Description
The Master of Science 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.

The Biomedical Sciences–Cellular and Molecular Biology major consist of two concentrations:

- Cellular Biology and Structure
- Molecular Biology and Genetics

Program faculty are drawn from several different departments located at Kent State University, the Cleveland Clinic Foundation, the Northeastern Ohio Universities College of Medicine and the University of Akron. 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.

FULLY OFFERED AT:
- Kent Campus

Admission Requirements
- Bachelor’s degree
- Official transcript(s)
- Academic preparation adequate to perform graduate work in the desired field (typically two years of chemistry, one year of mathematics, one year of physics and courses in anthropology, biology and psychology)
- 3.0 GPA
- GRE scores
- Goal statement
- Three letters of recommendation

English Language Proficiency Requirements for International Students: All international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning a minimum 600 TOEFL score (100 on the Internet-based version), minimum 85 MELAB score, minimum 7.0 IELTS score or minimum 68 PTE Academic score. For more information on international admission, visit the Office of Global Education’s admission website. Effective spring 2018.

Admission with deficiencies may be accorded, but these must be made up during the first two years of graduate study. For more information about graduate admissions, please visit the Graduate Studies website.

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
Major Requirements
BMS 60199 THESIS I
Methodology and Elective Courses (Chemistry, Biological Sciences, Biomedical Sciences)
15
Concentrations
Choose from the following:
Cellular Biology and Structure
Molecular Biology and Genetics
Minimum Total Credit Hours:
32

Cellular Biology and Structure Concentration Requirements
[AS-MS-CMBI-CBAS]
Concentration Requirements
BMS 60220 HUMAN MICROSCOPIC ANATOMY
BSCI 50142 BIOENERGETICS
BSCI 50143 EUKARYOTIC CELL BIOLOGY
Minimum Total Credit Hours:
11

Molecular Biology and Genetics Concentration Requirements
[AS-MS-CMBI-MBGN]
Concentration Requirements
Choose from the following:
BSCI 50143 EUKARYOTIC CELL BIOLOGY
BSCI 50158 MOLECULAR BIOLOGY
CHEM 70253 BIOMACROMOLECULAR STRUCTURES & CHEM 70254 BIOMEMBRANES
Methodology and Elective Courses (Chemistry, Biological Sciences, Biomedical Sciences)
6-8
Minimum Total Credit Hours:
11