

# CELL BIOLOGY AND BIOPHYSICS

*The Interdisciplinary Ph.D. program is no longer accepting applications. The Civil Engineering, Computer Science, Economics, Education, Electrical and Computer Engineering, Humanities, Mechanical Engineering, and Natural Sciences Ph.D. programs are now open for applications. Please inquire to [umkcs@umkc.edu](mailto:umkcs@umkc.edu) with any questions.*

## Discipline Coordinator

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Cell Biology and Biophysics faculty who are members of the Doctoral Faculty (<http://sgs.umkc.edu/for-faculty-and-staff/doctoralgraduate-faculty-lists/>)

Cell Biology and Biophysics is a discipline in the Interdisciplinary Ph.D. (<https://catalog.umkc.edu/colleges-schools/graduate-studies/interdisciplinary-phd-program/>) Program administered by the [School of Graduate Studies](#).

**Note:** The discipline-specific requirements listed here are *in addition* to the requirements listed in [Interdisciplinary Ph.D. Application Procedure and Minimum Criteria for Admission](#) and [Minimum Interdisciplinary Ph.D. Academic Regulations and Degree Requirements](#).

## Discipline-Specific Admission Requirements

A cumulative GPA of at least 3.0 (on a 4.0 scale) on all college work for bachelor's degree or post-baccalaureate work. Due to the sequencing of coursework, new students selecting cell biology and biophysics as their primary discipline will normally only be admitted in the fall term.

### Qualifying Requirements for Full Admission

Minimum of 16 hours of approved graduate coursework at UMKC toward the Ph.D. program with a grade-point average of at least 3.0 on a 4.0 scale. International students must establish English proficiency.

## Suggested Compatible Co-disciplines

Chemistry (<https://catalog.umkc.edu/colleges-schools/graduate-studies/chemistry/>), Molecular Biology and Biochemistry (<https://catalog.umkc.edu/colleges-schools/graduate-studies/molecular-biology-biochemistry/>), Pharmaceutical Sciences (<https://catalog.umkc.edu/colleges-schools/graduate-studies/pharmaceutical-sciences/>), Pharmacology (<https://catalog.umkc.edu/colleges-schools/graduate-studies/pharmacology/>), Oral and Craniofacial Sciences (<https://catalog.umkc.edu/colleges-schools/graduate-studies/oral-craniofacial-sciences/>), Physics (<https://catalog.umkc.edu/colleges-schools/graduate-studies/physics/>)

## Core Program Requirements

### Cell Biology and Biophysics as a Primary Discipline

#### Minimum Core

33 credit hours of courses and 15 credit hours of dissertation research for a total of 48 credit hours of post-baccalaureate credits, distributed as indicated below. The core courses should be completed by the end of the second academic year after admission to the graduate program on a full-time basis (individual arrangements will be made for part-time students).

Code	Title	Credits
LS-MBB 5530	Advanced Principles of Molecular Biology	3
LS-CBB 5520	Advanced Principles of Cell Biology	3
LS-CBB 5596 or LS-CBB 5597	Advanced Experimental Cell Biology I Advanced Experimental Cell Biology II	2
LS-CBB 5612 or LS-MBB 5611	Seminar in Cell Biology and Biophysics (*) Seminar in Molecular Biology and Biochemistry	1
LS-CBB 5690 or LS-MBB 5690	Analytical Methods in Cell Biology and Biophysics Analytical Methods in Molecular Biology and Biochemistry	5
BIOLOGY 5501	Proposal Writing	1

7 cr. hr. in discipline or related discipline courses (LS-CBB, LS-MBB, BIOL, PHARM, etc.) 15 cr. hr. LS-CBB 5699, Dissertation Research

\* Students may take LS-CBB 5612 or LS-MBB 5611 twice (for a total of 2 credit hours) or take each class once (for a total of 2 credit hours).

Seminar courses are part of this component of required courses, up to a maximum of three for the program, as are additional credits of Advanced Experimental Molecular or Cell Biology (a total of four credits in experimental laboratory courses, independent of thesis research, is required). 5700-level courses may not be used to satisfy cell biology and biophysics discipline-specific course requirements.

Any of the above courses, whether part of the primary or related discipline requirements, will be credited toward the 33-credit Ph.D. course requirement if taken as part of any graduate program at UMKC and if a grade of "B" or better is received.

In addition to the basic 33-credit course core, each student's Supervisory Committee may require up to nine credit hours in additional elective courses in any University-approved doctoral discipline as preparation for specific areas of research. No more than seven credit hours of 5500-level courses, or their equivalents, can be taken at institutions outside UMKC.

#### For Students with Cell Biology and Biophysics as a Co-discipline

Code	Title	Credits
LS-MBB 5530	Advanced Principles of Molecular Biology	3
LS-CBB 5520	Advanced Principles of Cell Biology	3
LS-CBB 5612	Seminar in Cell Biology and Biophysics	1
Additional SBC graduate courses (LS-CBB, LS-MBB or BIOL) for a minimum of 10 cr. hr.		

A sufficient amount of other core courses to constitute the required percentage of their overall program of study. 5700-level courses may not be used to satisfy cell biology discipline-specific course requirements.

## Requirements for Comprehensive Exams

Full-time students with cell biology as their primary discipline must take their comprehensive examination before the beginning of the third academic year after admission to Ph.D. study. Part-time Ph.D. students in this discipline must complete their comprehensive examination immediately after completion of the 25-hour course requirement on their Ph.D. plan of study.

### Format

For students with this discipline as their primary discipline, written and oral examinations are required.

### Written Portion

The written examination, for students who have cell biology and biophysics as their primary discipline consists of an NIH-style grant proposal that the student will prepare. The topic of the research proposal will be determined by the student in consultation with the student's supervisory committee.

### Oral Portion

The oral examination has two aspects: (1) questions covering the grant proposal prepared by the student for the written examination and (2) other related material in the student's area of specialization, including fundamental knowledge of the student's chosen disciplines.

## Other Discipline-Specific Special Requirements

Students with this discipline as a primary discipline must participate in the teaching program of the Division of Biological and Biomedical Systems.

Students with this discipline as a primary discipline or co-discipline must participate in seminars.

### Retention in Program

No more than one C grade will be permitted in basic core coursework. If a student with this discipline as the primary discipline receives more than one C grade in a basic course, he or she will be dropped from the doctoral program. Students with this discipline as a co-discipline who receive more than one C grade will be dropped from the discipline.

The doctoral faculty in Cell Biology and Biophysics meets formally at the end of each academic year to discuss and evaluate all graduate students' progress. Each student's committee also meets with the student at least once a year. After the annual doctoral faculty meeting, each student receives a written evaluation of his or her status and a report is placed in the student's file.