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GRADUATE STUDENT POLICY MANUAL
Biochemistry Graduate Program

PROGRAM CONTACT INFORMATION

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Degree Options: Overview

UGS Bulletin for BIOC: https://biochemistry.indiana.edu/student-portal/graduate/requirements.html

Master of Science in Biochemistry

Course Requirements

A minimum of 30 credit hours, of which 12 credit hours must be in biochemistry graduate coursework other than B880 and B600. Students are required to rotate (B580) in two laboratories in the fall semester and to participate in the biochemistry research club (BMB seminars) during their second year of the program. The graduate advisor must approve all coursework.

Thesis: Required.

Final Examination: Oral, covering thesis and major.

Doctor of Philosophy Degree in Biochemistry

Course Requirements

A total of 90 credit hours, of which 11 are satisfied by the core courses (B530, B531), one semester of B580, Grant Writing (B680 or equivalent), B502, and two semesters of B600 (or equivalent) or one semester each of B600 and C689 (or equivalent). An additional 7.5 credit hours outside the minor field complete the Biochemistry major. Six additional elective hours are required in one of the two minor fields and must be approved by the student's advisory committee, though the students may instead meet the requirements of a suitable outside minor. Students must also complete the ethics training as defined by the National Institutes of Health Responsible Conduct in Research guidelines or take BIOL L524 Ethics and Career Development. Students must also give two BMB seminars, the latter generally in their 4th and 5th years of graduate study.

At the end of the first semester, each student selects a research advisor and laboratory. Together with the advisor, the student also selects an advisory committee of three or four more faculty members appropriate to the student's intended degree including one from the prospective minor field (see below). This advisory committee guides and monitors the student's subsequent independent work and guides the student's selection of advanced courses. The biochemistry graduate program requires that each student meet with the advisory committee at least once per year, including a first meeting before October 31st off their third semester.

Final Examination

Oral, covering dissertation, major, and minor. The final requirement is a Ph.D. thesis, which must be defended in a public research seminar and in a meeting of the research advisory committee.

Transfer Credit:

<u>Transfer from One Department to Another:</u> Matriculated students wishing to transfer from one department within the University Graduate School to another should first consult their graduate advisors or advisory committees and the graduate advisor of the new department about the wisdom of the change. International students desiring to make such a change must also obtain the approval of the Office of International Services.

<u>Transfer of Credit:</u> Upon recommendation of the department and with the approval of the Dean, work taken for graduate credit at other institutions may be transferred in partial fulfillment of degree requirements. No course may be transferred from another institution unless the grade is B or higher and unless the course was completed within the time limit prescribed (see "Graduate Credit—General" section above). The following restrictions apply:

- Candidates for the M.A., M.S., LL.M., or M.A.T. degree may offer up to 8 hours of graduate credit from other institutions.
- Candidates for the M.A.T. degree who are graduates of Indiana University may offer up to 12 hours of graduate credit from other institutions.
- Candidates for the Ph.D. degree may offer up to 30 hours of graduate credit from other institutions.

It must be emphasized that the transfer of credit is not an automatic occurrence. Students must obtain the written consent of both their departmental advisor and the dean before credit earned at other institutions will be added to their records.

Registration:

<u>Full Time Study</u>: Ordinarily, students shall be considered full time if they are registered for 12 hours of credit (fall, spring) or 6 hours hours of credit (summer) and their programs of study meet with the approval of the departments. Courses taken as an auditor may not be counted in the definition of "full-time study"; however, courses taken to remove undergraduate deficiencies for admission may be counted.

Students holding appointments as associate instructors, graduate assistants, or research assistants must ordinarily be registered for 6 credit hours during each full semester.

For academic purposes, the University Graduate School will consider as full-time certain students who are exceptions to the above definitions: M.A. and M.S. candidates whose completed courses and deferred thesis credits total 30 hours; M.F.A. candidates whose completed courses and deferred thesis credits total 60 hours; and Ph.D. students whose completed courses and deferred dissertation credits total 90 hours, providing they are working on theses or dissertations for the completion of the degree. Such students, however, must enroll in at least one hour of graduate thesis (for master's students) or dissertation (for doctoral students) credit each semester. For master's candidates, such enrollment will be limited to the five-year period allowed for completion of the master's degree; this enrollment for doctoral candidates will be limited to the seven-year period after passing the qualifying examination. Students who have already accumulated 90 or more hours of graduate credit and who hold university-administered student appointments as associate instructors, graduate assistants, or research assistants amounting to at least 0.375 FTE (15 hours per week workload) will be required to enroll for at least 6 hours of credit during each semester they continue to hold an appointment. Such hours will be charged at the allocated fee rate.

Students may take no more than 16 hours of credit in any semester or more than a total of 16 credit hours in all the summer sessions in any one year without permission of their graduate advisor. Students who are employed are advised to take into account the demands that such activities make on their time and to reduce their course loads accordingly.

Academic Integrity: Students are expected to adhere to the highest ethical standards in all their course work and research. Individuals violating that code of conduct are subject to disciplinary action; such breaches could lead to expulsion of the student from Indiana University or to rescission of a degree already granted. To acquaint students more fully with the range of issues relating to academic integrity, The University Graduate School has prepared a document entitled *Integrity in Graduate*

Study which is provided to incoming students during orientation week. Students also can refer to Indiana University's Code of Student Rights, Responsibilities, and Conduct (https://studentcode.iu.edu/). Academic misconduct is any activity that tends to undermine the academic integrity of the institution...it may include, but is not limited to human, hard-copy, or electronic resources, cheating, fabrication, plagiarism, interference, violation of course rules, and facilitating academic misconduct.

University Graduate School Grade Requirements:

<u>Grades:</u> Grade points are assigned at Indiana University according to the following scale, and grade point averages are computed taking into account any plus or minus which accompanies a letter grade.

A =	4.0	C =	2.0
A- =	3.7	C- =	1.7
B+=	3.3	D+=	1.3
B =	3.0	D =	1.0
B- =	2.7	D- =	0.7
C+=	2.3	F =	0

Ordinarily a minimum of a B (3.0) average in graduate work is required for continuance in graduate study, and for all graduate degrees. Courses completed with grades below C (2.0) are not counted toward degree requirements, but such grades will be counted in calculating a student's grade point average. Some departments may require an average grade in graduate courses higher than 3.0, while others may count no courses completed with grades below 3.0 toward degree requirements (see departmental entries). No work may be transferred from another institution unless the grade is a B (3.0) or higher. Note that a student in the Biochemistry program must maintain a minimum grade point average of 3.2 in order to remain in "good standing" and retain a merit-based fellowship or award.

BIOC Program Grade Requirements:

Course Work -- General Requirements

A student must maintain a minimum grade point average of 3.2 in order to remain in "good standing" and retain a merit-based fellowship or award. Students who receive a grade lower than B- in a course may be required to repeat it.

The doctoral student in biochemistry may elect to minor in one of the two approved program minor tracks (Genome Biochemistry and Supramolecular Complexes). The minor shall consist of 6 credit hours of the courses listed their chosen minor track.

<u>Pass/Fail Option</u>: Students in good standing (i.e., with a grade point average of 3.0 or better) who have completed graduate course work sufficient for a master's degree may, with the written consent of their graduate advisor or of their advisory committee, enroll in courses outside their major and minor areas on a pass/fail basis under conditions stated in a memorandum available from the University Graduate School office. Such courses may not be used to fulfill departmental language or research-skill requirements.

Enrollment under this option will be made at the beginning of the semester and may not be changed after the date fixed for dropping and adding of courses.

Incomplete Grades: The grade of Incomplete may be given only when the completed portion of a student's work is of passing quality. It is the responsibility of the student who has incurred the grade of Incomplete in any course to satisfy the requirements of that course within one calendar year from the date on which the Incomplete is recorded. The student is expected to finish all necessary work in time for the instructor to assign a regular grade before the expiration of this time period. If the student is unable to do so because of circumstances clearly beyond the student's control, it is the student's responsibility to notify the instructor of the course, the graduate advisor, and the dean within the year of such circumstances and to request an extension of time. According to university policy, every overdue Incomplete will be changed to F after one calendar year. Both the student and the instructor shall be notified of this change in grade. This change will be made unless the dean has received notice of a regular grade duly assigned before that time or has approved a request for an extension of time. A change of the grade F will be considered only if the request for change is accompanied by an explanation of the circumstances involved. Students may not register in a course in which they have a grade of Incomplete.

These regulations do not apply to research and reading courses in which completion of the course work is not usually required at the end of the semester. Such courses are indicated in departmental listings by the sign "*"; incomplete work in those courses will be denoted by R (deferred grade).

Withdrawal from Course Work: Withdrawals prior to the "last day to drop a course with an automatic W" (see official calendar for each semester) are automatically marked W. According to university regulations, withdrawal after this date is permitted only with the approval of the dean of the student's school for urgent reasons related to the student's health or equivalent distress. In all such cases, the student must submit a request for late withdrawal to the advisor or to the departmental chairperson. This request must be supported by the instructor of the course, the graduate advisor, and the departmental chairperson and then be forwarded to the dean with an accompanying statement outlining the reasons for the request. If the dean approves the request, the student's mark in the course shall be W if the work completed up to the point of withdrawal is passing; otherwise a grade of F shall be recorded. Failure to complete a course without an authorized withdrawal will result in the grade of F.

Synopsis of a Graduate Career in Biochemistry

From the moment a student enters the program, the graduate faculty will work to support and mentor students and facilitate success. Each student brings a different set of experiences to the program and takes a different path to the Ph.D. degree. If a student faces specific academic challenges, such as the lack of specific coursework to enter the curriculum, uncertainty about English proficiency, or any personal concern that impacts their ability to succeed, the program can take actions to support the student. They should communicate with the program administrator, the DGS (Director of Graduate Studies), or the Dean for Graduate Education for support.

Submission of a Ph.D. thesis containing the results of original, publishable research remains the culminating and defining event of a graduate career. Graduate students achieve that final event in stages, progressing from mostly academic work to full-time research. Students are guaranteed five years of graduate funding, including their first–semester fellowships, though research advisors may choose in some cases to support their students for longer than this period. Thus, students should aim to finish all their degree requirements within five years if they wish to be certain that their graduate studies will be supported by research or teaching appointments.

Year 1. During the first year, students take Core Courses designed to introduce topics that the faculty consider essential for anyone pursuing research in Biochemistry. Students may also choose their minor

and begin taking courses to complete their chosen minor, although there is no need to choose a minor until engaging diverse coursework. In addition, after familiarizing themselves with the faculty and the research interests of the labs, they begin research by engaging in brief projects in three laboratories ("rotations"). A brief written report that focuses on the research area and experimental basis for each project will be submitted following each rotation. Coursework may be completed in any semester over the first three academic years prior to candidacy.

At the end of the first semester, students select a research laboratory in which to do their thesis research and assemble an advisory committee to help oversee the research. The advisory committee is not the same as the thesis committee, although the membership is often the same, and persists only until the student reaches candidacy. After joining a lab the student formulates and develops a research plan appropriate to propose as a thesis topic to the student's advisory committee in the Fall semester of the second year. That topic is normally used to prepare the research grant proposal in the grant writing course the following semester and serve as the thesis topic, but projects obviously evolve and students research plans are not constrained by these proposals. They serve instead as a vehicle to allow the student to demonstrate the elements of a successful research grant proposal and a critical vision for a multi-year research program. Making very effective use of the second semester and first summer is crucial to remaining "on track" and ensuring a positive outcome in the Preliminary Examination.

Year 2. During the second year, research occupies an increasing portion of a student's time, and formal academic work usually occupies a decreasing fraction. Second-year students are required to enroll in *Grant Writing* and to enroll in B600, a literature seminar course, for two terms. In addition, second-year students continue fulfilling Minor requirements with advanced courses. Students should also attend all four sessions of the Responsible Conduct in Research series during their second year. The most important milestone in Year 2 is typically completed by mid-October and involves the formation of an Advisory Committee that will oversee the student's research. This process is described in detail below.

Year 3 and beyond. The culminating event of the first semester of the third year is the Preliminary Examination. This examination seeks to determine whether a student is successfully prepared for the Ph.D. program based on his/her academic and independent study and research experiences. Students who pass the exam are admitted to formal candidacy for the Ph.D. degree.

Once admitted to Ph. D. candidacy, students spend the majority of their remaining time in graduate school working on their research projects. However, the thesis is not the sole remaining requirement. First, we require that every student do some teaching (at least one semester) during the course of her/his graduate career. Second, it is a requirement that all graduate students will attend and participate in the Biochemistry Research Club (BMB) and in the Biochemistry Seminars Series by visiting speakers. Students are required to give two research presentations in the BMB club, generally in their 4th and 5th years and attend all of these talks. This is a crucial opportunity to learn about science outside your own field, become comfortable in participating in research talks, to learn about available technologies to support your research, and to build connections with other students in the graduate program.

Selecting a Minor

In addition to completing the Core Courses, which fulfill the major requirement in biochemistry, students must complete a Minor. Students generally complete this requirement in the second year but may do so at any point over the first three years. You may choose to minor in one of two tracks within the Biochemistry Program: Genome Biochemistry and Supramolecular Complexes. To meet the internal minor requirement, six hours of work must be completed within one of these areas. Students may also elect to pursue minors outside Biochemistry should that coursework support their research interests (see below). A faculty representative from the minor program must serve on the student's advisory committee and the outside program sets the requirements for degree completion.

Genome Biochemistry

Biochemistry:

- B511 Replicating the Genome (3 cr.)
- B512 Mechanisms of DNA Repair (1.5 cr.)
- B513 Cellular Responses to DNA Damage (1.5 cr.)
- B680 Current Advances in Genome Biochemistry (1 cr.)

Alternative courses: With the approval of the minor advisor, a student may be allowed to substitute one or more of the following courses towards the 6 cr. minor.

Biochemistry:

- B680 Digital Imaging: Light and Microscopy (1.5 cr.)

Biology:

- Z620 Digital Biology: Bioinformatics (3 cr.)
- Z620 Transcription, Epigenetics, & Human Disease (3 cr.)
- L585 Genetics and Bioinformatics (3 cr.)
- Z620 Current Advances in Genome and RNA Biology (1 cr.)

Supramolecular Complexes

Biochemistry:

- B522 Structural Biology of Supramolecular Complexes (1.5 cr.)
- B680 Structural Virology (1.5 cr.)
- B680 Biological Electron Microscopy (1.5 cr.)
- B680 Digital Imaging: Biological Electron Microscopy (1.5 cr.)

Chemistry:

- M503 Supramolecular Chemistry (3 cr.)

Alternatively, students may complete a minor in another department or program. In this case, the minor requirements are determined by the host department or program. Biochemistry students have previously completed outside minors in Chemistry, Virology, Microbiology, Genome, Cell and Developmental Biology, Genetics, Physiology and even Geology. Minors should be selected in consultation with your Ph.D. advisor and must be approved by the Graduate Advisor. Students may also complete an individualized minor (contact BIOC graduate office for more information).

The First Year of Graduate School

Fall Semester:

B530 and B531 are parts of our core courses for all first-year graduate students. We hope that these introductory courses are an efficient and exciting way to begin graduate study.

Fall Courses:

B530	Macromolecular Struct/Function
B531	Biomolecular Analysis/Interaction
B580	Laboratory Rotations

B530 (1.5 credits) Macromolecular Structure and Function. This course is the first half of a series (with B531) and covers aspects of protein structure and analysis, including methods to determine structures by nmr or crystallography.

B531 (1.5 credits) Biomolecular Analysis and Interaction. The second half of the series focuses on experimental approaches for probing macromolecular structure and analyzing binding events.

B580 (3.0 credits) Research Rotations. The rotations are designed to enable students to sample the interests, approaches, and styles of individual laboratories (usually 3) in some depth. It is expected that rotating students will participate in some aspect of on-going research, usually by carrying out a small project under supervision. Although the 5 weeks of a rotation are only occasionally long enough to permit a project to be finished, this period will provide a student with considerable opportunity to learn how the laboratory approaches science. Rotations must be carried out in the laboratory of an investigator within the Biochemistry Graduate Program. If a student wishes to carry out a rotation in a lab that is not affiliated with the Program, they must obtain the explicit, written consent of the Director of Graduate Studies <u>before</u> beginning work in that lab.

Students will also be enrolled in **B880: Research: Biochemistry** (filler credit hours to reach a total of 12 cr hrs per semester)

Spring Semester:

Spring Courses:

B502 Analysis of Biochemical Literature

B502 (1.5 credits) Critical Analysis of the Biochemical Literature. This course meets one day a week for the entire semester. Each session focuses on detailed examination of the techniques, results, and interpretations presented in one scientific paper. The papers chosen and discussion format used are designed to teach students how to critically evaluate scientific data and writing for themselves

Students will also be enrolled in **B880: Research: Biochemistry** (filler credit hours to reach a total of 12 cr. hrs per semester).

The Second Year of Graduate School

During the second year, students will take advanced courses, which are usually half-semester (8-week), 1.5-credit courses devoted to specialized advanced subjects. Some of these classes build upon the core courses while others will be used to fulfill the minor requirement for the Biochemistry Ph.D. degree. Students typically decide among available courses in consultation with their mentors and the program administrator. Also, most students complete their Responsible Conduct in Research seminar series during their second year to fulfill their ethics requirement.

Fall Semester:

Fall courses:

B680 Grant Writing

B600 Seminar in Biochemistry

B680 (1.5 credits) Grant Writing. This course will help students prepare for writing a research proposal for writing a research proposal for their Ph.D. preliminary examination.

B600 (1 credit) Seminar in Biochemistry. The two-semester seminar course will involve advanced critical analysis of the current scientific literature and scientific presentations. Attendance and participation in the weekly Biochemistry Program seminar series is required.

Spring Semester:

Spring courses:

B600 Seminar in Biochemistry

Note: Curriculum subject to change, students will be advised.

Other Activities

All students must attend and participate in BMB Club (*Biochemistry and Molecular Biology Club*) on Wednesdays 11:45am-12:45pm, and the Biochemistry Seminar Series on Fridays at 2:30pm. Speakers and titles can be found on the website here. Students are required to give two presentations at BMB during their graduate careers, generally in their fourth and fifth years. Both BMB talks should be based on the student's research.

International students must pass the Test of English Proficiency for AI (TEPAIC) exam by December 14th of their first year. *Those who do not pass will not be guaranteed support* as a research or teaching assistant and is subject to dismissal from the program. Students who do not pass the test upon entering the program are encouraged to take a graduate course that focuses on developing language skills. Contact the program administrator for details.

Research and the Advisory Committee

For most students, the first summer is when research begins in earnest. It is very important for students to use this summer and the second year to become immersed in the research of their chosen lab and assume ownership of your research project. Success in the Preliminary Exam (at the beginning of the third year) requires such immersion. As your research project develops, you should begin consultation with your thesis advisor to identify an Advisory Committee. The committee will help evaluate and focus your research and will serve as your qualifying examination committee. This group is normally in place by the end of the summer of year 1.

Students must meet briefly with their Advisory Committee by the beginning of fall semester of their second year; this meeting is required for a student to be eligible to take the Preliminary Exam. Students must assemble and meet with their committees by end of October of their second year to remain in good standing in the program. In addition, students are strongly advised to meet with their research committees in the late spring or early summer of the second year to ensure that they understand what is expected of them for a successful Preliminary Examination.

In subsequent years of graduate school, students must meet with their Advisory Committee at least once per 12-month period. A yearly meeting is mandatory. If an additional meeting is deemed necessary, it may be called by the student, research advisor, or advisory committee. It is expected that all research advisors who accept Biochemistry students into their labs will participate in committee meetings. Student preparation for the meetings and thoughtful feedback by committee members help students (1) avoid or minimize pursuing unproductive lines of investigation, (2) produce careful and thorough studies, and (3) think critically and creatively about interpretations and possible future directions. Critical in-depth analysis and discussion of recent data and plans for the overall research project are crucial for the development of any research program. (The faculty does this by writing grants and convincing study sections of the value of their research.)

Prior to each meeting with the Advisory Committee, students should write up and distribute to the committee members a summary of research efforts, results to date, and plans for the future. After each meeting, the Advisory Committee must submit a written summary of the meeting and indicate whether the student is making sufficient progress toward completing a thesis. If progress is judged to be unsatisfactory, probation may be recommended (see section below). The student is expected to obtain the uncompleted document to the meeting for faculty to fill out and return.

The Third Year of Graduate School

During the third year, the main activities are research, seminars, and taking additional Advanced Courses. Some students may also meet the teaching requirement during their third year. The main milestone completed during the third year is the Preliminary Qualifying exam.

Preliminary Exam resolution by the end of the fifth semester

- 1) A Prelims Executive Committee (PEC) has been established which will make the final pass/fail determination for each student and determine steps students must take to address deficiencies before they can be admitted to candidacy for the Ph.D. degree. This committee will consist of your research committee members (except for your PI), one of which will be chosen as the Chair by the DGS. While the final decision rests with the PEC, this committee will lean heavily on the evaluation of the student's Prelims Committee (see below). The PEC will also consult Ph.D. mentors and examine other aspects of the student's record during its deliberations. The three PEC members are the DGS, the Associate Chair of MCB, and a faculty member to be appointed each year, typically a rotating member to give departmental balance to the committee.
- 2) The conditional pass will no longer be allowed. Instead, after thinking carefully about the discussion at the faculty meeting, we have decided that students will be evaluated by their committees in four different areas: (1) productivity, (2) understanding of Ph.D. project, (3) plan for the completion of the Ph.D. project; and (4) biochemical literacy. Students must pass all four areas to be admitted to candidacy. We predict that many students will have made good progress in some of these areas but may have glaring deficiencies in others. Thus, a student who has done a great deal of work and has a good plan for his or her thesis, but, for example, can't write the structure of an amino acid, or doesn't know what an Okazaki fragment is, will be asked to re-take the oral exam, perhaps after serving as an AI in a particular course or sitting in on/ taking an additional course. Similarly, as student with a firm intellectual command of his or her project and related areas of biochemistry, but who has not made sufficient progress to convince the committee that s/he has the motivation necessary to earn a Ph.D. degree will have to present their research progress again after 3-6 months. The steps taken to correct major deficiencies will thus be tailored to each student. As you are all aware, there are four components of the student's exam: (1) the proposal, (2) the written exam, (3) the research seminar and (4) the oral exam. I have asked committees to provide feedback on the student's performance on each of these components (see attached evaluation form), but there is no requirement for students to "pass" each component. For example, a student may have a poor written exam, but then demonstrate that s/he has come to understand those issues in the oral exam. Similarly, a student may have flaws in his or her proposal, but demonstrate a clear understanding of the plan in the oral exam. Each component should be taken as a data point as committees evaluate overall progress in the four areas described in the paragraph above.

The time course for the exam is as follows:

- 1) The proposal must be turned in to the committee at least three weeks before the exam date. *The student's thesis advisor must approve the document before it is sent to the committee*. The advisor is allowed to help the student with this document; indeed, we hope that the student will learn a great deal about scientific writing from the advisor and senior group members during this process. However, the writing must be student's own.
- 2) The committee provides a written exam (generally 3-6 questions) no later than ten days before the exam date.
- 3) The student has 72 hours to complete the exam and return it to the committee.
- 4) The committee should fill out the evaluation form immediately following the exam. We recommend doing so on a laptop, then emailing it to bchem@iu.edu and to the student and copying the thesis advisor. If the committee would like to make comments directly to the PEC but not to the student, please e-mail them separately to BCHEM.
- 5) The PEC will meet within one week of the student's exam date (except during Thanksgiving week) to determine the outcome of the exam.

6) The DGS will arrange a meeting with the student and the PI to explain the results of the exam and any steps that must be taken before the student can be admitted to candidacy.

Finally, a word about the written exam. The committee chair is responsible for coordinating the written exam. The goal of this exam is to probe the student's understanding of his or her project, basic biochemistry, and areas related to the project in a more humane way than can be achieved in an oral exam. Questions can be closed-book (generally essential background) or open-book (often issues raised in the proposal). PIs may contribute questions to be used at the Committee Chair's discretion. The student should be keenly aware that these questions typically identify areas perceived as weak prior to the oral examination and be prepared to defend the content orally.

A student who does not pass the Preliminary Exam may not continue in the Ph.D. program. On a case-by-case basis, students who are otherwise in good academic standing may be admitted to a program leading to a Master's Degree.

NOMINATION TO CANDIDACY - Admission to Candidacy Status

Following the passing of the qualifying examination and the completion of all course work and departmental language or research-skill requirements (if any), the student will submit a Nomination to Candidacy Form to the University Graduate School requiring approval of Advisory/Thesis Committee and approval of the dean, the student will then be admitted to candidacy. By request, students can be provided a certificate of candidacy. The date of successful completion of the qualifying examination (not the date of final approval of candidacy) is the one used in determining the seven-year periods for currency of courses and completion of the dissertation.

The policy of the Graduate Faculty is that students may be dismissed for failure to maintain adequate academic progress toward the degree. For candidates, this standard is set by the faculty of each program or by the student's dissertation committee. The student must first be notified of deficient academic progress by being placed on probation for one semester. If the deficiency is not rectified, the student may be dismissed.

The Nomination to Candidacy for the Ph.D. eDoc/form is available to the students through One.IU, University Graduate School. (or simply search for *Nomination to Candidacy of the Ph.D. Degree Application*)

The Thesis Committee will receive the document. All members will receive the document at the same time and can approve the document in any order. The document will be read-only at this point, if they need a correction to be made, they will need to return the document to either the student or Biochemistry graduate office.

Nomination of Research Committee

(Typically, this is the same as your Advisory Committee)

To initiate research for the dissertation, the student chooses a professor who will agree to direct the dissertation. The department shall then recommend to the dean for approval a research committee composed of the chosen director (who will also normally serve as chairperson of the committee), two or more additional faculty members from the major department, and a representative of each minor. The committee should be selected from the members of the graduate faculty who are best qualified to assist the student in conducting the research for the dissertation. In the event that the dissertation research does not involve the area(s) of the minor(s) whether outside or inside the department the major department may request, with the consent of the minor-field representative(s), the substitution of a representative or of representatives from some other field(s) more appropriate to the topic of the dissertation. The committee

has the responsibility of supervising the research, reading the dissertation, and conducting the final examination.

All chairpersons of research committees and directors of research must be members of the graduate faculty with the endorsement to direct doctoral dissertations. If, however, special expertise in an area is held by a member of the graduate faculty who does not have the endorsement, the departmental chairperson may request that the dean approve such an individual as research committee chairperson or director of the dissertation research.

All members of a research committee must be members of the graduate faculty. At least half of the members of the committee must be members of the graduate faculty with the endorsement to direct doctoral dissertations; others may be regular members.

After consultation with and approval by the dissertation director and research committee, the student will submit to the University Graduate School a one- or two-page prospectus of the dissertation research. If the proposed research involves human subjects, animals, biohazards, or radiation, approval from the appropriate university committee must also be obtained. *The membership of the research committee and the dissertation prospectus must be approved by the University Graduate School at least six months before the defense of the dissertation.* Some programs may have deadlines which are earlier than those of the University Graduate School; therefore, students should consult with their program office.

The **Nomination of Research Committee** edoc/form is available to students through One.IU.edu. Search for "nomination of research committee form" in the search bar, and the "PhD Nomination of Research Committee" tile should be the first one to pop up in the results. Once you click the tile, you create a new eDoc.

The Research Committee will receive the document. All members will receive the document at the same time and can approve the document in any order. The document will be read-only at this point, if they need a correction to be made, they will need to return the document to either the student or the Biochemistry Graduate Office.

Completing a Thesis

Research results that lead to a Ph.D. thesis becomes the focus of the students work once a student has passed the Preliminary Exam and all of the other course/academic requirements. There are two timing rules to be aware of: the advisory committee must meet at least once each year to evaluate the progress of the research, and the thesis must be accepted formally within 7 years following admission to candidacy.

The thesis itself must represent a body of independent, publishable work that makes a significant contribution to science. Ph.D. degrees are not awarded for purely academic achievement, nor in recognition of "time served".

It is also important that students understand the University's formalities for enrollment in courses and for tuition charges. For each of the first 3-4 years of enrollment, students can take up to 12 credits of course work during each semester of the academic year and up to 6 credits during the summer. These credits come from lecture courses, seminar courses, and research (initially as B580 for rotations and later as B880). Students will normally have completed 90 hours of coursework by the end of the 3rd year. Students who have completed 90 hours are then eligible to enroll in G901 (advanced research; 6 credits/ semester, excluding summer, during the academic year) in place of B880, at greatly reduced tuition rates. The University permits a student to enroll in G901 for up to 3 years (6 semesters). If a student should exhaust this eligibility for G901, his/her tuition will return to the original higher level.

Once the student, the thesis advisor and committee members agree that the thesis is nearly done, a student

should begin to plan a thesis defense. First, the student should select a date for the defense when all of the thesis committee members can be present. Prior to the defense, each committee member must receive a copy of the thesis that both the student and the advisor consider to be complete and polished - it should be properly typed and printed and include all figures and references. The draft of the thesis should be presented *at least two weeks* in advance of the public oral defense date.

Committee members are expected to read the thesis promptly and carefully. If they have major objections, they will express them at this stage and the defense may be deferred. It is more common that committee members will suggest revision of only portions of the thesis, and then they may reserve their comments for the thesis defense.

The thesis defense comprises two parts. It begins with a public presentation (i.e. a seminar), which must be announced in advance; the University Graduate School also requires that a 1-page summary and announcement of the dissertation be submitted 30 days prior to the scheduled defense. Following the presentation, the candidate meets with the thesis committee and is examined on the contents of the thesis. Theses may be accepted in their current form (rare), rejected (also rare), or accepted pending revision (common). Once a thesis has been revised to meet the committee's standards and the University's format requirements, the committee and research advisor certify its acceptance to the Graduate School and recommend that the Ph.D. degree be awarded.

The **PhD Defense Announcement** eDoc/form is available to students through One.IU.edu. Search for "PhD Defense Announcement" in the search bar, and the "PhD Defense Announcement" tile should be the first one to pop up in the results. Once you click the tile, you create a new eDoc.

<u>Dissertation</u>: The culmination of the Ph.D. program is the writing of the dissertation, which is required of all doctoral students. The dissertation must be an original contribution to knowledge and of high scholarly merit. The candidate's research must reveal critical ability and powers of imagination and synthesis. The dissertation is written under the supervision of a research director and a research committee, as described below. Although work published by the student may be incorporated into the dissertation, a collection of unrelated published papers, alone, is not acceptable. There must be a logical connection between all components of the dissertation, and these must be integrated in a rational and coherent fashion. It is the responsibility of the student's research committee to determine the kind and amount of published materials that may be included in a dissertation.

<u>Defense of Dissertation</u>: When the dissertation has been completed, the student should send a copy to each member of the research committee as the initial step in scheduling the defense of the dissertation. All members of the research committee should read the dissertation in its entirety before attending the defense. At this stage both the student and the faculty members must extend certain courtesies to each other. It is the responsibility of the student to give faculty members sufficient time to read the dissertation without making unreasonable requests of them based upon University Graduate School time limitations, immediate job possibilities, contract renewal, or some other reason. Similarly, a faculty member should not keep a student's work for inordinate periods of time because of the press of other duties. Once a faculty member assumes membership on a research committee, it becomes another part of his or her teaching assignment, comparable to conducting regularly scheduled classes.

After the committee members have read the dissertation, there should be direct communication (either in writing or orally) between the research committee chairperson and the other committee members about its readiness for defense. Readiness for defense, however, is not tantamount to acceptance of the dissertation; it means that the committee is ready to make a decision. The decision to hold a doctoral defense, moreover, is not entirely up to the research committee. If a student insists upon the right to a defense before the committee believes the dissertation is ready, that student does have the right to due process (i.e., to an oral defense) but exercises it at some risk.

If the decision to proceed with the defense of the dissertation is made against the judgment of one or more

members of the committee, or if one or more members of the committee disapprove of parts of or all of the dissertation, the committee member(s) should not resign from the committee in order to avoid frustration or collegial confrontation. The University Graduate School urges that such committee members, after ample communication with both the student and the chairperson, remain on the committee and thus prevent the nomination of a committee that might eventually accept what could be unsatisfactory work. Such a committee member could agree that a dissertation is ready for defense but should not be passed (or should not be passed without substantial modification). There will, of course, be situations in which the membership of research committees should or must be changed (e.g., turnover of faculty), but changes because of modifications in the dissertation topic or some equally plausible reason should be made early in the writing of the dissertation.

30 days Prior to Defense: The PhD Defense Announcement must be approved by committee and University Graduate School. The eDoc/form is available to students through One.IU.edu.

Once the final examination has been scheduled, the announced time and place of the defense must not be changed without the approval of the dean. Any member of the graduate faculty who wishes to attend the final examination is encouraged to do so; it is requested, however, that the faculty member notify the chairperson of the research committee in advance so that space can be arranged. With the approval of the research committee and the consent of the candidate, other graduate students may attend the defense of the dissertation; normally such students will act as observers, not as participants.

At the end of the oral examination, the research committee must vote on the outcome of the examination. Four options are available to the committee: (1) pass, (2) conditional pass, (3) deferred decision, and (4) failure. If the decision to pass is unanimous, the dissertation is approved once it is received by the University Graduate School along with an acceptance page signed by the members of the research committee. If the decision is not unanimous, majority and minority reports should be submitted to the dean who, within 10 working days, will investigate and consult with the research committee. Upon completion of the dean's investigation and consultation, another meeting of the research committee will be held, and if a majority votes to pass, the dissertation is approved when it is received by the University Graduate School with an acceptance page signed by a majority of the members of the research committee.

The student must have received acceptance of his or her dissertation and must submit a copy to the University Graduate School within seven years after passing the qualifying examination. Failure to meet this requirement will result in the termination of candidacy and of the student's enrollment in the degree program. Any student whose candidacy lapses will be required to apply to the University Graduate School for reinstatement before further work toward the degree may be done formally. To be reinstated to candidacy in the University Graduate School, the student must: (1) obtain the permission of the departmental chairperson; (2) fulfill the departmental requirements in effect at the time of the application for reinstatement; (3) pass the current Ph.D. qualifying examination or its equivalent (A department must define in advance specifically what is meant if an "equivalent" examination is to be used, and that definition must be approved by the dean.); and (4) request reinstatement to candidacy from the dean. Such reinstatement, if granted, will be valid for a period of three years, during which time the candidate must enroll each semester for a minimum of one credit.

The Teaching Requirement

Ph.D. candidates are participants in a venerable tradition that involves both learning and passing on knowledge. They have a responsibility to help teach others and to refine their ability to do so effectively. In recognition of this responsibility, the Biochemistry Ph.D. program requires that each student teach at least 1 semester during their graduate career. Generally, if a student chooses a thesis advisor in the Biology department they will teach Biology undergraduate classes. If a student chooses a Chemistry thesis advisor they typically teach a chemistry undergraduate course. If they choose an advisor form other program (Medical Sciences, Optometry, Psychology) then teaching commitments will be made fulfilled either with the thesis advisor's department or in the Biology and Chemistry departments.

It is also a requirement of the College of Arts and Sciences that all Ph.D. students take formal instruction in college teaching methods. There are usually several options for meeting this requirement; for example, the requirement can currently be satisfied by attending the Biology department's Howard Hughes Medical Initiative Teaching Workshop, held the week preceding the fall semester, the course L555, Seminar in Approaches to College Teaching or the Center for Innovative Teaching and Learning's Associate Instructor Orientation (AIO) held in the week before the first week of classes.

ACADEMIC PROBATION AND TERMINATION

<u>Probation</u>: The dean may review a grade record at any time and may place a student on academic probation if the record justifies such action. When the grade point average of a student falls below 3.0 or the student is not making sufficient progress toward the degree, the dean will notify the student that he or she has been placed on probation. Unless the student brings this record up to a 3.0 grade point average or begins making satisfactory progress in the next semester of enrollment, the student will not ordinarily be allowed to continue in the University Graduate School. -- Graduate Bulletin (January 16, 2014).

Note that a student must maintain a minimum grade point average of 3.2 in order to remain in "good standing" with the Biochemistry program and retain a merit-based fellowship or award.

The Graduate Program in Biochemistry, via the DGS, may also recommend to the dean that a student be placed on probation for failure to remain in good standing with the program. Such instances are detailed elsewhere in this document and include, but are not limited to: 1) failure to establish a research lab home after the conclusion of the first semester; 2) failure to remain and thrive in a research lab; or 3) failure to establish an advisory committee in a timely fashion; 4) failure to hold annual meetings with the advisory or thesis committee; 5) failure to present acceptable public presentations in the fourth and fifth year; failure to attend at least 80% of the BMB presentations given; or 7) failure to fulfill duties as an Associate Instructor (AI) for an assigned class. Students who are not in good standing are typically referred to the DGS for counseling, and students who believe they are not thriving in the program are urged to speak with the DGS to get back on track. Should a student be placed on academic probation, he or she will receive an explicit description of the perceived failing and a timeline to resolve the deficiencies. Students who fail to return to good standing may be removed from the program. Such actions, while very rare, help protect the academic integrity of the graduate degree.

Student Rights and Responsibilities

As members of the Indiana University academic community, graduate students have both rights and responsibilities. Minimally, students have the right to be free of racial and sexual harassment, whether by other students or by faculty. They should also expect to be treated fairly, impartially, and with dignity as colleagues in the academic enterprise. Some of these rights are protected by specific University regulations described in the "Academic Handbook" and the "Code of Student Rights, Responsibilities, and Conduct". More informally, students should feel free to bring problems to the attention of their program directors or the departmental chairperson.

Stay informed about the policies that affect you: https://college.indiana.edu/student-portal/graduate-students/academic-policies-procedures/index.html

Students also have responsibilities both as scholars and as teachers. As teachers they are subject to the same rules that apply to permanent faculty, rules that are designed to protect students against bias and harassment. Associate Instructors (A.I.s) should make themselves aware of these rules. Beyond the rules, A.I.s should be aware that they will be important role models to undergraduates and that their behavior toward their students should be beyond reproach.

For members of the scholarly community, the cardinal rule guiding both academic and research work is one of honesty and open attribution. Plagiarism, cheating, and forgery will not be tolerated and will be punished severely when detected. Credit for ideas, experiments, models, etc. must be given to their originators. Undergraduate courses are often lax in their enforcement of such regulations since undergraduates are frequently confused about the origins of ideas. However, graduate students *are* expected to be informed on such matters, and faculty are alert to intellectual theft whether in papers, examinations, or purportedly original work.

Academic Integrity: Students are expected to adhere to the highest ethical standards in all their course work and research. Individuals violating that code of conduct are subject to disciplinary action; such breaches could lead to expulsion of the student from Indiana University or to rescission of a degree already granted. To acquaint students more fully with the range of issues relating to academic integrity, (The University Graduate School has prepared a document entitled Integrity in Graduate Study which can be obtained by calling the office at 812-855-8853). Students also can refer to Indiana University's Code of Student Rights, Responsibilities, and Conduct (see link above, "Stay informed..."). Academic misconduct is any activity that tends to undermine the academic integrity of the institution...it may include, but is not limited to human, hard-copy, or electronic resources, cheating, fabrication, plagiarism, interference, violation of course rules, and facilitating academic misconduct.

Outside Activities, Vacation Policy, & Professional Attitude

Throughout high school and undergraduate college years, a general pattern of frequent social events, political and athletic activities, and vacations develops which is inconsistent with practices the individual will meet in future years. Furthermore, a student is not committed to any intellectually demanding career during much of his/her early educational life. Entrance into graduate school marks the transition from the approach of a student to the approach of a professional.

The guiding rules concerning work at the graduate level and beyond derive from the fact that each student is preparing for a professional career. The progress each one makes in his/her chosen profession will reflect his/her natural aptitude for the field, the quality of training he/she has received, and the devotion with which he/she pursues their goals. A career in biochemistry is a demanding one. Fields change rapidly and professional rewards go to the diligent and well informed. Most individuals find that merely keeping up to date in their own specialties and attending to the routine tasks of their positions is at least a full-time task. It is unlikely that graduate students in the process of learning their field will find it less time-demanding. Within this framework both vacations and regular outside interests serve many useful functions. However, such activities must be viewed in relation to the whole picture; it is clear that some suitable balance must be found between the needs of the individual and the demands of his/her profession

During the course of his/her graduate career, a student will usually serve under a variety of appointments. At various times he/she may be an Associate Instructor, a Graduate Fellow, a Research Assistant, or even a summer lecturer. It would appear pointless to attempt to evaluate what vacation privileges are attached to each appointment. A guiding rule is not what maximum may be claimed, but what will reasonably fit into a demanding and time-consuming program. The general policy of this program is that one month's vacation, cumulated as short breaks throughout the year, should be ample.

Students must make arrangements with their thesis advisor the timing, and length of vacation time, prior to making plans to take any extended time away from their studies and research efforts. In particular, first-year students should not make plans for a lengthy summer vacation until they have received permission from their new research advisor.

Financial Assistance

Students who are U.S. citizens may be eligible for support from the NIH Training Grants on campus, including the Quantiative and Chemical Biology program on Chemistry. Assignments to the training grant are made as vacancies arise and take into account students' accomplishments and interests. Assignments are generally made in response to nominations by students' advisors. Please note that an NIH research-teaching payback provision is in effect on training grant support.

In addition, all students may be eligible for support by a number of Graduate Fellowships awarded under the auspices of the College of Arts and Sciences. Students are also eligible for Biology or Chemistry Associate Instructorships, which provide full stipend support and require at most 20 hours teaching per week. Finally, many advanced program students are supported as Research Assistants on the research grants of their thesis advisors.

Students who are not in good standing are not guaranteed funding. Students on Academic Probation, Associate Instructor Probation, or Disciplinary Probation are not in good standing. Similarly, students who fail to have committee meetings as required are not considered in good standing. Finally, the University sets standards of English competence for A.I.s. To make sure that all funding options are available to students whose native language is not English, it is critically important that foreign students meet those standards as early as possible during their graduate careers. Students who do not pass the TEPAIC exam by the end of the first Fall semester are not guaranteed funding in their second year.

Stipend Disbursement - VERY IMPORTANT INFORMATION

FELLOWSHIP RECIPIENT

Fellowships funds are disbursed through the Office of the Bursar during first week of class, fall and spring semesters. NOTE that you *must* be registered before fellowship will pass into your bursar account. Note also that the Bursar account contains charges for mandatory and "unremittable" student fees and that these fees will be automatically deducted from your fellowship award amount. NOTE: As of July 1, 2022, fellowship recipients will still be required to pay mandatory fees. [sign up for Direct Deposit for BURSAR through One.IU portal]

Mandatory Fees and Updates from Fall 2022

Mandatory fees

Effective July 1, 2022, students supported as an SAA will <u>not</u> be required to pay mandatory fees. The mandatory fees include the student activity fee, the student health fee, the technology fee, transportation fee and the Repair and Rehab Fee. Fee remissions/tuition and fee scholarships do not cover the mandatory fees.

G901 Fee

As of September 9, 2022, students who are supported as an SAA and who are enrolled in G901 will no longer be required to pay the \$150 course fee associated with G901. Students who are fellowship recipients will still be required to pay this course fee.

International Student Fee

Effective September 9, 2022, international students will no longer be required to pay the previously mandatory International Student Fee.

Fee Schedule Bursar Office: https://bursar.indiana.edu/tuition-fees/mandatory-fee.html

All fees are subject to change without notice by action of the Trustees

NOTE: Ph.D. candidates who no longer reside in Bloomington and who are conducting research off campus may request a waiver of the mandatory fees. (Please contact the Biochemistry Graduate Office, SI 003 or bchem@iu.edu for more information).

ASSOCIATE INSTRUCTOR AND RESEARCH ASSISTANT

Your future support will either be as an Associate Instructor (AI) or Research Assistant (RA), please be sure to talk this over with the faculty member whose lab you have chosen before the start of every semester.

Once you know how you will be supported, you must visit the following offices for initiation of AI/RA appointment (failure to do so will delay your appointment and your paycheck)
[sign up for Direct Deposit for PAYROLL through One.IU portal]

Provide proof of identification: **two** forms of identification and one must be a picture ID.

US Citizen: a valid driver's license, passport, or birth certificate, etc. and Social Security card or <u>copy</u> of Social Security card.

International Citizen: All VISA documents (Passport, I-94, F1, etc.) and Social Security card or *copy* of Social Security card.

Biochemistry Payroll Office –SI 005

Biology Payroll office – Biology Building 127D

Chemistry - Chemistry Graduate Office, CH C115

Medical Sciences – Biology Building 105

When to Expect Payment

Fellowship: First week of classes per semester (goes through Office of Bursar)

Assoc. Instructor: AI's are paid monthly (goes through IU Payroll);

Fall Semester: Receive paycheck Mid. Sept 15th and end of Sept., end of Oct., end of Nov. and Mid-Dec.

Spring Semester: Receive paycheck end of Jan., Feb., March, April and Mid-May

Res. Assistant: RA's are paid monthly (goes through IU Payroll); appointed Aug. 1st - paid at end of month, however December's pay comes first week of January.

[REMEMBER: If you are going <u>off of</u> a fellowship or grant in the summer, the funds you receive in the summer must last you until your next appointment type (AI or RA)]

FUNDING

Awards available within the program – fellowships, assistantships (Associate Instructor or Research Assistant), Travel

Other sources of funding outside the Department:

University Graduate School Fellowships

University Graduate School Recruitment Fellowships

College of Arts and Sciences Fellowships

GradGrants Center - https://gradgrants.indiana.edu/

ADVISING

Consult with DGS, Thesis Advisor and/or BIOC Graduate Office Staff

LEAVE OF ABSENCE:

Leaves of absence allow graduate students in the College of Arts and Sciences to deal with unforeseen events that interfere with their academic progress. During a leave you are not expected to make progress toward your degree. Although you may complete coursework from previous terms during a leave, you may not attend class or use the leave to catch up on current coursework, prepare for exams, or write your dissertation.

After a leave of absence, you are expected to return to your program of study and resume progress toward your degree. Leaves of absence may not be requested retroactively. Please go to this website for more details - https://college.indiana.edu/student-portal/graduate-students/leaves-of-absence/index.html

USEFUL WEBSITES:

University Graduate School (UGS): http://graduate.indiana.edu/

UGS Bulletin for BIOC: https://biochemistry.indiana.edu/student-portal/graduate/requirements.html

PhD & MS Thesis Guide: https://graduate.indiana.edu/thesis-dissertation/index.html

COAS-Grad Division: https://college.indiana.edu/student-portal/graduate-students/index.html

GradGrants Center: https://gradgrants.indiana.edu/

Bursar: https://bursar.indiana.edu/
Registrar: http://registrar.indiana.edu/
International Services: http://ois.iu.edu/

CAPS: http://healthcenter.indiana.edu/counseling/
IU Office of Diversity: https://diversity.iu.edu/

STUDENT ASSOCIATIONS/EXTRACURRICULAR ACTIVITIES

Biochem Graduate Representative Committee (GRC): https://biochemistry.indiana.edu/graduate/bioc-graduate-representative-committee/index.html

Graduate and Professional Student Government (GPSG): https://gpsg.indiana.edu/

Academic Progress Tracking Form

(Adapted from Department of Astronomy Academic Progress Tracking Form)

Submit Advisory Committee form to the College and verify all paperwork is up-to-date
Complete courses for minor and file any associated paperwork
Complete all core courses
Pass PhD Qualifying exam and file Nomination of Candidacy Form
Form Research Committee
Write 1–2 page prospectus and file Nomination of Research Committee Form
Convene meeting with Research Committee at least once a year until dissertation is successfully defended
Complete research and write draft of dissertation in consultation with research advisor
Schedule defense date and file paperwork at least 30 days in advance
Successfully defend your dissertation, complete suggested revisions, and submit dissertation to graduate school with associated paperwork