

COURSE REQUIREMENTS FOR BACHELOR OF SCIENCE IN BIOLOGY^{1,2}

1. THE GENERAL EDUCATION AND TOTAL UNIVERSITY CREDIT REQUIREMENTS MUST BE MET (see Note 1 below). 128 total minimum credits are required for graduation. 36 of these must be upper division credits.

2. COURSES IN BIOLOGICAL SCIENCES:	NUMBER OF CREDITS
BIOL 101 Biology I	4
BIOL 102 Biology II	4
BIOL 206/207 Cell Biology	4
BIOL 209 General Ecology	4
BIOL 221 Introductory Microbiology and Lab	4
or	
BIOL 235 General Microbiology and Lab	4
BIOL 315 Introduction to Biometry Lab	1
BIOL 358 General Genetics	3
BIOL 417 Organic Evolution	3
BIOL 491,492 Seminar	2
Additional upper division course work in Biological Sciences, ³ which must include at least 6 credits in Botany (BIOL 404, 405, 406, 408, 412, 442, or 489) and at least 6 credits in Zoology (BIOL 303, 310, 314, 324, 419, 420, 423, 426, 427, 428, 429, 431, 435, 438, 440, 441, 443, 449, 456, 459, 470, 486, or 495)	21

3. COURSES IN MATHEMATICS	
MATH 160 Brief Calculus ⁴	4
MATH 350 Statistics ⁵	3
4. COURSES IN CHEMISTRY	
CHEM 111 General Chemistry I	5
CHEM 112 General Chemistry II	4
CHEM 301,303 Organic Chemistry I, Lab ^{6,7}	4
5. COURSES IN PHYSICS	
PHYS 111,113 General Physics I, Lab ⁶	4

Notes:

1. Students pursuing a Bachelor of Science degree must satisfy goals 1, 2, 3, 4, and 5; two of goals 6, 7, and 8; and three of goals 9, 10, 11, and 12. Goal 10 may be satisfied by either 10A or 10B. A maximum of 8 credits of BIOL 481/482 may be applied to this degree program.
2. Students may select courses in the College of Education to meet the requirements for teacher certification while completing a degree in the College of Arts and Sciences. Such students must apply for admission to the Teacher Education Program. See the Teacher Education Program in the University Bulletin for requirements in the College of Education.
3. Biology electives must include upper division course work in both botany and zoology. Students should consult with their advisors and with the current departmental list of course rotations to determine which semesters and years biology electives will be offered. CHEM 302/304 may be counted towards required upper division credits in Biological Sciences. BIOL 481 and BIOL 482 can be counted as upper division botany or zoology credits only if approved by the department.
4. Students may take MATH 170 in place of MATH 160. MATH 160 has a prerequisite of MATH 143. MATH 170 has a prerequisite of MATH 147. Prerequisites for both classes may be satisfied by the Mathematics placement exam.
5. The requirement for Statistics may be satisfied by taking MATH 253 or MATH 350 for students enrolled prior to Fall 2007. Starting Fall 2007, students must take MATH 350 (listed as MATH 399 for Fall 2007 only) with BIOL 315L.
6. Students who plan to apply to graduate or professional programs in the biological or medical sciences are strongly advised to take a full year of Organic Chemistry (add CHEM 302, 304) and a full year of Physics (add PHYS 112, 114). These classes are required by many graduate and professional programs.
7. CHEM 302/304 may be counted towards required upper division credits in Biological Sciences.

Upper Division Botany Courses

BIOL 404	Plant Physiology
BIOL 405	Plant Form and Function
BIOL 406	Plant Diversity and Evolution
BIOL 408	Plant Ecology
BIOL 412	Systematic Botany
BIOL 442	Plant and Animal Interactions
BIOL 489	Field Ecology

Upper Division Zoology Courses

BIOL 303	Principles of Animal Physiology
BIOL 310	Invertebrate Zoology
BIOL 314	Comparative Vertebrate Anatomy
BIOL 324	Developmental Biology
BIOL 419	Mammalian Histology
BIOL 420	Musculo-Skeletal Anatomy
BIOL 423	General Parasitology (reflects proposed change in title)
BIOL 426	Herpetology
BIOL 427	Ichthyology
BIOL 428	Veterinary and Medical Entomology (reflects proposed change in title)
BIOL 429	Regional Anatomy and Histology
BIOL 431	General Entomology
BIOL 435	Vertebrate Paleontology
BIOL 438	Ornithology
BIOL 440	Human Gross Anatomy
BIOL 441	Mammalogy
BIOL 443	Endocrinology
BIOL 449	Human Physiology
BIOL 456	Human Physiology II
BIOL 459	Fish Ecology
BIOL 470	Cross-Sectional Anatomy
BIOL 481	Independent Problems
BIOL 482	Independent Problems
BIOL 486	Human Systemic Physiology
BIOL 495	Ethology

Note:

BIOL 481 and BIOL 482 can be counted as upper division botany or zoology credits only if approved by the department.

RECOMMEND COURSE SELECTION - B.S. of BIOLOGY

Fall Semester

Spring Semester

For Students Who Qualify to take MATH 143 During their First Semester

Fall Semester		Spring Semester			
Freshman Year					
BIOL 101/101L	Biology I	4 cr	BIOL 102/102L	Biology II	4 cr
MATH 143	College Algebra	3 cr	MATH 160	Brief Calculus	3 cr
ENGL 101	English Composition	3 cr	ENGL 102	English Composition	3 cr
Goal 6, 7, or 8		3 cr	COMM 101	Principles of Speech	3 cr
Goal 9, 10, 11, or 12		<u>3 cr</u>	Goal 6, 7, or 8		<u>3 cr</u>
		16 cr			16 cr
Sophomore Year					
BIOL 209	Ecology	4 cr	BIOL 206/207	Cell Biology	4 cr
CHEM 111	General Chemistry I	5 cr	CHEM 112	General Chemistry II	4 cr
Electives ¹		4 cr	Goal 9, 10, 11, or 12		3 cr
Goal 9, 10, 11, or 12		<u>3 cr</u>	Electives ¹		<u>5 cr</u>
		16 cr			16 cr
Junior Year					
PHYS 111/112 ²	General Physics I/Lab	4 cr	MATH 350 ³	Statistics	3 cr
CHEM 301/303 ²	Organic Chemistry/Lab	4 cr	BIOL 315L ³	Biometry Lab	1 cr
BIOL 358	Genetics	3 cr	BIOL 221 or 235	Microbiology	4 cr
Upper Division Botany Electives ⁴		3 cr	Upper Division Botany Electives ⁴		3 cr
Electives ¹		<u>1 cr</u>	Upper Division Zoology Electives ⁴		3 cr
		15 cr	Upper Division Biology Electives ⁵		<u>3 cr</u>
					17 cr
Senior Year					
BIOL 417	Evolution	3 cr	BIOL 492	Senior Seminar	1 cr
BIOL 491	Senior Seminar	1 cr	Upper Division Biology Electives ⁵		3 cr
Upper Division Zoology Electives ⁴		3 cr	Electives ¹		<u>12 cr</u>
Upper Division Biology Electives ⁵		3 cr			
Electives ¹		<u>6 cr</u>			
		16 cr			16 cr

Graduation Requirements:

To graduate in 4 years (or 8 semesters) you need to average 16 credits/semester (128/8=16)

Total Credits: 128

- General Education requirements: Goals 1, 2, 3, 4, 5; 2 of 6, 7, & 8; and 3 of 9, 10, 11, and 12
- Upper division credits: 36 minimum
- Satisfy departmental requirements

- ¹ Electives include any biology or non-biology upper or lower division credits. Recommended electives are those that make the student more competitive.
- ² Students applying to professional schools or graduate schools may need to add a second semester of organic chemistry and physics, depending on application requirements.
- ³ The requirement for Statistics may be satisfied by taking MATH 253 or MATH 350 for students enrolled prior to Fall 2007. Starting Fall 2007, students must take MATH 350 (listed as MATH 399 for Fall 2007 only) with BIOL 315L.
- ⁴ A minimum of 6 credits of upper division botany and 6 credits of upper division zoology are required. BIOL 481 and BIOL 482 can be counted as upper division botany or zoology credits only if approved by the department.
- ⁵ In addition to the 12 credits of upper division botany and zoology, 9 credits of upper division biology are required. Upper division biology includes any upper division course with a BIOL prefix including additional botany or zoology courses. Students who take CHEM 302/304 can count the 4 credits as upper division biology credit.

Students should consult with their advisors and with the current departmental list of course rotations to determine which semesters and years biological sciences electives will be taught.

RECOMMENDED COURSE SELECTION - B.S. of BIOLOGY

Fall Semester		Spring Semester			
For Students Who Qualify to take MATH 160 During their First Semester					
Freshman Year					
BIOL 101/101L	Biology I	4 cr	BIOL 102/102L	Biology II	4 cr
CHEM 111	General Chemistry I	5 cr	CHEM 112	General Chemistry II	4 cr
MATH 160	College Algebra	3 cr	ENGL 102	English Composition	3 cr
ENGL 101	English Composition	3 cr	COMM 101	Principles of Speech	3 cr
Electives ¹		<u>1 cr</u>	Electives ¹		<u>2 cr</u>
		16 cr			16 cr
Sophomore Year					
BIOL 209 ²	General Ecology	4 cr	BIOL 206/207 ²	Cell Biology	4 cr
CHEM 301/303 ³	Organic Chemistry I/Lab	4 cr	BIOL 221 or 235	Microbiology	4 cr
Goal 6, 7, or 8		3 cr	Goal 6, 7, or 8		3 cr
Goal 9, 10, 11, or 12		3 cr	Goal 9, 10, 11, or 12		3 cr
Electives ¹		<u>2 cr</u>	Electives ¹		<u>2 cr</u>
		16 cr			16 cr
Junior Year					
PHYS 111/112 ³	General Physics I/Lab	4 cr	MATH 350 ⁵	Statistics	3 cr
Upper Division Botany Electives ⁴		3 cr	BIOL 315 ⁵	Introduction to Biometry	1 cr
Upper Division Zoology Electives ⁴		3 cr	BIOL 358	Genetics	3 cr
Upper Division Biology Electives ⁶		3 cr	Upper Division Botany Electives ⁴		3 cr
Goal 9, 10, 11, or 12		<u>3 cr</u>	Upper Division Zoology Electives ⁴		3 cr
		16 cr	Upper Division Biology Electives ⁶		<u>3 cr</u>
					16 cr
Senior Year					
BIOL 417	Evolution	3 cr	BIOL 492	Senior Seminar	1 cr
BIOL 491	Senior Seminar	1 cr	Electives ¹		<u>15 cr</u>
Upper Division Biology Electives ⁶		3 cr			
Electives ¹		<u>9 cr</u>			
		16 cr			16 cr

Graduation Requirements:

To graduate in 4 years (or 8 semesters) you need to average 16 credits/semester (128/8=16)

Total Credits: 128

- General Education requirements: Goals 1, 2, 3, 4, 5; 2 of 6, 7, & 8; and 3 of 9, 10, 11, and 12
- Upper division credits: 36 minimum
- Satisfy departmental requirements

- ¹ Electives include any biology or non-biology upper or lower division credits. Recommended electives are those that make students more competitive.
- ² Cell biology and Ecology can be switched between fall and spring semesters.
- ³ Students applying to professional schools or graduate schools may need to add a second semester of organic chemistry and physics, depending on application requirements.
- ⁴ A minimum of 6 credits of upper division botany and 6 credits of upper division zoology are required. BIOL 481 and BIOL 482 can be counted as upper division botany or zoology credits only if approved by the department.
- ⁵ The requirement for Statistics may be satisfied by taking MATH 253 or MATH 350 for students enrolled prior to Fall 2007. Starting Fall 2007, students must take MATH 350 (listed as MATH 399 for Fall 2007 only) with BIOL 315L.
- ⁶ In addition to the 12 credits of upper division botany and zoology, 9 credits of upper division biology are required. Upper division biology includes any upper division course with a BIOL prefix including additional botany or zoology courses. Students who take CHEM 302/304 can count the 4 credits as upper division biology credits.

Students should consult with their advisors and with the current departmental list of course rotations to determine which semesters and years biological sciences electives will be taught.