



# **Graduate Student Handbook**

Fall 2019 Orientation  
Academic Year 2019-2020

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## INTRODUCTION

The Biophysics graduate program at Michigan is interdisciplinary and consists of multidisciplinary research, distinct from the Ph.D. Programs in Physics, Chemistry, Biological Chemistry, or Biology. It encompasses fields as different as structural biology (X-ray and NMR structure determinations), biomolecular spectroscopy (NMR, IR, UV, EPR), computational biophysics (protein structure prediction, ab initio forcefield calculations), cellular biophysics (biomolecular mechanics, manipulation of single protein molecules, receptor diffusion in membranes) and biophysical chemistry (peptide design, protein folding, thermodynamics). The degree in Biophysics is conferred in recognition of independent, insightful and physically-oriented investigations of biological processes, matter or theories as demonstrated in a thesis based upon original research and creative scholarship.

This handbook is to be used as a guide to the rules and regulations that govern the graduate program both here in the Biophysics program as well as the University of Michigan. As a student you must familiarize yourself with requirements of the Program and the Rackham graduate school.

Throughout the Handbook references are made to **Rackham** rules and regulations which can be found in their entirety on their website: <https://rackham.umich.edu/academic-policies/> .

## **BIOPHYSICS GRADUATE PROGRAM REQUIREMENTS**

### **General Timetable to Ph.D. Conferral**

#### **For students entering in 2019 and beyond**

##### **Year 1 (pre-candidate)**

- Complete at least 18 credit hours of course work (spread over fall and winter semesters)
- Conduct at least 2 lab rotations (typically one per semester)
- Complete of the Responsible Conduct of Research & Scholarship requirement
- Select a lab mentor (selection form due May 30)
- Take at least 1 semester of the biophysics seminar course (801)
- Complete preliminary examination: Checkpoint 1 (first offered in spring of first year)

##### **Year 2**

- Assemble dissertation committee (Form due at end of fall semester)
- Take at least 1 semester of the biophysics seminar course (801)
- Complete annual evaluation form with mentor (Form due spring term)
- Defend thesis proposal: Checkpoint 2 (First session held in Winter term)

##### **Year 3**

- Hold annual meeting of the dissertation committee.
- Take at least 1 semester of the biophysics seminar course (801)
- Complete annual evaluation form with mentor (Form due during spring term)

##### **Year 4**

- Present 20 min public seminar (Fall semester)
- Hold annual meeting of the dissertation committee.
- Take at least 1 semester of the biophysics seminar course (801)
- Complete annual evaluation form with mentor (Form due during spring term)

##### **Year 5 and beyond:**

- Hold annual meeting of the dissertation committee. When appropriate, the committee grants permission to schedule the PhD defense.

- Complete annual evaluation form with mentor (Form due during spring term)
- When appropriate, schedule and take the Thesis Defense.

## **For students entering prior to 2019:**

### **Year 1**

- Complete at least 18 credit hours of course work (spread over fall and winter semesters, must be completed or in process to schedule the candidacy exam.)
- Conduct at least 2 lab rotations (typically one per semester)
- Complete of the Responsible Conduct of Research & Scholarship requirement
- Select a lab mentor (selection form due May 30)
- Take at least 1 semester of the biophysics seminar course (801)
- Assemble candidacy committee

### **Year 2**

- Take at least 1 semester of the biophysics seminar course (801)
- Complete annual evaluation form with mentor (Form due spring term)
- Take candidacy exam (dissertation proposal) (First exam must be taken by May 30)

### **Year 3**

- Hold annual meeting of the dissertation committee.
- Take at least 1 semester of the biophysics seminar course (801)
- Complete annual evaluation form with mentor (Form due during spring term)

### **Year 4**

- Present 20 min public seminar (Fall semester)
- Hold annual meeting of the dissertation committee.
- Take at least 1 semester of the biophysics seminar course (801)
- Complete annual evaluation form with mentor (Form due during spring term)

### **Year 5 and beyond:**

- Hold annual meeting of the dissertation committee. When appropriate, the committee grants permission to schedule the PhD defense.
- Complete annual evaluation form with mentor (Form due during spring term)
- When appropriate, schedule and take the Thesis Defense.

## REGISTRATION POLICY

Students in Ph.D. programs must register for each fall and winter term until final completion of degree requirements unless they have received an authorized leave of absence or have been approved for extramural study. Students enrolled in the fall and winter terms are entitled to services during the spring and summer half terms whether or not they are registered. A student who takes candidacy or preliminary exams in a spring or summer half term must register in that half term. A student who defends the dissertation and/or finalizes degree requirements in a spring or summer half term must register for the full spring/summer term and submit the final dissertation and all materials by the published deadline to avoid registering for another term. For more information, see [Rackham's registration policy](#).

The minimum requirement for the Biophysics Ph.D. degree is usually seven (eight including the Final Term – six with a relevant Masters) full time terms of study (min. 8 credit hrs) and research beyond the bachelor's degree. A graduate student research or teaching assistant must be a full-time student.

## COURSE REQUIREMENTS

### **For students in their first year:**

Students in their first year are considered pre-candidates by the Rackham Graduate School. This classification indicates that students are in the process of gaining experiences and knowledge required to conduct their PhD dissertation work. Pre-candidates therefore are required to spend more time on course-work and preliminary exams than candidate students.

It is the goal of the Biophysics Program for the pre-candidate student to acquire a solid background in biology, biochemistry, chemistry, physics, and biophysics, through core courses and electives/cognate courses on the graduate or senior undergraduate level. Establishing a solid academic foundation is especially important in a rapidly changing interdisciplinary field such as Biophysics.

In order to achieve candidacy, pre-candidate students must complete courses that make up the Biophysics core curriculum in addition to at least 2 electives, of which at least 4 credits must be taken outside of Biophysics (cognate). In some cases, required courses can be substituted with prior approval of the graduate program director, with the exception of the 4 cognate credits, which is a Rackham requirement. Upon completion of these 6 courses, students will have earned the **18 credits required to achieve candidacy**.

In addition to conventional coursework, pre-candidate students must complete 2 research rotations as well as training in responsible conduct of research & scholarship, and at least one semester of the Biophysics seminar course 801. Once completed, pre-candidates are eligible to take the preliminary (checkpoint 1) exam. Students become candidates upon successful completion of the checkpoint 1 exam.

Detailed requirements for pre-candidate students are outlined below. *Pre-candidates must be registered for a minimum of 9 credit hours per semester*, but typically will take at least 12 credits. This typically includes 3 traditional courses, 3 credits of research rotation, and a seminar course.

## Biophysics Core Curriculum (4 courses)

Biophysics 520 (Biophysical Chemistry I) Offered in Fall

Biophysics 521 (Biophysical Chemistry II) Offered in Winter

Biophysics 550 (Biophysics Laboratory Techniques) Offered Fall and Winter

Biophysics 595 (Professional Development in Biophysics) Offered Fall

## Electives/Cognates (at least 2 courses)

It is suggested that students take elective courses in consultation with their graduate advisor or program director, in order to fill gaps in preparation or gain specific knowledge relevant to anticipated thesis projects. Courses must be approved by the graduate program director in order to count towards the elective requirement.

The Rackham Graduate School has an additional cognate requirement that requires that at least 4 credits be taken outside of Biophysics. This can take the form of a single 4 credit course, a 3 credit course plus a 1 credit seminar, or multiple 3 credit courses. The PIBS 503 course (described below under Responsible Conduct of Research) can be counted as a one-credit course towards the cognate requirement. Courses that satisfy the cognate requirement will also count as an elective, as long as they are approved by the graduate program director. *Elective courses within biophysics that are not cross-listed in another program cannot be used to satisfy the cognate requirement.*

Students with a background in Physics may consider taking:

- Biochemistry: Biolchem 550 (Fall)
- Cell Biology: MCDB 428 (Winter, Biological focus) or BiomedE 418 (Winter, Quantitative/Engineering focus)
- Macromolecular Structure/Function: Chembio 501 (Fall) / Chembio 502 (Winter) or BiolChem 515 (Fall)

Students with a background in Biology may consider taking:

- Statistical/Thermal: Chem 463/575 (Fall – Thermodynamics), or Chem 576 (Winter – Statistical Mechanics), or Physics 406 (Fall or Winter – Statistical and Thermal Physics)
- Quantum: Chem 461/570 (Fall or Winter – Physical Chemistry) or Physics 453 (Fall or Winter – Quantum Mechanics)
- Mechanics: Physics 401 (Fall or Winter – Intermediate Mechanics)
- E&M: Physics 405 (Fall or Winter – Intermediate Electricity and Magnetism)

## Research credits (two rotations)

During the first year, students must register for two research rotations: Biophysics 890 (Fall and Winter). A minimum of 6 credits of 890 must be completed in order to achieve candidacy. Credits in 890 do not count towards the 18 credit candidacy requirement.

## Responsible Conduct of Research & Scholarship

As federally mandated, students must enroll in one Research Ethics Course: PIBS 503, CHEM 415 or UC 415 (offered by LSA, choose the appropriate section depending on the nature of your interests/research). *Note: this requirement must be fulfilled prior to achieving candidacy.*

#### Biophysics 801 Seminar:

At least 1 credit of Biophysics 801 must be completed prior to achieving candidacy.

#### **For students beyond their first year:**

#### Dissertation research (Biophysics 995)

Candidates must register in the fall and winter terms for 8 hours of research.

#### Biophysics 801 Seminar:

At least 7 credits of Biophysics 801 is required for the PhD degree. Students who began the program F2016 and before are exempted from the 7 credit total, as follows:

- (beg. F2016): 3 credits total required
- (beg. F2015): 2 credits total required
- (beg. F2014): 1 credit total required

#### Additional courses:

Candidates can also take either one additional course per term **or** more than one course for a total of no more than four credits without paying additional tuition beyond candidacy tuition (as per Rackham guidelines). Other classes may be taken as a visit (audit). Taking extra courses after Candidacy must be discussed with the thesis advisor.

#### **Grades (For all students)**

Grades in typical courses are typically A-F, including the research rotation. Grades in research courses after students achieved candidacy (biophysics 995) accepted by the Graduate School are "S" (satisfactory) and "U" (unsatisfactory). Grades below cannot be used to satisfy degree requirements and no credit is given for a "U."

In order to maintain good academic standing, as defined by Rackham Graduate School, students must maintain a 3.0 GPA. See [Rackham's policy](#) for more details. It is generally expected that graduate students will not will not receive less than a B- in any given course.

An "I" grade may be given in any lecture or laboratory course when a minor part of the course work remains undone at the end of the term. If the work is made up within two complete semesters, a supplementary report of the appropriate letter grade may be filed; after the second semester the supplementary report will not be accepted and the "I" remains permanently on your record.



## CANDIDACY PROGRESSION CHECKLIST

- COURSE WORK: Complete all required coursework.
- I. Core: 12 hours of Biophysics core courses with a B or better:
- 520 [Theory & Methods of Biophysical Chemistry] 3 credits
  - 521 [Techniques in Biophysical Chemistry] 3 credits
  - 550 [Lab Techniques in Biophysics] 3 credits
  - 595 [Professional Development in Biophysics] 3 credits
- II. 6 credits of Biophysics 890 (Intro to Research): Students are required to register for this class in the fall and winter terms of their first year.
- Fall     Winter
- 801 SEMINAR REQUIREMENT: Take and pass at least 1 credit hour of Biophysics 801
- COGNATE REQUIREMENT: Take and pass **at least 4 credit hours** of cognate coursework with a B or better. *Please contact the Student Services Office for more information.*
- \_\_\_\_\_ credit(s) of \_\_\_\_\_     \_\_\_\_\_ credit(s) of \_\_\_\_\_
- \_\_\_\_\_ credit(s) of \_\_\_\_\_     \_\_\_\_\_ credit(s) of \_\_\_\_\_
- ETHICS REQUIREMENT: Take and pass 1 credit hour of RCRS/Ethics requirement with a B or better
- 1   credit of PIBS 503       1   credit of UC 415       1   credit of CHEM 415

For students entering in 2019 or beyond:

- CANDIDACY, CHECKPOINT 1: Paper Discussion/proposal (end of first year)  
Students who receive a "Pass" (and meet all other candidacy requirements) will advance to Ph.D. candidacy.

For students entering prior to 2019:

- CANDIDACY: Dissertation proposal/defense (second year)  
Students who receive a "Pass" (and meet all other candidacy requirements) will advance to Ph.D. candidacy.

**View the Candidacy Deadline list from the Rackham website and know your deadlines!**  
<https://rackham.umich.edu/navigating-your-degree/candidacy-deadlines/>

## RESEARCH

The Ph.D. signifies the completion of a significant body of original publishable research, performed under the supervision of a research advisor. The choice of a research advisor and thesis project is a major decision. This choice is facilitated by our rotation program, which allows students to explore various research laboratories and areas of Biophysics research during their first year. Students must register for two terms of Biophysics 890 (Introduction to Research), each consisting of a laboratory rotation in the laboratory of any Biophysics Program faculty member upon mutual agreement. Students must enroll for at least 3 credits. ***Even if students are sure of their choice of thesis advisor, they must take advantage of this opportunity to broaden their exposure to different research efforts on campus.***

## ROTATIONS

Only two lab rotations are required before joining a lab. **Students are expected to identify a PhD lab after their second rotation.** If a student needs to do a third lab rotation, they must first seek approval of both the Graduate Chair and the Program Chair. **NOTE: funding isn't always available for third rotations.**

### BEFORE Deciding on a Lab Rotation:

1. Research your potential faculty mentor's research interests (whether online or via research papers, etc.).
2. Interview at least 4 faculty members whom you are interested in rotating with, keeping in mind the following things:
  - a. How closely do their research interests match yours?
  - b. Personality (can you work with this person)?
  - c. Publication record (do students in the lab have a history of productivity?)
  - d. Try to gain an idea of how welcome you'll be in the lab and how much guidance you'll get.
3. Speak with students currently in the lab, or those who have done rotations in the lab before.

### BEFORE Joining a Lab:

1. Interview other lab members and post-doctoral fellows to get a "first-hand" account of the conditions and expectations of the lab
2. Attend at least 1 group meeting prior to the deadline for joining a lab (April 30).
3. Make sure the PI is capable of providing funding support for new students.

**Direct-admit students must choose their home lab by May 1 during their first year. You may join in the laboratory of any of the regular or associated Biophysics faculty.** Since the thesis advisor will be responsible for the majority of stipend, tuition and fringe benefits expenditures, it behooves the student to consider the financial position as well as the scientific interest when choosing a lab. **It is recommended that you choose a lab within 2 weeks of the May 1<sup>st</sup> deadline to avoid gaps in pay or benefit coverage.**

Some students may decide at some point that they want to switch thesis labs; this is permissible, pending approval of the Graduate Chair. The decision is consequential because the choice of a lab amounts to the choice of a research field that will affect much of their future career. In some cases, leaving a lab will result in the loss of a student's good standing status. See the good standing policy for more information.

The student and the thesis advisor are jointly responsible for following the Program and Graduate School requirements for the Ph.D. The mentor's responsibilities begin at the time of his/her agreement to accept the student for research. In addition to supervising the research, the thesis advisor is expected to advise the student on course elections, examinations, independent study pertinent to his/her general development as a scientist and any other matters affecting his/her general progress toward a degree.

## **THESIS RESEARCH**

Once you have obtained Candidacy, your main activity in Biophysics will be thesis research. Every semester you should register for Biophysics 995 for 8 credit hours. You will also want to attend many of the numerous specialized lectures and seminars at Michigan, and you may also want to take or audit additional courses of interest to you.

The thesis research should involve original and significant advances of our understanding of an important area in Biophysics. It is expected that your work will result in papers published in peer-reviewed scientific journals. In fact, the experiencing of presenting your work in written and oral form is an important part of the graduate experience.

## **PRELIMINARY EXAMINATION & CANDIDACY**

### **For students entering in 2019 and beyond**

#### **Preliminary Examination (Checkpoint 1)**

To demonstrate that they are qualified to proceed in the Ph.D. program, first-year Biophysics students are given a preliminary examination during the spring term. This examination is based on primary research articles that are distributed in advance. Students are expected to read and understand the material in the research papers, including the background and experimental methods. They are also expected to write an NSF GRSP-style (2 page) research proposal on a topic related to the paper materials. The preliminary exam is administered and graded by the members of the Graduate Prelim Committee.

#### Format

Approximately 3 weeks before the prelim exam, the Grad program chair/co-chair will meet with all first-year students and provide specific guidance on the format of the exam. The Graduate Program Committee will offer a selection of five primary research articles from which the students must CHOOSE ONE for their oral exam. These papers will represent a breadth of topics, covering subjects that have been taught in Biophysics classes during the first year. Students will have 3 days to choose a paper and inform the Grad program chair/co-chair of their decision. The prelim exam will take place two weeks later. Students are expected to prepare a slide presentation (approx. 30 minutes) to communicate the main findings of the paper and the student's proposal for future research to the prelim exam committee. Prelim committee members will ask questions to assess the student's mastery of fundamental principles and experimental methods in biophysics, cell biology, biochemistry, and physics.

#### Preparation

Students may discuss these research articles with anyone they wish prior to the exam, except members of the prelim committee.

#### Written component:

Students are expected to submit a 2 page research proposal based on the selected paper. The proposal should follow the guidelines of NSF GRFP, with the exception of allowing cited references to be placed on a separate (3<sup>rd</sup>) page. Written proposals will be due prior to the exam.

#### Oral component:

During the oral examination the students will be expected to:

- Briefly summarize the main findings of the paper;
- Be cognizant of the literature related to the paper;
- Discuss the methods used, including strengths and weaknesses;
- Understand statistical/analytical methods used;
- Propose and justify experiments for a future study following up on these findings;
- Be cognizant of fundamental principles in biophysics, cell biology, biochemistry and physics (even if some these topics may not be used in the paper selected by the student).

## Evaluation

The prelim committee will prepare a written report on the strengths and weaknesses of each student's performance with a recommendation of "Pass", "Conditional Pass", or "Fail". Students who receive a "Pass" and meet all other candidacy requirements will advance to Ph.D. candidacy. Students who receive a "Conditional Pass" will be given specific recommendations to obtain a passing grade.

## Remediation

If the prelim committee determines that the student has failed to satisfy the requirements listed above, s/he will be invited to submit and defend a second paper. If the student again fails to satisfactorily address the requirements above, the student will have failed the prelim, with no additional opportunity for remediation.

## **For students entering before 2019**

The candidacy exam for students entering in 2018 and earlier will typically be taken in the 2<sup>nd</sup> year and follows the guidelines described below for DISSERTATION PROPOSAL & ORAL DEFENSE (Checkpoint 2).

## **DISSERTATION PROPOSAL & ORAL DEFENSE (Checkpoint 2)**

The checkpoint 2 exam is a defense of the student's thesis proposal to their dissertation committee. The written component consists of a NIH F31 style proposal of their proposed research project. The oral exam consists of a brief presentation on a research project of the student's choosing (related to what the student plans to accomplish during their Ph.D.). During and after the presentation, students will be asked questions related to, and possibly beyond the scope of their research. **The goal of this exam is to ensure that students possess the necessary formal background to successfully implement their proposed research project(s).**

## Timing and Eligibility

Students in good academic standing who have advanced to candidacy will take their "checkpoint 2 exam" in the winter semester of their second year.

## Committee

In the fall of their second year, the student will, in consultation with their dissertation mentor, assemble a Dissertation Advisory Committee. The committee will administer the Checkpoint 2 exam and will regularly serve in an advisory role throughout the student's graduate career. The make-up of this committee is as follows:

- At least 4 members in total
- Thesis advisor is the Chair
- Two Core Biophysics faculty members (one of whom can be the Committee Chair)
- One Cognate member (a UM faculty member who does not hold any appointment in Biophysics; can hold appointment in related department as long as he/she isn't affiliated with Biophysics)

### Written Component:

Students will prepare a written proposal consisting of one page of Specific Aims and six pages of Research Strategy, following the guidelines of an NIH F31 fellowship proposal. This document must be distributed to the committee at most 1 week prior to the scheduled oral exam. Students are encouraged to discuss their research project with their mentor. The Specific Aims page needs to be approved by the mentor. However, the 6-page written proposal must be prepared exclusively by the student, without any rewriting or editing by the mentor, co-mentor, or any faculty member. Students are encouraged to solicit feedback from their student peers.

### Oral Defense:

The student will present background and preliminary results of the proposal, using slides and/or the whiteboard, and introduce the hypothesis that will be tested. The student is expected to explain the design of experiments to test the hypothesis, discuss how experimental outcomes will inform on the hypothesis, and discuss potential pitfalls and alternative approaches to test the hypothesis. The student is expected to be cognizant of the relevant literature and to explain the potential scientific and/or health impact of the proposed work. The student's mentor will be present during the exam, but may not ask or answer questions.

### Evaluation:

The chair of the dissertation committee will prepare a written report on the strengths and weaknesses of the student's performance with a recommendation of "Pass" or "Fail". If a student fails the exam, the exam can be retaken once, typically before the beginning of the student's 3<sup>rd</sup> year. In addition to members of the dissertation committee, the Grad committee chair or co-chair will attend the retake of the exam.

For students who fail the retake but have accumulated 24 credit hours, there is a path to earn a master's degree which includes the writing of a master's thesis (a scholarly written summary of the work accomplished in the mentor's lab). The time frame for writing of the master's thesis and any other requirements will be determined by the Grad Program chair in consultation with the mentor. The thesis will be evaluated by the mentor, co-mentor if any, and the Grad Program committee chair or co-chair.

## COMMITTEE (DATA) MEETINGS

**Annual meetings of the thesis committee are mandatory for all doctoral students after passing the checkpoint 2 exam.** The timing of this meeting will be determined for each student based on discussion with their faculty advisor. At this meeting, the student must present a detailed discussion of his/her data in a clear and logical fashion, including major findings and a detailed outline of the thesis. At the meeting, the committee chair and/or co-chairs must summarize the student's progress on, and sign the Candidacy Progress Report Form (obtained prior to the meeting from the Graduate Coordinator) and the student must (1) attach a written progress report and, (2) sign the form indicating that he/she has reviewed their comments. The form must then be submitted to the Graduate Coordinator.

**NOTE: the final committee meeting report form MUST have "permission to defend" checked before the student may schedule a defense.**

## ANNUAL PROGRESS REPORTS

All students from the second year to the completion of the Ph.D. degree participates in an annual evaluation of their progress towards the degree with their dissertation advisor. In the spring of each year, students and faculty will receive via email the evaluation form, instructions for completing the form and a deadline by which it must be submitted to the Student Services Administrator. The form is completed jointly by the student and advisor and reviewed by the Graduate Chair. The goal of this process is to assist students and advisors in overcoming any barriers to success and to facilitate open communication about degree and research requirements. **If the student receives an unsatisfactory evaluation, this will trigger an immediate meeting of their dissertation committee to review the student's progress, and report back to the Graduate Chair.**

Students are also expected to meet annually with the Biophysics Graduate Chair to discuss the review and/or any questions or issues they may have.

## PUBLIC SEMINAR REQUIREMENT

Students are required to present a seminar to faculty and fellow students during their fourth year. The seminars are given as part of a Graduate Student Symposium during the Fall or Winter term. The student must present their own research. They may be invited to give yet another seminar in the regular Biophysics Seminar Series or other departments in the later stages of their career. Students are encouraged to accept these invitations as they help develop good communication skills.

In addition to *presenting* a seminar, all students are **required** to attend the Biophysics Seminar Series. The serious student will take advantage of all learning opportunities, and the Seminar Series represents excellent sources of up-to-date results and ideas.

## DISSERTATION PREPARATION AND DEFENSE

Upon completion of research, students write a dissertation in accordance with the requirements of the Rackham Graduate School. In general, the Dissertation is a comprehensive treatment of the student's thesis research. It is possible for the Dissertation to include material from journal articles previously published by the student, however the Dissertation should also include contextual information regarding the significance of the question being addressed, a discussion of other approaches used by previous researchers, and the importance of the thesis research.

Rackham offers explicit formatting guidelines and other helpful information on their website (<http://www.rackham.umich.edu/current-students/dissertation/the-dissertation>). The Graduate School requires that every doctoral dissertation and abstract be published. Students will sign an agreement to this end to make the dissertation available in print and online. If desired, dissertations may be embargoed for a period of time; please check the Rackham Dissertation resources at the URL above for guidelines. **Students are required to submit their dissertation to their committee at least two weeks prior to their scheduled defense.**

Following the submission of the dissertation to the student's committee, he/she must defend the Dissertation in an oral presentation. Students must have a pre-defense meeting with the Office of Academic Records and Dissertations at least 10 working days before the defense. Students can register online for this, and must be registered to defend and finish all requirements. The oral defense generally consists of an open presentation of the thesis research to the University Community followed by a closed session with the Committee. At least four members of the Committee must be present at the oral defense. Including the Chair or one Co-Chair and Cognate Member. All members are required to read and comment on the submitted Dissertation before the Defense.

### **Use of Copyrighted Materials in Your Dissertation**

Students are required to receive written permission from the copyright owner for any material used in the dissertation that falls outside the guidelines of "fair use," and are responsible for full compliance with proper use of copyrighted material. Availability of materials on the internet does not change copyright status.

For information about copyrighted material and fair use, see:

[http://www.umi.com/assets/downloads/products/UMI\\_CopyrightGuide.pdf](http://www.umi.com/assets/downloads/products/UMI_CopyrightGuide.pdf)

University of Michigan Copyright Information is provided at:

<http://www.copyright.umich.edu>

Students should retain full documentation of every instance for which they have received permission to use copyrighted material.



## MASTERS DEGREE

There is *no* terminal Master of Science (M.S.) program in the Biophysics Graduate Program and the Program will not admit students intending to obtain a terminal Master of Science Degree. However, the degree can be granted in the extenuating cases of students who have either unsuccessfully attempted to pass the preliminary examination requirements or are leaving our program for other reasons. It can also be conferred as a non-terminal degree to students who are working to complete the Ph.D. degree.

The Master of Science Degree in Biophysics, when granted by Biophysics Graduate Program, requires successful completion of a minimum of 24 credit hours of in-residence course work (average "B"), and 4 credit hours of cognate studies ("C-" or better). **990, 995 or courses elected as a visit (audit) do not count towards this total** – student should also see the Rackham Handbook section on Masters Degrees.

## **GOOD STANDING POLICY & ACADEMIC PROBATION**

It is critical for students to comply with these requirements to maintain a record of “good standing” within the Biophysics Graduate Program. Failure to maintain “good standing” status can result in loss of financial support and/or dismissal from the program.

### **A. OVERVIEW AND GOALS:**

The goal of the Biophysics Graduate Program is to maintain a supportive and constructive training experience for all enrolled students in which all students are in good standing. In some circumstances, students are placed in ‘unsatisfactory academic standing’ status when certain expectations are not met (please refer to Rackham’s Good Academic Standing policy). Several outcomes are possible when good standing status is revoked after a probationary period. These include regaining good standing status or dismissal from the program. This document describes the guidelines and procedures for maintaining, losing, and regaining good standing status for graduate students at all degree stages in the Biophysics program.

Overall, students that are in good standing will:

1. Comply with all rules and regulations of the University, Rackham, and the Biophysics graduate program.
2. Meet all applicable standards of academic and professional integrity.
3. Demonstrate an ability to succeed in the Biophysics PhD program.
4. Demonstrate readiness and capability to do original and independent research, in a manner appropriate to their degree stage.
5. When applicable, perform the duties and responsibilities of their GSI, GSRA, or Fellowship appointment in Biophysics in a professional and timely manner.

Compliance with the above guidelines will be evaluated by the Graduate Chair, Program Director and one faculty member from the Graduate Prelim Committee for pre-candidate students, and by the student’s dissertation committee for students who have achieved candidacy. The remainder of this document describes detailed guidelines regarding the requirements to retain good standing, as well as procedures for assigning and resolving unsatisfactory standing status for all students in the Biophysics graduate program.

This document describes departmental specific policies and is distinct from the existing good standing policy set forth by the Rackham Graduate School. A major component of maintaining academic good standing is that students maintain a cumulative grade point average (GPA) of greater than or equal to 3.0 (B or better). This includes all academic courses taken, including cognate courses, throughout their residence in the program. *A student whose cumulative grade point average falls below a “B” (3.0 on a 4.0 point scale) in a given term or half-term will be placed on academic probation for the following term or half-term of enrollment, or may*

*be denied permission to register. Please refer to Rackham's website for a detailed description of Academic Probation.*

## **B. Expectations and Benchmarks for maintaining 'good standing' within the Biophysics Graduate program.**

The following student expectations are separated by degree stage within the graduate program:

**First year students** are expected to demonstrate that they are making good progress towards their degree requirements. This includes:

1. Take two terms of the Biophysics Graduate Research rotation course (890) during their first year and receive a "B" or better in both terms.
2. Find a Biophysics core or affiliated faculty mentor who has agreed to oversee their Ph.D. research and is committed to supporting them effective May 1<sup>st</sup> of their first year (i.e. by the end of their second term) for the remainder of the student's Ph.D. studies in Biophysics.
3. Achieve Ph.D. candidacy by May 31<sup>st</sup> of their first year in residence, per guidelines explained in the Biophysics Graduate Student Handbook. In the event the student does not pass their candidacy (checkpoint 1) by the May 31<sup>st</sup> deadline on their first attempt, they will then be deemed "not in good standing." The student will then have until August 31<sup>st</sup> of that year to re-take the exam and regain good standing status. If the student does not pass their candidacy (checkpoint 1) exam on their second attempt, or does not convene an exam by the August 31 deadline, they will be dismissed from the program.

**Candidate students** are expected to demonstrate that they are making good progress towards their degree requirements in order to maintain good standing. This includes:

1. Receive satisfactory (S) grades for all terms enrolled in Biophysics 995.
2. Present a public seminar to the department in their fourth year.
3. Meet with their mentor to prepare, review, and submit their annual progress report to the Biophysics office by the start of each spring term and receive a "Satisfactory" assessment of progress by their faculty mentor on their annual progress report.
4. Hold meetings with their dissertation committee at least annually and receive a 'making sufficient progress towards PhD' assessment from the committee on the Data Meeting Report form. Selection of this option by the committee automatically revokes a student's good standing status (see below).

## **C. Determination and Resolution of Probationary Status & Regaining of Good Standing**

If it is brought to the attention of the program that a student has not met one or more of the conditions stated above, or if a special situation occurs that brings into question a student's good standing status, then the biophysics graduate program will review the issue and reach a decision/course of action following the procedures outlined below, which may result in the student being put on probation. Student financial support will be maintained during the

probationary period. Failure of the student to regain good-standing status within a probationary period may result in the loss of financial support and/or dismissal from the program.

**Pre-candidate students:** the Biophysics Program Director and the Graduate Chair are responsible for determining whether students “good standing” status should be revoked. The following will trigger an immediate review:

1. If the student receives unsatisfactory grade in the rotation course (890)
2. If a significant issue is reported in the Rotation Evaluation Form or a significant issue is brought to the attention of the Biophysics program during the rotation;
3. If the student is unable to find a Biophysics core or affiliated faculty mentor by the May 1<sup>st</sup> deadline.

If any of the above occur then the Program Director and Associate Chair will convene a meeting to decide whether the student’s good standing status should be revoked and the student placed on probation. At this time, students will be provided with an individualized letter describing the criteria needed to regain good standing in a specified time-period.

Probationary period and procedure for regaining good standing status: Pre-candidate students are given one semester of probation to resolve any issues related to their good standing status in the program. Near the end of this probationary period, the Program Director and Associate Chair will decide if student has successfully met the criteria set out at the start of the probationary period in order to regain good standing status. Otherwise the student will be dismissed from the program.

**Candidate students in their 2<sup>nd</sup> year:**

Students are expected to assemble their dissertation committee and defend their thesis proposal to their committee by May 31 of their second year (checkpoint 2). Failure to successfully defend their thesis proposal by this day will result in immediate loss of good standing and the student will be placed on probation. At this time, the committee to establish written guidelines regarding criteria required for the student successfully defend their dissertation proposal at the end of a probationary period which ends on Aug 31 of the same year.

Probationary period and procedure for regaining good standing status: The student will regain good standing status upon successful defense of the dissertation proposal (checkpoint 2) before the start of their 3<sup>rd</sup> year (Aug 31). If the student is unsuccessful in defending their dissertation proposal by this date, or if they fail to schedule or attend a second committee meeting to defend their dissertation proposal, then they will be dismissed by the program.

**Candidate students beyond their 2<sup>nd</sup> year:** The student’s dissertation committee is responsible for determining whether student’s good standing status should be revoked.

At the completion of dissertation committee meetings, the committee asked to fill out a data meeting report form that includes the question “Is the student making sufficient progress

towards their PhD?" Students will lose good standing status and will be placed on probation upon receipt of a 'not making sufficient progress towards PhD' assessment. The dissertation committee can revoke a student's good-standing status at an annual committee meeting or at a special committee meeting called by the program in response to one of the triggers listed below:

1. If the student receives an unsatisfactory grade (U) in Biophysics 995.
2. If the student receives a "marginal" or "no" response to the question "Is the student making progress towards completing their doctoral degree" on their annual progress report; or fails to submit their annual progress report in a timely manner.
3. If the student fails to meet with their dissertation committee in a timely manner (at least annually.)

If any of these conditions occur, the Graduate Chair will be notified and the program will schedule the dissertation committee meeting on the student's behalf to convene as soon as possible (typically within 4 weeks). Failure of the student to attend this meeting will result in immediate loss of good standing status.

Probationary period and procedure for regaining good standing status: If a student's committee decides that they are not making sufficient progress towards their PhD, then the program will work with the committee to establish written guidelines regarding the criteria required for the student to regain good standing in the probationary time-period to be determined by the committee, which is a maximum of one semester.

Near the end of the probationary period, the program will schedule a second dissertation committee meeting in which a decision will be made as to whether the student has successfully met the criteria set out by the committee to be reinstated to good standing status. Specifically, the student will regain good standing status upon receipt of a 'making sufficient progress towards PhD' assessment on the Data Meeting Report form filled out at the end of a dissertation committee meeting at the end of the probationary period. If the committee determines that the student is not making progress towards their PhD at this committee meeting, then the student will be dismissed from the program.

### **Candidate students that switch faculty mentors:**

In special circumstances, the Biophysics program can elect to request that a student find a new faculty mentor. In this case, the student's good standing status will be revoked and the student will have one semester to find a new faculty mentor. In this special case, it's possible to return to good standing through communication between the Biophysics Program and the new mentor (without a formal committee meeting). If after one semester the student has failed to find a new faculty mentor to oversee their PhD research and financially support them during their duration in the Biophysics Graduate Program, the program (possibly in collaboration with the student's committee) will come to a final decision regarding whether the student should be dismissed from the program.

### **Appeals Process**

In accordance with Rackham policy, students have the opportunity to appeal a probation or subsequent dismissal decision. They must notify the Biophysics Student Services office in writing of their intent to appeal, **within two weeks of their probation or dismissal decision**. A separate Biophysics Appeals Committee will review the appeal request.

## **FINANCIAL SUPPORT & BENEFITS**

The Biophysics Graduate Program is committed to seek continued support for your stipend, tuition, and health insurance throughout your graduate training. To be eligible for such financial support, students must be in “Good Standing” (see above). Students are expected to continue to make progress in their thesis research independent of the source of their funding.

### ***Fellowship Funding & Support Beyond the First Year***

First-year students entering the Biophysics program directly can expect financial support for full coverage of stipend, tuition and healthcare during their first two terms (fall and winter, 8 months). After their first winter term, following the choice of a thesis advisor, support will be provided by some mix of the following funding mechanisms: (1) a Research Assistantship (GSRA) supported by an individual grant of their thesis advisor; (2) a Teaching Assistantship (GSI) in a relevant academic department; or (3) an extramural fellowship. Fellowship students can expect their paychecks to be deposited some time during the middle of each month (see Appendix 4 for schedule). Students on training grants and other types of scholarships, such as Rackham Merit Fellowships and NSF awards, are also paid from fellowships.

### ***Graduate Student Research Assistants (GSRAs)***

Students who are not on fellowships are generally paid as Graduate Student Research Assistants (GSRAs) or, if helping to teach a course, as Graduate Student Instructors (GSIs). The source of funding for all GSRA appointments is via their thesis advisor. GSRAs and GSIs are considered “employees” of the university and as such, will have taxes deducted from their paychecks, and they will receive a W-2 form. GSRAs and GSIs are not eligible for UM employee parking.

### ***Graduate Student Instructors (Teaching)***

Although there are no formal teaching requirements, as part of their training students are strongly encouraged to teach at least one semester as a Graduate Student Instructor (GSI) in Biophysics, Chemistry, Biology, Biochemistry, or Physics. This experience is especially important for those interested in a future career in academia, although all students can gain from the opportunity for presenting technical material in a pedagogical context. It may happen that you are asked to teach in later stages of your study as well, depending on financial resources of your thesis advisor. Students are strongly encouraged to serve as teaching assistants in a form that includes direct contact hours with a class (rather than grading). It is mandatory for students assigned teaching positions for the first time to attend the GSI Training Orientation offered by the Center for Research on Learning & Teaching.

International students whose undergraduate language of instruction was not English must take and pass the GSI OET in order to GSI in Biophysics. Student usually prep for this by enrolling in the ELI 994 course. This course is usually offered the last week in August or in early January.

## **Taxes**

As Fellowship recipients, Ph.D. students will not have income taxes withheld from their paychecks. Students will be responsible for paying these taxes when they file their annual Income Tax Return. To avoid additional fees, students should plan to pay estimated taxes during the year. Consult Rackham's website (<https://rackham.umich.edu/rackham-life/finances/>) for more information on taxation and estimated tax payments.

May through August, when students are not enrolled, social security and Medicare *are* deducted from paychecks. Social security and Medicare will *not* be deducted September through April, the months in which students are enrolled.

## **Tuition**

Graduate students holding at least a 25% appointment as a Graduate Student Instructor (GSI) or Research Assistant (GSRA) will have the full tuition waived. However, you will be liable for the various mandatory (and registration) fees. Students in the Molecular Biophysics Training Grant Program will have these fees waived.

## **GradCare (Health) and Dental Insurance**

All graduate students, regardless of their funding source, are entitled to GradCare health and Dental option 1. You will receive an email telling you to select benefits on Wolverine Access. Students are responsible for selecting benefits within 30 days of their appointment.

**If you plan to leave the State of Michigan for any length of time, please contact the Benefits Office (615-2000) or visit the [benefits office website](#) to inquire about off-site or emergency coverage.**

Please see the Graduate Coordinator if you have ANY questions or problems.

## **STUDENT REPRESENTATION**

### **Biophysics Graduate Student Representative**

Every year, the graduate student cohort elects a candidate to represent them at the core faculty meetings and other events as warranted (One year term).

### **Biophysics Graduate Student Council**

The Biophysics Graduate Student Council (GSC) deals with academic and other issues of concern to graduate students in the Program. It serves as a tie between the faculty, graduate students, and staff. The GSC also sponsors social events for faculty, graduate students, staff and their families from time to time. Any student interested in being on the GSC should contact the present members for further information at [Biophysics.gsc@umich.edu](mailto:Biophysics.gsc@umich.edu).



## PROGRAM INFORMATION

### Copy Room

The copy room (#4029) is located on the 4<sup>th</sup> floor directly across from the Biophysics administrative office (#4028). If you need to make copies that are course or lab related, stop in the Administrative Office and you will be given a code for the copy machine. Once you join a lab, you will be given a lab-specific copy code to use.

### Graduate Student Mailboxes

Every graduate student has their own mailbox located in the Biophysics lounge on the 4<sup>th</sup> floor (room 4041). Any mail addressed to you here in Biophysics will be put there, as well as any messages from faculty, Academic Services staff, Technical staff or Rackham will be put in your mailbox. Please check your mailbox regularly. *First-year PIBS student's mailboxes are located in the PIBS program office.*

### Building Access

The Chemistry Building is open during business hours Monday through Friday. There is **no** 24-7 access to the building. Graduate students who are working (or rotating) in Chemistry Building labs will have access to the building during the following hours with their valid MCard:

M-TH: 7AM – 10PM  
Fri: 7AM – 6PM  
Sat: 11:30AM – 6PM  
Sun: 11:30AM – 10PM

### Biophysics Library

Our library contains various Biophysics and related texts for student use. Please see someone in the Administrative Office for a key. The usual loan period is 1 week. Longer loans are subject to approval by the Student Services Administrator.

## DEPARTMENTAL ADMINISTRATION

		<b><u>Room</u></b>	<b><u>Email</u></b>
Program Chair (Director)	Charles L. Brooks, III	4028C or 2006a	brookcl
Graduate Chair (on sabbatical F19):	Sarah Veatch	3038 Chem	sveatch
Graduate Chair (F19)	Michal Zochowski	259 W. Hall	michalz
Chief Administrator	Cornelius Wright	4040	biophys- cadmin
Executive Secretary	Sandra Moing	4028b	camoing
Student Services Administrator	Sara Grosky	4028f	saramin
Events & Communications Coordinator	Liz Michalski	4028e	emichals
Biophysics Equipment	Joe Schauerte & Kathleen Wisser		schauert; kcwisser
Chemistry Laboratories & Facilities	Tracy Stevenson	1500c	steventi

## CORE AND AFFILIATED FACULTY MEMBERS

(\* indicates core faculty member)

<b><u>Name</u></b>	<b><u>Dept/College</u></b>	<b><u>Email</u></b>
Anantharam, Arun	Pharmacology	arunanan
Bardwell, James	MCDB	jbardwel
Biteen, Julie	Chemistry	jsbiteen
Brooks, Charlie*	Biophysics, Chemistry	brookscsl
Cai, Dawen	CDB	dwcai
Carlson, Heather	Medicinal Chemistry	carlsonh
Chapman, Matt	MCDB	chapmanm
Chen, Zhan	Chemistry	zhanc
Cheng, Wei	Pharmacy	chengwe
Cianfrocco, Michael	Biological Chemistry/LSI	mcianfro
Cierpicki, Tomasz	Pathology (Med School)	tomaszc
Frank, Aaron*	Biophysics, Chemistry	afrankz
Horowitz, Jordan*	Biophysics, Complex Systems	jmhorow
Joglekar, Ajit	CDB	ajitj
Keane, Sarah*	Biophysics, Chemistry	sckeane
Kerppola, Tom	Biological Chemistry	kerppola
Kopelman, Raoul	Chemistry	kopelman
Kubarych, Kevin	Chemistry	kubarych
Lehnert, Nicolai	Chemistry	lehnertn
Liu, Allen	Biomed & Mech Engineering	allenliu
Lubensky, David	Physics	dkluben
Meiners, Jens-Christian*	Biophysics, Physics	meiners
Ogilvie, Jennifer	Physics	jogilvie
Palfey, Bruce	Biological Chemistry	brupalf
Pecoraro, Vincent	Chemistry	vlpec
Penner-Hahn, James*	Biophysics, Chemistry	jeph
Raghavan, Malini	Microbiology & Immunology (Med School)	malinir
Ramamoorthy, Ayyalusamy*	Biophysics, Chemistry	ramamoor
Saper, Mark	Biological Chemistry	saper
Scott, Emily	Medicinal Chemistry	scotee
Sension, Roseanne	Chemistry	rsension
Smith, Janet	Biological Chemistry/LSI	janetsmi
Smrcka, Alan	Pharmacology	smrcka
Stockbridge, Randy	MCDB	stockbr
Stucky, Jeanne	Biological Chemistry/LSA	jass
Trievel, Ray	Biological Chemistry	rtrieval
Veatch, Sarah*	Biophysics	sveatch
Vecchiarelli, Anthony	MCDB	ave
Verhey, Kristen	CDB/LSI	kjverhey
Violi, Angela	Biomed & Chemical Engineering	avioli
Walter, Nils	Chemistry	nwalter
Wood, Kevin*	Biophysics	kbwood
Yang, Qiong	Biophysics	qiongy
Zhang, Yang	Bioinformatics	zhng
Zochowski, Michal	Biophysics, Physics	michalz

## CAMPUS RESOURCES

In addition to your Advisor, the Student Services staff, the Graduate Chair and the Rackham Graduate School staff; there are many resources on campus to help you succeed in the Biophysics Ph.D. program.

### **Mentoring & Career Resources**

- **OGPS Career & Professional Development** <https://ogps.med.umich.edu/resources/cpd/>  
The PIBS Office of Graduate & Postdoctoral Studies website has lots of career and professional development events and workshops throughout the year, plus career advising!
- **How to Get the Mentoring You Want** <https://rackham.umich.edu/wp-content/uploads/2018/11/mentoring.pdf>  
A general guide for graduate students about the importance of the student-mentor relationship.
- **Rackham-CRLT Graduate Student and Postdoc Mentorship Program** <http://www.crlt.umich.edu/imp/overview>  
Provides an opportunity to extend networks and mentoring opportunities by working with faculty at regional colleges and universities.

### **Selected Campus Academic Resources**

- **Center for Research on Learning and Teaching (CRLT)** <http://www.crlt.umich.edu/index.php>  
CRLT offers programs and services designed to support graduate students in all stages of their teaching careers from training for their first teaching experience through preparation for the academic job market.
  - Preparing Future Faculty Conference
  - U-M Graduate Teacher Certificate
  - Seminars for Graduate Student Instructors
- **Sweetland Center for Writing** <http://www.lsa.umich.edu/sweetland/>  
The Sweetland Center for Writing supplements formal writing instruction by providing free programs that help students understand assignments, develop ideas, support arguments and claims, cite sources, and revise at the paragraph and sentence level.
  - Writing workshops
  - Writing references and resources
  - Peer tutoring
  - Dissertation Writing Institute
- **English Language Institute (ELI)** <http://www.lsa.umich.edu/eli/>  
The English Language Institute offers opportunities for students to participate in courses and workshops aimed at improving their language and communication skills.
  - English for Academic Purposes Courses
  - Workshops
  - Writing Clinics
  - English Learning Links
- **Center for Statistical Consultation and Research (CSCAR)** <http://www.cscar.research.umich.edu/>  
CSCAR emphasizes an integrated, comprehensive statistical consulting service, covering all aspects of a quantitative research project ranging from the initial study design through to the presentation of the final research conclusions.
  - Workshops and seminars
  - Software help
  - Software access
  - Spatial Analysis/GIS
- **ScholarSpace** <https://www.lib.umich.edu/scholarspace>  
ScholarSpace is a community-driven learning space built to support initiatives that bridge disciplines, build networks, and discover new contexts for scholarship

- **University of Michigan Library** <http://www.lib.umich.edu/>  
MLibrary supports, enhances, and collaborates in the instructional, research, and service activities of the faculty, students, and staff, and contributes to the common good by collecting, organizing, preserving, communicating, and sharing the record of human knowledge.

## **Funding Resources**

- **Rackham & UM:** <https://rackham.umich.edu/funding/>
- **NSF Graduate Fellowship Program:** <https://www.nsfgrfp.org/>

## **Mental Health & Wellness**

- **University Health Service (UHS)** is a health care facility, located on central campus that offers many outpatient services in one building for U-M students, faculty, and staff. Many of UHS services provided to registered students are covered by the Health Service fee. <http://www.uhs.umich.edu/>
- **Counseling and Psychological Services (CAPS)** offers a variety of confidential services to help students resolve personal difficulties. Services include brief counseling for individuals, couples and groups. <http://www.umich.edu/~caps/>
  - **CAPS-Embedded Counselor for Rackham:** Laura Monschau (764-8312; lauralm)
- **Psychological Clinic** provides psychological care for students. Services include consultation, short-term and long-term therapy for individual adults and couples. <http://www.psychclinic.org/>
- **Services for Students with Disabilities (SSWD)** provides services to students with visual impairments, learning disabilities, mobility impairments, hearing impairments, chronic health problems and psychological disabilities, so they may enjoy a complete range of academic and non academic opportunities. <http://ssd.umich.edu/>
- **Department of Recreational Sports** is the place for fun and fitness on campus. Rec Sports offers both informal activities and structured programs: Club Sports, Challenge Program, Drop-in Program, Intramural Sports and/or Outdoor Adventures. <http://www.recsports.umich.edu/>

## **Selected Sources of Campus Support**

- **International Center** provides a variety of services to assist international students, scholars, faculty and staff. <http://internationalcenter.umich.edu/>
- **The Career Center** is committed to preparing U-M students and alumni to be active, life-long learners in developing and implementing their career decisions. <http://www.careercenter.umich.edu/>
- **Center for the Education of Women (CEW)** offers support services to students, faculty, staff and community members. <http://www.cew.umich.edu>
- **Department of Public Safety (DPS)** provides information on crime prevention strategies, the law enforcement authority of the University police, and policies and statistics about crime on campus. <http://police.umich.edu/>
- **Sexual Assault Prevention and Awareness Center (SAPAC)** provides educational and supportive services for the University of Michigan community related to sexual assault, dating and domestic violence, sexual harassment, and stalking. <http://www.umich.edu/~sapac/>

## **Conflict Resolution**

- **Rackham:** <https://rackham.umich.edu/rackham-life/conflict-resolution-and-student-grievances/>

- **Office of the Ombuds** is a place where student questions, complaints and concerns about the functioning of the University can be discussed confidentially in a safe environment. 6015 Fleming, Phone: (734) 763-3545 <http://www.ombuds.umich.edu>
- **Office of Student Conflict Resolution (OSCR)** <http://www.oscr.umich.edu/>  
Promotes justice by facilitating conflict resolution for the Michigan community and creating a just and safe campus climate. 600 East Madison, Phone: (734) 936-6308
- **Graduate Student Affairs**, 1530 Rackham, Phone: (734) 647-7548

## **VACATION & HOLIDAYS**

Graduate students are entitled to University-designated holidays. First year students must obtain approval from the Graduate Chair and/or the prelim committee for any additional vacation time. Students beyond their first year must obtain approval from their research mentor for any additional vacation time.

### **Holidays (University-wide):**

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- The day following Thanksgiving
- Christmas

University-designated holidays will be observed on the calendar day on which each falls except that holidays falling on Sunday will be observed on the following Monday and holidays falling on Saturday will be observed on the preceding Friday.

## **LEAVES**

Ph.D. students may request a temporary leave of absence (of more than a month) when certain life events prevent continued active participation in their degree program. Rackham's Leave of Absence Policy enables students to officially suspend work toward their degree for a limited time. Students may request a leave of absence as early as six months prior to the term the leave is to start. A leave will be granted to students for illness (either physical or mental) or injury, to enable them to provide care or assistance for family or dependents, to allow them to meet military service obligations, or for other personal reasons.

**More information including the Leave of Absence Policy, a checklist for Ph.D. students,** is available at the following site: <https://rackham.umich.edu/navigating-your-degree/leave-of-absence/>

## **APPENDIX 1 – Criteria for thesis proposal defense meetings (candidacy exam for students entering in 2018 or earlier, checkpoint 2 exam for students entering in 2019 and beyond)**

### **For students entering before 2019**

The candidacy exam for students entering in 2018 and earlier will typically be taken in the 2<sup>nd</sup> year and follows the guidelines described below for DISSERTATION PROPOSAL & ORAL DEFENSE (Checkpoint 2).

### **DISSERTATION PROPOSAL & ORAL DEFENSE (Checkpoint 2)**

The checkpoint 2 exam is a defense of the student's thesis proposal to their dissertation committee. The written component consists of a NIH F31 style proposal of their proposed research project. The oral exam consists of a brief presentation on a research project of the student's choosing (related to what the student plans to accomplish during their Ph.D.). During and after the presentation, students will be asked questions related to, and possibly beyond the scope of their research. **The goal of this exam is to ensure that students possess the necessary formal background to successfully implement their proposed research project(s).**

#### Timing and Eligibility

Students in good academic standing who have advanced to candidacy will take their "checkpoint 2 exam" in the winter semester of their second year.

#### Committee

In the fall of their second year, the student will, in consultation with their dissertation mentor, assemble a Dissertation Advisory Committee. The committee will administer the Checkpoint 2 exam and will regularly serve in an advisory role throughout the student's graduate career. The make-up of this committee is as follows:

- At least 4 members in total
- Thesis advisor is the Chair
- Two Core Biophysics faculty members (one of whom can be the Committee Chair)
- One Cognate member (a UM faculty member who does not hold any appointment in Biophysics; can hold appointment in related department as long as he/she isn't affiliated with Biophysics)

#### Written Component:

Students will prepare a written proposal consisting of one page of Specific Aims and six pages of Research Strategy, following the guidelines of an NIH F31 fellowship proposal. This document must be distributed to the committee at most 1 week prior to the scheduled oral exam. Students are encouraged to discuss their research project with their mentor. The Specific Aims page needs to be approved by the mentor. However, the 6-page written proposal must be prepared exclusively by the student, without any rewriting or editing by the

mentor, co-mentor, or any faculty member. Students are encouraged to solicit feedback from their student peers.

Oral Defense:

The student will present background and preliminary results of the proposal, using slides and/or the whiteboard, and introduce the hypothesis that will be tested. The student is expected to explain the design of experiments to test the hypothesis, discuss how experimental outcomes will inform on the hypothesis, and discuss potential pitfalls and alternative approaches to test the hypothesis. The student is expected to be cognizant of the relevant literature and to explain the potential scientific and/or health impact of the proposed work. The student's mentor will be present during the exam, but may not ask or answer questions.

Evaluation:

The chair of the dissertation committee will prepare a written report on the strengths and weaknesses of the student's performance with a recommendation of "Pass" or "Fail". If a student fails the exam, the exam can be retaken once, typically before the beginning of the student's 3<sup>rd</sup> year. In addition to members of the dissertation committee, the Grad committee chair or co-chair will attend the retake of the exam.

For students who fail the retake but have accumulated 24 credit hours, there is a path to earn a master's degree which includes the writing of a master's thesis (a scholarly written summary of the work accomplished in the mentor's lab). The time frame for writing of the master's thesis and any other requirements will be determined by the Grad Program chair in consultation with the mentor. The thesis will be evaluated by the mentor, co-mentor if any, and the Grad Program committee chair or co-chair.



## **APPENDIX 2 – Criteria for Committee (Data) Meetings**

The objective of annual committee meetings in the biophysics graduate program is to ensure that the student is on track for a successful PhD in a reasonable time. At the end of the meeting, the committee is asked to evaluate the student's progress towards their PhD and, if appropriate, grant the student permission to schedule their defense. The committee also asked to decide on the timing for the next meeting, which can be scheduled for at most 12 months from meeting date. The committee should only grant permission to defend if they are confident the student will be able to produce and defend a successful dissertation in the required time.

At the end of the meeting, the committee is asked to determine if the student is making adequate progress towards their PhD. What constitutes 'adequate progress' will depend on the number of years the student has been in the program and is left to the discretion of the committee. The goal is for biophysics students to successfully defend a PhD within 6 years. If a student does not appear to be on track to accomplish this, it is requested that the committee notify the program by indicating that the student is making 'inadequate progress towards their PhD' on the data meeting evaluation form along with a description of the specific concerns. When this occurs, the program requests that committee members determine criteria for the student to demonstrate progress prior to the next committee meeting.

The current policy of the biophysics graduate program is that candidate students deemed to show inadequate progress towards their PhD by their committee have their 'good standing' status in the program revoked. This status is internal to the program and does not appear in the student's formal academic record, and is intended to alert both the student and program to possible obstacles without necessarily being punitive. Loss of a student's 'good standing' status triggers a probationary period that can last up to 1 semester (4 months). At the end of this period, the student is required to again meet with the committee. The committee can then choose to either reinstate the students 'good standing' status or recommend that the student be dismissed from the graduate program.

**APPENDIX 3 – Fellowship/Stipend Payment Schedule**

First-year Ph.D students are appointed to Department Fellowships. As such, students are not considered to be University employees and therefore the pay dates will differ from University employees (i.e. GSIs, GSRAs). For the academic year 2019-20 the pay dates for first-year fellowships will be:

<b>2019</b>	<b>2020</b>	
9/23/19	1/21/20	5/11/20
10/21/19	2/18/20	6/8/20
11/18/19	3/16/20	7/13/20
12/13/19	4/13/20	8/10/20