

PhD in Biochemistry and Molecular Genetics

Admission Requirements

Applicants to the PhD program in Biochemistry and Molecular Genetics should apply through the GEMS application process. Students should select Biochemistry and Molecular Genetics as their first preference to be considered for admission into our program. In addition to the Graduate College minimum requirements, applicants must meet the following program requirements:

- **Baccalaureate Field** No restrictions. Prior academic work should include 16 semester hours of chemistry (including organic chemistry, physical chemistry, and quantitative analysis), and at least one advanced course in biology. An undergraduate course in biochemistry is highly recommended.
- **Grade Point Average** At least 2.90/4.00 for the final 60 semester (90 quarter) hours of undergraduate study.
- **Tests Required** GRE General.
- **Minimum English Competency Test Score**
 - **TOEFL** The TOEFL score cannot be more than two years old. UIC's Institutional Code is 1851. 80, with subscores of Reading 19, Listening 17, Speaking 20, and Writing 21 (iBT Test); 60, with subscores of Reading 19, Listening 17, Writing 21 (revised Paper-Delivered Test), **OR**,
 - **IELTS** 6.5, with subscores of 6.0 for all four subscores, **OR**,
 - **PTE-Academic** 54, with subscores of Reading 51, Listening 47, Speaking 53, and Writing 56.
- **Letters of Recommendation** Required.
- **Personal Statement** Required.
- **Deadlines** The application deadline for this program is earlier than the Graduate College deadline; please see the GEMS website for the internal deadline for full consideration of your application.
- **Other** The department only admits applicants who wish to be candidates for the PhD degree. Applicants are not admitted as candidates for a terminal master's degree.

Degree Requirements

In addition to the Graduate College minimum requirements, students must meet the following program requirements:

Master of Science

- **Minimum Semester Hours Required** 32.
- **Course Work** Two tracks (thesis and nonthesis) are available to students in this program.

Course	Title
Thesis Track Required Courses	
GEMS 501	Biochemistry
GEMS 502	Molecular Biology
or GEMS 503	Cell Biology
GEMS 504	Research Methods I
GEMS 505	Research Methods II
BCMG 515	Journal Club (2 semesters)
BCMG 598	Masters Thesis Research

Nonthesis Track Required Courses	
GEMS 501	Biochemistry
GEMS 502	Molecular Biology
GEMS 503	Cell Biology
BCMG 503	Research Methods in Biochemistry and Molecular Genetics (3 semesters or equivalent)
GEMS 504	Research Methods I
GEMS 505	Research Methods II
BCMG 515	Journal Club (2 semesters)

Electives

Select three of the following in the second semester of the first year, subject to the approval of the departmental graduate committee:

BCMG 513	Principles of Structure Determination and Analysis
GEMS 500	Physiology
GEMS 510	Integrative Biology
GEMS 511	Molecular Genetics
Other 500-level courses	

- **Comprehensive Examination** None.
- **Thesis, Project, or Course-Work-Only Options** Thesis or course work only. No other options are available
 - *Thesis*: Thesis students must earn at least 12 semester hours in BCMG 598.
- **Other Requirements** Supervised part-time teaching experiences during one term of each year are regularly assigned to students in the program.

Doctor of Philosophy

- **Minimum Semester Hours Required** 96 from the baccalaureate.
- **Course Work**

Course	Title
Required Core	
Of the four core GEMS courses (GEMS 500, GEMS 501, GEMS 502, and GEMS 503), all students must take or show proficiency in the following:	
GEMS 501	Biochemistry
GEMS 502	Molecular Biology
GEMS 503	Cell Biology
Students must also take or show proficiency in:	
GEMS 504	Research Methods I
GEMS 505	Research Methods II
GEMS 506	GEMS Research Rotation
or BCMG 503	Research Methods in Biochemistry and Molecular Genetics
Students must also take the following:	
BCMG 515	Journal Club (6 semesters)
BCMG 575	Topics in Biochemistry and Molecular Genetics
BCMG 595	Student Research Seminars (every semester)
BCMG 501	Faculty Research Seminars

Electives

Select three 500-level electives from the following:

GEMS 500	Physiology
GEMS 510	Integrative Biology
GEMS 511	Molecular Genetics
GEMS 515	Receptor Pharmacology and Cell Signaling
BCMG 513	Principles of Structure Determination and Analysis
PHYB 586	Cell Physiology
Other 500-level course (subject to approval of the director of graduate studies)	

- **Preliminary Examination** Required. Students take a preliminary qualifying examination for advancement to PhD candidacy at the end of their second year of study. This examination will test a student's ability to design and orally defend a scientific research plan as well as his/her general knowledge of biochemistry and molecular genetics.
- **Dissertation** Required. A defined research experience and completion of an approved thesis is required. The thesis will be presented in a public forum and defended in front of a faculty jury. The research presented in the thesis is expected to be of publishable quality.
- **Other Requirements** Supervised part-time teaching experiences during one term of each year are regularly assigned to students in the program. The department requires every degree candidate to fulfill teaching assignments, regardless of the source of financial support for the student.

Interdepartmental Concentrations

Students earning a graduate degree in this department may complement their courses by enrolling in select concentrations after consulting with their graduate advisor. Interdepartmental concentrations available for this degree include:

- [Cardiovascular Science](#)
- [Neuroscience](#)