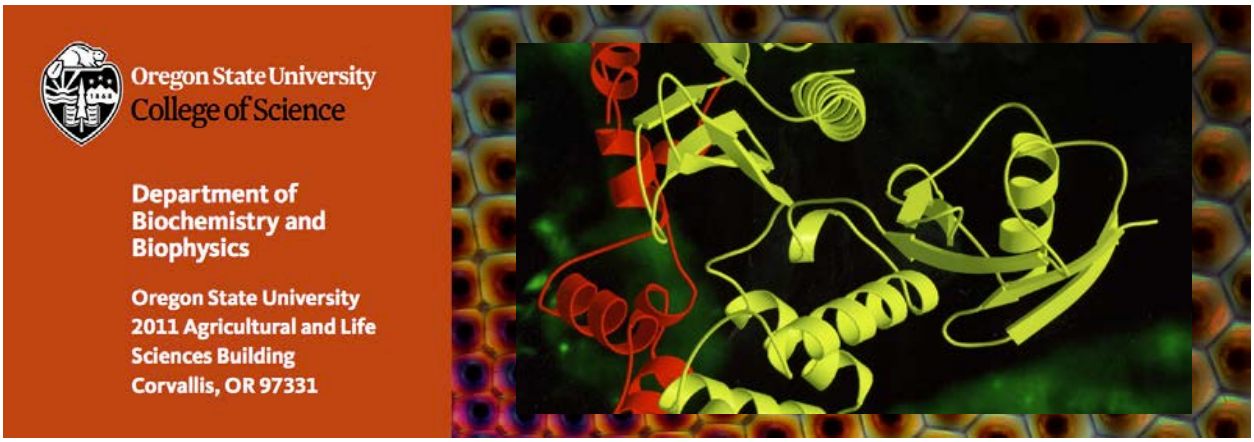

***www:* BB Home Page**

Graduate Student Handbook

Our mission in the Department of Biochemistry and Biophysics is *to be a diverse, inclusive community that serves students, our professions and the public through innovative education, individualized advising, holistic mentoring, and cutting-edge molecular life science research that creates knowledge and solves real-life problems.*

Accomplishing this mission entails being a diverse and inclusive community that:

- provides excellent, pedagogically effective classroom and laboratory training for students at Oregon State University and around the world;
- provides caring, individualized advising for our majors that helps prepare them for success in their chosen careers and in life;
- develops innovative educational resources;
- performs significant original research into the myriad of molecular mechanisms underlying life and disease, creates marketable technologies that practically benefit society, and provides transformative hands-on training for undergraduate students, graduate students and post-doctoral fellows; and
- provides service and leadership to our professional communities and through effective outreach helps educate the public about our discipline and the value of science.

Through accomplishing this mission, we envision changing the world through scientific discoveries and empowering educational experiences for all students. And as we accomplish this mission, we seek to do all we do in ways that are consistent with the values of:

- **Integrity** – We act ethically, with honesty and honor, and without compromising the truth to ensure we do what is right.
- **Diversity and Respect** – We recognize that diversity and excellence go hand-in-hand, enhancing our teaching, scholarship, and service. We respect all people, value

the perspective and credibility of individuals from different racial, ethnic and socioeconomic backgrounds, and treat people in the way we want them to treat us.

- **Teamwork and Community** – We care about and help each other. We have fun working together. To maximize our collective impact, we inspire, challenge, and support each other to be the best we can.
- **Service** – We are public employees and take seriously our calling to serve our community, state, country, and the world.
- **Excellence** – We commit to constantly improve and provide the highest quality work that exceeds the expectations of our students, colleagues, administrators, collaborators, alumni, and supporters or stakeholders. We change lives for the better by striving for excellence.
- **Knowledge** – Curiosity drives us to create new knowledge through research, discovery and invention. We are experts in our fields and enthusiastically share knowledge and ideas with our constituents through effective communication and teaching.

Our graduate students play a central role in carrying out our mission:

- through their active involvement in our research projects,
- through excellence in teaching,
- through the diverse backgrounds and perspectives they bring to the program, and
- through their active participation in helping create a community that is welcoming and supportive for all.

Through education and mentoring in our program they become research and education leaders of the next generation.

This Graduate Student Handbook was originally assembled by graduate students as a “survival guide” to help students during their time at OSU while pursuing an advanced degree (M.S. or Ph.D.) in Biochemistry and Biophysics. It is now expanded to include and formalize the requirements by the Graduate School and the expectations of the faculty and the program in Biochemistry and Biophysics.

The handbook standardizes the information available to all graduate students, so that key information need not be obtained by "word-of-mouth", and thus may vary according to the specific mouth from whence it came. ***The version delivered to the incoming classes upon matriculation for the fall quarter of their first year is the version that is valid for their tenure in the program.***

Importantly, the guide also helps remind the faculty of what students need to be doing as they progress through the program.

Contents

Appendices

1. Contact information

Andy Karplus
andy.karplus@oregonstate.edu
Head, Department of Biochemistry & Biophysics

Colin Johnson
Colin.Johnson@oregonstate.edu
Chair, Graduate Program Committee
Phone: (541) 737-4517

Michael Freitag
freitagm@oregonstate.edu
Graduate Student Advisor
Phone: (541) 737-4845

Dina Stoneman
dina.stoneman@oregonstate.edu
Graduate Program Coordinator

Department of Biochemistry & Biophysics
2011 Ag Life Sciences Bldg.
Oregon State University
Corvallis, OR 97331

Phone: (541) 737-4511
FAX: (541) 737-0481

2. About the Graduate Program

2.1. General Information

The graduate program in the Department of Biochemistry and Biophysics at Oregon State University grants primarily doctorate (Ph.D.) degrees, but also offers thesis and non-thesis Master of Science (M.S.) degrees. We offer a broad range of research topics through the core faculty within the department, those associated with the Linus Pauling Institute, and affiliate Adjunct Faculty from departments throughout the OSU campus.

Research interests of the faculty in the graduate program include aging, amyotrophic lateral sclerosis (ALS or Lou Gehrig's Disease), bioinformatics, biosensors, cancer biology, chemical biology, cell signaling, computational biology, DNA and histone modifications, epigenetics, membrane protein biochemistry, micronutrients, mouse transgenics, neuroscience, oxidative stress, protein and nucleic acid structure and function, production of secondary metabolites, protein engineering, and transcriptional regulation by nuclear receptors.

The department is one of seven academic departments in the College of Science. Research in the department is supported by over $4 million dollars annually from external grants. The department is well equipped with research facilities that include confocal and laser dissection microscopy, flow cytometry, X-ray crystallography, NMR, mass spectrometry, in-house access to high-throughput DNA sequencing, analytical centrifugation, and computational resources, and is supported by additional facilities and staff in the Center for Genome Research and Biocomputing.

Oregon State University is a broadly based public institution enrolling about 25,000 undergraduate students. It is one of only two U.S. universities holding Land, Sea, Sun and Space Grant status. Accordingly, the university has developed strong programs in the sciences, agriculture, oceanography, and forestry. The main campus is located in Corvallis, a college-oriented city of about 60,000 inhabitants in the lush Willamette Valley. Corvallis is a short drive from both the Oregon Coast and the snow-capped Cascade mountains.

2.2. The Graduate Student Association (GSA) in the Department of Biochemistry and Biophysics

The mission of the BB Graduate Student Association is to enhance the overall graduate student experience of all BB graduate students. Specific goals within this mission are to:

- Provide opportunities for professional development, especially in terms of career development and pursuing potential career paths; particularly in exposing graduate students to non-academic career opportunities;
- Improve communication between faculty and graduate students and increase involvement and input of graduate students in departmental decision making and strategic planning;
- Foster positive interactions between graduate students, both socially and professionally.

In the past two years, the GSA has tripled in size, has given out four scholarships and has improved and reorganized graduate student outreach. For example, following recommendations by the GSA, a highly successful proposal writing course has been offered, and several active groups dedicated to tackling cultural STEM education issues were founded. The GSA is excited to keep growing and dedicated to doing everything they can to support graduate students.

As any formal organization on campus, the GSA has a minimum of three elected officers, and additional portfolios listed below:

President. This position is charged with leading the BB GSA and keeping track of other leadership positions. They will serve as faculty liaison - communicating comments and concerns between the faculty, the Head and the graduate student body as needed. They attend regularly faculty meetings as the graduate student representative.

Vice President. This position is charged with representing the greater graduate student body in graduate student recruitment. They serve as full member on the BB Graduate Program Committee and serve as the point person for graduate student recruitment events. They are also responsible for initiating, planning, and organizing a planning committee for annual BB department hikes or excursions and any other desired graduate student social activities.

Secretary and Treasurer. This position is charged with creating and maintaining a database of general lab protocols and lab equipment for use existing outside of the department. They also assume responsibility for all allocated funds and for recording and distributing minutes from GSA meetings.

Seminar Chair. This position is charged with organizing and initiating selection and invitation of several seminar speakers, including at least one graduate student selected seminar speaker and the annual BB alumni speaker. They will also guide younger graduate students in hosting and planning duties, and are responsible for ordering the plaque for the annual BB alumni speaker. They will coordinate with the 3rd year graduate students and Faculty Seminar Chair to ensure that Tsoo King Lecture arrangements are proceeding according to schedule.

Fellowship Coordinator. This position is charged with creating and maintaining a database of submitted pre-doctoral fellowship applications (both successful and unsuccessful) from the department, and with organizing a list of fellowships and annual deadlines. They will organize GSA-internal peer reviews for fellowship applications and assist applicants with navigating application material and websites as needed.

Media/Publicity Coordinator. This position is charged with updating and maintaining a graduate student roster and FAQ on the department website as well as promoting the department and GSA on social media.

Outreach Coordinator. This position is charged with coordinating outreach opportunities as well as overseeing summer camps, and other graduate-student run outreach experiences.

Class Representatives. A representative will be selected for each of the following classes: 1st, 2nd, 3rd, 4th, 5th+ year. These positions are charged with serving as the primary contact for each class (particularly for department administrators).

3. Admission to the Graduate Program

Students wishing to be admitted to the Department of Biochemistry and Biophysics at Oregon State University must apply via the OSU Graduate School webpages: http://gradschool.oregonstate.edu/programs/5060

A complete application for domestic applicants consists of:

(1) a completed application form on the Graduate School webpages,
(2) the applicant's narrative “Statement of Purpose”,
(3) the applicant’s CV,
(4) three recommendation letters (on letterhead, submitted directly by the referees),
(5) transcripts of all college-level academic work (inofficial transcripts are fine for evaluation purposes).

International applicants must fill out a form regarding financial support (“Financial Certification”), and supply scores for TOEFL or IELTS tests.

Additional points of interest are:

- To be admitted a student should hold a bachelor's degree in chemistry, physics, or a biological science. A typical applicant will thus have completed at least one year each of physics and chemistry, organic chemistry, physical chemistry, biology, and mathematics (through calculus).
- A successful applicant will have a cumulative GPA of at least 3.2 (on a scale of 4).
- We do not require GRE scores for our holistic applicant evaluations.
- Graduate students accepted into the Ph.D. program are offered financial support.
- International applicants must score 100 or better on the Test of English as a Foreign Language (TOEFL) and 7 on the IELTS to be able to teach in our program. TOEFL codes are as follows: TOEFL-University 4586, Dept. 34 or 36.
- The annual application deadline is December 15, but later applications will be considered if positions remain available.

4. BB Graduate Program Core Curriculum

First year courses to be taken by all students:

Fall	Winter	Spring
BB581 Biophysics 1 (3)	BB582 Biophysics 2 (3)	BB583 Biophysics 3 (3)
BB590 Biochemistry 1 (3)	BB591 Biochemistry 2 (3)	BB592 Biochemistry 3 (3)
BB607 Seminar (1)	BB607 Seminar (1)	BB607 Seminar (1)
BB601 Lab rotation research (9)[#]	BB601 Lab rotation research (9)	BB601 Lab rotation research (9)

[a]The number of credits for each class are shown in parentheses. Select the number of lab rotation research credits so that total number of credits equals 16. It is shown as 9, which is correct if just the core courses are taken.

Usually students do not have time to take elective classes during the first year as they will take core classes (successful completion of which will constitute part of their preliminary examination), complete required lab rotations, and typically serve as teaching assistant (TA), not allowing time for additional classes.

For electives that can be taken in **Year 2** and **Year 3**, please see our course offerings online. After **Year 1,** instead of BB601, students will register for BB603 – Graduate Thesis. When registering, the total number of credits should equal 16 during Fall, Winter and Spring terms. If the graduate student is on a stipend during the Summer term, they typically register for a total 5 credits of BB603 (or other courses).

Every student from Year 1 to Year 4 signs up for BB 607, but watch out because there are three different choices in the online catalog, depending on your year:

-1st year: enroll in SEM/1st Year Grad seminar (Fall, Winter, Spring - required!);
-3rd year: enroll in SEM/Dept Res Sem (the term of your 3rd year talk - required!)
-2nd and 4th year: Session labelled SEM/Journal Club (in terms as directed – whether you are presenting or not).

For the Ph.D. program, 108 total credit hours are required, 27 credit hours of which must be “non-blanket” courses (i.e., non-research, non-seminar courses). For more information see the Graduate School program forms.

Other useful links:

Summary of BB programs

Graduate School information and Catalog of Classes

Policies governing M.S. degree and Ph.D. degree programs

Up-to-date Graduate School forms.

5. BB Graduate Program Components

5.1. Introduction and the role of the Graduate Student Advisor

This Biochemistry and Biophysics Graduate Student Handbook extends and complements the Graduate School's online guide that describes the flow of and requirements for the general journey through a graduate program at OSU. Here, we focus on the specific policies and culture of the Department of Biochemistry and Biophysics to help facilitate the timely completion of graduate training. This section is presented in chronological order, so that students and faculty can be aware of and easily check off appropriate bench marks accomplished while passing through the various stages of the student's graduate career at OSU.

The Graduate Student Advisor is a key contact for graduate students, both as a resource for information about the program and as someone to talk with about any of the various challenges that might come up during the program. Such challenges may be related to many things, including coursework, relationships with other students or faculty (including one's mentor, or "major professor"), graduate school or program requirements, and to one's personal life. Most troubles that arise can be best addressed when students consult early and often with the Graduate Student Advisor in addition to their own mentor, **so please reach out early when a challenge arises**. The current Graduate Student Advisor is Michael Freitag (2045 ALS Bldg).

5.2. The First Year

5.2.1. Funding: Fellowships and other financial support

Students accepted into the doctoral program receive financial support in the form of teaching and research assistantships. After the first year, Ph.D. students are typically appointed to annually renewed twelve-month fellowships, which also include tuition benefits and medical insurance with dental and vision coverage.

In addition, Ph.D. students in the department may be awarded pre-doctoral fellowships from the University (e.g., the OSU Provost Distinguished Graduate Fellowships or OSU Provost Distinguished Graduate Scholarships), from the Achievement Rewards for College Scientists Foundation, Inc. (ARCS), or funding agencies such as the American Heart Association (AHA), the National Science Foundation (NSF) and the National Institutes of Health (NIH). To learn more about these opportunities please contact the Graduate Student Advisor (currently Michael Freitag; freitagm@oregonstate.edu).

5.2.2. Lab Rotations: Expectations and responsibilities

The purpose of laboratory rotations is two-fold. First, they expose students to a range of research topics and research environments available in the program. Second, the rotations are the process by which students select a faculty mentor, i.e., someone with whom they want to work, and someone who will accept them into their research group. The core and affiliated faculty represent a diverse group, with research interests ranging

from cell biology to molecular biophysics. Upon entering graduate school, many students will not have been exposed to a large variety of potential research topics and thus may not really know what is interesting to them and what is not, or which projects are reasonable for thesis research and which are not. Students typically complete three term-long rotations in their first nine months at OSU. All three rotations should be set up at the beginning of Fall term (see form in Appendix 1 and on the Department website) and discussed with the Graduate Student Advisor. It is perfectly fine to make changes as the year progresses but these changed need to be communicated to the Graduate Student Advisor.

Faculty members all have their own personality and run their laboratories in their own ways. Labs may be larger or smaller, and may have a variety of mixes of graduate students, postdoctoral associates, technicians, and undergraduate students doing research. The mentoring professor may by intimately involved in all aspects of research and may actually work in the laboratory, or may not spend much time in the lab; some may give students highly defined projects, and others may give students more leeway in developing a project. Each student needs to find out what style works well for them. Lab rotations allow students to "try out" laboratories and, similarly, allows labs to evaluate prospective students. One important component of finding a mentor and lab for thesis research is how well students mesh with the people in the lab.

Communication, communication, communication! The most successful lab rotations occur when students maintain good communication with the professor. Students need to find out what they are expected to accomplish during the rotation, and by what standards their performance will be evaluated. This topic should be discussed with the professor even though rotation students are often directly supervised by a postdoctoral associate or a senior graduate student. In these situations, it is in the student's best interest to clarify the chain of communication and responsibility. This initial understanding should be revised as the rotation progresses, since research projects often take unforeseen turns. During a rotation, students should also try to learn as much about all the ongoing research projects from other members of the group. This generally requires communication with all members of the research group, as well as attendance of all group meetings or journal clubs held by the laboratory.

At the end of a student rotation, professors are required to complete a form evaluating the student's performance (a copy of the evaluation form can be found as Appendix 2 at the end of this Handbook and on the Department website). This evaluation is discussed with the student and the form signed by the professor and the student. Evaluations become part of the student's record and are considered during the general evaluation of each student at the end of their first year in the program.

5.2.3. Teaching responsibilities

Regardless of the source of monies that fund their time in the graduate program, all doctoral students in the department have teaching responsibilities, as teaching is considered a part of graduate training. Most students will be Teaching Assistants (TAs) in each of the three terms of their first year. In some instances, teaching responsibilities

may be delayed until later (e.g. if a student arrives with a fellowship or their own support, or wins a prestigious OSU Provost Distinguished Graduate Fellowship). Finally, depending on how a student's graduate education is funded after the first year, a student may be assigned additional teaching responsibilities in lieu of Research Assistant (RA) support.

Teaching is an exceptional learning opportunity, and should not be considered a "necessary evil". To properly teach any course, one needs to know substantially more about a topic than the students one educates. Thus, often a TA will learn more through teaching a course than they had learned from taking the same class! Students with a career interest in teaching often seek to volunteer for additional teaching, although such opportunities are not guaranteed. Also, once a student has joined a research group, the mentoring professor becomes their supervisor and so all work related activities (such as additional teaching) must be discussed with the mentoring professor *BEFORE* they are pursued.

At the end of each TA assignment, the instructor of the course being TAed is required to complete a form evaluating the student's performance. A copy of the evaluation form can be found as Appendix 3 at the end of the handbook and on the department website. Evaluations are discussed with the student, and signed by the professor and the student. Like the rotation evaluations, TA evaluations become part of the student's record and are considered for the general evaluation after the first year. In addition, each TA will receive feedback from students taking the class in the form of standardized "electronic Student Evaluation of Teaching" (eSET) surveys.

Teaching duties for each term are assigned by the Department Head. Students are informed of their assignments and encouraged to contact the class instructor early to learn about responsibilities and expectations.

Teaching falls into two categories, lecture courses and laboratory courses. As a TA, you have responsibilities that are general for all courses and that are specific to certain courses.

5.2.3.1. Graduate students assisting in teaching (TAs) are required to:

1. Meet with the instructor(s) responsible for teaching the class. This should be done at least one week prior to the start of the term. If TAs plan to be out of town until the start of the term, they should contact the instructor(s), ideally prior to leaving.

2. Obtain a syllabus for the course. This outlines the basic information concerning the course (instructors, text used, chapters covered, exam dates, etc.).

3. Obtain an outline of subjects and material to be covered in the course. Most of this should be in the syllabus. In some cases, the instructor will have a specific set of

class notes, but not always. If a course is taught by more than one instructor, TAs need to find out what topics each instructor will cover.

4. Become familiar with the grading protocol and standards. How will the course be graded (exams, quizzes, problem sets, lab reports, lab notebooks, etc.)? Will deliverables be graded on a B average or C average? Will grades be strictly from the total points each student earns, or will it be curved? These are questions that the students who take the class will ask the TAs.

5. Obtain instructions for how to instruct students in a specific class. What is a TAs part in instructing? What are the responsibilities of the TAs (e.g. recitations, office hours, proctoring exams, grading, etc.)?

6. Set office hours and location. In most classes, TAs are the first contacts for helping students on a one-on-one basis. TAs need to set office hours and BE PRESENT DURING THE TIME AND AT THE PLACE INDICATED. Typically, these times are added to the syllabus or class information that the instructors make available to students on the Canvas web pages for the class. TAs need to make sure the enrolled students get this information. Most instructors require at least two hours per week of office hours from TAs. If a TA cannot be available for office hours they must let the instructor know and make suitable arrangements per the instructor's direction.

7. KNOW THE MATERIAL!! This cannot be stressed enough. One cannot teach unless one is more knowledgeable than the students. For this, TAs also need to know how instructors are presenting the material, and what they think is important for students to know. If TAs do not understand the material or how the instructor is presenting the material, it is useful to sit in on lectures to know what is covered and develop a sense of the instructor's teaching style.

8. FERPA training. Also, all TAs must have completed OSU's FERPA training so as to know how to handle confidentiality with regard to student information. FERPA training must be completed in order to be added as a TA to a course's Canvas site.

5.2.3.2. Teaching in a lecture course:

When assigned to a lecture course, TAs will primarily be responsible for helping students during recitations and office hours with their problems, as well as grading and proctoring exams. TAs need to:

1. Be prepared to participate in the grading. TAs need to know when all the exams are given AND communicate with the instructor as to when to meet to start grading, when grading must be completed, and who grades what parts of the exam.

2. Prepare and present material in the subject outline during recitation. Each instructor has ideas as to how recitation should be run. TAs should abide by their preferences. Sometimes there will be problem sets to review during recitation. TAs

should get these in advance and complete them on their own. If there are any questions about answers or how the problem is to be solved, TAs must ask the instructor for assistance.

3. Be aware of grading policies. Paying attention to detail while grading is very important to maximize the accuracy of grading. Corrections to grading (due to errors or perceived errors) are the final responsibility of the instructor.

4. COMMUNICATE ANY TIME CONFLICTS WITH THE INSTRUCTOR! This is important in terms for proctoring, grading exams, and assigning recitation sections.

5.2.3.3. Teaching in a laboratory course

When teaching in a laboratory course, TAs have a different set of responsibilities. As laboratory classes (BB 315/493/494) are taught by different instructors each term, the responsibilities of the TAs vary from term to term. Thus, the first responsibility is to contact the instructor to clarify expectations and obligations of TAs. This is also a good time to decide how much "teaching" TAs are expected to do in working with the students who are registered for the course. If multiple TAs are involved, the instructor will be clear about shared and individual responsibilities so that the needs of the class are met, and the responsibilities are EQUALLY shared. In general, TAs in the teaching lab courses are required to:

1. Obtain a key to the teaching lab (ALS 0023).

2. Prepare reagents and equipment in a timely manner for experiments assigned for the course. TAs need to keep a brief written record of reagent preparation in a permanent notebook.

3. Stock reagents and supplies (Kimwipes, Parafilm, pipet tips, etc.) that are used in the day-to-day functioning of the lab. This may also require placing orders for supplies and chemicals, and the instructors can help with this as needed. TAs maintain a supply of purified water. All of this must be done LONG BEFORE the lab runs out of these supplies. If there are not enough materials for the students to perform assigned experiments, then TAs failed in their jobs.

4. Maintain equipment and supplies so that subsequent users will find these materials, and find them in working order. TAs are not expected to, and should not, repair broken equipment, but should notify the current instructor when repairs are needed.

5. Be aware of safety. This is everyone's concern (the instructor, the TAs and the students). This includes environmental as well as personal safety.

6. Clean the laboratory at the end of the term, including the proper disposal of unnecessary reagents and student samples, and storage of equipment no longer in use. TAs properly dispose of all broken glassware and leave the lab in good working condition for the next term.

5.2.4. First Year Seminar Series

All BB graduate students must take the first-year graduate seminar series (one class credit per term, classes on Monday, seminars generally on alternate Wednesdays), and they are expected to attend a Journal Club series (usually Friday) organized by the more senior graduate students, in which the second and fourth year students present interesting new papers for discussion by the whole department.

The formal seminar series in combination with the student section of the first year graduate seminar presents an opportunity to work together as a cohort in learning various professional skills including the writing of fellowship proposals and the mechanics of how to give short research talks (i.e. for rotation talks at the end of each of the first-year quarters). Other than doing excellent bench, computational or theoretical work, the ability to communicate is the most important skill to learn during graduate training. This includes written AND oral communication. In other words, you may be doing Nobel Prize-worthy research, but if you cannot communicate this to the world at large, nobody will know. The seminar series helps graduate students to learn from each other and from faculty, and it will hone their presentation skills in a friendly atmosphere. Later, at local, regional, national or international meetings or conferences, graduate students will have the opportunities to present their work to researchers in their own research areas.

Before or early in fall quarter, many of the department faculty give brief (20-30-minute) presentations of their research program to incoming students. These presentations are generally very useful to help determine rotation labs for new students. Graduate students should also analyze the style and method used by faculty members to present their own work (i.e., they should note which techniques work and which do not).

All first-year graduate students in the department (regardless of the program, i.e. BB, MCB, or other) give 10-15-minute presentations on their rotation project after each quarter (“Rotation Talks”). These talks are usually scheduled for a Friday at the end of Fall, Winter and Spring term and the whole Department is in attendance.

5.2.5. Departmental Seminars

The department sponsors a seminar (Wednesday, 3:30 pm, ALS4001) every other week of the regular school year. The schedule is on the BB website. All faculty and all graduate students are expected to attend these seminars even though no credit is given for attendance. For first-year students it is also a part of the first year seminar class (BB 507/607) taken for credit.

The seminar speakers are experts in their field, who are invited from other institutions by faculty members or graduate students (e.g. the “Tsoo King Lecture” and the annual “Distinguished Alumni Speaker”). The remaining seminars consist of "third year talks" that are given by graduate students during their third year in the program.

Graduate students are expected to be able to ask questions at the end of seminars, especially if the speaker works in their area of research. In order to encourage networking, we typically sponsor a graduate student lunch with the seminar speaker; also we have a reception (a coffee and cookie social gathering) in the department library (ALS2009A) following most seminars. Students are strongly encouraged to take advantage of these opportunities to meet the speaker personally and potentially have the opportunity for more in-depth conversation.

5.2.6. Additional Seminars

There are additional seminar series available both inside and outside of the department and university. Notices of these are posted on the board outside the main office and are also distributed by e-mail. Some of these are seminars hosted by the Center for Genome Research and Biocomputing (CGRB), Pharmacy, Chemsitry, Integrative Biology, Physics, and the Linus Pauling Institute (LPI).

There are also several Journal Clubs available in the department and on campus. These are less formal presentations of work that was recently published or is ongoing at OSU, where questions can be asked of the presenter during the talk. Attendance at these is useful to build awareness of broader areas of science – and gain more experience with scientific presentations and discussions.

5.2.7. The End Of First Year Review

After Spring term of the first year, graduate students will be reviewed by the faculty as to their potential to continue in the degree program. This evaluation encompasses student performance in the classroom, in research (i.e., during laboratory rotations), and in teaching (i.e., in TA assignments). ***Continuation in the degree program is dependent on making satisfactory academic progress in all three of these areas INCLUDING success in securing a mentoring major professor*** with whom the student will carry out doctoral research. This professor will be the student's mentor and supervisor and is the primary source of both guidance and financial support during graduate training.

Note that the graduate school and Department set a B grade (3.0) as the cutoff for passing a course in good standing. Thus, grades below B (i.e., B- and below) earned by a student in the first year are viewed unfavorably. ***Earning two such grades in the required six core classes (BB581, 582, 583, and BB 590, 591, 592) normally terminates candidacy for the Ph.D.***

5.3. Beyond Year One

5.3.1. Annual Reviews and Individual Development Plan

Upon joining their research lab, every student must take time for personal reflection on their goals and work with their mentor to complete an Individual Development Plan (IDP) that documents their progress in the program and includes both specific research goals for the year ahead and longer term career and experience-related goals. This

process prompts discussions that help ensure that a student is reflecting on their long-term goals and the mentor is aware of the student's long-term goals and interests, and can tailor the training to be most helpful for their development. Also, the setting of shorter term research goals provides valuable clarity to the student about what their focus should be as well as a set of goals against which progress can be evaluated the following year along with another cycle of goal setting during a required annual review.

Both the Annual Review form and the IDP (see Appendix and the Department website) should be updated annually (i.e., for each required annual review) as the student progresses through the program. ***Scheduling annual review meetings, just like all other important meetings (see below) during graduate training, are the responsibility of the student.*** After each annual review the student shares the updated document and goals with their graduate committee members. Having a formal committee meeting may also be beneficial; it is optional, but is encouraged if either the student or faculty mentor think it would be advantageous.

5.3.2. Selecting a graduate committee

5.3.2.1. Ph.D. candidates

Once accepted into a lab, graduate students need to assemble a graduate committee to help guide them through their graduate career. You should discuss your choices with your mentor. Doctoral student committees have five faculty members, including the major professor (who also serves as committee chair), two additional core or affiliated department members, one faculty member from another department interested in your research, and a Graduate Council Representative (GCR) chosen by the student from a list provided by the Graduate School. This committee should be assembled and meet no later than during Fall term of Year 2.

The first meeting of each graduate committee is the "Program Meeting" and serves to introduce the student's current and proposed research, and to plan the remaining coursework to be completed as part of the Ph.D. program. One hour should be allowed for this meeting, but it may be shorter. Effective meetings start with an ~20-minute presentation of student objectives and career goals, initial research progress, and proposed future research, followed by some discussion about these topics, and about which classes are most appropriate to achieve the proposed goals. ***The IDP with long term and short term goals provides a nice framework for the topics to be discussed and can be shared with the committee ahead of time or as a handout at the meeting.*** The program meeting is ***NOT an exam***, yet students should be well prepared and have rehearsed their short presentation with their mentor. It is advisable to prepare handouts for all committee members and perhaps supply a pdf file of the presentation as a record for committee members to help them be more involved with the research.

Gathering five faculty members in one place at one time for an hour is not trivial. ***Students should plan and schedule the meeting at least one month in advance and send reminder e-mails one week and one day before the planned meeting.*** They should reserve the BB conference room (ALS 2040) or another suitable venue for

the meeting at least two weeks in advance (and notify committee members of the location).

Students should consult with their major professor about planned coursework and have the Ph.D. program of study form filled in with a tentative plan before the meeting. After the meeting, the Department Head must approve programs by signature before the forms are submitted.

It is the graduate student's responsibility to:
-obtain all necessary forms,
-fill them out properly (guided by the major professor), and
-submit the signed forms to the Graduate School.

For acceptable forms to be used in preparation of the committee meeting, updated Graduate School forms can be accessed here. Signed originals of the program forms or a PDF copy must be submitted by campus mail to the Graduate School (located in Heckart Lodge). ***A PDF copy should also be kept by the student and major professor!***

Graduate committees will meet at least two more times. The second meeting will be for an oral preliminary examination, and the third, and last, will be for the private part of the thesis defense (or final oral exam). Committee members will get to know about the graduate student's scientific progress and potential through these meetings and the dissertation (or "thesis"). They will then be in good position to write the critical letters of recommendation that a newly minted Ph.D. needs to advance to the next stage of their science career, in either academic or industry research or teaching. Needless to say, students should strive to be prepared and communicate (speak and listen) well during all meetings and remain on good terms with all committee members.

5.3.2.2. Master of Science Candidates

A graduate committee is required, but the make-up of this committee is different from that of a Ph.D. candidate, and it is different for a "thesis" *versus* "non-thesis" degree. For a non-thesis degree, the committee is composed of three faculty members of the department. For a thesis degree, the committee is composed of three faculty members and one Graduate Council Representative from a short list assigned by the Graduate School.

Students should consult with their major professor about planned coursework and have the M.S. program of study form filled in with a tentative plan before the meeting. After the meeting, the Department Head must approve programs by signature before the forms are submitted.

5.3.3. Preliminary Examination

Only doctoral students take this examination. This is an oral examination of at least two hours in length and equivalent to what is called “qualifying” or “advancement to candidacy” exam at other institutions. ***In the BB program, this exam MUST be passed by the end of the Fall term of the third year to remain in good standing in the PhD program. Scheduling this exam is the responsibility of the student (usually in close consultation with the mentor).*** At this point a student will usually have successfully completed most of the coursework in the program of study. After passing this examination PhD students are also referred to as “candidates”.

In preparation for the exam, you must submit to each committee member a written ***thesis proposal*** that describes your thesis problem, summarizes research progress to date, and outlines research strategies for the goals yet to be attained. ***The quality of this written document is evaluated and is part of the examination.*** The thesis proposal is not a contract for what must be accomplished during the Ph.D. program, but it should be a cohesive research proposal that defines the research topic to be addressed and its significance, and presents a plan for research that is well-reasoned and defensible based on what is known at the time, and that is of a scope reasonable for a Ph.D. thesis. Although some of the ideas and approaches presented in the proposal may have come from your mentor or others (typical of the collaborative nature of science), it is essential that the proposal is written in your words and that it covers material over which you have intellectual ownership. In preparing the proposal, you may have your mentor and others read rough drafts and provide feedback, but the writing should be yours. The purpose of the preliminary exam is for the committee to assess whether you have mastery of your proposal subject and to show that you have the intellectual and organizational abilities to succeed in doing research at the Ph.D. level. This includes being able to define a problem, research the topic, design a research strategy, and carry it out and interpret the results effectively. The proposal also could provide an excellent starting point for a fellowship application (but that is independent of the examination).

Thesis proposal format. The thesis proposal must be organized as follows: (1) a 1-page maximum ***Specific Aims*** page (giving an overview of the work), and (2) a 9-page maximum main body of the proposal organized into three sections (***Significance***, ***Innovation***, and ***Approach***) that includes all figures and tables. Typically, the *Significance* section will be 1-2 pages long, the *Innovation* section less than ½ page long, and the *Approach* will make up the rest. References are not included in the page limit. The font should be ‘Arial 11’ for all main text and can be ‘Arial Narrow 10’ for figure legends. These minimal specifications mirror what is expected for Research Plans for NIH pre-doctoral applications or proposals for private foundations.

The “prelim” or “thesis” proposal must be submitted to all committee members at least one week before the scheduled date of the exam, ideally as an electronic text file and a printout (in the mailboxes of the committee members). At the exam, it is expected that all committee members have read the proposal, and so an extensive research presentation is not necessary. Talk with your advisor about what the exam will

be like and how they would like you to start it. Typically, you will give a 5- to 20-minute opening presentation to highlight for the committee the context and importance of the problem being addressed and the main aims to be pursued while distinguishing briefly what you have already done as opposed to what remains to be done. Unlike a seminar, your presentation will be interrupted by questions from the committee members (and may even never be completed). As the presentation continues or after it is completed, a common process is for committee members go through a few rounds of taking turns in asking whatever questions they would like, with other committee members chiming in with related questions or comments.

The first part of the oral exam is focused on the student's research project and related areas. For instance, a student working on gene expression should understand all aspects of DNA biochemistry, structure and function, as well as RNA biology as represented in part by content of advanced courses taken by the student. Whatever your topic, in additional to technical knowledge about methodology you should also be knowledgeable about the biological context and significance of the project and the relevant literature, as well as being able to justify how the chosen aims and research strategies are appropriate for the problem, what kinds of results might be expected and how they would be interpreted, and what might be limitations of the chosen approach and/or alternate approaches to achieve the aims. This part of the exam is used to assess your ability to plan and conduct research, to think critically and creatively about questions in your area of interest, and to be aware of current and recent research literature in these areas.

The second part of the exam will encompass general questions in the broader area of Biochemistry and Biophysics; this will include all coursework you have taken at OSU. The advice here is to ***prepare, prepare, PREPARE*** both in terms of timely and careful preparation of your thesis proposal, as well as key topics covered in your coursework, especially any of them that were taught by your committee members. It is generally useful to work with your mentor and the other members of the research group to discuss and practice answering questions concerning your work.

When the committee members have no further questions, the student will be asked to step outside. At this point the Graduate Council Representative (GCR) leads a discussion focused on evaluating the student’s performance and each committee member votes either “pass” or “fail.” If there are zero or one “fail” votes, the exam is passed. If there is more than one “fail” vote, the exam is not passed and the committee discusses about whether to allow the student to retake the exam and if so under what conditions. After these deliberations, the student is invited back in to hear the results.

There are specific rules for the preliminary exam, laid out by the Graduate School. ***You must adhere to the schedules!*** The preliminary oral exam must be scheduled during periods when classes are in session (including finals week). A three-hour block of time should be reserved (the minimum time for a preliminary exam is two hours according to Graduate School rules), but it is best to make sure the room is available for longer. ***Reserving a room for the exam is part of your responsibility.*** As you must allow

plenty of time to coordinate a meeting time with your five committee members, start the process of setting a date and reserving a room at least 2 to 3 months in advance. If there are time conflicts with one or more of your committee members, you may petition for a replacement. As soon as the date and time have been chosen, notify the department and the graduate school. This ***must*** be at least ***one week*** in advance of the exam date. As noted above, the thesis ***proposal must be provided to your committee at least one week in advance*** of the examination.

5.3.4. The Third Year Seminar

Third year students in the Ph.D. program get an opportunity to present their research achievements and further research plans during this seminar. This will also give them a chance to answer questions from all members of the department concerning all aspects of their work. This is a great opportunity to do a “full-length” seminar talk to an audience of peers, with a suggested target of ~40 min for the actual presentation and leaving 15 min for questions and discussion.

The third year seminar will be scheduled by the faculty member in charge of the seminar program for any given year (“seminar chair”). During the quarter that a student presents, the student should register for the appropriate BB 607 section (see page 6). The seminar title should be submitted to the seminar chair and BB Office staff at least three weeks in advance of the seminar so that fliers can be prepared and distributed.

5.4. The Final Year

5.4.1. Thesis

The thesis (or dissertation) is a detailed description of a student’s research in the department and “presented in partial fulfillment of the Ph.D. degree”. It is considered an official publication, thus it must be substantial, verifiable, defensible, and presented in a logical and understandable fashion. It is up to the student and the major advisor to determine (or “negotiate”) when each student is ready to write a final draft of the thesis. A good rule of thumb is that once a student becomes "the world expert" in a well-defined specific field, and is ready to tell the world (or at least others at OSU) that this is the case, this student is ready to defend a thesis. If there are disagreements about when a student is ready, this is a good time to consult with the BB Grad Advisor, and it is also appropriate to involve one’s graduate committee. We anticipate that the formal goal setting that is part of the annual review process helps students and faculty mentors be aware early of concerns and differences of opinion and the committee and Grad Advisor can help with resolving these.

In many cases, the chapters in a thesis will be composed of papers that have been published or are submitted to journals. In cooperation with the major professor it is determined what parts of these publications are to be included in a thesis. Ongoing work is often included in an Appendix. It is completely appropriate to present experimental approaches in more detail than for a typical scientific paper (the thesis is a

repository of knowledge for the lab and for students who will follow). It is also appropriate to mention approaches that "did not work", or results that would not even be supplemental data in a normal published paper.

The way a thesis looks is defined by the OSU Graduate School. It changes over time and students should consult the guidelines before starting writing; please see the Online Thesis Guide. Students *MUST* follow these guidelines. The copy of the thesis that is submitted to the committee and the Graduate School prior to the final exam is called the "examination copy". This is not a rough draft, but should be the a complete, polished document, even though the committee may recommend changes. The idea is that only minor additions or changes should be necessary after the defense.

Students have six weeks after the final oral exam to incorporate required or suggested changes made by the committee and polish the thesis before submitting the final document to the Graduate School. Current requirements are:
(1) one unsigned electronic copy to be deposited in the ScholarsArchive,
(2) one signed electronic copy to be submitted to the Graduate School, as well as one signed hard copy of an ETD Thesis Submission Form along with the title page of the thesis. Nevertheless, always check the Graduate School guidelines regarding thesis requirements before you finalize your documents.

In addition, the Department asks that all graduate students provide the final PDF of their thesis to the office so that we can print and bind a hard copy for placement in the BB library. Students may also want to prepare bound copies for themselves or their advisor or family, and these should be printed on acid-free paper and a couple local businesses are available for doing the binding.

5.4.2. The Defense Seminar

This is the public part of the final exam or "thesis defense", and consists of a one-hour seminar on all or part of the work that is contained in the thesis. This public presentation with a brief question and answer session typical for a normal seminar is followed by a closed-door private final oral exam with the student's committee members that can take between one to two hours. Seminars are usually given in ALS 4001 to a large audience but the Final Exam is typically held in the BB conference room (ALS 2040).

Students MUST schedule the time and place of their final exam well in advance, as for the other two important committee meetings. This is one of the two meetings that must be scheduled with the Graduate School. Students must obtain permission from their major professor to schedule the seminar and defense, and again they must coordinate a block of time so that all members of the committee can attend the seminar and participate in the final examination. ***Copies (ideally hard copies and electronic files, e.g., MS Word format) of the thesis MUST be submitted to the members of the committee at least two weeks prior to the seminar and the subsequent exam.***

As soon as the date is known, students need to notify the Department office of the public defense time, place and the seminar title, so that fliers can be prepared and the whole Department can be notified in good time to add it to their calendar.

5.4.3. Final Exam

This is the private oral defense of a dissertation with only the members of the graduate committee. The committee must determine if the material that has been included in the thesis is sufficiently novel, relevant, descriptive of a substantial quantity of original research, and thus usually publishable. In this ultimate exam of graduate student careers students will be the experts, and will asked to defend or clarify aspects of their results, interpretations and conclusions, along with things like what the next logical experiments may be, what could have been done differently with the benefit of hindsight, and what the next steps in their career will be.

As during the Preliminary Exam, the first portion of this exam is chaired by the major professor. The second, deliberation phase of the exam for which the student is asked to step outside, is chaired by the Graduate Council Representative, whose major function is to assure that the student and all members of the committee are treated fairly, and that Graduate School guidelines and quality requirements are met.

5.5. Life after OSU

5.5.1. Search for Post-Doc Positions During The Last Year

It is the student's responsibility to arrange for the next stage of their career, and ideally this process started in earnest at least nine months before the defense so that a plan is in hand. The discussions that occurred at least annually with regard to IDPs and annual reviews should mean that this topic has been given adequate attention. The major professor will provide valuable advice with this task, and ideally has already encouraged students throughout their time in the department to network with a large base of colleagues. In addition, major professors often learn of post-doctoral positions by word of mouth or through professional society websites or e-mails. The Graduate Student Advisor will also be clued in to many post-doctoral opportunities, so contact Michael Freitag (freitagm@oregonstate.edu) with questions.

Another resource students can use is to subscribe to appropriate e-mail bulletin boards where position announcements are posted (e.g. through the journal *Science* via the AAAS or other scientific societies). Another effective approach is to find the appropriate post-doctoral fellowship agencies, and contact professors of interest directly and get them to agree to help write an independent fellowship proposal that will sponsor research in the professor's lab. A best-case scenario for new post-doctoral fellows is to bring their own funding upon arrival at the new lab. Many professors are agreeable to take a post-doc for one year with the understanding that such independent applications must be written. All this must be planned well ahead of the actual date of receiving a Ph.D., at least nine months in advance of the targeted date of program completion, because the review cycles for all funding agencies run about six to nine months.

Potential sources for postdoctoral fellowships. Students should anticipate one to two months to prepare a decent proposal and six to nine months for review prior to potential funding. Start dates are usually flexible.

(Incomplete) list of agencies that support individual post-doc applications:

American Cancer Society
1599 Clifton Rd., NE
Atlanta, GA 30329-4251
Basic and cancer-related research
http://www.cancer.org/research/applyforaresearchgrant/granttypes/index

American Heart Association
http://my.americanheart.org/professional/Research/Research_UCM_316889_SubHomePage.jsp

American Lung Association
http://www.lung.org/finding-cures/our-research/awards-and-grants/

Damon Runyon Cancer Research Foundation
131 East 36th Street
New York, NY 10016
Basic and cancer-related research
http://www.damonrunyon.org/research_results/categories/category/award_programs/

Helen Hay Whitney Foundation
http://www.hhwf.org/HTMLSrc/ResearchFellowships.html
450 East 63rd St.
New York, NY 10021-7928
Basic biomedical research, in USA only

Jane Coffins Childs
http://www.jccfund.org/fellowship-information

Life Sciences Research Foundation
Lewis Thomas Laboratories
Washington Rd.
Princeton University
Princeton, NJ 08544
Research in biological sciences

Change in research direction
(2nd postdocs possible)
Leukemia and Lymphoma Society of America
http://www.lls.org/researchershealthcareprofessionals/academicgrants/

National Institutes of Health
Extramural: http://grants.nih.gov/training/nrsa.htm
Intramual (at NIH): https://www.training.nih.gov/programs/postdoc_irp
US citizen or permanent resident only.

National Science Foundation
http://www.nsf.gov/funding/
US citizen or permanent resident only.

5.5.2. Search for Industry Positions During The Last Year

If a student's career goals include an industry position, they can consult the GEN Guide to Biotechnology Companies for an idea what companies are around. There are several approaches to getting a position at a particular company. Perhaps the best way is to determine whether any of OSU faculty members or their colleagues or BB alumni have contacts at any of the companies that students are interested in. Another is to send resumes out to employment agencies in the field of "biotechnology". These agencies are in the business of finding potential employees with specific expertise to fill a position. Another way is to use the personnel placement sections of journals such as *Science* and *Chemical and Engineering News*. Finally, many companies operate their own postdoctoral training programs (e.g. Genentech). Students should contact a specific company to inquire about this possibility, but again it is most helpful to find a specific contact. Many companies have policies that prohibit the use of postdoctoral positions to fill permanent vacancies.

5.6. Other General Questions and Responsibilities

5.6.1. Balancing Coursework and Research

Success in graduate school is not achieved by focusing on any single area. It is very important to succeed in all of the main areas of responsibility. Thus, a student must allow enough time for studying to be able to earn A or B grades in courses (to remain in good standing with a 3.0 GPA, and no more than one B- in the core classes), while also meeting teaching and research assistantship responsibilities.

5.6.2. Transition From Classroom to Research

The relative importance of coursework drops off rapidly once the required courses listed in the graduate program has been completed. The student will be evaluated no longer by the performance on quizzes or exams but by performance on individual research projects, where standards of evaluation are often not spelled out clearly, but the final tangible product is a peer-reviewed publication in a widely read scientific journal. As students becomes more engaged in research, taking additional courses may not advance their research career. Nevertheless, students may want to take advanced courses that are relevant to specialized research areas of future interest, even though they may not be included in the formal, agreed upon program. One option is to take

such classes as “P/N”, or to audit them. These decisions should be made only after consulting with the major professor. If students wish to audit a class they also should seek permission from the instructor.

5.6.3. Transition From Research Credits to Thesis Credits

During first year lab rotations, students register for at least three, but typically nine research credits (BB 501/601) in order to make each term total 16 credits. ***From the second year on, student should adjust their thesis credits (BB 503/603) each term during the regular school year so that they total 16 credits per term. Students on stipends typically register for five credits during the summer including thesis credits (BB 503/603).***

5.6.4. Discussion of Departmental Service Activities

Part of being a member of the department (and the scientific community) is giving back in terms of service, to enhance the quality of the department, OSU, and the community at large. Some service activities available to students include:

1) participating in BB Graduate Student Association and department committees
2) hosting of the annual BB departmental picnic at the beginning of each school year (typically organized by second year students);
3) hosting of graduate student-invited seminar speakers;
4) hosting and recruiting of visiting prospective graduate students;
5) organizing and running various journal clubs;
6) involvement in the OSU graduate student union and also in other college-wide or campus wide activities/initiatives;
7) joining professional societies and serving on committees in those societies.

5.7. Timelines

5.7.1. Timeline - Ph.D. students

The following timeline serves as a guide through a graduate career. First, seek advice from your mentor and the Graduate Student Advisor. For details about general exceptions refer to the Graduate School Survival Guide or ask the Graduate School.

First Year:
1. Teaching;
2. Lab rotations;
3. Complete bulk of coursework. Usually includes the Biochemistry (BB 590/591/592) and Biophysics (BB 581/582/583) series;
4. Participate in First Year Seminar (BB 507 [MS]/607 [PhD]) and Journal Club;
5. Select a major advisor (research lab);
6. Select committee members and hold program meeting by the end of the year or by the end of the fifth quarter at OSU

Second Year:
1. Fill out IDP and goals document
2. Hold program committee meeting to plan last of coursework;
3. Help in running departmental picnic Fall Quarter;
4. Finish coursework (selected topics classes);
5. Make great research progress, prepare thesis proposal and schedule, prepare for, and take Oral Preliminary Exam this Spring term or by latest fall term of 3rd year.

Third Year:
1. If not yet completed, schedule, prepare for, and take Preliminary Exam ***by the end of fall term. This is a hard deadline! Must be scheduled with the Graduate School****;*
2. Arrange for and give Third Year Seminar;
3. Continue thesis research

Fourth or Fifth Year:
1. Search for post-doctoral position;
2. Finish research and write thesis;
3. File thesis title approval form with the Graduate School **the term prior to when you intend to defend**;
4. File diploma application with the Graduate School **prior to the term you intend to graduate**;
5. Schedule room and time with departmental office for exam and file "Approval to Schedule Final Oral Examination" at a minimum of two weeks prior to the final oral examination;
6. Submit copies of thesis to committee members and graduate school two weeks in advance of the final exam date;
7. Take (and pass) Final Oral Exam;
8. Revise and Submit final thesis to Graduate School for approval;
9. Submit PDF of thesis to department for printing and binding.

5.7.2. Timeline - M.S. students

General Requirements

All master's degree programs require a minimum of 45 graduate credits including thesis (6 to 12 credits) or research-in-lieu-of-thesis (3 to 6 credits). Exceptions to this capstone requirement are specified under the degree descriptions that follow these universal master's degree requirements. Effective fall 2005, all graduate student programs of study submitted to the Graduate School must consist of, at a minimum, 50 percent graduate stand-alone courses. The remaining credits may be the 500 component of 400/500 slash courses. General regulations for all master's programs are cited here, with certain exceptions provided for master's degrees in the professional areas listed on the following pages.

All master's students must:

a. Conduct research or produce some other form of creative work, and
b. Demonstrate mastery of subject material, and
c. Be able to conduct scholarly or professional activities in an ethical manner

The assessment of these outcomes and the specification of learning objectives related to these outcomes are to be carried out at the program level.

5.7.2.1. M.S. with Thesis Option

First Year:

1. Teaching;
2. Lab rotations (usually two);
3. Take core and other courses;
4. Participate in First Year Seminar;
5. Select a major advisor (research lab);
6. Select committee and hold meeting before completing eighteen credits worth of coursework.

Second Year:

1. Help in running departmental picnic Fall Quarter;
2. Finish coursework (total of 45 credits of coursework);
3. Finish research and write thesis;
4. File thesis title approval form with the Graduate School the **term prior to the term you intend to defend**;
5. File diploma application with the Graduate School **prior to the term you intend to graduate**;
6. File "Approval to Schedule Final Oral Examination" one week prior to the final oral examination;
7. Submit copies of thesis to committee members and graduate school at time you schedule final oral exam (one week in advance of the final exam date);
8. Schedule room and time with departmental office for exam;
9. Take (and pass) Final Oral Exam;
10. Submit final unbound copies of thesis to Graduate School for approval;

11. Submit one bound copy of thesis to major professor and one bound copy of thesis to departmental library.

5.7.2.2. M.S. without Thesis Option

Same as C. but without formal thesis. A short research presentation and a research report are required, this can include literature research only. This meeting constitutes an oral final examination and defense of the independent work of research produced by the student. May be completed in three quarters if fifteen credits are earned per quarter.

5.8. Information about Corvallis and OSU

5.8.1. Corvallis

For detailed information (largely true) see Wikipedia at:
http://en.wikipedia.org/wiki/Corvallis,_Oregon

As noted by Sperling's *The Ten Best Places to Live (2010)*, "Corvallis is home to Oregon State University and hence many young singles. Technology stalwart Hewlett-Packard has a major presence here, which helps explain the city's low unemployment rate and impressive recent job growth. The presence of OSU and HP has created something of an intellectual center - over 20% of its residents have earned a graduate or professional degree. The fertile Willamette Valley was the destination of 19th-century settlers from the Midwest, and since then has retained a peaceful agrarian feel. Summers are sublime and the winters are mild, if a bit wet. For recreation, the rugged Oregon coast is [60] minutes to the west, the nearby Cascade Range offers great skiing, and Portland is about 100 miles to the North. Considering it's affordability ($194,800 median home price), Corvallis presents an attractive mix of youth, intellectualism, and natural beauty."

Corvallis has the highest percentage of bicycle commuters of any US city (at ~10%; data from 2009). But buy a good lock for your bike. OSU has greater than $40,000 worth of bicycles stolen on campus per year.

Weather

Oregon weather in the Willamette Valley is relatively mild and moist. Average temperature in the winter is 45F, while in the summer the average temperature is 80F. Annual precipitation in Corvallis is approximately 42.7 inches; during winter more than half the days have measurable precipitation. The Oregon Climate Service offers forecasts and additional climate data.

Local News

The local paper is the Gazette Times. With this you can find out about local news, sports events, housing opportunities, and more.

Additional links for Corvallis and Oregon that might be helpful:
Corvallis Visitor information:
http://www.visitcorvallis.com/
General City information:
http://www.corvallis.com/
Exploring Oregon
http://oregonstate.edu/visitors/oregon/oregon.htm
Chamber of Commerce Business Directory
http://www.corvallischamber.com/
Oregon Outdoor Recreation Opportunities:
http://www.gorp.com/gorp/location/or/or.htm

Biochemistry and Biophysics - Rotation Planning Form

Complete and discusswith the Graduate Advisor during first week of classes Fall term of Year 1

Student _____

Fall term

Proposed Mentor_____ Topic_____

Winter term

Proposed Mentor_____ Topic_____

Spring term

Proposed Mentor_____ Topic_____

The signatures below indicate that rotations and topics have been discussed by the student and proposed mentors.

Student_____ Date_____

Grad Student Advisor _____ Date_____

Please return the completed form to the BB Office. Thanks! Version October 2019

Biochemistry and Biophysics
Student Rotation Evaluation Form

Student: **Mentor:** **Term:**

Please evaluate the student's performance in the listed categories, using scores of:
1 – very weak; 2 – needs improvement; 3 - meets expectations; 4 – exceeds expectations; 5 – outstanding

Include explanatory comments and discuss with the student, then turn in the signed form to the BB-office.

	Score	Comments
Effort		
Laboratory skills		
Acquired knowledge		
Communication		
Creativity		
Maturity		
Ability to work with others		

Other comments:

Would you consider having this student join your laboratory this year? Yes No

The signatures below indicate that this evaluation has been discussed by the student and mentor.

Mentor Signature: Date:

Student Signature: Date:

Please return the completed form to the BB Office. Thanks! Version October 2019

Biochemistry and Biophysics
Student Teaching Evaluation Form

TA: **Instructor:** **Course/Term:**

Please evaluate the student's performance in the listed categories, using scores of:
1 – very weak; 2 – needs improvement; 3 - meets expectations; 4 – exceeds expectations; 5 – outstanding

Include explanatory comments and discuss with the student, then turn in the signed form to the BB-office.

	Score	*Comments*
Effort (fulfilling requirements as outlined by instructor)		
Accuracy (in grading, in information to students)		
Communication (with students and with instructor, as relevant)		
Organization (record keeping, punctuality)		

Would you consider having this student TA for you again? Yes No

The signatures below indicate that this evaluation has been discussed by the student and mentor.

Mentor Signature: Date:

Student Signature: Date:

Please return the completed form to the BB Office. Thanks! Version October 2019

Guidelines for Annual Evaluations for Graduate Assistants in BB (Aug. 2019)

All BB students are expected to have annual progress meetings with their major advisor after completion of their first year in the program (i.e. after they have chosen a mentor), and to provide the results to their committee and to the department. ***These meetings are scheduled by the student!*** Ideally, evaluations should occur before the initial Program Committee Meeting, the Preliminary (or Qualifying) Exam, and the final Thesis Defense. Annual Graduate Employee Evaluations are now also required by the university (see last page of this form).

The purpose of the BB Annual Progress Meetings for Graduate Students is twofold**:**

1. **Monitoring academic progress (research and scholarship).** This addresses laboratory research projects, writing tasks (manuscript or proposal preparation), speaking engagements (scientific meetings, outreach), and teaching performance. Ideally the student should complete the progress report in consultation with the mentor. This helps to ensure that students and mentors are on the same page, and that students have feedback on how they are progressing and clarity about shared upcoming goals.

2. **Updating and reviewing Individual Development Plans (IDP)** ensures that students are giving thought to their future goals and updating their IDPs as they gain experience, as well as considering how they are progressing, and what experiences and trainings will help them succeed. Also important is that mentors become aware of each student's individual development goals, as well as the program requirements. Mentors should work together with students to strategize on how to meet goals described in the IDP.

The student should update the form annually including setting goals in consultation with their major advisor. After the student and major advisor have agreed on the content of the form and the advisor has included comments in section F and completed the "Annual Graduate Employee Evalution" portion of the form (on the last page), the student should share the completed form and evalution with their committee members and invite feedback. If a graduate committee meeting is held in association with the evaluation, section G should be filled out be the student and major advisor documenting any key outcomes of the meeting.

After the form is completed, a PDF copy must be provided to the BB office (2011 ALS; Dina Stoneman) to be added to the Student's file.

This is a running record. Please update annually before each meeting.

Student Name: *student name here* **Term Entered BB:** *term w/year*

Major Professor: *prof name here* **Targeted Completion Term:** *term w/year*

A. Core Requirements:	**Completion Term and Grade (e.g. F18 B+; W19 A; Sp19 A-)**	
BB 581, 582, 583 (Biophysics)	_____	
BB 590, 591, 592 (Biochemistry)	_____	
BB 507 / 607 (First-year seminar)	_____	
Years 2 and 4 BB Journal Club)	_____	
Third-year seminar (BB607)	_____	
Ethics course *course number*	_____	
Rotation – Fall (BB601)	_____	**Advisor:** *name here*
Rotation – Winter (BB601)	_____	**Advisor:** *name here*
Rotation – Spring (BB601)	_____	**Advisor:** *name here*
TA (First required term)	_____*term, course*_____	**Instructor:** *name here*
TA (Second required term)	_____*term, course*_____	**Instructor:** *name here*
TA (third required term)	_____*term, course*_____	**Instructor:** *name here*

B. Graduate Committee: **Date of first program committee meeting:** *mm/dd/yyyy*

Members (List major advisor first and designate GCR last):

C. Teaching assignments in addition to three core requirements:

Course name	Instructor	Term (w/ year)

Progress Checklist:	**Term Completed (Term and year)**
Program Filed with Graduate School……	
Coursework……	
Preliminary Exam……..	
Third-year seminar……	
Additional Graduate Commitee Meetings……. (one line per meeting)	

For sections C., D. and E., please adjust space and add extra pages if needed.

C. Accomplishments or activities:

1. **Papers published** (give full citations)
2. **Papers in review** (give authors, title, journal, date submitted)
3. **Awards** (give date and award description)
4. **Presentations** (talk or poster; authors w/ presenting author in bold, title, meeting name, place and date)
5. **Outreach activities** (give date and description of activity and role)
6. **Other academic accomplishments**

D. Progress report on laboratory projects: (since joining lab)
(Organized by project, re-state goals for current year, the addressed, and the outcomes; in a separate section state goals for the coming year and, very briefly, planned approaches)

E. Individual Development Plan
(state broader program and career-related longer term goals and specific desires for targeting experiences, activities to help you get there)

F. Mentor's comments:
(these are based on the student's report and will be discussed at the annual progress meeting)

1. Progress made:

2. Goals for upcoming year:

G. Brief minutes of any formal Graduate committee meeting associated with this annual review:

H. Actions taken (if needed):

Annual Graduate Employee Evaluation (required by the University)

Position Information

Employee Name *NAME HERE* Department **Biochemistry & Biophysics**			Satisfactory Academic Progress ❑ Meets Expectations ❑ Does NOT Meet Expectations Major Professor: *NAME HERE* Signature:	
Evaluation Period: *DATES HERE FOR PERIOD OF REVIEW*			Date of Evaluation: *DATE HERE*	
Supervisor NAME HERE				
Position Number	Appt % (FTE)	Appt Basis (9 or 12 mo.)	FLSA Status **Exempt Admin/Not Eligible for Overtime**	Job Location

Position Duties (taken from the position description)

Overall Evaluation (required)

Instructions: The supervisor provides comments substantiating the overall performance rating. If there are areas in which the Graduate Assistant is expected to improve his/her performance, they should be noted in this section.

❑ Exceeds Expectations ❑ Meets Expectations ❑ Does NOT Meet Expectations

(example text in italics, choose one or write your own)

A. Overall exceeds the general responsibilities outlined in the position description.

B. Overall meets the general responsibilities outlined in the position description, but Supervisor would like to see more self-started initiative related to finding ways to improve the [research tasks/teaching assignments].

C. Overall attitude towards responsibilities laid out in the position description are not congruent with the expectations of a graduate level appointment.

D. Supervisor is committed to exploring mechanisms for creating a valuable and manageable experience for the student and the department.

Goals for the Next Evaluation Period (Required)

A. Student and Supervisor have created a list of goals and primary tasks (see above in section D) to facilitate better evaluation of accomplishments for the next evaluation period.

Graduate Assistant's endorsement: I have reviewed this progress report with my mentor and program committee and I know that this report enters into my personnel record file, together with attachments to the review of any comments, explanations or rebuttals that I wish to make.

Signatures

Employee signature confirms ***receipt*** of the evaluation. Graduate Assistants may submit a written rebuttal for inclusion into the personnel record within 30 days of receipt of the evaluation (Art. 15, Sec.4).

Employee Signature Date

Supervisor Signature Date