

# Microbiology- Bachelor of Science

For information, contact the Department of Microbiology, 212 Pearson Hall, 513-529-5422.

The Bachelor of Science in Microbiology is designed to provide more in-depth study than the Bachelor of Arts, particularly in preparation for pursuit of a graduate degree in microbiology and related fields. As part of this preparation, students are required to conduct independent research leading to public presentation of their results.

No course required for the major in microbiology may be taken on a credit/no-credit basis. Of the 100-level courses, only those that satisfy departmental degree requirements can be counted toward the GPA or the 40 hours required for the Bachelor of Science major in microbiology.

## Program Requirements

(40 semester hours plus 23-28 related hours)

Code	Title	Credit Hours
<b>Core Courses</b>		
BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	4
MBI 201	General Microbiology	4
MBI 255	Modern Microbiology Applications	4
MBI 365	Molecular and Cell Biology	3
MBI 425	Microbial Physiology	4
MBI 445	Microbial Genetics	3
MBI 490	Undergraduate Seminar	1
<b>Focus Courses</b>		<b>14</b>
Lab Requirement - select at least two of the following:		
MBI 405	Medical Bacteriology	
MBI 415	Immunology Principles and Practice <sup>1</sup>	
MBI 423	Synthetic and Systems Biology	
MBI 435	Medical Mycology	
MBI 475	Microbial Ecology: Exploration of the Diverse Roles of Microorganisms in Earth's Ecology	
MBI 485	Bioinformatics Principles	
Research Requirement - select at least one of the following:		
MBI 465	Bacteriophage Gene Expression Laboratory	
MBI 477	Independent Studies (MBI 477R - research)	
Hours Requirement - select additional Focus Courses, including from the following, to total at least 14 credit hours		
MBI 361	Fundamentals of Epidemiology	
MBI 414	Immunology Principles <sup>1</sup>	
MBI 464	Human Viruses	

MBI 495	Bacterial Cellular and Developmental Biology	
<b>Elective Courses</b>		<b>3</b>
Select from additional Focus Courses or from the Elective Courses (below) to complete the 40 required hours		
<b>Related Hours</b>		
Select one of the following Chemistry options:		7-10
Chemistry option one:		
CHM 231 & CHM 332	Fundamentals of Organic Chemistry and Outlines of Biochemistry	
Chemistry option two:		
CHM 241 & CHM 242	Organic Chemistry and Organic Chemistry	
CHM 244 & CHM 245	Organic Chemistry Laboratory and Organic Chemistry Laboratory	
Select both of the following Mathematics/Statistics courses:		8
MTH 151	Calculus I	
STA 261	Statistics	
Select one of the following Physics options:		8-10
Physics option one:		
PHY 161 & PHY 162	Physics for the Life Sciences with Laboratory I and Physics for the Life Sciences with Laboratory II	
Physics option two (calculus-based):		
PHY 181 & PHY 183 & PHY 182 & PHY 184	General Physics I and General Physics Laboratory I and General Physics II and General Physics Laboratory II	
<b>Total Credit Hours</b>		<b>63-68</b>

<sup>1</sup> Credit not given for both MBI 414 and MBI 415.

## Elective Courses

Select from additional Focus Courses or from the following Elective Courses (Microbiology at the 200-level or higher) to complete the 40 required hours:

Code	Title	Credit Hours
BIO/MBI 115	Biological Concepts: Ecology, Evolution, Genetics, and Diversity	4
MBI 223	Bacteriophage Biology	1
MBI 224	Bacteriophage Genomics	1
MBI 433	Field Ecology	3
MBI 410	Senior Internship	2
MBI 440	Research Problems <sup>1</sup>	1-4
MBI 450	Topics in Microbiology	1-6
MBI 466	Bioinformatics Computing Skills	3
MBI 477	Independent Studies <sup>1</sup>	0-6
MBI 480	Departmental Honors <sup>1</sup>	1-6
GLG 402	Geomicrobiology	3

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<sup>1</sup> MBI 440, MBI 477, and MBI 480 have a maximum of four credit hours that can receive a standard grade.