

# BIOLOGY CONCENTRATION IN CELL AND MOLECULAR BIOLOGY, BACHELOR OF SCIENCE

## Requirements

Code	Title	Credits
Core Curriculum		42
Required Support Courses		22
Major (Required) Courses		37-39
Concentration Required Courses		14-16
Electives		1-5
<b>Total Credits</b>		<b>120</b>

- 36 upper-division credit hours required for degree
- 25% of courses must be taken at A&M-SA for degree
- CIP Code: 26.0101

All students must complete the University's Core Curriculum (<https://catalog.tamusa.edu/undergraduate/academic-policies-procedures/core-curriculum/>) and the specific requirements of the major. In some cases, a course that is required for a major may also be counted towards the Core Curriculum.

Code	Title	Credits
<b>Core Curriculum</b>		
ENGL 1301	Composition I	3
ENGL 1302	Composition II	3
	or ENGL 2311 Technical Writing	
MATH 2313	Calculus I	3
BIOL 1306	Gen Biology I-Attr Living Sys <sup>1</sup>	3
BIOL 1307	Gen Biology II-Biol Organisms <sup>1</sup>	3
Lang/Phil/Culture		3
Creative Arts		3
American History		3
American History		3
Government/Political Science		3
Government/Political Science		3
Social & Behavioral Sciences		3
CHEM 1311	General Chemistry I	3
CHEM 1312	General Chemistry II	3
Subtotals:		42

### Required Support Courses

UNIV 1301	First Year Seminar	3
MATH 2113	Calculus I Lab	1
CHEM 1111	General Chemistry Lab I	1
CHEM 1112	General Chemistry Lab II	1
CHEM 2323 & CHEM 2123	Organic Chemistry I and Organic Chemistry I Lab	4
CHEM 2325 & CHEM 2125	Organic Chemistry II and Organic Chemistry II Lab	4

PHYS 1301 & PHYS 1101	General Physics I and General Physics Lab I	4
PHYS 1302 & PHYS 1102	General Physics II and General Physics Lab II	4
Subtotals:		22

### Major (Required) Courses <sup>2</sup>

BIOL 1106	General Biology I Lab <sup>1</sup>	1
BIOL 1107	General Biology II - Lab <sup>1</sup>	1
BIOL 2415	Statistics in Biology & Medicn	4
BIOL 2411	Genetics <sup>1</sup>	4
BIOL 3402	Evolution	4
BIOL 2421	Introduction to Microbiology	4
BIOL 3407	Ecology	4
BIOL 3409	Cellular Physiology	4
Select one of the following: <sup>3</sup>		1

BIOL 4101	Seminar-Integrative Biology	
BIOL 4102	Seminar-Cell/Molecular Biology	
BIOL 4103	Seminar-Zoology	
BIOL 4104	Seminar-Ecology	
BIOL Advanced elective with lab <sup>4</sup>		4
BIOL advanced electives <sup>5</sup>		6-8
Subtotals:		37-39

### Concentration Required Courses

BIOL 2431	Cell Biology	4
BIOL 4401	Molecular Biology	4
Select two of the following upper-division electives:		6-8
BIOL 4402	Developmental Biology	
BIOL 4406	Bacteriology	
BIOL 4407	Virology	
BIOL 4408	Immunology	
CHEM 4341	Biochemistry I	
CHEM 4342	Biochemistry II	
Subtotals:		14-16

### Electives

As needed to complete 120 credit hours	1-5
<b>Total Credits</b>	<b>120</b>

<sup>1</sup> An earned letter grade of C is required for this degree.

<sup>2</sup> 2.0 overall GPA for major

<sup>3</sup> Interdisciplinary, Cell & Molec, Zoology, or Ecology topics respectively

<sup>4</sup> Must be fulfilled by a concentration advanced elective.

<sup>5</sup> Can be fulfilled by any advanced electives

## Plan of Study

*This suggested plan of study is intended to be used as a guide in conjunction with official degree requirements outlined in the catalog. While this plan demonstrates a course of study that covers eight semesters, each student's academic path is unique and your timeline may look different. Students should regularly consult with academic advisors as they plan their course schedules as course offerings may vary. This suggested order of courses assumes the following: 1) students come in TSI compliant for all categories 2) students come in as a freshmen with no previous credits earned 3) students pass all courses the first time. 4) all courses are offered during the semester suggested NOTE: If any of the above assumptions are not met, we encourage*

students to meet with their advisors. The most important component of this suggested schedule of courses is the order of the BIOL, CHEM, and MATH courses.

<b>First Year</b>		
<b>First Semester</b>		
BIOL 1306	Gen Biology I-Attr Living Sys	3
BIOL 1106	General Biology I Lab	1
CHEM 1311	General Chemistry I	3
CHEM 1111	General Chemistry Lab I	1
ENGL 1301	Composition I	3
HIST 1301	US History to 1865	3
UNIV 1301	First Year Seminar	3
<b>Credits</b>		<b>17</b>
<b>Second Semester</b>		
BIOL 1307	Gen Biology II-Biol Organisms	3
BIOL 1107	General Biology II - Lab	1
CHEM 1312	General Chemistry II	3
CHEM 1112	General Chemistry Lab II	1
ENGL 2311	Technical Writing	3
HIST 1302	US History from 1865	3
<b>Credits</b>		<b>14</b>
<b>Second Year</b>		
<b>First Semester</b>		
BIOL 2411	Genetics	4
CHEM 2323	Organic Chemistry I	3
CHEM 2123	Organic Chemistry I Lab	1
MATH 2313	Calculus I	3
MATH 2113	Calculus I Lab	1
GOVT 2305	Federal Government	3
<b>Credits</b>		<b>15</b>
<b>Second Semester</b>		
BIOL 2421	Introduction to Microbiology	4
BIOL 2415	Statistics in Biology & Medicin	4
CHEM 2325	Organic Chemistry II	3
CHEM 2125	Organic Chemistry II Lab	1
GOVT 2306	Texas Government	3
<b>Credits</b>		<b>15</b>
<b>Third Year</b>		
<b>First Semester</b>		
BIOL 2431	Cell Biology	4
BIOL 3402	Evolution	4
PHYS 1301	General Physics I	3
PHYS 1101	General Physics Lab I	1
Language/Philosophy/Cultural Studies		3
<b>Credits</b>		<b>15</b>
<b>Second Semester</b>		
BIOL 3407	Ecology	4
BIOL 3409	Cellular Physiology	4
or BIOL 4401	or Molecular Biology	
PHYS 1302	General Physics II	3
PHYS 1102	General Physics Lab II	1

Creative Arts	3	
<b>Credits</b>		
<b>15</b>		
<b>Fourth Year</b>		
<b>First Semester</b>		
BIOL 3409	Cellular Physiology	4
or BIOL 4401	or Molecular Biology	
BIOL 4101	Seminar-Integrative Biology	1
or BIOL 4102	or Seminar-Cell/Molecular Biology	
or BIOL 4103	or Seminar-Zoology	
or BIOL 4104	or Seminar-Ecology	
BIOL Advanced Elective w/Lab (From concentration required courses)		4
BIOL Advanced Elective		3
Social/Behavioral Science		3
<b>Credits</b>		<b>15</b>
<b>Second Semester</b>		
BIOL Advanced Elective (Must be from concentration required list)		4
BIOL Advanced Elective (Must be from concentration required list)		4
BIOL Advanced Elective		3
Advanced Elective		3
<b>Credits</b>		<b>14</b>
<b>Total Credits</b>		<b>120</b>