

MAJOR: CELL AND MOLECULAR BIOLOGY, B.S.

DEPARTMENT OF BIOLOGY

PLAN A

PLAN A			
FIRST YEAR			
FALL SEMESTER		SPRING SEMESTER	
CHEM 1151 General Chemistry I ¹	5 cr	BIOL 1011 General Biology I	5 cr
MATH 1290 Calculus for the Natural Sciences [^] or MATH 1296 Calc I or MATH 1596 Honors Calc I	5 cr	CHEM 1152 General Chemistry II ¹	5 cr
COMP 1120 College Writing	3 cr	STAT or MATH course ²	3-5 cr
SECOND YEAR			
BIOL 1012 General Biology II	5 cr	BIOL 2101 Cell Biology	3 cr
CHEM 2541 Organic Chemistry I	3 cr	CHEM 2542 Organic Chemistry II	3 cr
CHEM 2543 Organic Chemistry I laboratory	1 cr	CHEM 2544 Organic Chemistry II laboratory	1 cr
Liberal Education Course or Minor Field Course	4-6 cr	PHYS 1001 Introduction to Physics I ³	5 cr
		Liberal Education Course or Minor Field Course	3 cr
THIRD YEAR			
BIOL 2201 Genetics	3 cr	BIOL 4501 Microbiology	4 cr
BIOL Laboratory Course ⁴ (BIOL 2102 or 2202)	2 cr	CHEM 3322 Biochemistry	3 cr
BIOL 3703 Animal Physiology ⁵	3 cr	CHEM 3324 Biochemistry lab	1 cr
PHYS 1002 Introduction to Physics II ³	5 cr	COMP 3150 Advanced Writing: Science	3 cr
Liberal Education Course or Minor Field Course	3 cr	Liberal Education Course or Minor Field Course	3-6 cr
FOURTH YEAR			
BIOL 3997 Seminar I	0.5 cr	BIOL 3998 Biology Seminar II	0.5 cr
BIOL 4361 Developmental Biology	3 cr	BIOL 4231 Molecular Biology	3 cr
BIOL 4802 Evolution	3 cr	BIOL 5232 Molecular Biology lab	2 cr
BIOL elective ⁶	2-4 cr	BIOL elective ⁶	2-4 cr
Liberal Education Course or Minor Field Course	4-6 cr	Liberal Education Course or Minor Field Course	4-6 cr
		Biology Department Exit Interview	

PLAN B

PLAN B			
FIRST YEAR			
FALL SEMESTER		SPRING SEMESTER	
BIOL 1011 General Biology I	5 cr	BIOL 1012 General Biology II	5 cr
CHEM 1151 General Chemistry I ¹	5 cr	CHEM 1152 General Chemistry II ¹	5 cr
COMP 1120 College Writing	3 cr	MATH 1290 Calculus for the Natural Sciences [^] or MATH 1296 Calc I or MATH 1596 Honors Calc I	5 cr
SECOND YEAR			
BIOL 2201 Genetics	3 cr	BIOL 2201 Cell Biology	3 cr
CHEM 2541 Organic Chemistry I	3 cr	BIOL Laboratory Course ⁴ (BIOL 2102 or 2202)	2 cr
CHEM 2543 Organic Chemistry I laboratory	1 cr	CHEM 2542 Organic Chemistry II	3 cr
STAT or MATH course ²	3-5 cr	CHEM 2544 Organic Chemistry II laboratory	1 cr
Liberal Education Course or Minor Field Course	3 cr	Liberal Education Course or Minor Field Course	4-6 cr
THIRD YEAR			
BIOL 3997 Seminar I	0.5 cr	BIOL 4603 Plant Physiology ⁵	3 cr
BIOL 4501 Microbiology	4 cr	CHEM 3322 Biochemistry	3 cr
PHYS 1001 Introduction to Physics I ³	5 cr	PHYS 1002 Introduction to Physics II ³	5 cr
COMP 3150 Advanced Writing: Science	3 cr	CHEM 3324 Biochemistry lab	1 cr
Liberal Education Course or Minor Field Course	3-6 cr	Liberal Education Course or Minor Field Course	4-6 cr
FOURTH YEAR			
BIOL 3998 Biology Seminar II	0.5 cr	BIOL 4231 Molecular Biology	3 cr
BIOL 4361 Developmental Biology	3 cr	BIOL 5232 Molecular Biology lab	2 cr
BIOL 4802 Evolution	3 cr	BIOL elective ⁶	2-4 cr
BIOL elective ⁶	2-4 cr	Liberal Education Course or Minor Field Course	4-6 cr
Liberal Education Course or Minor Field Course	3-6 cr	Biology Department Exit Interview	

see footnotes on reverse side

CELL AND MOLECULAR BIOLOGY, B.S.

Cell and molecular biology are two of the most rapidly growing areas of modern biology. This major prepares students for graduate school and careers in cell biology, genetics, developmental biology, physiology, immunology, biotechnology, molecular biology, and microbiology. The major is also appropriate for students considering professional schools of medicine, dentistry, pharmacy, and veterinary medicine.

MAJOR REQUIREMENTS	CREDITS	PREREQUISITES	SEMESTER TO BE COMPLETED	GRADE
Biology Core Requirements				
BIOL 1011 General Biology I	5	1 yr of high school or 1 semester of college chemistry		
BIOL 1012 General Biology II	5	BIOL 1011		
BIOL 2101 Cell Biology	3	BIOL 1012; CHEM 1152, 2541		
BIOL 2201 Genetic	3	BIOL 1012		
BIOL 2102 Cell Biology lab ⁴	2	BIOL 2101, (concurrent registration OK)		
or BIOL 2202 Genetics lab ⁴	2	BIOL 2201, (concurrent registration OK)		
BIOL 3703 Animal Physiology ⁵	3	BIOL 1011, 1012, one semester college chemistry		
or BIOL 4603 Plant Physiology ⁵	3	BIOL 2101		
BIOL 3997 Seminar I	0.5	60 credits		
BIOL 3998 Seminar II	0.5	BIOL 3997		
BIOL 4231 Molecular Biology	3	BIOL 2101 and 2201		
BIOL 5232 Molecular Biology lab	2	Concurrent registration with BIOL 4231		
BIOL 4361 Developmental Biology	4	BIOL 2101, 2201		
BIOL 4501 Microbiology	4	BIOL 2101		
BIOL 4802 Evolution	3	BIOL 1012, 2201		
BIOL elective ⁶	2-4			
BIOL elective ⁶	2-4			
Biology Department Exit Interview	0			
Chemistry Requirements				
CHEM 1151 General Chemistry I ¹	5	1 year HS chemistry; HS algebra		
CHEM 1152 General Chemistry II ¹	5	CHEM 1151		
CHEM 2541 Organic Chemistry I	3	CHEM 1152 or 1162		
CHEM 2543 Organic Chemistry I laboratory	1	CHEM 2541 - concurrent registration OK		
CHEM 2542 Organic Chemistry II	3	CHEM 2541		
CHEM 2544 Organic Chemistry II laboratory	1	CHEM 2542 - concurrent registration OK		
CHEM 3322 Biochemistry	3	CHEM 2541 or 2542		
CHEM 3324 Biochemistry lab	1	Concurrent registration in CHEM 3322		
Mathematics Requirements				
MATH 1290 or 1296 Calc I or 1596 Honors Calc I [^]	5	Math placement [^] or MATH 1250 with a grade C- or better		
STAT 2411 Introduction to Statistics	4	MATH 1250 or 1160		
or STAT 3611 Probability & Statistics	3	MATH 1290, 1296 or 1596		
or MATH 1297 Calculus II	5	MATH 1290, 1296 or 1596 with a grade of 'C-' or better		
Physics Requirements				
PHYS 1001 Introduction to Physics I ³	5	Algebra and Trigonometry		
PHYS 1002 Introduction to Physics II ³	5	Phys 1001		
Composition Requirements				
COMP 1120 College Writing	3			
COMP 3150 Advanced Writing: Science	3	Comp 1120; 60 credits		

[^]First math course is determined by ACT math score. This schedule presupposes placement into Calculus I - MATH 1290, 1296, or 1596.

¹CHEM 1161/1162 Honors General Chemistry I and II may substitute for CHEM 1151/1152

² STAT 3611 or MATH 1297 Calculus II may be substituted for STAT 2411.

³PHYS 1001/1002 may be replaced by PHYS 2011/2012 that requires the completion of MATH 1297 Calculus II.

⁴Take either Cell Biology Laboratory or Genetics Laboratory for Laboratory Course requirement, if both are taken one can be used as upper div. elective.

⁵Take either BIOL 3703 Animal Physiology or BIOL 4603 Plant Physiology, if both are taken one can be used as upper div. elective.

⁶Take 5 or more credit(s) from the following: BIOL 3994, BIOL 4199, BIOL 5233, BIOL 5235, BIOL 5365, BIOL 5511, BIOL 5513, BIOL 5603, BIOL 5760, BIOL 5772, BIOL 5801, BIOL 5802, BIOL 5868, MATH 5233, MDBC 5501, MICB 5545, MICB 5555, PHSL 5601, PHSL 5602, PHSL 5701.

A max of 2 cr upper div elective cr. may be taken of BIOL 3993 or SSP 3002 for TA or SI in upper division Cell and Molecular Biology Core and Elective laboratory courses with prior department approval. BIOL 3390 and 5590 special topics may be accepted only by prior departmental approval.

NOTE: In addition to the above requirements, students must complete the liberal education program and a minor (or a second major) to earn a B.S. degree. Biology may not be used to satisfy this requirement.

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