

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 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 calculus, general and organic chemistry, biology, biochemistry, etc. Because this program is designed to develop research scientists, it is also important that applicants are familiar with an experimental lab setting.

Admission to the University

Uniform minimum requirements for admission

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

1. A bachelor's degree or recognized equivalent from an accredited institution;
2. A minimum 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 570 on the paper-and-pencil test, 230 on the computer-based test, 90 on the iBT test, or an IELTS Band score of at least 7 (note that individual programs may set higher levels for any of these); and
4. Enough undergraduate training to do graduate work in the given field.

Applicants who already hold a graduate degree

The Graduate Council views academic degrees as evidence of broad research training, not as vocational training certificates; therefore, applicants who already have academic graduate degrees should be able to take up new subject matter on a serious level without undertaking a graduate program, unless the fields are completely dissimilar.

Programs may consider students for an additional academic master's or professional master's degree 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 only apply to one single degree program or one concurrent degree program per admission cycle.

Any applicant who was previously registered at Berkeley as a graduate student, no matter how briefly, must apply for readmission, not admission, even if the new application is to a different program.

Required documents for admissions applications

1. **Transcripts:** Upload unofficial transcripts with the application for the departmental initial review. Official transcripts of all college-level work will be required **if admitted**. Official transcripts must be in sealed envelopes as issued by the school(s) you have attended. Request a current transcript from every post-secondary school that you have attended, including community colleges, summer sessions, and extension programs.
If you have attended Berkeley, upload unofficial transcript with the application for the departmental initial review. Official transcript with evidence of degree conferral **will not** be required if admitted.
2. **Letters of recommendation:** Applicants can 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 in which the official language is not English are required to submit official evidence of English language proficiency. This requirement 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, and most European countries. 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 U.S. university may submit an official transcript from the U.S. university to fulfill this requirement. The following courses will not fulfill this requirement: 1) courses in English as a Second Language, 2) courses conducted in a language other than English, 3) courses that will be completed after the application is submitted, and 4) 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.

Curriculum

Courses Required

MCELLBI 110	Molecular Biology: Macromolecular Synthesis and Cellular Function	4
MCELLBI 130A	Cell and Systems Biology	4
MCELLBI 210	Macromolecular Reactions and the Cell	4
NUSCTX 211A/211B	Introduction to Research in Nutritional Sciences (rotations & reports)	4-8
NUSCTX 292	Course Not Available (4 semesters)	

NUSCTX 293	Research Seminar (Faculty Research Presentations)	1
NUSCTX 296	Course Not Available	
NUSCTX 298	Directed Group Studies	1-4
NUSCTX 299	Nutritional Sciences and Toxicology Research (from 2-5 years)	1-12
NUSCTX 301	Professional Preparation: Teaching in Nutritional Sciences	1-2
NUSCTX 302	Professional Preparation: Supervised Teaching Experience in Nutrition	1-4

Graduate Seminars Elective (3 semesters) - Advanced Special Topics in any biological/chemical science department

Curriculum

Courses Required

First and second years of coursework are to be per approved study list, and will include:

NUSCTX 103	Nutrient Function and Metabolism	3
NUSCTX 106	Course Not Available	
NUSCTX 250	Advanced Topics in Metabolic Biology	3
NUSCTX 211A/211B	Introduction to Research in Nutritional Sciences (rotations & reports)	4-8
NUSCTX 292	Graduate Research Colloquium (every semester)	1
NUSCTX 293	Research Seminar (Faculty Research Presentations)	1
NUSCTX 296	Course Not Available	
NUSCTX 301	Professional Preparation: Teaching in Nutritional Sciences	1-2
NUSCTX 302	Professional Preparation: Supervised Teaching Experience in Nutrition	1-4

Graduate Seminar Elective (5 semesters) - Advanced Special Topics in any biological/chemical science department