

# Biophysics

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The Biophysics Graduate Group is an interdisciplinary PhD program hosted by the California Institute for the Biosciences (QB3). Our program trains graduate students for careers at the interface of the biological and physical sciences. This interdisciplinary group provides an opportunity for interested students to receive training leading to the PhD in Biophysics. Approximately 60 faculty members are affiliated with the Biophysics Group, spanning over a dozen departments and groups at UC Berkeley. Students may work under the supervision of any faculty member belonging to the group.

Students interested in pursuing graduate work in biophysics typically acquire undergraduate training in one of the basic physical or biological sciences and during the first two years at UC Berkeley take self-selected courses in topics such as biology, physics, and chemistry to fill in any gaps in foundational knowledge.

## Admission to the University

### Applying for Graduate Admission

Thank you for considering UC Berkeley for graduate study! UC Berkeley offers more than 120 graduate programs representing the breadth and depth of interdisciplinary scholarship. The Graduate Division hosts a complete list (<https://grad.berkeley.edu/admissions/choosing-your-program/list/>) of graduate academic programs, departments, degrees offered, and application deadlines can be found on the Graduate Division website.

Prospective students must submit an online application to be considered for admission, in addition to any supplemental materials specific to the program for which they are applying. The online application and steps to take to apply can be found on the Graduate Division website (<https://grad.berkeley.edu/admissions/steps-to-apply/>).

### Admission Requirements

The minimum graduate admission requirements are:

1. A bachelor's degree or recognized equivalent from an accredited institution;
2. A satisfactory scholastic average, usually a minimum grade-point average (GPA) of 3.0 (B) on a 4.0 scale; and
3. Enough undergraduate training to do graduate work in your chosen field.

For a list of requirements to complete your graduate application, please see the Graduate Division's Admissions Requirements page (<https://grad.berkeley.edu/admissions/steps-to-apply/requirements/>). It is also important to check with the program or department of interest, as they may have additional requirements specific to their program of study and degree. Department contact information can be found here (<https://guide.berkeley.edu/graduate/degree-programs/>).

### Where to apply?

Visit the Berkeley Graduate Division application page (<http://grad.berkeley.edu/admissions/apply/>).

## Admission to the Program

Applicants should have sufficient undergraduate training to undertake graduate work in the chosen field. This includes such undergraduate majors as: biological sciences, structural biology, physics, math, and/or chemistry. Laboratory experience is expected.

Typical students admitted to the program have demonstrated outstanding potential as a research scientist and have clear academic aptitude in multiple disciplines, as well as excellent communication skills. This is assessed based on research experience, course selection and grades, essays (statement of purpose (<https://grad.berkeley.edu/admissions/steps-to-apply/requirements/statement-purpose/>) & personal history (<https://grad.berkeley.edu/admissions/steps-to-apply/requirements/personal-statement/>)), and letters of recommendation.

GRE general and subject tests are not required, and will not be seen by the review committee even if submitted.

## Normative Time Requirements

### Normative Time to Advancement

Normative time to advancement is two years.

#### Year 1

Students perform three laboratory rotations with the chief aim of identifying a research area and selecting a thesis laboratory. In their first year, all students must pass two graded STEM courses. Passing is a grade of "B" or higher for graduate students. This requirement can be met by: a) completing a total of 5 units of graduate level coursework (200\* and above), or b) completing 6 units of combined graduate and upper-division (100 and above) undergraduate courses. Any exceptions to this policy (ie, completing coursework in 2nd year, using non-STEM course to fulfill requirement) must be approved by the Head Graduate Advisor

#### Year 2

Students attend seminars, prepare a dissertation prospectus, and prepare for their PhD oral qualifying examination (QE). With the successful passing of the QE, students select their thesis/dissertation committee and advance to candidacy for the PhD degree.

## Normative Time in Candidacy

### Years 3 to 5

Students undertake research for the PhD dissertation under a self-selected four-person committee in charge of their research and dissertation. Students conduct original laboratory research and then write a dissertation based on the results of this research. Students are required to schedule a thesis committee meeting in order to present their progress and receive feedback from their committee every year. One semester of teaching (or significant contributions to Service and Leadership) is also required. On completion of the research, publication of at least one paper, and approval of the dissertation by the committee, the students are awarded the doctorate.

## Total Normative Time

Total normative time is 5-5.5/6 years.

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## Time to Advancement

### Curriculum

#### Courses Required

BIOPHY 293A	Research Seminar: Faculty Evening Research Presentations (FERPS) and Student Evening Research Presentations (SERPS)	2
BIOPHY 293B	Research Seminar: Faculty Evening Research Presentations (FERPS) and Student Evening Research Presentations (SERPS)	2
MCELLBI 293C	Responsible Conduct in Research	1

#### Lab Rotations

Students conduct three 10-week laboratory rotations in the first year. The thesis lab, where dissertation research will take place, is chosen at the end of the third rotation in late April/early May.

#### Qualifying Examination

The qualifying examination will evaluate a student's depth of knowledge in their research area, breadth of knowledge in fundamentals of biophysics, ability to formulate a research plan, and critical thinking. The QE prospectus/proposal will include a description of the specific research problem but will serve as a framework for the QE committee members to probe the student's foundational knowledge in the field and area of research. Proposals will be written in the manner of a NIH-style grant proposal. The prospectus must be completed and submitted to the QE chair no fewer than four weeks prior to the oral qualifying examination.

Students are expected to pass the qualifying examination by the end of the fourth semester in the program.

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## Time in Candidacy

### Advancement

After passing the qualifying exam by the end of the second year, students have until the fifth semester to select a thesis committee and submit the online advancement to candidacy form to the Graduate Division.

### Dissertation

Primary dissertation research is conducted in years 3-5/5.5. Requirements for the dissertation are decided in consultation with the thesis advisor and thesis committee members. To this end, students are required to have yearly thesis committee meetings with the committee after advancing to candidacy. Publication of a first (or co-first) author peer-reviewed paper or uploading a preprint of a first (or co-first) author manuscript to biorXiv is required prior to graduation.

### Dissertation Presentation/Finishing Talk

There is no formal defense of the completed dissertation; however, students are expected to publicly present an Exit Talk about their dissertation research in their final year.

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## Required Professional Development

### Presentations

All biophysics students are expected to attend the annual retreat and present research talks there. They are also encouraged to attend national

and international conferences to present research from the second year onward.

### Teaching

Biophysics students are required to teach one semester and may teach more. The teaching requirement may be waived, in consultation with the Head Grad advisor and Chair, for substantial service to the program (such as creating and teaching a 5-week module, and active participation on the DEI Committee).

## Biophysics

### BIOPHY 292 Research 3 - 12 Units

Terms offered: Spring 2025, Fall 2024, Summer 2024 10 Week Session Individual research under the supervision of a faculty member.

#### Rules & Requirements

**Prerequisites:** Consent of instructor

**Repeat rules:** Course may be repeated for credit without restriction.

#### Hours & Format

**Fall and/or spring:** 15 weeks - 3-12 hours of independent study per week

**Summer:** 10 weeks - 3-12 hours of independent study per week

#### Additional Details

**Subject/Course Level:** Biophysics/Graduate

**Grading:** Offered for satisfactory/unsatisfactory grade only.

### BIOPHY 293A Research Seminar: Faculty Evening Research Presentations (FERPS) and Student Evening Research Presentations (SERPS) 2 Units

Terms offered: Fall 2024, Fall 2023, Fall 2022

Seminar on presentation and evaluation of results in area of student's individual research interests.

#### Rules & Requirements

**Prerequisites:** 292

#### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of seminar per week

#### Additional Details

**Subject/Course Level:** Biophysics/Graduate

**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

## **BIOPHY 293B Research Seminar: Faculty Evening Research Presentations (FERPS) and Student Evening Research Presentations (SERPS) 2 Units**

Terms offered: Spring 2025, Spring 2024, Spring 2023

Seminar on presentation and evaluation of results in area of student's individual research interests.

### **Rules & Requirements**

**Prerequisites:** 293A, and 292

### **Hours & Format**

**Fall and/or spring:** 15 weeks - 2 hours of seminar per week

### **Additional Details**

**Subject/Course Level:** Biophysics/Graduate

**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.