

# Biology

The biology major deepens students' appreciation for the life sciences and increases their concern for living things and their environment in addition to developing intellectual competence and technical skills necessary in their chosen careers.

After completing the biology requirements, students will be able to employ the scientific method to summarize scientific information and coherently communicate logical conclusions; understand living systems from the molecular level through the organismal level and their ecological interactions, and be able to employ a broad range of analytic and scientific techniques to further their studies.

## Career Opportunities

Medical and other health professions such as physical therapy, physician assistant, and occupational therapy. Also, dentistry, veterinary medicine, and pharmacology. Teaching, academic and professional research, industry, park and wildlife management, environmental education, conservation, and many other fields.

See the Graduate section (<http://catalog.mtmercy.edu/archives/2014-15/graduateprograms>) of this *Catalog* for more information on Graduate programs offered at Mount Mercy.

## Major

BI 125	Foundations of Biology & Scientific Inquiry I <sup>1</sup>	3
BI 125L	Biostatistics and Scientific Investigation I <sup>1</sup>	1.5
BI 126	Foundations of Biology & Scientific Inquiry II <sup>1</sup>	4.5
BI 127	Foundations of Biology & Scientific Inquiry III <sup>1</sup>	4.5
BI 303	Genetics	4.5
BI 310	Ecology	4.5
Any three upper division courses <sup>2</sup>		9
CH 111	General Chemistry I	4.5
CH 112	General Chemistry II	4.5
CH 211	Organic Chemistry I	4.5
MA 135	Basic Statistics <sup>3</sup>	3
Select one of the following:		3-4
MA 139	Pre-Calculus	
MA 142	Mathematics Modeling	
MA 164	Calculus I	
Total Hours		51-52

- <sup>1</sup> If students earn a C or above (C- does not count), then they do not need to take a statistics course for this major.
- <sup>2</sup> One of which may be CH 302 Biochemistry and at least two major electives courses must be lab courses.
- <sup>3</sup> MA 135 Basic Statistics is not required if students complete BI 125 Foundations of Biology & Scientific Inquiry I, BI 125L Biostatistics and Scientific Investigation I, BI 126 Foundations of Biology & Scientific Inquiry II, and BI 127 Foundations of Biology & Scientific Inquiry III at Mount Mercy. With permission, PS 325 Statistics For Behavioral Sciences can be substituted for MA 135 Basic Statistics.

To research and improve the program, all entering and graduating majors are periodically required to take an anonymous assessment examination based upon general biological knowledge. This exam will only be used to assess major strengths, goals, and weaknesses. Results of this exam will not appear on students' records, nor will the results be used to determine academic progress. An attitudinal survey also will be taken by first-year and senior students.

## Academic Requirements

A grade of C or above (C- does not count) in all required courses for the major and the minor. A grade of C or above (C- does not count) is also required in all prerequisite courses for majors and minors before enrolling in required biology, chemistry, and math courses. A cumulative GPA of 2.25 is required in all major and minor courses.

Students planning to pursue teacher education should follow the program guidelines within the education section of this *Catalog* and contact an advisor in the education division for assistance.

## Biology Minor

BI 125	Foundations of Biology & Scientific Inquiry I <sup>1</sup>	3
BI 125L	Biostatistics and Scientific Investigation I <sup>1</sup>	1.5
BI 126	Foundations of Biology & Scientific Inquiry II <sup>1</sup>	4.5
BI 127	Foundations of Biology & Scientific Inquiry III <sup>1</sup>	4.5
Any two upper division courses, one of which must be a laboratory course		6
CH 111	General Chemistry I	4.5
CH 112	General Chemistry II	4.5
MA 135	Basic Statistics <sup>2</sup>	3
Total Hours		31.5

<sup>1</sup> If students earn a C or above (C- does not count), then they do not need to take a statistics course for this minor.

<sup>2</sup> MA 135 Basic Statistics is not required if students complete BI 125 Foundations of Biology & Scientific Inquiry I, BI 125L Biostatistics and Scientific Investigation I, BI 126 Foundations of Biology & Scientific Inquiry II, and BI 127 Foundations of Biology & Scientific Inquiry III at Mount Mercy. With permission, PS 325 Statistics For Behavioral Sciences can be substituted for MA 135 Basic Statistics.

Students are expected to take all core program course work at Mount Mercy unless they transfer in having already fulfilled a given course or have a major conflict that would hinder obtaining the degree.

Returning students who have interrupted their education at Mount Mercy and who re-enter will be held to all the requirements printed in this *Catalog* at the time of re-entry.

## Pre-Professional Programs in Biology

**Mount Mercy also offers several Pre-professional Tracks through the biology program.**

Students interested in pre-professional programs should notify the Chair of the pre-professional program, early, during the fall semester of the decision year.

## Pre-Medicine/Pre-Dental

Pre-medical and pre-dental students should pursue a biology major and a chemistry minor with two courses in physics. Suggested biology electives are:

BI 273	Human Anatomy	4.5
BI 274	Human Physiology	3
BI 274L	Human Physiology Laboratory	1.5
BI 315	General Microbiology	4.5
BI 370	Cell and Molecular Biology	5
CH 212	Organic Chemistry II	4.5
CH 302	Biochemistry	5
PH 151	Principles of Physics I	4.5
PH 152	Principles of Physics II	4.5
Additional suggested courses:		
SO 122	Introduction To Sociology	3
*SO122 not required for Pre-Dental		
MA 164	Calculus I	4
PS 124	Developmental Psychology	3

## Pre-Physician Assistant

Students pursuing admission to physician assistant programs should follow a similar program to the pre-medical students (above), but they should take MA 142 Mathematics Modeling as their mathematics, and more courses in psychology. Some programs require PS 306 Abnormal Psychology. Most physician assistant programs require a BS degree.

## Pre-Physical Therapy

Most physical therapy programs require a BS degree, which our biology major satisfies. Courses needed include:

BI 273	Human Anatomy	4.5
BI 274	Human Physiology	3
BI 274L	Human Physiology Laboratory	1.5
BI 327	Histology	4.5
PH 151	Principles of Physics I	4.5
PH 152	Principles of Physics II	4.5
BI 355	Exercise Physiology and Biomechanics	3
Additional suggested courses		
MA 139	Pre-Calculus	4
or		
MA 142	Mathematics Modeling	3
PS 124	Developmental Psychology	3
PS 306	Abnormal Psychology	3

## Pre-Occupational Therapy

Admission requirements for occupational therapy programs differ depending on whether the degree sought is graduate or undergraduate. Graduate programs require a BS degree, preferably with a major in biology, but other majors are also a possibility. Students wishing to pursue a graduate degree in occupational therapy should carefully plan a four-year course of study with their advisor that is based upon programs to which they will apply. Most occupational therapy programs require a BS degree.

## Molecular and Cellular Biology/Forensic Science

Beyond the courses required for the biology major, suggested electives include:

BI 315	General Microbiology	4.5
BI 370	Cell and Molecular Biology	5
CH 302	Biochemistry	5
PH 151	Principles of Physics I	4.5
PH 152	Principles of Physics II	4.5
A Chemistry minor		30.5
Two courses in college physics		6

## Pre-Pharmacology

BI 273	Human Anatomy	4.5
BI 274	Human Physiology	3
BI 274L	Human Physiology Laboratory	1.5
BI 315	General Microbiology	4.5
BI 370	Cell and Molecular Biology	5
CH 212	Organic Chemistry II	4.5
PH 151	Principles of Physics I	4.5
PH 152	Principles of Physics II	4.5
CH 302	Biochemistry	5
Additional suggested courses		
MA 164	Calculus I	4
EC 252	Microeconomic Principles	3
EC 251	Macroeconomics Principles	3