

## COURSE REQUIREMENTS FOR BACHELOR OF ARTS IN BIOLOGY

1.	ALL OF THE GENERAL EDUCATION AND TOTAL UNIVERSITY CREDIT REQUIREMENTS MUST BE MET. <sup>1,2,3,4</sup>		
	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
	BIOS 206	Cell Biology	4
	BIOS 209	General Ecology	4
	BIOS 358	General Genetics	3
	BIOS 417	Organic Evolution	3
	BIOS 491,492	Seminar	2
	Additional upper division course work in Biological Sciences <sup>4,5,6</sup>		28
	which must include at least 6 credits in:		
	Botany (BIOS 404, 405, 406, 408, 412, 442, or 489)		
	and at least 6 credits in:		
	Zoology (BIOS 303, 310, 314, 324, 419, 420, 423, 426, 427, 428, 429, 431, 435, 438, 440, 441, 443, 449, 456, 459, 470, 486, or 495)		
3.	COURSES IN MATHEMATICS		
	MATH 160 <sup>7</sup>	Brief Calculus	4
4.	COURSES IN CHEMISTRY <sup>2,5</sup>		
	CHEM 111	General Chemistry I	5
	CHEM 112	General Chemistry II	<u>4</u>
			65

### Notes:

1. Students pursuing a Bachelor of Arts degree must satisfy **all** of the General Education goals.
2. Students who plan to apply to graduate or professional programs in the biological or medical sciences are strongly advised to take CHEM 111/112, a full year of Organic Chemistry (CHEM 301, 303, 302, 304), and a full year of Physics (PHYS 111, 113, 112, 114). These classes are required by many graduate and professional programs.
3. 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.
4. 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.
5. Up to 8 credits of Organic Chemistry may be counted towards the required upper division credits in Biological Sciences.
6. A maximum of 8 credits of BIOS 481 and BIOL 482 may be applied to this degree program. BIOL 481 and BIOL 482 can be counted as upper division botany or zoology credits only if approved by the department.
7. 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

## 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 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.A. of BIOLOGY

Fall Semester		Spring Semester			
<b>For Students Who Qualify to take MATH 143 During their First Semester</b>					
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 <sup>1</sup>	General Chemistry I	5 cr	CHEM 112 <sup>1</sup>	General Chemistry II	4 cr
Goal 6, 7, or 8		3 cr	Goal 9, 10, 11, or 12		3 cr
Goal 10b		<u>4 cr</u>	Goal 10b		4 cr
		16 cr	Elective <sup>2</sup>		<u>1 cr</u>
					16 cr
Junior Year					
BIOL 358	Genetics	3 cr	BIOL 417	Evolution	3 cr
Goal 9, 10, 11, or 12		3 cr	Goal 9, 10, 11, or 12		3 cr
Upper Division Botany Electives <sup>3</sup>		3 cr	Upper Division Botany Electives <sup>3</sup>		3 cr
Upper Division Zoology Electives <sup>3</sup>		3 cr	Upper Division Zoology Electives <sup>3</sup>		3 cr
Upper Division Biology Electives <sup>4</sup>		<u>4 cr</u>	Upper Division Biology Electives <sup>4</sup>		<u>4 cr</u>
		16 cr			16 cr
Senior Year					
BIOL 491	Senior Seminar	1 cr	BIOL 492	Senior Seminar	1 cr
Upper Division Biology Electives <sup>4</sup>		4 cr	Upper Division Biology Electives <sup>4</sup>		4 cr
Electives <sup>2</sup>		<u>11 cr</u>	Electives <sup>2</sup>		<u>11 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
- A statistics course is recommended for all students. Recommended statistics are MATH 350 (listed as MATH 399 for Fall 2007 only) with BIOL 315L

- <sup>1</sup> Students applying to professional schools or graduate schools may need to add a second semester of organic chemistry and physics, depending on application requirements.
- <sup>2</sup> Electives include any biology or non-biology upper or lower division credits. Recommended electives are those that make the student more competitive.
- <sup>3</sup> 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.
- <sup>4</sup> In addition to the 12 credits of upper division botany and zoology, 16 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.A. of BIOLOGY

Fall Semester

Spring Semester

<b>For Students Who Qualify to take MATH 160 During their First Semester</b>					
<b>Freshman Year</b>					
BIOL 101/101L	Biology I	4 cr	BIOL 102/102L	Biology II	4 cr
CHEM 111 <sup>1</sup>	General Chemistry I	5 cr	CHEM 112 <sup>1</sup>	General Chemistry II	4 cr
MATH 160	Brief Calculus	3 cr	ENGL 102	English Composition	3 cr
ENGL 101	English Composition	3 cr	COMM 101	Principles of Speech	3 cr
Elective <sup>2</sup>		<u>1 cr</u>	Electives <sup>2</sup>		<u>2 cr</u>
		16 cr			16 cr
<b>Sophomore Year</b>					
BIOL 209 <sup>3</sup>	General Ecology	4 cr	BIOL 206/207 <sup>3</sup>	Cell Biology	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
Goal 10b		3 cr	Goal 10b		4 cr
Elective <sup>2</sup>		<u>3 cr</u>	Electives <sup>2</sup>		<u>2 cr</u>
		16 cr			16 cr
<b>Junior Year</b>					
BIOL 358	Genetics	3 cr	BIOL 417	Evolution	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	Upper Division Botany Electives <sup>4</sup>		3 cr
Upper Division Botany Electives <sup>4</sup>		3 cr	Upper Division Zoology Electives <sup>4</sup>		3 cr
Upper Division Zoology Electives <sup>4</sup>		3 cr	Upper Division Biology Electives <sup>5</sup>		<u>4 cr</u>
Elective <sup>2</sup>		<u>1 cr</u>			
		16 cr			16 cr
<b>Senior Year</b>					
BIOL 491	Senior Seminar	1 cr	BIOL 492	Senior Seminar	1 cr
Upper Division Biology Electives <sup>5</sup>		4 cr	Upper Division Biology Electives <sup>5</sup>		8 cr
Electives		<u>11 cr</u>	Electives		<u>7 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
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- <sup>1</sup> Students applying to professional schools or graduate schools may need to add a second semester of organic chemistry and physics, depending on application requirements.
- <sup>2</sup> Electives include any biology or non-biology upper or lower division credits. Recommended electives are those that make the student more competitive.
- <sup>3</sup> BIOL 206/207 (Cell Biology) and BIOL 209 (Ecology) can be switched between fall and spring semesters.
- <sup>4</sup> 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.
- <sup>5</sup> In addition to the 12 credits of upper division botany and zoology, 16 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.