor describing his/her role in formulating the Specific Aims and Research Strategy (Second year exams only; not included in page limits).

Mandatory Formatting Instructions

Real applications that fail to follow NIH formatting instructions exactly are not reviewed. Accordingly, proposal exams the fail to follow formatting instructions exactly will not be graded until revised.

Font

Use the Arial typeface, a black font color, and a font size of 11 points or larger. (A Symbol font may be used to insert Greek letters or special characters; the font size requirement still applies.) Smaller fonts are allowed in figure legends, but the text must be easy to read.

Type density, including characters and spaces, must be no more than 15 characters per inch. Type may be no more than six lines per inch.

Recommended: Fully justify the document (left and right justification turned on). Activate automatic hyphenation to save space.

Paper Size and Page Margins

Use standard paper size (8 1/2" x 11").

Use at least one-half inch margins (top, bottom, left, and right) for all pages. No information should appear in the margins, except page numbers.

Figures, Graphs, Diagrams, Charts, Tables, Figure Legends, and Footnotes

The student may use a smaller type size, but it must be in a black font color, readily legible, and follow the font typeface requirement. Color can be used in figures and tables only.

Submission

First-year students. On or before the examination due date, submit the Specific Aims, Research Strategy, and References Cited as a single Word document.

Second year students. One week prior to the date of the examination, submit the Specific Aims, Research Strategy, and References Cited as a single Word document.

Grantspersonship

Use English and avoid jargon. Eschew all but the most familiar acronyms. Assume a familiarity with the literature at the level of an educated non-specialist. Obtain copies of successful proposals from students, and NIH grant applications from PIs to use as models. Pay attention to all details of execution including prose, spelling, layout, and graphics. Show the reviewers that the student is a perfectionist.

Study and emulate examples of successful proposals, the more the better:

<https://www.niaid.nih.gov/grants-contracts/sample-applications>

Common pitfalls to avoid when *formulating* their proposal:

1. Serial dependency. A serial dependency occurs when, for example, Aim 2 cannot be accomplished unless a particular result is obtained in Aim 1. Design their aims so that they are immune to this problem.
2. Fishing expedition. When the reviewer judges that the work is merely the obtaining of facts without clear hypotheses to be tested, the comment is often made by the reviewer that this is a “fishing expedition.”
3. [Other common pitfalls](#).

Common pitfalls to avoid when *writing* their proposal

1. Failure to follow explicit formatting instructions (see templates)
2. Failure to include required headings and subheadings.
3. Lack of plans for quantification of dependent variables and statistical comparisons.
4. Failure to use the entire page limit for each section of the proposal.

Useful reference material:

[Writing the NIH Grant Proposal: A Step-by-Step Guide](#), by W. Gerin et al.

General advice on grant writing:

<https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/write-their-application.htm>

The Elements of Style, by W. Strunk and E. B. White. *The* classic text on expository prose.

A Sense of Style, by S. Pinker. A modern follow-up to *The Elements of Style*.

Fowler's Modern English Usage, by H. W. Fowler. If the student doesn't know when to use *which* versus *that*, or what a dangling participle is, then the student needs this book.

APPENDIX 2: Grading Form for the INGP Second-Year Proposal Exam

Form can also be found [here](#).

For students taking the INGP second-year proposal exam, the Exam Committee Chair will report on the exam using the template below. This report will be distributed to the student, the home department, and the thesis advisor.

A. Choice and statement of research question

1. Is the research question clearly stated in both broad and specific terms?

[Yes / No]

2. Is it a substantive question that, if answered, will move the field forward significantly?

[Yes / No]

3. Is it of the appropriate scope (i.e., can it be answered by a single skilled researcher in a period of ~4 years)?

[Yes / No]

4. Is a clear and logical connection made between the broad and specific question to establish the significance of the proposal?

[Yes / No]

B. Background knowledge

Does the student have in-depth knowledge of the relevant background papers necessary to understand the research question posed?

[Yes / No]

Is the student knowledgeable about and fluent in describing previous studies that are relevant to the project? This relevance is broadly defined - for example, if the project examines a process in *Drosophila*, is the student also familiar with relevant work done in other systems?

[Yes / No]

Is the student well versed in the techniques required to complete the proposed research?

[Yes / No]

C. Hypothesis or alternative models

Is a clear hypothesis, or alternative model(s), presented?

[Yes / No]

Is the hypothesis tightly coupled to the specific research question? Is the hypothesis justified based on core knowledge and previous studies?

[Yes / No]

D. Experimental approach

Do experiments test the stated hypothesis (i.e., will the results support/refute the hypothesis or distinguish between models)?

[Yes / No]

Are the experiments technically feasible? [Yes / No]

Are the most suitable approaches proposed? [Yes / No]

Are suitable controls included?

[Yes / No]

Are limitations of the proposed approaches considered?

[Yes / No]

Are alternative approaches discussed?

[Yes / No]

E. Outcome

PASS - Negligible weaknesses.

REVISE - One or more moderate weaknesses requiring resubmission of the written proposal. The exam committee shall enumerate the weaknesses (in a separate document) and define the due date for resubmission.

FAIL - One or more major weakness requiring substantial revision. The exam committee shall enumerate the weaknesses (in a separate document) and define the due date for resubmission and the date of a second oral examination.

APPENDIX 3: IMB Second-Year DAC Meeting Report Form

Form can also be found [here](#).

The Exam Committee Chair will report on the exam using the template below. This report will be distributed to the student, the home department, the thesis advisor, and the IMB Graduate Affairs Committee.

Student _____

Chair _____

Other committee members _____

Exam date _____

Start and end time _____

1. Statement of broad and specific questions (logic, clarity, etc.)

Exceptional Satisfactory Needs Improvement Unsatisfactory

2. Statement of significance (logic, clarity, etc.)

Exceptional Satisfactory Needs Improvement Unsatisfactory

3. Statement of hypothesis (logic, clarity, justification, etc.) -- The exam requires defining one or more **hypotheses**, which should be the most reasonable answer(s) to the proposal's specific question based on what is already known. Hypotheses must be justified by prior observations.

Exceptional Satisfactory Needs Improvement Unsatisfactory

4. Experimental approach - The exam requires development of an **experimental approach** that rigorously tests the hypothesis.

Exceptional Satisfactory Needs Improvement Unsatisfactory

5. Knowledge of relevant background material - The student should have a command of **background knowledge** relevant to their proposal, broadly defined.

Exceptional Satisfactory Needs Improvement Unsatisfactory

6. Professional demeanor during the defense -- The student should be able to field questions calmly without being defensive or evasive.

Exceptional Satisfactory Needs Improvement Unsatisfactory

Provide comments addressing any issues for items 1-6 above, or other items that warrant mentioning (e.g., quality of writing, etc.).

Any aspect of the exam deemed "unsatisfactory" or "needs improvement" must be addressed through a remedy prescribed by the committee. For example, the student may be assigned a rewrite of the hypothesis to improve the justification. If a significant portion of the exam is unsatisfactory, a complete retake may be warranted.

APPENDIX 4: TRAINING PROGRAM COURSE REQUIREMENTS

APPENDIX 4A: Courses required by the Genetics Training Program

I. DISTRIBUTION REQUIREMENT: One graded course to be taken from each of the following groups.

Developmental Genetics:

Developmental Genetics - Bi528

Developmental Neurobiology - Bi566

Neurogenetics - Bi510

Bacterial-Host Interactions - Bi533

Molecular Genetics:

Molecular Genetics - Bi620

Advanced Molecular Genetics - Bi524

Molecular Basis of Human Disease - Bi527

Evolutionary Genetics:

Molecular Evolution - Bi584

Population Genetics - Bi586

Molecular Phylogenetics - Bi587

Evolutionary Processes - Bi588

Students may also satisfy this requirement by taking any three of the six 1-credit BI610 modules offered by IE² faculty (Kern, Ralph, Singh, Phillips, Streisfeld, Barber).

II. TRAINING IN THE RESPONSIBLE CONDUCT OF RESEARCH *Ethics Life Science Research - Bi610*. This course is taken in the second year of study.

III. TRAINING IN STATISTICS *Foundational Statistics - Bi610, Advanced Biological Statistics - Bi610*

IV: Optional but recommended: *Introduction to Biological Computation - Ch610* (Ken Prehoda) (focus on Python) or *MatLab for Biologists - Bi510* (Cris Niell).

APPENDIX 4B: Courses required by the Molecular Biology and Biophysics Training Program

1. Core Curriculum Course (Winter term): *Advanced Biochemistry - Ch662*
2. One graduate course in quantitative biophysics/biochemistry*:
Physical Biochemistry - Ch565
Introduction to Biophysics - Phys610
Structural Biochemistry - Ch566
Cellular Biochemistry - Ch568
3. One graduate course in computational methods*:
Computational Chemistry - Ch547
Introduction to Programming for Molecular Biologists - Ch510
4. One graduate course in biological statistics*:
Advanced Biological Statistics - Bi610
Foundational statistics - Bi610

*Other courses may be substituted subject to approval of petitions by the MBBTP Executive Committee.

4. *Ethics in Life Science Research - Bi610*

†This course should be taken in the fall of the second year, and again in the fall of the sixth year if student has not graduated by then.

6. *Career Exploration in the Life Sciences - Ch/Bi610*

This course should be taken in the 3rd or 4th year and is taken in lieu of the Journal Club for that term.

Note: The student should NOT register for research credits or other courses over the summer, unless there is a particular course that is relevant to their training that is offered only during the summer and the student has approval from Teri Mellor.

APPENDIX 4C: Courses required by the Developmental Biology Training Program

1. *Molecular Genetics - Bi620*. Fall term, usually in the first year.
2. *Developmental Genetics - Bi528*. Usually spring term, first or second year.
3. One of the following three courses, as recommended by the trainee's Dissertation Advisory Committee (DAC) and approved by the Executive Committee. Students can petition for alternative coursework better aligned with their thesis research. Usually, winter or spring of the second year.

Stem Cells: Disease and Regenerative Medicine - Bi510
Developmental Neurobiology - Bi566
Genomic Approaches & Analysis - Bi593

4. *Advanced Biological Statistics - Bi610*. Usually, fall of the second year.
or *Foundational Statistics - Bi610*. Usually, spring of the first or second year.
5. *Ethics in Life Science Research - Bi610*. Fall of the second year.
6. Computational Training. Optional. We strongly encourage trainees to train in biological computation by taking one of three courses: *Intro to Programming for Biologists - Bi510*, *Computational Bioinformatics - Ch610*, *Matlab for Biologists - Bi510*.

Further information about required courses is available [here](#).

APPENDIX 5: IMB Graduate Student Guide to the Second Year

Overview of tasks to complete in their 2nd year

Select their DAC. During the summer, select the members of their Dissertation Advisory Committee after consulting with their thesis advisor to decide on composition. See below for detailed instructions.

Develop their project. Work together with their advisor to develop their thesis project. Compile an annotated bibliography containing the 10 primary research papers most relevant to their research project or area, AND, based on their planned thesis work, define a preliminary hypothesis or model that can use as the basis for a written research proposal.

Complete the Fall, Scientific Reasoning course. This course replaces the former proposal exam, and their performance in this course will be used, together with their DAC presentations and research progress, to evaluate their advancement to candidacy.

Complete all other course requirements: BI620 Molecular Genetics and CH662 Advanced Biochemistry if the student did not complete these during their first year, and BI610 Ethics in the Life Sciences, which the student should take in Fall of their second year.

Complete all teaching requirements if for any reason the student did not do so in their first year.

Meet with DAC. The student will meet with their DAC twice. (i) The student should schedule the first DAC meeting (for ≤ 60 minutes) for early in the Fall quarter (within the first two to three weeks) to discuss their thesis project and how to use it as a basis for the proposal the student will work on in the Scientific Reasoning course. Before this meeting, provide their DAC with their annotated bibliography and hypothesis/model (see "Develop their project" above). (ii) The student should schedule a second DAC meeting (for ≤ 90 minutes) for Winter term; the timing of this second meeting can be determined in consultation with their advisor. Before this second DAC meeting, complete their Individual Development Plan and discuss it with their advisor. At least three days prior to the meeting, provide their DAC with the proposal the student wrote in the Scientific Reasoning course, a written progress report (see template below), and the answers to the IDP questions. Prepare a presentation that summarizes their thesis project and their research progress to date.

Advance to candidacy: The student will be advanced to candidacy following (i) successful completion of the course and teaching requirements; (ii) successful completion of the Scientific Reasoning course; and (iii) DAC approval of their academic and research progress after their winter DAC meeting (see criteria on the IMB 2nd year winter DAC form).

Summary of 2nd year timeline

Summer

- select their DAC
- work with their advisor to develop their project
- make their annotated bibliography
- define preliminary hypothesis/model for Scientific Reasoning course
- schedule a Fall DAC meeting (to last no more than 60 minutes)

Fall

- Fall DAC meeting (provide their annotated bibliography and hypothesis/model, prepare a brief (15 minute) presentation outlining their thesis project ideas)
- complete Bi610 Ethics in Life Sciences
- complete Bi610 Scientific Reasoning
- schedule a Winter DAC meeting (to last no more than 90 minutes)

Winter

- Winter DAC meeting (provide the research proposal the student wrote in the Scientific Reasoning course, a summary of their research progress, and their IDP, and prepare a presentation on their research progress)

Selection of Dissertation Advisory Committee (DAC)

Shortly after joining a lab, work with their advisor to select potential members of their Dissertation Advisory Committee (DAC). Their DAC will provide additional input on their thesis project and help evaluate their progress at regular intervals during their graduate work. Contact potential committee members to ask about their willingness to serve, and also designate a Chair, all in consultation with their advisor. The DAC should be selected by the end of Summer Term, prior to the start of Year 2.

The rules for DAC composition are mostly the same for students in both the Biology and the Chemistry and Biochemistry Departments. In addition to the advisor, the committee must also include 1) a chair from the student's home department, 2) one or two core members, typically from the student's home department and/or institute, and 3) an outside member (also called the institutional member). The outside member cannot be from the student's department. If the advisor is in a different department from the student, the role of outside member must be filled by a faculty member in either a different division of the advisor's department or a third department that is neither Chemistry nor Biology.

Apart from the rule that the advisor cannot chair the committee and the qualifications of the institutional representative, which are strictly applied, the departments both have approval processes that allow for some flexibility in the stated requirements to ensure a committee with relevant expertise and capable of providing constructive feedback to the student and advisor. Students are advised

to read the more extensive documents on committee composition provided by each department (included as a separate file).

After reaching agreement with their advisor, their choices for committee members and chair should be submitted for departmental approval to the Graduate Program Specialist in the Biology Department, currently Jessica Davis (jdavis27@uoregon.edu). For IMB Biochemistry, please CC the Graduate Program Specialist for Chemistry & Biochemistry as well, currently Helen Durany (hdurany@uoregon.edu).

Fall term DAC Meeting

During the summer, the student should schedule a DAC meeting (to last no more than 60 minutes) for some time in the first two to three weeks of the Fall quarter. The purpose of this meeting is to acquaint their DAC committee with their proposed thesis work AND for them to provide feedback on the hypothesis/model that the student will use as the basis for the proposal the student will write in the Scientific Reasoning course. During the summer the student should work with their advisor to come up with the two components the student will give to their DAC immediately before the fall meeting (see below):

1. At least 3 days before their fall DAC meeting, email their DAC:
 - their annotated bibliography containing 10 key research papers (i.e., not reviews), each with a brief summary of the paper's results and significance (i.e., why the paper is included in their bibliography). Note that this annotated bibliography will also be due during the first week of the Scientific Reasoning course.
 - an abstract based on their proposed thesis work in which the student proposes a preliminary hypothesis/model to be tested; provide the background necessary to motivate that hypothesis/model, and be prepared to outline this background and the hypothesis/model in a short (15 minute) presentation.

2. At this Fall DAC meeting, be prepared to give their 15-minute presentation but expect interruptions & discussions. Again, this is simply an opportunity to meet their DAC and get their input before the Scientific Reasoning course. We anticipate that this meeting will last at most 1 hour. The DAC chair should keep track of time and help ensure the meeting goes efficiently.

After the meeting, the DAC chair will notify the Graduate Program Specialist in the Biology Department (jdavis27@uoregon.edu) that this meeting took place, but no form is necessary.

Winter term DAC Meeting

At the beginning of fall term, schedule a meeting with their DAC (to last no more than 90 minutes) for some time in the Winter term. The timing can be determined in consultation with their advisor. To prepare for the meeting, complete an Individual Development Plan with their advisor and write a progress report using the provided template.

1. At least 3 days before their winter DAC meeting, email their DAC:

- their answers to IDP questions
- their progress report,
- the proposal the student wrote in the Scientific Reasoning course

A progress report template and the information the student needs to complete the IDP in their second year are included with this document as separate files. Some IDP questions differ in subsequent years, so an additional document describing the IDP process for years 3-6 is also included as a separate file.

2. Prepare a roughly 30-40 minute presentation for the meeting that gives an overview of their thesis project and research progress so far. The student can expect to be interrupted early on in their talk, as the goal of the DAC meeting is to promote such discussion. We anticipate that this meeting will last at most 90 minutes. The DAC chair should keep track of time and help ensure the meeting goes efficiently.

The purposes of the Winter DAC meeting are three-fold: (i) To give the student feedback about their research plans; (ii) to evaluate how the student is progressing in their research; and (iii) to assess their performance in the Fall Proposal Writing course.

Their progress will be evaluated based on the following criteria:

- i) Has the student developed a good grasp of the literature and background relevant to the research?
- ii) Can the student articulate the questions their research is addressing, the hypotheses they are developing (if appropriate), and explain how current and proposed experiments test those hypotheses?
- iii) Is the student's research progress consistent with a high likelihood of successful completion of their thesis research?

Based on their assessment of their project and progress, their performance in the Scientific Reasoning Course, and their completion of all other requirements, the DAC will make a recommendation as to their advancement to candidacy, using the IMB 2nd Year Winter DAC meeting form. A copy of the form that their committee chair will fill out after their meeting is provided as a separate file.

Overview of the fall *Scientific Reasoning* Course

The purpose of the *Scientific Reasoning* course is to (1) help the student build their thesis project and (2) focus on one sub-aspect of the larger project to develop their skills in writing and defending a hypothesis-driven research proposal. Note - their thesis will be bigger than the proposal the student develop in class, the goal of the class is to define an excellent hypothesis and/or model and learn how to defend and test them. Some thesis projects, especially at the outset, are exploratory and do not involve testing a specific hypothesis. In this case, the student should develop and test a compelling and substantive hypothesis that draws on similar background literature and methods as their

thesis research. The student will develop their proposal during this course with input from the instructor and from their thesis advisor. The course goals are:

- 1) Finding Important Questions - explore the research area around their thesis topic.
- 2) Writing a Proposal - develop skills in writing with a focus on the NIH F31 fellowship proposal format.
- 3) Presenting Work - develop their ability to present and defend their work.

Communication with their advisor

It is critical for the student to build a scientific relationship with their advisor. The course is designed to encourage interactions between the student and their advisor. As such, there will be weekly deadlines for the class, and between the student and their advisor, that are essential for successfully completing this course. The student should work with their advisor to revise and edit all of the work for related to class. The student will prepare drafts and initial ideas, in written form, themselves. A schedule for the Fall Term due dates will be provided during the summer.

General outline for success in the class

First, the student will be building their proposal, so the student must be engaged, active, and working on each step of the process.

Second, the student build success through their team, so the student must be communicating with their PI, working with them extensively, and keeping to the schedule of the class and their constraints.

Finally, the general scope of every proposal (science project, presentation, etc) revolves around the below points. The student needs to build their expertise and skills in the below areas.

Background knowledge. Is the depth of knowledge in the background material sufficient, scholarly, and complete? Is the proposal knowledgeable about previous studies that are relevant to the project, including what is known and unknown in the intellectual space? Is the breadth of the student's understanding demonstrated, within the focused area of interest (e.g., particular model system, say *Drosophila*) and outside (e.g., another model system, say mouse). Are the techniques required reasonable and appropriate to complete the proposed research?

Choice and statement of research question. Is the research question clearly stated in both broad and specific terms? What is the gap in knowledge and is it well articulated? Is it a substantive question that, if answered, will move the field forward significantly? Is it of the appropriate scope (i.e., can it be answered by a single skilled researcher in a period of ~4 years or less)? Is a clear and logical connection made between the broad and specific question to establish the significance of the proposal?

Hypothesis or alternative models. Is a clear hypothesis, or alternative models, presented? Is the hypothesis tightly coupled to the specific research question? Is the hypothesis justified based on core knowledge and previous studies?

Experimental approach. Are experiments clearly described? Are experiments feasible? Do experiments clearly test the hypothesis (i.e., will the results support/refute the hypothesis or distinguish between models)? Are the most suitable approaches proposed? Are suitable controls included? Are limitations of the proposed approaches considered?

APPENDIX 6: IMB Graduate Student Guide to the Second Year

Self-evaluation questions for preparation of annual Individual Development Plans.

Year 2:

- student is intellectually engaged
- student is mastering the relevant literature
- student understands the questions/hypotheses their experiments address and the basis for those questions/hypotheses
- student has made concrete progress in the lab (this could be interpreted broadly to include mastering methods, devising new methods, has obtained interpretable data, etc)
- student is spending adequate time on their research

Year 3:

- student is intellectually engaged
- student continues to read relevant literature
- student continues to revise questions/hypotheses based on their results and new publications
- student has a solid plan for their thesis work and has made progress toward addressing the questions posed.
- student is spending adequate time on their research

Year 4:

- student is intellectually engaged
- student continues to read relevant literature
- student continues to revise questions/hypotheses based on their results and new publications
- student has data that is likely to lead to a publication in the next year.
- student is spending adequate time on their research

Year 5:

- student is intellectually engaged
- student continues to read relevant literature
- student continues to revise questions/hypotheses based on their results and new publications
- student submits a paper for publication
- student is spending adequate time on their research
- student is taking steps toward post-graduation plans (postdoc, employment)
- student is on track to defend thesis by the beginning of sixth year.

Year 6:

- student is in final stages of making post-graduation plans.

- student completes a first author publication and, ideally, more than one.
- student is on track to defend thesis by the beginning of this year.