Molecular Biology and Genetics Track

Requirements for the Major in Biology - Molecular Biology and Genetics Track

The major requires successful completion of the following:

Code	Title	Semester Hours
Course Requirements [1,2]		
BIOL 130	Field Investigations in Biology	4
BIOL 133	Introductory Molecular Biology and Genetics [3]	4
BIOL 223	Genetics (Lab)	4
BIOL 233	Molecular Cell Biology	4
BIOL 243	Molecular Methods (Lab)	4
BIOL 424	Senior Seminar	4
CHEM 121 and CHEM 122 [4]		8
or CHEM 151 and CHEM 152 [4]		
Select four of the following courses in molecular biology and genetics (attribute BIOM): [5]		16
BIOL 213	Evolutionary Biology	
BIOL 217	Experimental Design and Data Analysis in Biology (Lab)	
BIOL 218	Principles of Animal Nutrition and Metabolism	
BIOL 236	Biochemistry	
BIOL 280	Molecular Genetics (Lab)	
BIOL 312	General and Human Physiology	
BIOL 314	General and Human Physiology (Lab)	
BIOL 316	Biochemistry of Metabolism and Molecular Biology (Lab)	
BIOL 317	Biochemistry of Metabolism and Molecular Biology	
BIOL 318	Molecular Revolutions in Medicine	
BIOL 319	Cancer Cell Biology (Lab)	
BIOL 320	Cancer Cell Biology	
BIOL 322	Genes and Behavior	
BIOL 323	Environment and Development	
BIOL 325	Biology of Aging	
BIOL 331	Immunology	
BIOL 333	Developmental Biology (Lab)	
BIOL 334	Developmental Biology	
BIOL 335	Advanced Topics in Evolutionary Biology	
BIOL 339	Microbiology	
BIOL 340	Microbiology (Lab)	
BIOL 347	Stem Cells	
BIOL 360	Virology	
BIOL 388	Epigenetics	
BIOL 389	Epigenetics (Lab)	
CHEM 316	Biochemistry of Metabolism and Molecular Biology (Lab)	
NEUR 208	Neurobiology	
NEUR 351	Experimental Neurobiology (Lab)	
NEUR 415	Ion Channels and Disease	
Total Semester Hours		**48**

Code	Title	Semester Hours
Additional Requirements		
A comprehensive examination		

1

Courses numbered below 130 do not count toward the major.

2

At least four of the required and elective Biology courses must have a laboratory.

3

The Department of Biology will allow an AP test score of 5 or a higher level IB test score of 6 or 7 to substitute for BIOL 133. Students should be advised that mastery of the material covered in BIOL 133 is important as majors will be tested on it during their comprehensive exams.

4

A single instance (4 credit hours) of CHEM 120 or CHEM 150 may count for this requirement if it was taken prior to the '25-'26 academic year

5

Students may only receive credit once for courses delivered as both lab and non-lab offerings.

Student Learning Outcomes

A student majoring in Biology will

1. Discuss and analyze a scientific paper in terms of how the scientific method is applied in experimental design and data analysis.
2. Use oral communication skills effectively to persuade, or debate, a challenging or controversial scientific topic to non-science audience.
3. Demonstrate mastery of core knowledge in biology (from molecules to ecosystems).
4. Demonstrate mastery of specialized knowledge in Ecology and Biodiversity, Molecular Biology and Genetics, or Integrative Biology.