

# Graduate Education in Medical Sciences

## Mailing Address:

Graduate Education in Medical Sciences  
College of Medicine (MC 784)  
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## Contact Information:

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## Administration:

Co-Directors: Dr. Kamal Sharma and Bradley Merrill  
Program Administrator: Mia Johnson

## Program Codes:

20FS5375NONE

The GEMS Program offers students integrated training in the biomedical sciences. PhD programs include the areas of Anatomy, Biochemistry, Biophysics, Cell and Molecular Biology, Genetics, Immunology, Microbiology, Neurosciences, Pathology, Pharmacology, and Physiology. Students have the flexibility to choose a mentor from among more than 150 funded research faculty in all departments and PhD programs of the College of Medicine. Areas of research excellence within the broader disciplines include: Biochemistry and Molecular Biology, Cancer Biology, Cardiovascular Biology, Cell and Developmental Biology, Genetics and Gene Regulation, Immunology, Informatics and Genomics, Lung Biology, Metabolism and Metabolic Disorders, Microbiology, Neurobiology, Stem Cell Biology and Regenerative Medicine, Structural/Computational Biology and Biophysics, Systems Physiology, and Virology. Brief descriptions of each research interest and UIC faculty associated with the interests (<http://chicago.medicine.uic.edu/education/masters-and-doctorate-programs/graduate-education-in-medical-sciences/faculty-research/faculty-by-area-of-research>) can be found on the College of Medicine website.

## Admission Requirements

Students apply using the GEMS PhD program code (20FS5375NONE). They list in order of preference up to three Research Interests and up to five faculty members whose research interests them. PhD degrees are granted through the following participating departments:

| Department                          | Program Code |
|-------------------------------------|--------------|
| Anatomy and Cell Biology            | 20FS1024PHD  |
| Biochemistry and Molecular Genetics | 20FS4050PHD  |
| Cellular and Molecular Pharmacology | 20FS5552PHD  |
| Microbiology and Immunology         | 20FS1468PHD  |
| Pathology                           | 20FS1548PHD  |
| Physiology and Biophysics           | 20FS1584PHD  |

Specific requirements are listed under each of these graduate programs.

In general, students should have the following:

- **Baccalaureate Field** No restrictions. However, applicants must have a satisfactory record of courses in biology, inorganic and organic chemistry, and at least one year of physics and of mathematics.
- **Grade Point Average** At least 2.75/4.00 for the final 60 semester hours of undergraduate study. Preference is given to applicants with a GPA greater than 3.00/4.00.
- **Tests Required** GRE General. This test should be taken prior to submission of the formal application. Preference is given to applicants with a combined verbal and quantitative score above 308 and an analytical writing score above 4.0.
- **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 Internet-based); 60, with subscores of Reading 19, Listening 17, Writing 21 (New Paper-Based—after August 2018); 550 (Institutional Testing Paper-Based—prior to August 2018), **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.
- **Other Requirements** Preference is given to applicants with a documented record of research accomplishments.

## Degree Requirements

GEMS students, during their first semester of study, engage in a core curriculum that focuses on the fundamentals of biochemistry, cell biology, molecular biology, and physiology. Beginning with the second semester, students choose from a variety of courses with the goal of concentrating more on their chosen area of interest.

During the first year, students additionally engage in three or four laboratory rotations of 10 weeks each. The students select from among the GEMS faculty potential mentors for their thesis research. At the end of the first year, students select their mentor and department from within the College of Medicine. The PhD is granted by the degree-granting program that the student selects.

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

### Course Title

#### Required Courses

Students must take or show proficiency in three of the following four core courses:

|          |                   |
|----------|-------------------|
| GEMS 500 | Physiology        |
| GEMS 501 | Biochemistry      |
| GEMS 502 | Molecular Biology |
| GEMS 503 | Cell Biology      |

Students must take or show proficiency in the following research methods courses:

|          |                     |
|----------|---------------------|
| GEMS 504 | Research Methods I  |
| GEMS 505 | Research Methods II |

Select 500-level courses as specified by chosen PhD program

- **Preliminary Examination** During the second year of graduate study, students must pass a preliminary examination in a format specified by their chosen department.
- **Dissertation** Required. Students must earn at least 52 hours in Research in their department (599).
- **Other Requirements:** Journal clubs and research seminars as specified by the student's chosen department.