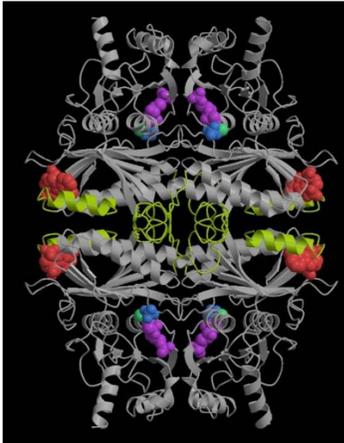
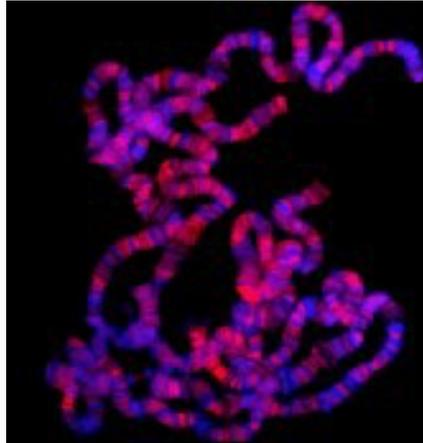


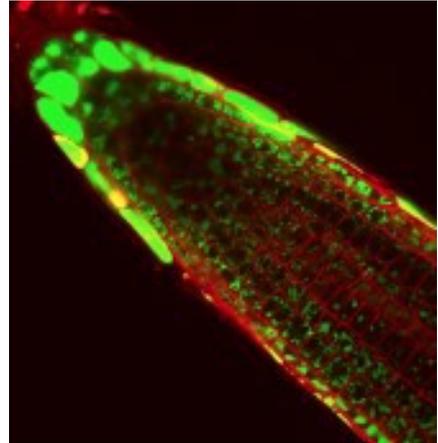
# Biochemistry and Biophysics Graduate Student Handbook



Biomolecular Structure &  
Function



Molecular Bases of Cell Structure &  
Function



Plant, Animal & Microbial Metabolic  
Biochemistry

Fay J. Carver Department of Biochemistry,  
Biophysics and Molecular Biology  
Iowa State University

Fall 2021

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## Welcome

The Roy J. Carver, Department of Biophysics, and Molecular Biology (BBMB) welcomes you to Iowa State University. We sincerely hope your years in graduate school will be both exciting and valuable in preparation for your life's endeavors. We are fortunate to be housed in the Molecular Biology Building, which is designed to encourage collaboration among the many research laboratories it houses. We believe your education will be greatly strengthened if you take advantage of the opportunities to interact closely with researchers in different areas of biochemistry, biophysics, molecular and cellular biology, genetics, genomics, plant biology, immunobiology, neuroscience, bioinformatics, and biotechnology. General information about BBMB and information about our faculty can be found on the [department website](#).

This handbook is for graduate students in Biochemistry and Biophysics, and describes the various academic and administrative matters specific to these programs. While it also contains administrative information useful to interdepartmental graduate students who join the BBMB home department, these students should also refer to the handbook for their major for information and guidance on academic policy and procedures. We have included some of the Graduate College policies in this handbook, but students should also refer directly to the online [Graduate College Handbook](#) for the most up-to-date policy information. This handbook will be updated as needed.

Kristen Johansen,  
Roy J. Carver Professor and Department Chair of  
Biochemistry, Biophysics and Molecular Biology

## Graduate Program Overview

The Biochemistry and Biophysics graduate programs are designed to provide students with focused study in the science and technology used to understand the mechanisms underlying biological processes at the molecular level, with an emphasis on the fundamental relationships among the chemical, physical, and biological sciences. BBMB offers a Master's (M.S.) and a Doctor of Philosophy (Ph.D.) degree with thesis in both Biochemistry and Biophysics and a Graduate Certificate (CRT) in Biochemistry. The prerequisite to graduate study in all these programs is a sound undergraduate background in biology, chemistry, mathematics and physics.

## Program Contacts

BBMB Department Chair  
Dr. Kristen Johansen  
1210 Molecular Biology Building  
Administrative Suite  
[kristen@iastate.edu](mailto:kristen@iastate.edu)  
515-294-0528

### *Master's and Ph.D. Degree Programs*

Co-Directors of Graduate Education (DOGE)  
Dr. Richard Honzatko  
4206 Molecular Biology Building  
[honzatko@iastate.edu](mailto:honzatko@iastate.edu)  
515-294-7103

Dr. Scott Nelson  
4112 Molecular Biology Building  
[swn@iastate.edu](mailto:swn@iastate.edu)  
515-294-3434

### *Graduate Certificate in Biochemistry Programs*

Director of Certificate (DOC)  
Dr. Scott Nelson  
4112 Molecular Biology Building  
[swn@iastate.edu](mailto:swn@iastate.edu)  
515-294-3434

Graduate Student Services Specialist  
Mrs. Allison Ringholz  
1210 Molecular Biology Building  
Administrative Suite  
[anring@iastate.edu](mailto:anring@iastate.edu)  
515-294-3317

## Description of Program Responsibilities

Successful completion of a Biochemistry or Biophysics degree or Biochemistry graduate certificate requires an understanding of the roles and responsibilities of the student and various program officials. These are briefly described here, but students are encouraged to discuss these with their major professor, since expectations and standard practices may vary between research groups.

*The Director of Graduate Education (DOGE)* is responsible for overseeing the execution of all graduate degree programs, ensuring that graduate examinations are properly conducted and that academic requirements are met upon conferring graduate degrees. The DOGE will monitor academic progress through the POSC forms and departmental progress reports, and will engage in intervention activities, as deemed appropriate.

*The Director of Certificate (DOC)* is responsible for overseeing the execution of the Biochemistry graduate certificate programs, ensuring that all academic requirements are met upon conferring the graduate certificate. The DOC will assign a faculty mentor to the student, monitor academic progress through the POSC forms, and will engage in intervention activities as deemed appropriate.

*The Graduate Student Services Specialist (GSSS)* will facilitate program administration and will coordinate with other university officers on matters related to academic programs, assistantships, fellowships, international status, etc. The GSSS will also serve as the primary administrative contact for students.

*The Major Professor (MP)* will serve as the principal student advisor for all matters related to research, academics, assistantships, and overall programmatic progress. The major professor will also serve as the primary evaluator of student performance and will be assisted by the Program of Study Committee, the DOGE and the Graduate Student Affairs Committee. Under normal circumstances, the MP is expected to meet with each graduate student individually for at least one hour per week to discuss research progress, professional development, and other issues as might arise with the student's program. The MP is responsible for providing safe laboratory facilities and ensuring that the student has received proper training to perform work safely as well as resources to successfully complete their thesis research.

*The Program of Study Committee (POSC)* is responsible for working with the MP to review the academic and research proposed and the thesis documents and to conduct preliminary and final oral examinations. In

addition, the POSC serves as a technical advisory board, available to provide advice, guidance, or recommendations regarding research activities, as appropriate. Master's students and Ph.D. direct admits must establish the POSC by the end of the first semester and Ph.D. rotation students, by the end of the second semester, after joining a research group. Refer to the [Graduate College Handbook](#) for policies regarding the make-up of the POSC.

*The Graduate Research Assistant (RA)* is expected to engage professionally in the research activities assigned by the major professor and more time may reasonably be expected for fulfillment of thesis research. The RA is expected to observe professional standards about attendance and notification of absences, as directed by the MP.

*The Graduate Teaching Assistant (TA)* is expected to engage professional in the teaching activities assigned by the instructor of the course. The Department makes TA assignments each spring for the upcoming academic year, and it is up to the TA to communicate with the instructor before the assignment starts to learn about their TA responsibilities. For a 1/2-time assistantship, a minimum of 20 hours per week of teaching activities are expected. More time may reasonably be expected under certain circumstances for fulfillment of TA commitments, as outlined by the instructor. The TA is expected to observe professional standards with regard to attendance and notification of absences, as directed by the instructor. Teaching assistants (TA) receive the same level of financial support as received with a research assistantship.

## Graduate Student Memo of Understanding (MOU)

Graduate training entails both formal education in a specific discipline and an apprenticeship in which the graduate student trains under the supervision of one or more investigators who are qualified to fulfill the responsibilities of a mentor. Students who pursue a degree in biochemistry or biophysics are expected to take responsibility for their own scientific and professional development. The graduate student (whether on assistantship or not) is expected to engage professionally in academic coursework and laboratory research (699 research). Students are also expected to read, understand, and follow the administrative procedures outlined in this document and in the [Graduate College Handbook](#). Graduate students are responsible for completing all required safety training and providing/maintaining appropriate records of such training, as assigned by the cognizant MP or course instructor. Students are expected to maintain the highest standards of integrity during academic, research, and

reporting activities. Plagiarism, falsification, or misrepresentation of research results will not be tolerated (See section on [Student Code of Conduct](#)).

The *Graduate Student* understands that all research done by them, even if not supported by public funds, belongs to the University. The student and their MP must publicly share all research.

## Admission Types

There are several types of admission for graduate students in BBMB and all require admission to the Graduate College. Please review this handbook, visit the Graduate Study [web pages](#), or contact the graduate student services specialist for more information regarding admission.

*Direct admission for a M.S. or PhD.* The professor in charge of a research group (the major professor) can request that a student's application be evaluated for direct admission to his/her group if they have a research project and funding for that student. An application can be submitted directly to the BBMB program office at no cost for evaluation by the department, and if appropriate, admission is recommended to the Graduate College. This route can be taken by students seeking a Master's or PhD degree in biochemistry or biophysics.

*PhD rotation program.* A prospective PhD degree student can apply directly to the BBMB program office at no cost for fall admission to the biochemistry or biophysics PhD rotation program. The application is evaluated by the department, and if appropriate, admission is recommended to the Graduate College. Admitted students rotate in at least three research laboratories during their first semester before joining a research group, subject to the interests of the major professor and student.

*Current ISU students seeking a graduate certificate or advanced degree.* Graduate students in an interdepartmental graduate program can join a BBMB faculty laboratory by requesting to join BBMB as their home department. Other graduate students can request to transfer, co-major, or minor in biochemistry or biophysics. Graduate students can request to pursue a graduate certificate in biochemistry in addition to a graduate degree. Undergraduate students can request concurrent enrollment to pursue a Master's degree in biochemistry or biophysics or a graduate certificate in biochemistry.

*Graduates seeking a graduate certificate.* Prospective students who have earned at least a bachelor's degree can be admitted to the Graduate Certificate Program in biochemistry by applying through ISU Admissions.

## New Student Orientation

### Orientation week (one week prior to fall classes)

An orientation for all incoming students admitted that year is held one week before the start of fall classes. Information for newly admitted students and about program and other orientation events is posted on the BBMB Orientation [webpage](#).

Students admitted to the Master's and Ph.D. degree programs in biochemistry and biophysics must attend a half-day program orientation held during orientation week. Students admitted to the concurrent BS/MS enrollment and graduate certificate program do not have to attend this half-day orientation program. In addition to a half-day biochemistry and biophysics program orientation, there are other mandatory and optional ISU student orientations held during this week, including a mandatory Laboratory Safety Orientation, presented by the Environmental Health and Safety Office (EH&S), and mandatory and optional orientations for International students, including a health screening and the English Placement Test ([EPT](#)). The EPT is required for all entering international graduate students whose native language is not English. International students who have received their undergraduate degrees at Iowa State University must take the Graduate English Exam for International Students. These exams are scheduled in early fall. Performance on these tests determines whether students take a follow-up exam or courses (tuition for these courses is supported by the graduate assistantship but are not part of the graduate program of study). The department requires that these courses be taken on a graded basis.

### Ph.D. Rotation Students

During the first week, rotation students should arrange to meet with faculty in preparation for establishing a calendar for laboratory rotations and the selection of a major professor. A significant part of the first semester for students admitted to the Ph.D. rotation program will be devoted to the important process of selecting a major professor who will be the person who will guide his/her graduate studies and whose research group he/she will join. Students are expected to have finalized selection of their three fall semester rotations by the end of the second week, which is the end of the first week of fall classes.

*Selecting a major professor.* The biochemistry and biophysics programs encourage students in the Ph.D. rotation program to enter a research group by the end of their first semester. Rotations through three laboratories

acquaint the student with personnel, professors, and areas of current and planned research. The goal is a research group that provides the environment necessary for success. Students admitted to the certificate program or who have been directly admitted to a research group do not have lab rotations. Students from interdepartmental programs who join BBMB for their home department have independent rotation opportunities and usually enter a research group by the end of their second semester. Following are the steps in selecting a major professor for rotations.

*Learn about the professors and their research.* During orientation week, you will have opportunities to meet with the faculty members of the department. The program will provide you with a list of the faculty seeking new graduate students. The [People](#) web page of the BBMB website provides links to the research programs of professors, but the most current information, such as the future direction of research, is learned by meeting with individual faculty. You may find you are interested in the research program of a faculty in another department, and it is possible to arrange a rotation period with faculty in other departments and to possibly select them as your major professor.

You are responsible for scheduling appointments with faculty to further discuss their research. The intent of meeting with faculty is not to provide comprehensive discussions of specific research problems; rather, it is to be an opportunity to become acquainted with the faculty and their professional interests so that you can make an informed selection of the laboratories through which you wish to rotate while selecting a major professor.

*Choosing lab rotation preferences.* Rotation students will be provided with a form to use to submit their rotation lab preferences, and about two weeks after entering the program, you will be asked to submit the list with at least five names of professors. On the form you will indicate a level of preference from 1 to 5 (5 being the highest) in whose research group you want to do a rotation. The program will then schedule three four to five-week rotation periods, lasting from September to December, based on student preferences.

*Lab rotations.* During the rotation period, you will be expected to meet with the professors and research group to discuss their research and work in the laboratory. Requirements of each professor may vary, but often also include reading reprints and reviews and preparing yourself to decide which research group you wish to join. Occasionally, the outcome of a rotation is co-authorship on a paper or the initial steps toward a graduate thesis. During the rotation, not only is the student evaluating the research group, but the professor and research group is

evaluating the student. During the rotation period, feel free to visit with additional professors whose research is of interest, even though you are not rotating through their laboratories.

*Lab placement.* In December, toward the end of the fall semester rotation period, you will be given a form to list, in order of preference, three professors in whose lab you have rotated whose group you would like to join effective spring semester. At the same time, faculty are given a form in which to list their preferences for students with whom they have interacted that they would like to have join their research group. The program will then match student preferences to those of the professors in whose lab they have done a rotation.

In many instances, the top choice of student and professor for lab assignment are in mutual agreement, but sometimes a student is assigned to a group they may not have ranked as their highest preference. Assignments are also subject to the availability of funds and in the interest of building and maintaining healthy research groups. Assignments are permanent; however, change is possible and often straightforward when a student and professor are in favor of change.

Lab placements are effective starting spring semester in January. If a student chooses a professor in a department outside BBMB, that professor will become his or her co-major professor and the DOGE for biochemistry and biophysics will be the other co-major professor.

## Learning Goals and Outcomes

### Master's and Ph.D. Degrees

The Master's and Ph.D. degrees with thesis are designed to train students in the ability to independently conceive and carry out original research in an area of interest. Advanced degree graduates become qualified to pursue or to continue basic and applied research careers in academia, government, and industry. Students are expected to,

- Demonstrate understanding and thorough knowledge of the literature relevant to the area of study.
- Define research objectives of significance and develop testable hypotheses related to those objectives.

- Conduct research by appropriate means to test hypotheses.
- Analyze research results appropriately, integrating them into the existing knowledge of the discipline.
- Clearly and accurately communicate information (as for instance, in the publication of research findings or in classroom teaching).
- Understand how skills acquired by activities related to coursework, research, teaching, and scholarship facilitate the initial step toward a variety of lifetime career goals.

#### Graduate Certificate Programs (CRT) in Biochemistry

The graduate certificate provides formal recognition of focused graduate study in a specialized area that is less comprehensive than required for a Master's degree. The 12 credits earned for the CRT may be applied to meet the course requirements for admission to the M.S. or PhD with thesis program.

The Graduate Certificate learning goals are to provide graduates a mechanism for formal recognition of focused graduate study in a specialized area that is less comprehensive than required for a Master's degree.

#### Global expectations of all students

Students are expected to demonstrate professional behavior while enrolled in the graduate program and to act in a manner that demonstrates integrity and respect for others and the campus environment. The program follows the standards and policies set by Iowa State University outlined in the online Policy Library on [Student Life](#).

## Curriculum

Specific curriculum requirements are described under each program. All advance degree and certificate programs require students take the following four two-credit modular core courses and earn a minimum grade of B-. Biophysics graduate students have the option to substitute Biochemistry I (BBMB 404) and Biochemistry II (BBMB 405) for these core course requirements.

BBMB 504: Amino Acids and Proteins

BBMB 505: Bioenergetics and Metabolism

BBMB 506: Membrane Biochemistry

BBMB 507: Biochemistry of Nucleic Acids

#### Ph.D. Curriculum

Degree requirements: minimum of 72 credits (no less than 22 earned at ISU) | Time-to-degree: 5-6 years

BBMB 504-507 series

BBMB 561. Molecular Biophysics

BBMB 561L. Laboratory of Molecular Biophysics

Plus 8 graduate level credits in three specialty areas: Bioorganic Mechanisms, Cell Biology, and Physical Biochemistry

GR ST 565. Responsible Conduct of Research in Science and Engineering

BBMB 681. Advanced Seminar. Enroll once a year, except in first and last year in the program

BBMB 682. Departmental Seminar. Enroll each fall and spring

BBMB 699. Research. Enroll each fall, spring and summer while doing graduate research

Teaching Requirement - two to three semesters as a quarter- or half-time teaching assistant in an undergraduate lecture or laboratory course.

Ph.D. Thesis

#### Master's (M.S.) Degree Curriculum

Degree requirements: minimum of 30 credits (no less than 22 earned at ISU) | Time-to-degree 2-3 years

BBMB 504-507 series

BBMB 561. Molecular Biophysics

BBMB 561L. Laboratory of Molecular Biophysics

Plus 1 additional approved course at the 500 or 600 level (Concurrent B.S./M.S. students exempt)

BBMB 681. Advanced Seminar. Enroll once

BBMB 682. Departmental Seminar. Enroll each fall and spring

BBMB 699. Research. Enroll each fall, spring and summer while doing graduate research

Teaching Requirement - two to three semesters as a quarter- or half-time teaching assistant in an undergraduate lecture or laboratory course.

Master's Thesis

[Concurrent B.S. / M.S. Degree in Biochemistry or Biophysics Curriculum](#)

Degree requirements: minimum of 30 credits for Master's degree | Time-to-degree 5 years (including undergraduate degree)

BBMB 504-507 series

BBMB 561. Molecular Biophysics

BBMB 561L. Laboratory of Molecular Biophysics

BBMB 699 Research

Master's Thesis

For both the Master's and Ph.D. degrees, a minimum of three semester credits of 699 research is required for thesis research and these credits are not calculated in the GPA.

[Graduate Certificate Programs](#)

*Graduate Certificate in Biochemistry.* Certificate requirements: 12 credits | Time-to-certificate: 2-3 semesters

BBMB 504-507 series, plus 4 additional credits of approved courses at the 500 level

*Concurrent B.S./Graduate Certificate in Biochemistry.* Certificate requirements: 12 credits | Time-to-certificate: 2-3 semesters

BBMB 504-507 series

BBMB 561. Molecular Biophysics

BBMB 561L. Laboratory of Molecular Biophysics

[Graduate Minor Curriculum](#)

Degree requirements: 12 credits | Time-to-degree: 1 year

At least 6 credits from BBMB 504, 505, 506 and 507.

At least 6 credits of other BBMB 500- and 600-level courses.

[Interdepartmental graduate students \(IGS\)](#)

Interdepartmental graduate students who join a BBMB professor's research lab, with the approval of the professor, can request BBMB as their home department. If approved, BBMB becomes their administrative

department only. Curricular requirements are set by the interdepartmental graduate program, not by BBMB, with the exception of encouragement in participation in the BBMB department seminar series.

## Program of Study Tables

Table 1. Program of Study for Master's (30 credits minimum) and Ph.D. (72 credits minimum)

Course	Credits	Notes
BBMB 504. Amino Acids & Proteins	2	Also offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 505. Bioenergetics & Metabolism	2	Also offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 506. Membrane Biochemistry	2	Also offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 507. Biochemistry of Nucleic Acids	2	To be offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 561. Molecular Biophysics	2	
BBMB 561L. Lab of Molecular Biophysics	2	
BBMB 500-600 level courses. 8 credits in 3 specialty areas (PhD only): Bio-organic mechanisms (2 cr) Cell biology (4 cr) Physical biochemistry (2 cr) Biophysics majors may take 8 credits of courses in more physical biochemistry or chemistry specialty areas, as approved by their POSC.	1 course required for M.S.  Not required for B.S./M.S.	See course listings for full course descriptions. Some courses are offered in alternate years. Bio-organic mechanisms met by BBMB 531 and/or 532 Cell biology met by BBMB 510, 512, 530, 615, 645, 661, 675 and/or 676 Physical biochemistry met by BBMB 532, 551, 553 and/or 569
GR ST 565. Responsible Conduct of Research in Science & Engineering (or take <a href="#">online version</a> )	1	Not a program requirement, but all students who may receive federal funds to conduct research must receive RCR training, which in effect means all students
BBMB 681. Advanced Seminar	1	Enroll once a year, except the first and last year in program Fall or Spring 1 cr Expect to enroll at least 3 times during PhD degree – from year 2 to year 4. Enrollment not required for BS/MS degree students.
BBMB 682 Department Seminar	R	Enroll in fall and spring semester. R credit does not carry numerical value but appears on the transcript and may be graded A-F or S/F. Enrollment not required for B.S. /M.S. concurrent enrollees.
BBMB 699 Research Credits	varies	Enroll each fall, spring and summer

Table 2. Program of Study for the Graduate Certificate in Biochemistry (12 credits)

Course	Credits	Notes
BBMB 504. Amino Acids & Proteins	2	Also offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 505. Bioenergetics & Metabolism	2	Also offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 506. Membrane Biochemistry	2	Also offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 507. Biochemistry of Nucleic Acids	2	To be offered off campus (XW) Fall and Spring, carries delivery fee
BBMB 561. Molecular Biophysics	2	Required for Concurrent Graduate Certificate students
BBMB 561L. Lab of Molecular Biophysics	2	Required for Concurrent Graduate Certificate students
BBMB 500 level courses BBMB 510 BBMB 512 BBMB 530 BBMB 531 BBMB 532 BBMB 551 BBMB 553 BBMB 569	varies	Optional courses for Graduate Certificate in Biochemistry students only. See course listings for full course descriptions. Some courses are offered in alternate years

## Measurable outcomes

### Ph.D. degree

- Maintain a 3.0 Cum GPA and remain a student in good standing
- Continued support based on annual department review
- Meet program requirements (academic, teaching and research)
- Conduct independent research leading to a thesis
- Pass the BBMB departmental Oral Research Presentation Exam (ORPE)
- Pass the preliminary oral exam to become a Ph.D. candidate
- Oral presentations of scientific data at meetings
- Publication of research results
- Pass the dissertation defense

### Master's degree

- Maintain a 3.0 Cum GPA and remain a student in good standing
- Continued support based on annual department review

Meet program requirements (academic, teaching and research)

Conduct independent research leading to a thesis

Oral presentations of scientific data at meetings

Publication of research results

Pass the dissertation defense

#### Graduate certificate

Maintain a 3.0 Cum GPA and remain a student in good standing

Meet program requirements to earn 12 graduate credits

## The first year –all degrees

Familiarize yourself with the Graduate College website and the Graduate College Handbook

Ph.D. rotation students only -complete no less than three lab rotations of 5-6 weeks during the fall semester and join a research group the following spring semester.

Complete core courses (BBMB 504-507 series, BBMB 561/561L), plus GR ST 565, along with other courses and seminars required for each program and degree.

Obtain Graduate College approval of the POSC (See POSC - Program of Study Committee) Master's and direct admit students should submit the POSC in the first semester; Ph.D. rotation students, before the end of the second semester.

Participate in the BBMB Graduate Learning Community (GLC) and complete the myIDP career and professional development assessment tool, which can then be reviewed and updated as needed.

Non-native English-speaking students are required to take the Oral English Certification Test ([OECT](#)) or receive a waiver from the exam during their first year in the program in preparation for teaching requirement. An OECT result of 3 or higher is required to be a teaching assistant in BBMB; a level 2 or higher is required to be a teaching assistant in Chemistry. English courses recommended to meet BBMB OECT certification must be taken before or during the semester of the student's first teaching assignment. Tuition for these courses is supported by the graduate assistantship but are not part of the graduate program of study. Without an acceptable OECT result, a

student cannot be given a teaching assignment and will, therefore, not meet the teaching requirement which may delay their graduation. A student who takes the maximum of two recommended English courses and still receives an unacceptable OECT result must request a waiver for an unmet teaching requirement.

## By the end of the second year

Ph.D. students only must pass the BBMB Oral Research Presentation Exam (ORPE) to continue as a Ph.D. student in the program.

A master's student may be ready to take their final exam.

Ph.D. students should complete 8 specialty course credits.

## By the end of the fifth semester, not counting summer terms

Ph.D. student should pass the Preliminary Oral Exam to become a candidate for the Ph.D. degree.

Final Oral Exam: Typically held after two to three years of study for a Master's student; after five years of study for a Ph.D. student. Ph.D. students present their final research results at a Department Seminar or other public forum.

## Graduation year

Review the resources and tools on the Graduate College Thesis and Dissertation [webpage](#) to confirm you are ready to apply for graduation.

- Apply for graduation through AccessPlus
- Check the Graduate College Events and Deadlines [webpage](#) and follow the degree deadline table for the semester/term you plan to graduate.
- Check the Grad Student Status page, My Program Audit, in AccessPlus to confirm all is "green" and make sure the list of courses is accurate and work to remove any Incompletes
- Time limits on courses listed. See the Graduate College Handbook for information overage courses (courses taken more than 7 years prior to graduation)
- [Final Oral Exam Request](#). Submit online three weeks in advance of final oral exam

- Report of exam result is submitted electronically by the major professor following the exam
- Get your Major Professor and DOGE signatures for Graduate Student Approval Form and submit the completed form to the Graduate College. (NOTE: The Graduate College cannot review your uploaded thesis/dissertation without this completed form.
- Finalize and upload Thesis to ProQuest by the deadline
- [Graduation Certification Letter](#) - Graduate College will ask the Office of the Registrar to provide if your next employer requests verification prior to commencement that all degree requirements have been met
- The Graduate Student Services Specialist will send you a BBMB resignation letter once your final exam has been scheduled. Complete and return it before your last day of work.
- [Graduation and Commencement](#)

## Assistantship Support and Enrollment

### Assistantship support

Assistantship support is provided to advanced degree students only and includes a stipend, free individual student health insurance, and tuition scholarship. The stipend rate is set by the department faculty for the benefit of all graduate students in BBMB. All graduate students on assistantship sign a Letter of Intent (LOI) in Workday listing the terms and conditions of the assistantship appointment. Appointments are usually on a half-time (20 hours per week) basis (0.5 FTE) and can be terminated by mutual consent or for cause as described in the LOI, the [Graduate College Handbook](#), or this handbook.

Support is determined exclusively by funding resources available to the major professor for graduate research assistantships (RA), the department for teaching assistantships (TA), or self-funding by a student through a scholarship or fellowship award, which provides sole support or can add to the assistantship.

Students admitted to the Ph.D. rotation program in the fall semester are required to participate in the research rotation program before joining a research group by mutual agreement of the student and by the proposed major professor. Rotation students are supported by department or other funds during the rotation period. Once a student joins a research group, support is provided by the major professor (MP). Every effort will be

made to provide continuous support for Ph.D. rotation students for five years, if satisfactory progress is being made towards his or her Ph.D. degree.

Students admitted directly into a faculty lab, through direct admission to either the biochemistry or biophysics graduate program for a Ph.D. or Master's degree, or through an interdepartmental graduate program into the BBMB home department, will be solely supported by the major professor and will receive the standard BBMB stipend rate, unless other support is outlined in the offer of admission letter.

Teaching Experience is a program requirement for the Master's and Ph.D. programs and is completed through a teaching assistantship (TA) with BBMB. Typically, a Master's student will TA one semester and a Ph.D. student will TA two to three semesters. TA support provided is the same as RA support.

Concurrent B.S./M.S. enrollees are eligible for up to a half-time research assistantship as an RA or TA. Usually, only a quarter-time assistantship is provided to concurrent B.S./M.S. enrollees while they are working toward their B.S. degree. Once an undergraduate student has been approved as a concurrent enrollee in either the B.S./M.S. degree or graduate certificate program, they are charged graduate tuition. Graduate certificate students are not eligible for an assistantship.

#### Oral English Certification Test

Non-native English-speaking students are required to take the Oral English Certification Test ([OECT](#)) as early as possible when entering the graduate program in preparation for teaching. An OECT test result of 3 or higher is required to be a teaching assistant in BBMB; a level 2 or higher is required to be a teaching assistant in Chemistry. English courses recommended to meet OECT certification must be taken before or during the semester of the student's first teaching assignment. Without an acceptable OECT test result, a student cannot be given a teaching assignment and will, therefore, not meet the teaching requirement which may delay their graduation. It is important, therefore, to take the assessment as early as possible, take the recommended English courses, and retake the OECT test. If the student has taken the maximum two recommended English courses and still receives an unacceptable test result, it is at the department's discretion whether to waive the teaching requirement or not.

### Tuition Scholarship

To receive tuition scholarship, a student must be enrolled during the period of the assistantship, hold an assistantship for a minimum period of three months during the fall or spring semester or for four weeks during the summer term, and must have a 3.0 Grade Point Average (GPA). Ph.D. students on a half-time assistantship receive 100% tuition scholarship. Master's students on a half-time assistantship receive 50% tuition scholarship. If a student is enrolled but does not have an assistantship, then he or she will be charged tuition at either the in-state (resident) or out-of-state (non-resident or international student) rate –whichever is appropriate. Mandatory student fees assessed by the Office of the Registrar are the responsibility of the student. See Tuition & Fees webpage for more information.

### Enrollment

To receive assistantship support and maintain full-time student status, a student must be enrolled in a minimum of nine credits each fall and spring semester and one credit maximum in summer term. Students must enroll during the semester/term of their final oral exam. If on an assistantship during the final term, full tuition is charged regardless of the number of credits enrolled. If not on an assistantship, a student can enroll in GR ST 681B Required Registration: Final Exam Only for 1 credit. If the exam is scheduled between semesters/terms (interim period), enrollment from the previous semester or term is accepted - the student does not need to enroll for the next semester or term, which is when the student will graduate following a successful defense.

Students can enroll online through AccessPlus up to the first day of classes. If a student has not registered after the first week of classes, they must submit the online add/drop form through AccessPlus. Students not registered will have a HOLD placed on their financial support.

### Student Health Insurance

All graduate students on an assistantship are automatically enrolled in the ISU Student and Scholar Health Insurance Program ([SSHIP](#)) self-coverage free of charge. Graduate students may purchase optional dental insurance for themselves or their dependents and health insurance for their dependents. International students are required to enroll their spouse/domestic partner and dependent children who have traveled with them to the United States within 30 days of their arrival at ISU.

Graduate students not on an assistantship, who are enrolled for 5 or more credit hours at ISU and actively attend classes, may also enroll for student health insurance and will be assessed fees for this coverage. More information can be found at the Student & Scholars Health Insurance Program [website](#).

#### Annual Evaluation and Continuation of Support

Every category of graduate student in BBMB should receive continual input and evaluation from their major professor and the Program of Study Committee (POSC). Before the end of spring semester, the student should meet with their major professor to confirm academic and research milestones and professional development goals are being met, and the supervisor will convey the outcome of the meeting to the Department so support can be extended. The milestones and goals a student should meet for continuation of support include:

- Maintaining a grade point average of 3.0 or above.
- Completing the Individual Development Plan (IDP) career planning tool during the first semester in the program and acting based on the results throughout the student's academic career.
- Demonstrating diligent effort and productivity in laboratory research. Evaluation of laboratory research progress is made by the major professor, and by the Program of Study Committee.
- Satisfactory performance in teaching assistant duties, when applicable. Evaluation of teaching assistantship performance is provided by the instructor of the course and from student feedback.
- For PhD students, completion of the ORPE by the end of the second academic year and the oral preliminary exam by the end of their fifth semester, excluding summer terms.
- Meeting all ISU, Graduate College and program requirements in a timely manner. These requirements include selection and approval of the Program of Study Committee and submission and approval of the Program of Study in a timely manner, and, for non-native English speakers, meeting the English proficiency test and the OECT requirements

Only in exceptional circumstances is assistantship support continued past the maximum time limit to degree established by the Graduate College, which is five years for the M.S. degree and seven years for the PhD degree.

## Unsatisfactory Performance

Continuation of a graduate assistantship depends on satisfactory academic and research progress and the availability of funding. Failure to meet the requirements for satisfactory progress can result in various actions as outlined in the LOI, the Graduate College Handbook, and this handbook. These include:

- renewal of the appointment for less than one year with successive continuation pending improved performance,
- a requirement that an M.S. thesis be completed as a prerequisite for the PhD degree, dismissal from the PhD program with a terminal M.S. degree to be granted if the requirements for that degree can be met, or dismissal from the PhD or M.S. programs.

It is also possible that an assistantship can be terminated for reasons outlined in the letter of intent within the stated appointment period. More information reasons for terminations of an assistantship are outlined here and in the [Graduate College Handbook](#).

### Enrollment

To receive assistantship support and maintain full-time student status, a student must be enrolled in a minimum of nine credits each fall and spring semester and one credit maximum in summer term. Students must enroll during the semester/term of their final oral exam. If on an assistantship during the final term, full tuition is charged regardless of the number of credits enrolled. If not on an assistantship, a student can enroll in GR ST 681B Required Registration: Final Exam Only for 1 credit. If the exam is scheduled between semesters/terms (interim period), enrollment from the previous semester or term is accepted - the student does not need to enroll for the next semester or term, which is when the student will graduate following a successful defense.

Students can enroll online through AccessPlus up to the first day of classes. If a student has not registered after the first week of classes, they must submit the online add/drop form through AccessPlus. Students not registered will have a HOLD placed on their financial support.

## Leaves and Absences

Graduate students on an assistantship receive financial support and are considered employees of the University. ISU employees work during the University break periods such as Thanksgiving, Winter and Spring Breaks. Human Resources does not track graduate assistant time in Workday and you are not eligible for time off balances. The only time you would use the Absence app in Workday is if you were to be placed on Leave Without Pay if you plan to be gone greater than 30 days.

As a BBMB guideline (not a policy), graduate students in BBMB earn two days paid time off each month during the term of each appointment. As an example, if a student's LOI started August 16, by December 15 (if no days off have been taken), he/she will have earned eight days paid time off (one for second half of August, six from September through November, one for first half of December = eight days.) Students cannot carry forward earned and accrued time off from one appointment period to another, or from one supervisor to another, without prior approval. Students also have paid time off on official ISU holidays that is separate from earned paid time off. If it is critical to his/her research, compensatory (comp) time off may be used by the student in exchange for working an official ISU holiday, with the permission of the major professor or supervisor.

Arrangement for time off is made between the student and their major professor or supervisor as outlined in the [Graduate College Handbook](#). For Biochemistry and Biophysics rotation students, your supervisors are the DOGEs, Professor Richard Honzatko and Professor Scott Nelson. If a conflict arises between the graduate student and their major professor or supervisor regarding use of time off, either party may involve the appropriate Director of Graduate Education (DOGE) for their graduate program or take further action as outlined in the [Graduate College Handbook](#).

## POSC (Program of Study Committee)

The graduate Program of Study (POSC) is one of the more important records you will submit during your graduate studies at ISU. It is a contract between the student and the Graduate College that indicates the minimum course work to be taken to complete a Ph.D. or M.S. degree. The POSC is submitted online in AccessPlus and routes

for approval to the major professor, the Program of Study Committee (which includes the major professor), the DOGE, and the Graduate College. An approved POSC can be modified as needed up to graduation.

The POSC form is found under the Student Tab in AccessPlus, on the Graduate Status page/MyPOSC button. The POS Committee and program of study must be submitted for Graduate College approval during the first semester for Master's students and no later than the second semester of graduate study (exclusive of summer sessions) for PhD students. Once approved, the POSC can be modified up to your expected graduation.

Selecting a graduate program of study (POS) committee is done by consultation between the student and the major professor, and faculty members are nominated who seem appropriate for that student. For example, if a student has a concentration of course work in microbiology, it would be appropriate to nominate someone from that program. For the M.S. committee, at least three committee members, including the major professor, are required and for the PhD degree at least five, including the major professor, are required. One committee member must be from outside the field of research interest, but does not have to be from outside BBMB.

After the POS Committee is selected, the student should schedule a meeting of the Committee so the members can provide guidance for both the student and major professor on the details of the student's course plan. The student should bring a copy of their current unofficial transcript (printed from Access Plus) showing graduate courses taken and a completed Graduate POS worksheet or [BBMB POSC worksheet](#). Once the Committee approves the program of study, the student can submit it online in AccessPlus. Any POSC committee member changes or other modifications should be approved by the Graduate College prior to requesting the preliminary or final oral exam so the exam request can be approved in a timely manner.

## BBMB Oral Research Proposition Exam (ORPE)

*What is the Exam?* The ORPE is a test of the ability of PhD students to apply their graduate course work toward creative independent thought, which must be completed prior to admission to candidacy.

*How is the Exam structured?* Students will write and present a research proposal in the area of biochemistry, but unrelated to the subject or general laboratory techniques associated with their thesis research. The written proposal should be no longer than three pages including an introduction to the problem, specific aims, and rationale and significance paragraphs (this should resemble the first two or three pages of an NIH, NSF, or USDA

proposal). The student then defends the proposal in detail by constructing a ~ 30-minute presentation for a committee of three BBMB faculty. Instructions and an example from a USDA proposal that meets these requirements will be provided students the summer before their exam is scheduled.

*When is it given?* This exam is to be completed in the second year of study. The student has two chances to complete the exam. All students will take this exam in the fall semester, and those not passing the first time will take it again in the spring.

*How is it organized?*

*The examiners:* The ORPE committee is responsible for administering these exams. Three members of a standing committee will administer each exam. A student's major professor may not serve on their exam committee, so an ad-hoc member will serve on committees of students from a standing committee member's lab.

*The exam:* The student needs to pick a topic and have it approved by their committee (see below). Once the topic is approved, the student can select an exam date from a pre-arranged set of times during which all standing and ad-hoc committee members are available. The student will also be responsible for scheduling a room for the exam and audio/visual resources as needed. To ensure that you are able to schedule your exam, you should start it at the beginning of the semester; the exam needs to be completed by December 1st. Failure to schedule the exam is considered a failed exam. The three-page written proposal is due one week before the exam date.

The exam consists of the student presenting their proposal and defending their ideas by answering questions from the committee. The questions will be specific to the exam, but will also cover material that should be familiar as a result of core BBMB graduate coursework. After this presentation, the student will leave the room for consideration and grading by the committee. When the student returns, a pass/fail decision is rendered.

#### **The written component of the ORPE.**

Prior to scheduling your exam, you need to select a topic. This is up to you. Your job is to select a topic from the literature and construct a feasible and significant proposal for its investigation. The only requirement is that the topic cannot be what you are working on for your thesis research, or the focus of a previous research project on which you have participated (such as a previous master's thesis). You must obtain approval by the committee prior to writing the proposal. Do not spend a lot of time preparing for a topic that has not been approved by your committee. You are encouraged to discuss topics and ideas with faculty and students, and to practice your

presentation with them, but the final product should be yours, and you will be the only one in the room during your exam, so make sure you understand any input you adopt from others.

The written component of the exam is due at least one week prior to the exam. The criteria for the written component are:

1. It should be no more than three single-spaced pages.
2. It should resemble the beginning of the description of research in a federally grant proposal (USDA, DOE, NIH, or NSF).
3. It should include the following sections:
  - -A brief introduction that describes the problem to be addressed, and the long-range goal of the research.
  - -A Rationale paragraph that tells the reviewer (that is us) why this research is a good idea to conduct at this stage of the long-range project.
  - -A Significance paragraph that tells the reviewer why this work is important in general.
  - -A brief description of the scientific approach
  - -References cited (not included in the page limit)

The members of your committee are going to spend some time reading about this topic, including a literature search, so you should be ready to defend the current literature in the field during your oral proposal. Be sure to cite appropriate references in your proposal (aim to have 10-20 references).

#### [The oral component of the BBMB comprehensive Exam.](#)

You should prepare a ~ 30-minute presentation of your proposal. You can use the chalkboard, overhead, or a computer/slide presentation at your discretion. You may be questioned over any aspect of the presentation, any aspect of your topic, or over any of your previous course material. These questions will be of a depth similar to what you should expect in your graduate courses, PhD qualifying exam, and your PhD defense. The exam committee will be looking for clear communication, sound logic, and depth of scientific understanding of your topic more than its feasibility. The exam is limited to two hours. If the exam is still going after two hours, the committee will ask you to leave the room and decide among three options. 1) The exam will be continued; 2) The exam will be

ended and a pass/fail grade delivered; 3) The exam will be rescheduled. The committee will choose one of these options based on exam performance and the reason it was running long.

**Frequently Asked Questions:**

*Q: What if I do not choose a topic in time to get the exam scheduled in the fall semester?*

A: This is treated as a failure of the exam.

*Q: Should I be able to draw chemical structures related to the basic biochemistry of the system I am investigating?*

A: Yes, and the inability to do so has led to failure of the exam.

*Q: Is it my responsibility to contact my committee and organize my exam, or will they eventually find me and make me do this?*

A: You will be contacted early in the Fall semester and given the names of the members of your committee. After that, it is your responsibility to contact them and schedule the exam.

*Q: Do I need read the literature extensively concerning my research topic?*

A: Yes. The first thing your committee will do is search the literature in the area of your topic. (They may even do this during your exam.) If you miss significant articles that impact your proposal, it can easily lead to failure of the exam.

*Q: Do I need to understand the details of the experiments I am proposing?*

A: Yes. If you propose an experiment, you must be able to explain how it works. For example, treating a commercial “kit” as a black box will lead to failure of the exam.

*Q: Do I have to understand the graphs I present in my exam?*

A: Yes. If you put something on a slide or the board that you can't explain, it will cause you trouble.

*Q: In my thesis research I work with kinases and use NMR to study their structures. Can I use NMR, or structural biology as part of my ORPE proposal?*

A: Yes, you can propose to use NMR as one of your techniques, as long as you don't work on kinases or other systems associated with your thesis research. One of the goals of the exam is to get you to think outside of your thesis project, so if you propose to use NMR and NMR is your main technique in lab, be sure to propose other techniques that can also help you address your central questions.

*Q: Is it ok for me to talk about my topic with my advisor or other students?*

A: Yes. But the ideas should be yours, and the writing and presentation should be yours. Use those around you for advice like you would for other questions about your research. But beware, those you ask for advice will not be in the exam room with you, so make sure that during your exam you are not presenting other people's ideas and experiments that you cannot defend, because you will be asked to defend them, and that could put you at a disadvantage.

#### If the exam is failed

If the student fails the Fall semester exam, written and verbal feedback will be provided to the student by the ORPE exam committee in a meeting attended by the student's major professor that will be scheduled within two weeks of the exam. The exam is then repeated prior to April 1 of the following Spring semester. The topic of the second exam will be dictated by feedback from the first exam. If the student fails the repeat (Spring) exam, written and verbal feedback will again be provided to the student by the second (Spring) exam committee in a meeting attended by the student's major professor that will be scheduled within two weeks of the exam.

Students failing the second exam cannot continue directly in the BBMB Ph.D. program. Input from the department, the major professor, and the student may direct the student toward a transfer to another PhD program, to the BBMB master's degree program, or termination of support for graduate studies. A student or major professor may appeal the outcome of either the first or second ORPE exam through the Student Grievance Procedures described in the ISU [Graduate College Handbook](#).

## Preliminary Oral Exam

### [Guidelines for the Preliminary Oral Examination and Advancement to Candidacy for the PhD degree](#)

The goal of the Preliminary Oral Examination is to provide the PhD student with a hands-on experience developing, writing, and defending a detailed and carefully prepared research proposal on their dissertation topic. Grant writing and experimental design are important components in the student's development and will form a critical skillset for a future career. The Preliminary Examination demands the student demonstrate significant and in-depth knowledge with laboratory-based experience in the area of their proposed dissertation research and differs from the Oral Research Proposition Exam (ORPE) that covers a topic not directly related to the dissertation research.

Furthermore, the written Preliminary proposal should discuss the proposed topic with significant depth. The Preliminary Examination is also an opportunity for the student to be tested on the necessary basic knowledge in the fields of biochemistry, biophysics and molecular biology to successfully test the proposal. During the oral component of the exam, students are asked to use their knowledge of the proposed topic to synthesize new information (i.e., “think on their feet”), acknowledge the limits of their knowledge and how they might address any weaknesses in their knowledge or proposed experimental designs.

#### The Written Proposal

The written component of the Preliminary Exam should be provided to the POS committee members at least one week prior to the exam date. An incomplete or inappropriate written proposal as decided by the POS committee may result in a delay and rescheduling of the examination.

The proposal should be developed with the research mentor, and it is appropriate to solicit advice from POS committee members. Mentors may provide advice on appropriate framing of the proposed research, hypothesis development, etc., and should feel free to edit the document with the student. Mentors should refrain from writing sections of the document and students should not use sections of the mentor’s grant proposals as a basis for their proposals. The written proposal should be 10-15 pages in length, 11-12-point font, double spaced with 1” margins. This page limit does not include a title page and references. A list of key references is expected. It is appropriate to use an NSF or NIH style organization for the proposal. Other formats may also be appropriate, though it would be preferable to solicit mentor/POS committee input prior to the exam if an alternative format is desired.

#### The body of the proposal should also include:

- 2-4 research goals/aims that test the hypothesis of the proposal. It is possible that one aim may not directly test the hypothesis: it is appropriate to have an aim dedicated to developing an assay or preparing a research tool that will be used to test the hypothesis, if this is a novel assay, synthesis, etc. Each research goal may or may not have a separate hypothesis related to the “global hypothesis.”
- A statement of the barriers that have prevented this work from being performed previously. For example, “System X has not been defined previously because necessary component Y is required to probe this system and was only recently purified by our laboratory.”

- Introductory material: what is the current state of knowledge regarding your system? If the goal of the proposal is to define how a specific biological process occurs, discuss current models, whether you agree with those models, and propose your own testable model, if appropriate.
- A definition of how the positive result of the proposed experiments will be beneficial. Will this result help develop a new drug, define a novel biochemical pathway, define a model system, etc.? What if the experimental approach fails? Discuss alternative approaches.
- A thorough, but not overly detailed description of the proposed experiments. It's good to define experiments such that "enzyme X will be assayed with substrates a, b and c," but probably not necessary to mention the Sigma part numbers for each substrate or the order in which they will be added to the reaction vessel unless those details are fundamental to the experiment. It will be appropriate to describe how any critical materials are prepared. It is appropriate, though not required, to include preliminary data that support the proposed experiments, for example, an SDS-PAGE gel showing the target protein was expressed and purified by the student.
- Some students may find they have accumulated a large amount of data and published one or more manuscripts prior to taking the Preliminary Examination. This preliminary work can address one or multiple aims and should be incorporated to strengthen the proposal. It is appropriate and beneficial to incorporate completed experiments into the Aims but also important to build on these data and provide a clear picture for where the project is headed. Furthermore, the committee will determine whether successful completion of the proposed experiments is enough for writing and successfully defending a dissertation.
- Often, students work in collaborative teams to achieve a goal. It is important that the student describe and fully understand what work will be done by a collaborator, though the Preliminary Examination should focus on what contributions will be made by the student.
- Please note that this guideline for preparing the written proposal and guide the oral defense is intended to fit most students and most projects, however, some dissertation research projects

might involve two or more separate research areas that cannot fit under a single “global hypothesis.”

- It is strongly suggested that the proposal is written around a clear and testable hypothesis (the “global hypothesis”). Note that a good hypothesis provides new knowledge whether the expected result occurs.

*Here are two potential options for these proposals:*

- Choose the strongest and most developed project and write a complete proposal covering that project alone. How would you thoroughly evaluate a single “global hypothesis?”
- Find a theme that links the two projects and develop each with a separate hypothesis. For example, one student is working towards solving the 3d structure of the transcription factor FgbT protein from *Saccharomyces cerevisiae* that controls methionine biosynthesis and developing a method to measure metabolic flux through valine biosynthesis. In an introduction section, the student would explain that the goal of their project is to describe two aspects of amino acid biosynthesis, then introduce each problem and the relevant hypotheses.

### The Oral Defense of the Preliminary Proposal

The goal of the defense is for the student to demonstrate a clear mastery of the current state of knowledge regarding the proposal topic, and the theoretical expertise to appropriately probe the topic according to the proposed experiments. A fundamental component is a defense of a hypothesis. Do the proposed experiments probe the hypothesis? Will successful completion of the experiments provide new information? What happens if the hypothesis is incorrect? Does the student display a deep understanding of the basis of the experimental techniques proposed, their strengths, and their limitations? Is the student an expert in the literature relevant to their project? Gaps in knowledge are expected; however, it is important to acknowledge those gaps and then be able to propose experiments or hypotheses to address gaps. The oral component of the Preliminary Examination may include questions regarding general knowledge in the field of biochemistry and courses completed by the student.

Students should plan on at least two hours for the preliminary oral examination. Schedule the exam with your program of study committee (POSC) and then submit the [Online Examination Request](#) at least two weeks prior to the exam date.

### Timeline Requirements for the Preliminary Oral Exam

For admission to candidacy for the PhD degree, BBMB requires a student to first pass the ORPE (generally attempted in the third semester) then take an oral preliminary exam by the end of the fifth semester, exclusive of the summer terms. The Graduate College requires that the Program of Study (POS) Committee and POSC be approved by the Graduate College no later than one semester before the preliminary oral exam.

The preliminary oral exam request must be submitted [online](#) at least two weeks before the scheduled exam date.

#### *Decision of the POS committee for advancement to candidacy*

Following the preliminary oral exam, the student's POS committee will review the performance on the written and oral portions of the exam and complete the electronic Report of Preliminary Exam. The student will be notified when the POS Committee has reached its decision. The committee has four options:

The student passes and the POS committee recommends to the Graduate College that the student be admitted to candidacy.

The student may continue his or her studies but must meet other conditions specified by the POS committee on the "Report of Preliminary Oral Examination" form under "Conditional Pass" before being recommended for admission to candidacy.

The student fails but is given an opportunity to repeat the examination six months after the first attempt. An explanatory letter must accompany the report form.

The student fails and is not permitted to continue to work toward a PhD at ISU. An explanatory letter must accompany the report form,

In the case of a failed exam, six months must elapse between the first attempt and the next. Note that the preliminary oral examination must be passed at least six months prior to the final oral examination and must be requested at least three weeks before the scheduled final exam.

The preliminary oral exam is conducted by the student's POS Committee. If a student fails the first preliminary exam, and is granted an opportunity to reattempt the exam, the reattempt must be taken no less than six months following the first attempt and must be completed by the end of the seventh semester. Failure to take

the preliminary exam within the timeframe described above can result in termination of the Graduate Research Assistantship and loss of tuition scholarship.

Refer to the [Graduate College Handbook](#) for more information about eligibility and requirements.

## Final Oral Exam

Schedule the final exam with your Program of Study Committee (POSC) and then submit an [Online Examination Request](#) at least three weeks prior to the exam date. PhD candidates must wait at least 6 months after the preliminary exam before scheduling the final oral exam.

Consult the Graduate College [website](#) and online Graduate College Handbook for information regarding deadlines, policies and guidelines and plan for graduation through Access Plus. Cancel your graduation plan as soon as you become aware of circumstances that will not allow graduation.

The results of the exam are reported on the electronic Report of Final Exam via a link sent to the major professor. As with the preliminary oral exam, the final oral exam (thesis defense) has outcomes of pass, conditional pass or fail. A conditional pass requires additional work from the student, and a fail (a rare event) will not allow graduation.

### Finishing Up

After successfully passing the final oral exam, follow the [deadlines set by the Graduate College](#) to complete degree requirements and earn the advanced degree. These include submitting the Graduate Student Approval Form, completing the Thesis Checklist, and uploading the thesis to [ProQuest/UMI](#). Watch for an email requesting revisions or stating acceptance of your thesis. Receiving an acceptance email is typically the last communication you receive from the Graduate College before you graduate.

Iowa State University holds a commencement ceremony following the fall and spring semester. The University does not hold a university commencement ceremony following the summer term. Students who plan to complete degree requirements during the summer term have the option of attending either the spring or fall university commencement ceremony. If you wish to attend your commencement ceremony, please visit the [Graduation and Commencement](#) website for information and instructions. And congratulate yourself for a job well done.

### Timeline Requirements for the Final Oral Exam

The final oral exam must be scheduled at least six months after successfully passing the preliminary exam.

The final oral exam request must be submitted [online](#) at least three weeks before the scheduled exam date. Refer to the online [Graduate College Handbook](#) for more information.

## Professional Development and Career Planning

Iowa State University and the Graduate College offer several programs to enhance professional development and assist with career planning during your tenure as a graduate student.

- [Preparing Future Faculty](#) (PFF). The PFF program offered by the Center of Excellence in Teaching (CELT) is designed to better prepare graduate students for faculty careers at a variety of institutions through a combination of seminars, mentoring, and practical classroom and departmental service experiences
- [Pappajohn Center for Entrepreneurship](#). Is designed to help students explore strategies and resources available to becoming an entrepreneur.
- Individual Development Plan (IDP). During the first semester in the program, with the guidance of the BBMB Graduate Learning Community ([GLC](#)), complete the online Individual Development Plan ([IDP](#)), a self-assessment tool to be used as a learning tool and resource for professional development and career exploration. Recommended for all graduate students. The student should update and review their IDP with their major professor at least once a year. During the annual evaluation process is a convenient time.
- [Graduate College Career Services](#). This office offers current and recently graduated students career services, including individual consultations, networking opportunities and professional development workshops. [Graduate College Center for Communication Excellence \(CCE\)](#). The Graduate College CCE offers consultations and workshops on speaking and written communication.
- [Graduate and Professional Student Senate \(GPSS\)](#). For students interested in community service, becoming a GPSS senator gives a student the opportunity to represent the graduate and professional students' perspective on campus issues and to serve as a liaison between graduate/professional students, the university administration, and the Board of Regents.

- [BBMB Graduate Learning Community](#). The BBMB Graduate Learning Community (GLC), led by current graduate student peer mentors and a faculty adviser, and the GLC explores professional development and careers for graduate students in BBMB.

### Travel to Scientific Meetings

BBMB encourages all students to participate in scientific meetings and expects a graduate student will travel to at least one scientific meeting during their academic career to either present their research or learn more about their research area.

*Support for Travel to Scientific Meetings.* The BBMB department does not provide funds directly to graduate students for travel to meetings; it does offer travel funds to faculty when available to support these expenses for their students and research staff. Please talk with your major professor or supervisor about the availability of these funds as soon as possible before attending a meeting. The ISU Graduate and Professional Student Senate ([GPSS](#)) offers limited support for travel to professional meetings and conferences. The online Professional Advancement Grant ([PAG](#)) application should be submitted as early in the semester as possible prior to travel anticipated during that academic year.

*Travel Expenses.* A request for reimbursement for eligible expenses to attend a meeting should be submitted promptly upon return from travel. Original receipts are necessary for major expenses, such as hotel and car rentals. Airline tickets may be purchased through Travel and Transport or other selected agencies (see Diane Jepsen for details) and can be charged directly to a fund account supporting this expense.

## Student Code of Conduct

Violations of the ISU Student Code of Conduct are found here: [KNOW THE CODE](#).

Academic misconduct by graduate students is taken very seriously. The more serious cases involve cheating or plagiarism on preliminary written and oral examination, thesis or dissertation. Plagiarism involves taking or passing off as one's own the ideas or writings of others. Other individual's ideas or writings should always be openly acknowledged and thoroughly referenced. Such matters of misconduct are very serious violations of academic ethics and usually result in dismissal from the University without a degree. Cheating on a course examination or plagiarism on a paper related to a course is also academic misconduct. If a graduate student is believed to have

plagiarized a term paper or to have cheated on an exam, most often that situation is handled informally between the professor and the student or by a representative of the Department. The student or the faculty member may ask for more formal review by the Dean of Students' office using policies developed for ensuring that due process is followed. A formal investigation of the situation may be conducted by the [Dean of Students](#) office, a hearing held by a committee of the all-university judiciary, and a recommendation made to the [Vice President for Student Affairs](#). The student may appeal to the Vice President for Student Affairs if he/she is not satisfied with the decision of the hearing committee.

#### Dismissal Criteria

Continuing registration as a graduate student at Iowa State University is contingent on maintaining good standing in a graduate major. Students are expected to complete their graduate degree or certificate in a satisfactory and timely manner. However, there are several situations that may require severing the relationship between the program or department and a student.

A student may be dismissed, that is, removed from their graduate program and not permitted to register, for the following reasons:

*Failure to progress satisfactorily in his/her degree program.* This may be evidenced by a lack of research progress, failure to complete required components of the major by deadlines specified in this handbook, a lack of aptitude for biochemistry or biophysics, or a failure to maintain a satisfactory academic standing, as defined by the Iowa State University [Graduate College Handbook](#).

*Lack of a major professor.* Because a graduate degree in biochemistry and biophysics at Iowa State are centered around a mentored research project, it is impossible to complete a degree without a research mentor, or major professor. To maintain good standing and earn a degree, a student must have an approved faculty member serving as his or her major professor. A student admitted to the Biochemistry or Biophysics rotation program has up to one academic year (fall and spring semesters) from the date of entry into the program to find a faculty member willing to serve as his or her major professor. The program will assist a student in their search for a major professor; however, final responsibility for finding a major professor rests with the student.

Occasionally, faculty who have previously agreed to serve as a major professor become unable or unwilling to serve. Faculty desiring to terminate their service as major professor may do so by notifying the student and the Co-DOGES of the program in writing. A student who has lost his or her major professor has up to three months after the date of written notification to identify another faculty member willing to serve as major professor before they must leave the program. The program can assist the student to search for a new major professor, if the student desires.

*Academic dishonesty.* The proper conduct of science requires the highest standards of personal integrity. Because of this, dishonesty in the classroom or in the conduct of research is considered a serious offense by BBMB and by the University. Students accused of academic dishonesty will be dealt with according to the procedures outlined in the [ISU Catalog](#) and the [Faculty Handbook](#). Possible punishments can include dismissal from the program and expulsion from the University, depending on the severity of the offense.

#### Dismissal Procedures

A student's POS committee, or if the student has no POS committee, the department can recommend the dismissal of a student for any of the reasons listed above. Decisions for dismissal are made by the Co-Directors of the graduate program in biochemistry and biophysics and the Department Chair. Procedures for dismissal are as described in the Iowa State University [Graduate College Handbook](#). Before a dismissal is decided, the graduate program office must give the student a written justification for why dismissal is being considered. A co-Director of the graduate program in biochemistry and biophysics must also discuss the situation with the student, as well as his or her major professor and POS committee, in an attempt to find a satisfactory resolution. This discussion constitutes the "informal conference" as described in the Student Grievances section of the [Graduate College Handbook](#). If a satisfactory resolution cannot be reached and there is a vote to dismiss the student, either party may bring the issue to the attention of the Associate Dean of the Graduate College for a decision. The student may appeal the decision of the Associate Dean, as described in the Graduate College Handbook.

*Appeal Process.* The University has established appeal processes for student grievances. These vary depending on the nature of the grievance, and are described in the [Graduate College Handbook](#). Generally, these procedures begin with the program co-chair or the appropriate department chair. It is usually best for all parties if a

satisfactory resolution can be reached without initiating a formal appeal process. The Associate Dean of the Graduate College is available to informally consult with students and faculty.

## Department Administrative Services and Procedures

Iowa State University and BBMB provides a variety of administrative services for students. Following is a list of a few important services for students to be aware of.

- *Molecular Biology Building Access:* Keys and key access can be requested by completed the Key Request Form found in the 1210 MBB Administrative Suite. Pickup and return of keys are done through [Key Services](#) in the General Services Building. Return any keys when no longer needed so your key authorizations can be removed from your responsibility. Failure to return keys will incur charges on your U-bill and a hold on release of academic records by the University. Review the [Keys and Building Access Cards policy](#) if you have any questions.
- [Biotechnology Technology Services](#). Provides a variety of training courses and research facilities to faculty, students and staff for their research.
- *Information Technology.* [Biology IT](#) is a collaborative effort of the College of Agriculture and Life Sciences and the College of Liberal Arts and Sciences, the two colleges that jointly administer BBMB. They work with faculty, staff and graduate students in the biological sciences to ensure that their computing experience is fast, stable and secure. They provide system support, backup, software licensing, web development, research IT consulting and access to high-performance computers.
- *Wi-Fi access and charging stations* are available in the MBB Atrium, if not readily available in the lab and are paid by student fees.
- *MBB Conference Room Access and Meeting Reservations.* All students and staff working in the Molecular Biology building (MBB) have access to all four conference rooms in MBB via your lab or office key. Reservations are made using the [MBB Conference Room Online Reservation System](#). Login with your ISU NetID and password. There are two reservation categories ("MBB General" and "Computer Lab"). MBB General is available to all users in MBB.

- *Office supplies and office equipment use.* There is a copier in 1224 MBB for faculty and student use. Please ask your supervisor for the copier codes. Desks and office supplies are provided by supervisors to graduate students. Supplies and use of office equipment in the 1210 Molecular Biology Building Administrative Suite is for the sole use of the Department administrative staff.
- *Lactation Room.* There is a private lactation room in 1224A MBB. Please ask BBMB administrative staff about access.
- *Laboratory Property - Apparatus and Furniture.* Every item of ISU property that is in the laboratory or office assigned to you by your major professor becomes your responsibility, even though the arrangement may be temporary. This includes lab benches, all shelving, desks, chairs, stools and all scientific equipment. If you want to dispose of movable items of ISU property, you should first consult with your major professor; he/she may want to store it for future use or transfer it to someone else in the research group or in the department. Before removing any item, the inventory number must be reported to the department office.
- *Theft of University Property.* If an item of ISU property for which you are responsible has been stolen, please report the details of the theft to your major professor and the department office. The department is required to submit a report of thefts to the Vice President for Business and Finance, Campus Security Office and the *Facilities Planning and Management Office*.
- *Lost and Found.* A Lost and Found is located in the 1210 Molecular Biology Building Administrative Suite. Items are held until the end of each semester or term and then turned over to ISU. ISU also has an online Lost and Found [website](#).
- *Parking.* Students are eligible for a permit to park in the lot behind the Molecular Biology building. Visit the ISU Parking Division Permits [webpage](#) for information. Visitors can obtain a Visitor Parking Permit from the [ISU Parking Division](#).

## Other Helpful Websites for Students