

# Handbook

## Master's Graduate Program in Biochemistry and Biophysics

Brandeis University  
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The purpose of this handbook is to help students navigate the various requirements and expectations of the Master's Graduate Program in Biochemistry and Biophysics. It describes the requirements for the M.S. degree and contains general information about the procedures to be followed in satisfying these requirements.

The Biochemistry & Biophysics Graduate Program is an interdepartmental graduate program with faculty drawn from the Biochemistry, Biology, Chemistry, and Physics departments. Progress of students in the program is monitored mainly by faculty of the Biochemistry Department and the Biochemistry & Biophysics Graduate Program Chair. An up-to-date list of faculty associated with this program is posted on the [Biochemistry & Biophysics Graduate program webpage](#).

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## **Degree requirements -- General Information**

The MS program in Biochemistry and Biophysics is a two-year program designed to accommodate students with previous academic majors in a wide range of fields, including biology, biochemistry, physical chemistry, engineering, and physics.

To obtain the Master's degree, students must satisfy both the general requirements of the graduate school and the specific requirements of the Biochemistry & Biophysics Graduate Program. Both sets of requirements are summarized in the [Brandeis catalog](#).

All Biochemistry and Biophysics Master's students must complete and pass four graduate level courses with a grade of B- or better. Students will rotate through two Brandeis University labs in their first semester, after which point they will join a lab in which to carry out research towards a Master's Thesis. In addition, students must attend the two-day Division of Science Responsible Conduct of Scientific Research (RCR) Mini-course held on **Wednesday, January 8<sup>th</sup> and Thursday, January 9<sup>th</sup>**.

The student is responsible for fulfilling each requirement before the relevant deadline. Students failing to complete requirements on time may, at the discretion of the faculty, be required to leave the Program.

Students in the Biochemistry & Biophysics Graduate Program are expected to work full-time towards the degree throughout the entire calendar year. Students should be aware that scientific research is a demanding occupation and that researchers often find it necessary to do work on nights, weekends, and holidays in addition to that during "normal working hours." This precludes students undertaking outside employment or outside academic activities that would require a significant amount of time.

## Requirements for the M.S. degree

### 1. Courses

The required program of study consists of four one-semester courses (BCHM 101a, BCHM 103b, BCHM 104b, and one elective advanced-level course from the Division of Science, approved in advance by the graduate program chair), passed with a grade of B- or higher. All students are required to take BCHM 101a in the first semester, and BCHM 103b and BCHM 104b in the second semester. To fulfill the course requirement for the Master's degree, the student must complete each course with a letter grade of B- or higher. To make any subsequent modifications to the Required Program of Study, the student must obtain, in advance, written approval from the Program Chair.

Starting in their second semester, students will join a research lab full-time and enroll in BCBP297, Master's Lab Research, with their research advisor for the three remaining semesters and the intervening summer term. To earn the M.S. degree, students must also enroll in BCBP299 in their fourth semester and write and submit a master's thesis deemed satisfactory by a committee of faculty appointed by the Program Chair. In addition, students must attend the two-day Division of Science Responsible Conduct of Scientific Research (RCR) Mini-course, which does not count towards the four courses required. For the 2018-2019 academic year, the RCR Mini-course will be held on **Wednesday, January 8<sup>th</sup> and Thursday, January 9<sup>th</sup>**.

The following is a typical program of study:

#### Year 1, Fall Semester

BCHM 101a Advanced Biochemistry: Enzyme Mechanism  
BCBP 296a Masters Lab Rotation

#### Year 1, Spring Semester

BCHM103b Advanced Biochemistry: Cellular Information Transfer Mechanisms  
BCHM 104b Physical Chemistry of Macromolecules  
BCBP 297b Masters Lab Research II

#### Summer, between years

BCBP 297a Masters Lab Research I

#### Year 2, Fall Semester

Elective (if taking this semester)  
BCBP 297a Masters Lab Research I

#### Year 2, Spring Semester

Elective (if taking this semester)  
BCBP 297b Masters Lab Research II  
BCBP 299a Master's Thesis

In addition to passing the formal course requirements, all students should endeavor to keep abreast of current developments in Biochemistry & Biophysics and related fields. To accomplish this, students are urged to attend the following seminars weekly during the academic year:

- 1) The Biochemistry & Biophysics Friday Pizza Talks
- 2) The research talks sponsored by the students from the MSM and QB training programs
- 3) One or more departmental colloquia or specialty journal clubs according to the student's interest

## 2. Rotations and acceptance by thesis advisor

All first semester students are required to register for the Master's lab rotations (BCBP 296a). Every student is required to complete two rotations of 8-9 weeks each in two different laboratories during the first semester. The choice of laboratory rotations is made jointly by the student, the chair of the graduate program, and the faculty member in whose lab the rotation is to take place. Students may choose advisers from any department within the Division of Science. The complete list of faculty research interests is [available](#).

During orientation week, students have the option of attending a three-night faculty bazaar where faculty members will introduce their work. After, students will approach faculty of interest and discuss the possibility of rotating in their lab. Advisors can be chosen from any department within the Division of Science. The complete list of faculty research interests is [available](#).

It is the responsibility of students to contact faculty members and find their rotations labs. The first lab rotation will begin on **September 9<sup>th</sup>, 2019**. The choice of laboratory rotations is made jointly by the student, the chair of the graduate program, and the faculty member in whose lab the rotation is to take place

To complete a rotation, the student must turn in a satisfactory written report. Written reports are due the morning of the day that the next rotation period begins.

### Rotation Schedule:

	<b>Start</b>	<b>End</b>
1 <sup>st</sup>	Mon. 09/09/19	Fri. 10/25/19
2 <sup>nd</sup>	Mon. 10/28/19	Fri. 01/10/20

After the first semester, research for Master's Thesis is carried out under the supervision of a faculty adviser. Students must choose a research laboratory immediately upon completion of the second laboratory rotation. Starting in their second semester, students will join a research lab full-time and enroll in BCBP 297, Master's Lab Research, with their research advisor for the three remaining semesters and the intervening summer term.

### **3. Thesis**

To qualify for the M.S., a student must submit a thesis reporting a substantial piece of original research carried out under the supervision of a research adviser or advisers. During the final semester in the program (typically the fourth semester), the student will register for BCHM 299a (Master's Thesis) and BCHM 297 (Master's Lab Research) while finishing research work and writing the MS thesis.

The thesis must be approved by the Thesis Advisor and a committee of two additional faculty, assigned by the program chair. All students must give a 15 minute oral presentation of their thesis topic, presented on the same date as that spring's senior honors talks (held on April 23 and April 24 in spring 2020). A written copy of your thesis will be due to your examining committee no later than one week in advance of the talks.

Once accepted by the faculty readers, the student must submit the [Certification of Master's Thesis Acceptance](#) to the graduate school and publish the thesis with Brandeis University by the posted deadlines. A copy of this form and of your final thesis should be given to the Graduate Affairs Office. Deadlines and guidelines for submission and acceptance of the Master's thesis are set by the graduate school and the registrar each semester. Please see the graduate school's [Master's Thesis Guide](#) for more information on submitting and publishing the thesis.

Students have not fulfilled the program and thesis requirements until the final version of the thesis, including any changes required by the advisor and the Graduate School, is submitted to the Graduate School office. For theses that include copyrighted material (for example, text already published in journal articles), copyright permission must be obtained from each journal and submitted to the Graduate School office with the dissertation. There is usually no need to get permission from co-authors, since it is usually the journal, not the authors, that owns the copyright.

### **4. Residence**

The residence requirement is two years.

### **Progress**

Students' progress will be reviewed by the chair of the program at the end of each semester, particularly after the end of their first year. Students may be asked to leave the program at the end of a semester if their progress is found to be unsatisfactory at the discretion of the graduate committee. Satisfactory progress includes receiving grades of B- or higher in all courses, successfully joining a lab after the student's first semester, and demonstrating adequate research progress thereafter as determined by the graduate committee.

## **Information for first-year students**

Prior to arriving to campus, first year students will be emailed information about orientation activities, registration, and class schedules. Upon arrival on campus, first-year students should stop by the Biochemistry Department. **It is mandatory that you attend the Orientation Meeting scheduled for your program.** After arriving to campus, first-year students should stop by the Biochemistry Department Office/Graduate Affairs Office (Ros/Kos 3-RK02) to check your mailbox (located in the hallway outside the Biochemistry office). Please bring your student ID, so that Jenn Roy can give you the appropriate card access. You will be required to **take online safety training** before being granted building access.

## **Transition from M.S. to Ph.D. Program:**

Students who have earned a M.S. at another institution will be admitted as normal first-year students. Students in the Brandeis Biochemistry & Biophysics M.S. program who apply to and are accepted into our Biochemistry & Biophysics Ph.D. program may be transitioned into the program and considered as third year Ph.D. students. Master's students who plan to apply to our Ph.D. program should first talk to their Master's advisor in July after their first year. The Ph.D. program graduate chair will then meet with these applicants before the beginning of the semester of their second year to communicate their potential for our Ph.D. program. An admissions decision will be made as early as possible to expedite the transition to Ph.D. These students must complete the same requirements as students who enter directly as Ph.D. students, with the following alterations to their timeline:

### **Matriculation date:**

M.S. students will enter the Ph.D. program during the summer after their M.S. year and matriculate as Ph.D. students that summer, typically with a start date of June or July 1<sup>st</sup>. The start of stipend payments will coincide with their matriculation date. Any exceptions to this timeline must be discussed with and approved by the graduate committee.

### **Courses:**

Courses taken during the M.S. year may count towards the Ph.D. course requirement, if the program chair approves the courses. M.S. Students who are strong candidates for the Ph.D. program are encouraged to take BCHM102 in the fall of their second year at Brandeis, and with permission of the graduate chair and instructor, may take BCBP200 in the spring of their second year. These students are expected to complete the remaining classes as soon as possible after transitioning to the Ph.D. program.

### **Rotations and Selection of Dissertation Lab:**

In most cases, M.S. students who transition to the Ph.D. program are expected to continue their research in the same lab in which their Master's Thesis was completed. Exceptions to this will be considered on a case-by-case basis. Should a lab change occur, the possibility of additional lab rotations before changing labs will be discussed on a case-by-case basis.

**Teaching Obligations:**

M.S. students who transition to the Ph.D. program will not be required to serve as teaching assistants.

**Master's Thesis:**

M.S. students will defend their master's thesis according to the requirements of the M.S. program handbook.

**Outside and Inside Examinations:**

For a master's student who transitions into our PhD program, the inside and outside propositions are required during their first year in the PhD program (their 3rd year at Brandeis). Students follow the same timeline and guidelines for these propositions that 2<sup>nd</sup> year Ph.D. students follow.