

# BIOLOGY - BACHELOR OF SCIENCE

The major in biology provides a solid academic base for those planning to enter any of the various fields of the biological sciences. The program allows considerable latitude. Degree plans for specific areas of interest can be obtained from the Biology Success Center (<https://bio.nmsu.edu/success2.html>) in Foster Hall room 204.

## Requirements

Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 120 credits with 48 credits in courses numbered 300 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework.

Prefix	Title	Credits
<b>General Education</b>		
<i>Area I: Communications</i>		10
	English Composition - Level 1 <sup>1</sup>	
	English Composition - Level 2 <sup>1</sup>	
	Oral Communication <sup>1</sup>	
<i>Area II: Mathematics</i>		
MATH 1511G	Calculus and Analytic Geometry I <sup>2</sup>	4
or MATH 1511H	Calculus and Analytic Geometry I Honors	
<i>Area III/IV: Laboratory Sciences and Social/Behavioral Sciences</i>		11
PHYS 2230G	General Physics for Life Science I	
or PHYS 1230G	Algebra-Based Physics I	
PHYS 2230L	Laboratory to General Physics for Life Science I	
or PHYS 1230L	Algebra-Based Physics I Lab	
PHYS 2240G	General Physics for Life Science II	
or PHYS 1240G	Algebra-Based Physics II	
PHYS 2240L	Laboratory to General Physics for Life Science II	
or PHYS 1240L	Algebra-Based Physics II Lab	
<i>Area IV: Social/Behavioral Sciences course (3 credits)</i> <sup>1</sup>		
<i>Area V: Humanities</i> <sup>1</sup>		3
<i>Area VI: Creative and Fine Arts</i> <sup>1</sup>		3
<i>General Education Elective</i>		
BIOL 2610G & BIOL 2610L	Principles of Biology: Biodiversity, Ecology, and Evolution and Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory (Departmental Requirement)	4
<b>Viewing a Wider World</b> <sup>3</sup>		6
<b>Departmental/College Requirements</b>		
BIOL 2110G & BIOL 2110L	Principles of Biology: Cellular and Molecular Biology and Principles of Biology: Cellular and Molecular Biology Laboratory	4
BIOL 301	Principles of Ecology	3
BIOL 305	Principles of Genetics	3
BIOL 377	Cell Biology	3
BIOL 455	Biometry <sup>4</sup>	3
or A ST 311	Statistical Applications	

BIOL 467	Evolution	3
Select sufficient upper-division biology electives to bring total upper-division credits to 28. <sup>5</sup>		18

### Non-Departmental Requirements (in addition to Gen.Ed/VWW)

CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors	4
or CHEM 1216	General Chemistry I Lecture and Laboratory for CHEM Majors	
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors	4
or CHEM 1226	General Chemistry II Lecture and Laboratory for CHEM Majors	

### Organic Chemistry and Biochemistry Requirement 7-11

CHEM 2120 & 2120L	Integrated Organic Chemistry and Biochemistry and Integrated Organic Chemistry and Biochemistry Lab	
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and additional 3 credit Biology upper-division elective

OR

CHEM 313 & CHEM 314 & CHEM 315 & BCHE 395	Organic Chemistry I and Organic Chemistry II and Organic Chemistry Laboratory and Biochemistry I	
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### Second Language Requirement (see below) 0-8

The number of credits required to satisfy this requirement will vary depending on the option a student chooses.

### Electives, to bring the total credits to 120<sup>6</sup> 15-27

Select sufficient electives to bring the total to 120 credits, including at least 48 upper-division credits.

### Total Credits 120

<sup>1</sup> See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/>) Section of the catalog for a full list of courses.

<sup>2</sup> MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisite courses needed to enter MATH 1511G first.

<sup>3</sup> See the Viewing a Wider World (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses.

<sup>4</sup> Only BIOL 455 will count as Departmental Requirements, students taking A ST 311 will need 3 more credits of upper-division Biology.

<sup>5</sup> At least one upper-division course must include a laboratory and/or field experience. The laboratory/field requirement can be satisfied by any BIOL course above the 300 level that includes a laboratory or is a field course—including BIOL 350 Special Topics or BIOL 450 Special Topics.

<sup>6</sup> Elective credit may vary based on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The elective credits in the requirement list is the amount needed to bring the total to 120 credits and may vary depending on the degree. Students may need to complete more or less courses on a case-by-case basis and each student should discuss this with their advisor.

## Second Language Requirement

For the Bachelor of Science in Biology there is a one year second language requirement, the options to complete this requirement are listed below. The number of credits that a student needs to take may vary depending on what level they come in with. Please speak with an advisor

for more information as to which courses you will need to take to fulfill the second language requirement for this degree.

### Option 1:

Prefix	Title	Credits
<b>Complete one of the following sequences:</b>		
FREN 1110 & FREN 1120	French I and French II	8
GRMN 1110 & GRMN 1120	German I and German II	8
JAPN 1110 & JAPN 1120	Japanese I and Japanese II	8
SPAN 1110 & SPAN 1120	Spanish I and Spanish II	8
PORT 1110 & PORT 1120	Portuguese I and Portuguese II	6
<i>For Heritage Speakers:</i>		
SPAN 1210 & SPAN 1220 or SPAN 2210	Elementary Spanish for Heritage Learners I and Spanish for Heritage Learners II Spanish for Heritage Learners III	3-6

### Option 2:

Prefix	Title	Credits
<b>Complete the following sequence for American Sign Language (with a C- or better):</b>		
SIGN 1110	American Sign Language I	3
SIGN 1120	American Sign Language II	3

### Option 3:

Prefix	Title	Credits
<b>Challenge the 1120 level for the following courses:</b>		
FREN 1120 or PORT 1120 or SPAN 1220 or SPAN 2210	French II Portuguese II Spanish for Heritage Learners II Spanish for Heritage Learners III	3-4

### Option 4:

Pass a three-credit, upper-division course (numbered 300 or above) taught in a second language by the department of Languages and Linguistics.

### Option 5:

Obtain college certification of completion of three years of a second language at the high school level with a grade of C- or higher in the second-year level.

### Option 6:

By obtaining certification of a working knowledge of a Native American language from the American Indian program director.

### Option 7:

By obtaining, from the head of the Department of Languages and Linguistics, certification of a working knowledge of a second language if such language is not taught at NMSU.

### Option 8:

In the case of a foreign student who is required to take the TOEFL exam admission, the dean will automatically waive the second language requirement.

## A Suggested Plan of Study for Students

This roadmap assumes student placement in MATH 1220G College Algebra and ENGL 1110G Composition I. The contents and order of this roadmap may vary depending on initial student placement in mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring semester and may be subject to modification or change.

### First Year

Semester 1		Credits
MATH 1220G	College Algebra <sup>1</sup>	3
BIOL 2610G	Principles of Biology: Biodiversity, Ecology, and Evolution <sup>1</sup>	3
BIOL 2610L	Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory <sup>1</sup>	1
ENGL 1110G or ENGL 1110H	Composition I <sup>1</sup> or Composition I Honors	4
Area IV: Social and Behavioral Science Course <sup>2</sup>		3
Elective Course		1
<b>Credits</b>		<b>15</b>

Semester 2		Credits
MATH 1250G	Trigonometry & Pre-Calculus <sup>1</sup>	4
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors <sup>1</sup>	4
BIOL 2110G & BIOL 2110L	Principles of Biology: Cellular and Molecular Biology and Principles of Biology: Cellular and Molecular Biology Laboratory	4
Choose from one of the following Area I General Education Courses:		3
COMM 1115G	Introduction to Communication	
HNRS 2175G	Introduction to Communication Honors	
ACOM 1130G	Effective Leadership and Communication in Agriculture	
<b>Credits</b>		<b>15</b>

### Second Year

Semester 1		Credits
MATH 1511G or MATH 1511H	Calculus and Analytic Geometry I <sup>1</sup> or Calculus and Analytic Geometry I Honors	4
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors <sup>1</sup>	4
ENGL 2210G or ENGL 2210H	Professional and Technical Communication or Professional and Technical Communication	3
BIOL 305	Principles of Genetics	3
<b>Credits</b>		<b>14</b>
Semester 2		Credits
BIOL 377	Cell Biology <sup>1</sup>	3
Upper-division Biology Elective Course <sup>1</sup>		3
Area V: Humanities Course <sup>2</sup>		3
Area VI: Creative and Fine Arts Course <sup>2</sup>		3
First Second Language Course in Series		3-4
<b>Credits</b>		<b>15-16</b>

### Third Year

Semester 1		Credits
CHEM 313	Organic Chemistry I <sup>1</sup>	3
PHYS 2230G & PHYS 2230L	General Physics for Life Science I and Laboratory to General Physics for Life Science I <sup>1</sup>	4

Second Second Language Course in Series <sup>1</sup>		3-4
VWW: Viewing a Wider World Course <sup>3</sup>		3
Elective Course		1
<b>Credits</b>		<b>14-15</b>
<b>Semester 2</b>		
PHYS 2240G & PHYS 2240L	General Physics for Life Science II and Laboratory to General Physics for Life Science II <sup>1</sup>	4
CHEM 314 & CHEM 315	Organic Chemistry II and Organic Chemistry Laboratory <sup>1</sup>	5
Choose from one of the following:		3
BIOL 455	Biometry <sup>1</sup>	
A ST 311	Statistical Applications <sup>1</sup>	
Upper-division Biology Elective Course <sup>1</sup>		3
<b>Credits</b>		<b>15</b>
<b>Fourth Year</b>		
<b>Semester 1</b>		
BCHE 395	Biochemistry I	3
BIOL 301	Principles of Ecology	3
Upper-division Biology Elective Course <sup>1</sup>		3
Upper-division Biology Elective Course <sup>1</sup>		3
VWW: Viewing a Wider World Course <sup>3</sup>		3
<b>Credits</b>		<b>15</b>
<b>Semester 2</b>		
BIOL 467	Evolution	3
Upper-division Biology Elective Course <sup>1</sup>		3
Upper-division Biology Elective Course <sup>1</sup>		6
Additional Elective Course		4
<b>Credits</b>		<b>16</b>
<b>Total Credits</b>		<b>119-121</b>

<sup>1</sup> These courses have prerequisites and it is the students responsibility for checking and fulfilling all course prerequisites listed for these courses.

<sup>2</sup> See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/>) section of the catalog for a full list of courses.

<sup>3</sup> See the Viewing a Wider World (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses.