

BIOMEDICAL SCIENCES - CELLULAR AND MOLECULAR BIOLOGY - PH.D.

College of Arts and Sciences
School of Biomedical Sciences
Cunningham Hall
Kent Campus
330-672-2263
www.kent.edu/biomedical

Description

The Ph.D. degree in Biomedical Sciences–Cellular and Molecular Biology prepares creative research scientists for careers in teaching, research and biotechnology. Graduates possess an in-depth comprehension of experimental design at the cellular and molecular levels of biological organization, as well as competency in current techniques in the discipline. Major research emphases include signal transduction, biochemistry and pathobiology, gene regulation, cell systems biology, cell and tissue ultrastructure, membrane structure and function, molecular aspects of neurobiology and endocrinology, genetics and metabolism of microorganisms, virology and immunology and enzymology with an emphasis on protein dynamics and folding, as well as cytochrome P-450s.

Program faculty are drawn from several departments at Kent State University, University of Akron, Cleveland Clinic Foundation and Northeast Ohio Medical University (NEOMED). Additional participant faculty are located at area clinical facilities and hospitals. This multi-departmental and inter-institutional structure gives doctoral candidates access to the talents of a broadly diverse research faculty as well as significant research facilities and resources.

The Biomedical Sciences–Cellular and Molecular Biology major comprises the following concentrations:

- Cellular Biology and Structure
- Molecular Biology and Genetics

FULLY OFFERED AT:

- Kent Campus

Admission Requirements

- Master of Science degree from an accredited college or university¹ for unconditional admission
- Minimum 3.000 GPA on a 4.000 point scale for unconditional admission
- Official transcript(s)
- GRE scores
- Goal statement
- Three letters of recommendation
- English language proficiency - all international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning one of the following:

- Minimum 600 TOEFL PBT score (paper-based version)
- Minimum 100 TOEFL IBT score (Internet-based version)
- Minimum 85 MELAB score
- Minimum 7.0 IELTS score
- Minimum 68 PTE score

For more information about graduate admissions, please visit the Graduate Studies admission website. For more information on international admission, visit the Office of Global Education's admission website.

- ¹ Students without a master's degree may be permitted direct matriculation to the doctoral program following completion of no less than 20 credit hours of graduate coursework (including the core) and with the recommendation of the student's guidance committee and the school director. Normally, a student is admitted to the master's program prior to doctoral work, but a student holding only a baccalaureate may be admitted directly into the doctoral program in exceptional cases.

Program Learning Outcomes

Graduates of this program will be able to:

1. Publish their research in peer-reviewed journals.
2. Demonstrate the ability to teach undergraduate students.
3. Seek employment after graduation in fields that reflect their area of training.

Program Requirements

Major requirements

Code	Title	Credit Hours
Major Requirements		
Methodology and Elective Courses (Chemistry, Biological Sciences, Biomedical Sciences)		19
BMS 80199	DISSERTATION I ¹	30
Concentrations		
Choose from the following:		11
Cellular Biology and Structure		
Molecular Biology and Genetics		
Minimum Total Credit Hours:		60

Cellular Biology and Structure Concentration Requirements

Code	Title	Credit Hours
Concentration Requirements		
BMS 70220	HUMAN MICROSCOPIC ANATOMY	5
BSCI 70142	BIOENERGETICS	3
BSCI 70143	EUKARYOTIC CELL BIOLOGY	3
Minimum Total Credit Hours:		11

Molecular Biology and Genetics Concentration Requirements

Code	Title	Credit Hours
Concentration Requirements		
BSCI 70143	EUKARYOTIC CELL BIOLOGY	3
or BSCI 70158	MOLECULAR BIOLOGY	
or CHEM 70254	BIOMEMBRANES	
Methodology and Elective Courses (Chemistry, Biological Sciences, Biomedical Sciences)		8-9
Minimum Total Credit Hours:		11

¹ Each doctoral candidate, upon admission to candidacy, must register for BMS 80199 for a total of 30 hours. It is expected that a doctoral candidate will continuously register for Dissertation I, and thereafter BMS 80299, each semester, including one term each summer, until all requirements for the degree have been met. As soon after completion of the candidacy examination as possible, the dissertation committee will be established, consisting of the guidance committee and an outside discipline member—a graduate faculty member from another department at Kent State University or another program committee of the School of Biomedical Sciences. The student will submit to this committee her/his prospectus for the dissertation. The format of the prospectus will parallel that utilized for NIH grant proposals (without biographical, budget and facilities information). The dissertation committee may elect to examine the candidate on the proposal, may accept it as submitted, or may reject it with specific reasons and recommendations for reformulation.