

# Metabolic Biology

The Metabolic Biology MS and PhD programs provide interdisciplinary training in the theory and techniques of molecular and biochemical metabolic studies of nutrients and phytochemicals in humans, and in mammals that serve as models for humans.

## Admission to the University

### Minimum Requirements for Admission

The following minimum requirements apply to all graduate programs and will be verified by the Graduate Division:

1. A bachelor's degree or recognized equivalent from an accredited institution;
2. A grade point average of B or better (3.0);
3. If the applicant comes from a country or political entity (e.g., Quebec) where English is not the official language, adequate proficiency in English to do graduate work, as evidenced by a TOEFL score of at least 90 on the iBT test, 570 on the paper-and-pencil test, or an IELTS Band score of at least 7 (note that individual programs may set higher levels for any of these); and
4. Sufficient undergraduate training to do graduate work in the given field.

### Applicants Who Already Hold a Graduate Degree

The Graduate Council views academic degrees not as vocational training certificates, but as evidence of broad training in research methods, independent study, and articulation of learning. Therefore, applicants who already have academic graduate degrees should be able to pursue new subject matter at an advanced level without need to enroll in a related or similar graduate program.

Programs may consider students for an additional academic master's or professional master's degree only if the additional degree is in a distinctly different field.

Applicants admitted to a doctoral program that requires a master's degree to be earned at Berkeley as a prerequisite (even though the applicant already has a master's degree from another institution in the same or a closely allied field of study) will be permitted to undertake the second master's degree, despite the overlap in field.

The Graduate Division will admit students for a second doctoral degree only if they meet the following guidelines:

1. Applicants with doctoral degrees may be admitted for an additional doctoral degree only if that degree program is in a general area of knowledge distinctly different from the field in which they earned their original degree. For example, a physics PhD could be admitted to a doctoral degree program in music or history; however, a student with a doctoral degree in mathematics would not be permitted to add a PhD in statistics.
2. Applicants who hold the PhD degree may be admitted to a professional doctorate or professional master's degree program if there is no duplication of training involved.

Applicants may apply only to one single degree program or one concurrent degree program per admission cycle.

## Required Documents for Applications

1. **Transcripts:** Applicants may upload *unofficial* transcripts with your application for the departmental initial review. *If the applicant is admitted*, then *official* transcripts of all college-level work will be required. Official transcripts must be in sealed envelopes as issued by the school(s) attended. If you have attended Berkeley, upload your unofficial transcript with your application for the departmental initial review. *If you are admitted*, an official transcript with evidence of degree conferral *will not* be required.
2. **Letters of recommendation:** Applicants may request online letters of recommendation through the online application system. Hard copies of recommendation letters must be sent directly to the program, not the Graduate Division.
3. **Evidence of English language proficiency:** All applicants from countries or political entities in which the official language is not English are required to submit official evidence of English language proficiency. This applies to applicants from Bangladesh, Burma, Nepal, India, Pakistan, Latin America, the Middle East, the People's Republic of China, Taiwan, Japan, Korea, Southeast Asia, most European countries, and Quebec (Canada). However, applicants who, at the time of application, have already completed at least one year of full-time academic course work with grades of B or better at a US university may submit an official transcript from the US university to fulfill this requirement. The following courses will not fulfill this requirement:
  - courses in English as a Second Language,
  - courses conducted in a language other than English,
  - courses that will be completed after the application is submitted, and
  - courses of a non-academic nature.

If applicants have previously been denied admission to Berkeley on the basis of their English language proficiency, they must submit new test scores that meet the current minimum from one of the standardized tests.

## Where to Apply

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

## Admission to the Program

Admission to the Metabolic Biology (formally Molecular and Biochemical Nutrition) program is based on a variety of factors, including academic achievement and relevant experience. We practice holistic admissions—each part of the application is important and thoroughly reviewed.

Applicants with a background in the biological sciences and lab experience are best suited for the Metabolic Biology program. While there are **no set prerequisites**, we look for the coursework in areas such as calculus, general and organic chemistry, biology, and biochemistry. Because this program is designed to develop research scientists, it is also important that applicants are familiar with an experimental lab setting.

## Curriculum

### Courses Required

#### First Year

NUSCTX 103    Nutrient Function and Metabolism

MCELLBI 110	Molecular Biology: Macromolecular Synthesis and Cellular Function	4
NUSCTX 211A	Introduction to Research in Nutritional Sciences (Rotations & reports)	4
NUSCTX 211B	Introduction to Research in Nutritional Sciences (Rotations & reports)	4
NUSCTX 250	Advanced Topics in Metabolic Biology	3
NUSCTX 290	Advanced Seminars in Nutritional Sciences (Advanced Special Topics in any biological/chemical science department; Once a year)	2
NUSCTX 292	Graduate Research Colloquium (Every semester)	1
NUSCTX 293	Research Seminar (Faculty Research Presentations)	1
NUSCTX 301	Professional Preparation: Teaching in Nutritional Sciences	1-2
NUSCTX 302	Professional Preparation: Supervised Teaching Experience in Nutrition (In teaching semester )	1-4

**Second—Fifth Years**

NUSCTX 290	Advanced Seminars in Nutritional Sciences (Advanced Special Topics in any biological/chemical science department; Once a year)	2
NUSCTX 292	Graduate Research Colloquium (Every semester)	1
NUSCTX 299	Nutritional Sciences and Toxicology Research (Every semester)	1-12

**Curriculum****Courses Required****First Year**

NUSCTX 103	Nutrient Function and Metabolism	3
MCELLBI 110	Molecular Biology: Macromolecular Synthesis and Cellular Function	4
NUSCTX 211A	Introduction to Research in Nutritional Sciences (Rotations & reports)	4
NUSCTX 211B	Introduction to Research in Nutritional Sciences (Rotations & reports)	4
NUSCTX 250	Advanced Topics in Metabolic Biology	3
NUSCTX 290	Advanced Seminars in Nutritional Sciences (Advanced Special Topics in any biological/chemical science department)	2
NUSCTX 292	Graduate Research Colloquium (Every semester)	1
NUSCTX 293	Research Seminar (Faculty Research Presentations)	1
NUSCTX 299	Nutritional Sciences and Toxicology Research	1-12
NUSCTX 301	Professional Preparation: Teaching in Nutritional Sciences	1-2
NUSCTX 302	Professional Preparation: Supervised Teaching Experience in Nutrition <sup>If teaching</sup>	1-4

**Second Year**

NUSCTX 290	Advanced Seminars in Nutritional Sciences (Advanced Special Topics in any biological/chemical science department)	2
NUSCTX 292	Graduate Research Colloquium	1
NUSCTX 299	Nutritional Sciences and Toxicology Research	1-12