

Biology - Molecular, Cellular and Developmental

Major Checklist for General Education, Biology Core & Option Requirements

General Education Requirements

Biology Core Requirements

Group	Course	Semester	Credits	Grade	Course	Semester	Credits	Grade
1	ENGL 401	_____	_____	_____	BIOL 400 ¹	_____	_____	_____
2	_____	_____	_____	_____	BIOL 401 (strongly recommended)	_____	_____	_____
3a	_____	_____	_____	_____	BIOL 411 ²	_____	_____	_____
3b	_____	_____	_____	_____	BIOL 412 ²	_____	_____	_____
3c	_____	_____	_____	_____	BIOL 541	_____	_____	_____
4	_____	_____	_____	_____	MICRO 503	_____	_____	_____
5	_____	_____	_____	_____	BIOL 604	_____	_____	_____
6	_____	_____	_____	_____	_____	_____	_____	_____
7	_____	_____	_____	_____	CHEM 403	_____	_____	_____
8	_____	_____	_____	_____	CHEM 404	_____	_____	_____
					CHEM 545/546 & BCHM 658/659 ³	_____	_____	_____
					OR			
					CHEM 651/653 & CHEM 652/654 ³	_____	_____	_____

Writing Intensive Requirements

Course	Semester	Credits	Grade	Course	Semester	Credits	Grade
ENGL 401	_____	_____	_____	MATH 424B OR 425	_____	_____	_____
One course in major	_____	_____	_____	BIOL 528 OR MATH 426 ⁴	_____	_____	_____
One at the 600 or 700 level	_____	_____	_____	PHYS 401	_____	_____	_____
Elective	_____	_____	_____	PHYS 402	_____	_____	_____

Option Requirement

<u>Category 1:</u>	Course	Semester	Credits	Grade
Principles of Biochemistry I	BCHM 751	_____	_____	_____
Principles of Biochemistry II	BCHM 752	_____	_____	_____
Eukaryotic Cell & Dev. Biol	BIOL 605	_____	_____	_____
 <u>Category 2:</u> (at least 1 course)				
Biology of Nucleic Acids	_____	_____	_____	_____
 <u>Category 3:</u> (at least 1 course)				
Physiology & Dev. Biology	_____	_____	_____	_____
 <u>Category 4:</u> (at least 1 course)				
Laboratory Techniques	_____	_____	_____	_____
 <u>Category 5:</u> (at least 1 course)				
Electives	_____	_____	_____	_____
One additional course in a category of your choosing	_____	_____	_____	_____

¹ BIOL 400 is required only for first year biology majors.

² BIOL 411 and 412 are not sequential and may be taken in reverse order.

³ CHEM 651/653 and 652/654 and ENGL 501 are required for Pre-med or affiliated professional programs.

⁴ Calculus II (MATH 426) can be substituted for Statistics, but we recommend Statistics.

Molecular, Cellular and Developmental Biology Option Requirements

In addition to the Biology Core Curriculum, 8 courses are required to complete this option. These courses are from 5 categories. They include:

- 3 courses in Category 1 (BCHM 751, BCHM 752, & BIOL 605)
- 4 courses, one each from Categories 2, 3, 4 & 5
- 1 course in a Category of your choosing

Courses listed in more than one category can be used to satisfy requirements in only one category. Courses with co-requisite lecture and lab count as one course.

Category 1. All three courses are required

BCHM 751, Principles of Biochemistry I
BCHM 752, Principles of Biochemistry II
BIOL 605, Eukaryotic Cell and Developmental Biology

Category 2. Biology of Nucleic Acids (At least one course)

BCHM/GEN/MICR 711, Genomics and Bioinformatics
BCHM/GEN 771, Molecular Genetics
BCHM/GEN 782, Developmental Genetics
MICR 704, Genetics of Prokaryotic Microbes
P BIO/BCHM/GEN 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids
P BIO/GEN 774/775, Plant Biotechnology and Genetic Engineering Lecture/Lab
ZOOL/GEN 715, Molecular Evolution

Category 3. Physiology and Developmental Biology (At least one course)

ANSC 701, Physiology of Reproduction
ANSC/BCHM 702, Endocrinology
ANSC 704, Principles of Pathobiology
ANSC 715, Physiology of Lactation
ANSC 718, Mammalian Physiology
ANSC/NUTR 750, Nutritional Biochemistry
MICR 710, Electron Microscopy and Microbial Cytology
MICR 713, Microbial Ecology & Evolution
MICR 717, Microbial Physiology
P BIO 701/702, Plant Physiology Lecture/Lab
P BIO 709, Plant Stress Physiology
P BIO 713, Biochemistry of Photosynthesis
P BIO 727/729, Algal Physiology/Lab
ZOOL 625/626, Principles of Animal Physiology Lecture/Lab
ZOOL 773, Physiology of Fish
ZOOL 777, Neurobiology and Behavior

Category 4: Laboratory Techniques (At least one course)

ANSC 714, Research Methods in Endocrinology
ANSC/MICR 651, Biotech Experience/Biomanufacturing
ANSC/MICR 655, Biotech Experience/Research
ANSC/MICR/P BIO 751, Cell Culture
BCHM 755, Laboratory in Biochemistry and Molecular Biology
CHEM 762/763, Instrumental Methods of Chemical Analysis/Lab
MICR 706/708 Virology & Virology Lab
MICR 710, Electron Microscopy and Microbial Cytology
P BIO 714/715, Electron Microscopy/Lab
P BIO/BCHM/GEN 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids
P BIO/GEN 774/775, Plant Biotechnology and Genetic Engineering Lecture/Lab

Category 5. Electives (At least one course from the following OR a course appropriate to the curriculum from any of the biological sciences with advisor's permission)

ANSC 704, Principles of Pathobiology
ANSC 754, Molecular Diagnostics
ANSC/GEN 706, Human Genetics
BCHM 750, Physical Biochemistry
BCHM 763, Biochemistry of Cancer
BCHM/GEN 766, Environmental Genomics
BCHM/GEN 782, Developmental Genetics
BCHM 790, Current Topics in Biomedicine
BCHM 794, Protein Structure and Function
BIOL 601, Biology of Plants
CHEM 683-684, Physical Chemistry I & II
GEN/MICR/P BIO 772, Evolutionary Genetics of Plants
MICR 602, Pathogenic Microbiology
MICR 702, Infectious Disease and Health
MICR 705, Immunology
MICR 706, Virology
MICR 718, Ethics & Issues in Microbiology
P BIO/GEN 753, Cytogenetics
P BIO/MICR 766, Plant-Microbe Interactions
ZOOL/GEN 723, Quantitative Genetics

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