BIOLOGY COMPREHENSIVE, BACHELOR OF SCIENCE

Offered by Department of Biology (http://catalog.unk.edu/undergraduate/departments-programs/biology/)

Code	Title	Credit Hours
General Studies		
Foundational Requirements (LOPERS 1-4) including:		*12-14*
Including:		
LOPER 4: Mathematics, Statistics, and Quantitative Reasoning [1]		
MATH 103	Plane Trigonometry	
For the Molecular Biology Emphasis, take 1 of the following: [2]		
MATH 115	Calculus I with Analytic Geometry [2]	
or MATH 123	Applied Calculus I	
Broad Knowledge Requirements (LOPERS 5-8)		*13*
Including:		
LOPER 8 (Natural Science)		
BIOL 105	Biology I	
Dispositional Requirements (LOPERS 9-10) [3]		*6*
Wellness (LOPER 11) Optional		*0*
Program-Specified Requirements		**4**
BIOL 106	Biology II	
BS Science-related course requirements		**8**
CHEM 160 & 160L	General Chemistry and General Chemistry Laboratory	
CHEM 161 & 161L	General Chemistry and General Chemistry Laboratory	
Major Option		
Complete all required courses		44-61
Unrestricted electives		
Needed to reach 120 credit hour minimum		16-33
Total Credit Hours		120

A minimum 2.5 GPA is required in all courses counting toward this major.

Major Option

Code	Title	Credit Hours
Biology Comprehensive Core Requirements		
BIOL 231	Research Methods I	3
BIOL 305	BioStatistics	3
BIOL 359	Evolution	3
BIOL 360	Genetics	4
Select 2 credit hours of the following:		2
BIOL 421	Seminar in Biology	
or		
BIOL 431A	Research Methods IIA	
AND		
BIOL 431B	Research Methods IIB	
Biology Emphasis Requirements		
Select one of the following:		29-46
General Emphasis (p. 1)		
Wildlife Emphasis (p. 2)		
Health Sciences Emphasis (p. 2)		
Molecular Biology Emphasis (p.)		
Total Credit Hours		44-61

General Emphasis

Code	Title	Credit Hours
Required Courses		
Take all of the following:		
BIOL 307	Ecology	3
PHYS 205 & 205L	General Physics I and Physics I Laboratory	5
Select one of the following:		5-10
CHEM 250 & 250L	Fundamentals of Organic Chemistry and Fundamentals of Organic Chemistry Lab	
or		
CHEM 360 & 360L	Organic Chemistry and Organic Chemistry Laboratory	
and		
CHEM 361 & 361L	Organic Chemistry and Organic Chemistry Laboratory	
Field Electives		
Select 6-9 credit hours of the following:		6-9
BIOL 330	Wildlife Conservation	
BIOL 405	Range and Wildlife Management	
BIOL 406	Plant Ecology	
BIOL 418	Plant Taxonomy	
BIOL 435	Herpetology	
BIOL 462	Animal Behavior	
BIOL 470	Insect Biology	
BIOL 472	Ichthyology	
BIOL 473	Ornithology	
BIOL 474	Mammalogy	
Laboratory Electives		
Select 6-9 credit hours of the following:		6-9
BIOL 211	Human Microbiology	
BIOL 215	Human Physiology	
BIOL 225	Anatomy and Physiology	
BIOL 226	Anatomy and Physiology	
BIOL 301	Introduction to Soils	
BIOL 309	Cellular & Molecular Biology	
BIOL 401	Principles of Immunology	
BIOL 403	Plant Physiology	
BIOL 404	Developmental Biology	
BIOL 416	Plant Diversity and Evolution	
BIOL 440	Infectious Diseases	
BIOL 450	Advanced Molecular Biology	
BIOL 465	Physiology	
Select one of the following:		4

CHEM 301 & 301L	Analytical Chemistry and Analytical Chemistry Lab	
or		
CHEM 351	Biochemistry I	
Total Credit Hours		29-40

Wildlife Emphasis

Code	Title	Credit Hours
Required Courses		
BIOL 213	Introduction to Fish and Wildlife Management	2
BIOL 307	Ecology	3
BIOL 330	Wildlife Conservation	3
BIOL 405	Range and Wildlife Management	3
BIOL 418	Plant Taxonomy	3
Select one of the following:		3-4
BIOL 409	Biological Studies using GIS	
GEOG 417	GIScience Principles and Concepts	
GEOG 418	Working with GIScience and Spatial Analysis	
Botany		
Select 2 courses from the following:		6-7
BIOL 403	Plant Physiology	
BIOL 406	Plant Ecology	
BIOL 416	Plant Diversity and Evolution	
Zoology		
Select 2 courses from the following:		6
BIOL 435	Herpetology	
BIOL 470	Insect Biology	
BIOL 472	Ichthyology	
BIOL 473	Ornithology	
BIOL 474	Mammalogy	
Human Dimensions		
Take one course from the following:		3
BIOL 311	Bioethics	
BIOL 426	Human Dimensions of Wildlife and Fisheries	
BIOL 442	Wildlife and Fisheries Laws and Policies	
PSCI 332	Environmental Politics & Policy	
Other Electives		
Take 3 courses from the following:		9
BIOL 301	Introduction to Soils	
BIOL 309	Cellular & Molecular Biology	
BIOL 403	Plant Physiology (This course can only count in one area.)	
BIOL 404	Developmental Biology	
BIOL 406	Plant Ecology (This course can only count in one area.)	
BIOL 409	Biological Studies using GIS (This course can only count in one area.)	
BIOL 416	Plant Diversity and Evolution (This course can only count in one area.)	
BIOL 430	Special Topics in Biology	
BIOL 435	Herpetology (This course can only count in one area.)	
BIOL 450	Advanced Molecular Biology	
BIOL 456	Regional Field Study	
BIOL 462	Animal Behavior	
BIOL 465	Physiology	
BIOL 470	Insect Biology (This course can only count in one area.)	
BIOL 472	Ichthyology (This course can only count in one area.)	
BIOL 473	Ornithology (This course can only count in one area.)	
BIOL 474	Mammalogy (This course can only count in one area.)	
GEOG 416	Applications of Geographic Information Systems	
GEOG 417	GIScience Principles and Concepts (This course can only count in one area.)	
GEOG 418	Working with GIScience and Spatial Analysis (This course can only count in one area.)	
MATH 123	Applied Calculus I	
PHYS 205 & 205L	General Physics I and Physics I Laboratory	
CHEM 250 & 250L	Fundamentals of Organic Chemistry and Fundamentals of Organic Chemistry Lab	
or		
CHEM 360 & 360L	Organic Chemistry and Organic Chemistry Laboratory	
and		
CHEM 361 & 361L	Organic Chemistry and Organic Chemistry Laboratory	
Total Credit Hours		41-43

Health Sciences Emphasis

Code	Title	Credit Hours
Physiology		**8**
Select one of the following:		
BIOL 215 & KSS 360	Human Physiology and Introduction to Anatomical Biomechanics	
or		
BIOL 225 & BIOL 226	Anatomy and Physiology and Anatomy and Physiology	
Microbiology		
BIOL 211	Human Microbiology	4
Cellular and Molecular Biology		
BIOL 309	Cellular & Molecular Biology	4
Biology		
Select 5 credit hours of the following:		5
BIOL 311	Bioethics	
BIOL 325	Medical Terminology (This course can only count in one area.)	

BIOL 401	Principles of Immunology	
BIOL 404	Developmental Biology	
BIOL 440	Infectious Diseases	
BIOL 450	Advanced Molecular Biology	
BIOL 461	Human Genetics	
BIOL 465	Physiology (This course can only count in one area.)	
Supporting Courses		**20-25**
Take one of the following Organic Chemistry options:		
CHEM 250 & 250L	Fundamentals of Organic Chemistry and Fundamentals of Organic Chemistry Lab	
or		
CHEM 360 & 360L	Organic Chemistry and Organic Chemistry Laboratory	
and		
CHEM 361 & 361L	Organic Chemistry and Organic Chemistry Laboratory	
Take the following Physics courses:		
PHYS 205 & 205L	General Physics I and Physics I Laboratory	
Take the following Biochemistry courses:		
CHEM 351	Biochemistry I	
Take one of the following advanced Anatomy/Physiology courses:		
BIOL 465	Physiology (This course can only count in one area.)	
KSS 459	Special Topics Gross Anatomy	
KSS 460	Gross Anatomy of Movement	
Select 3 credit hours of the following:		
BIOL 110	Introduction to Epidemiology	
BIOL 325	Medical Terminology (This course can only count in one area.)	
CHEM 352 & 352L	Biochemistry II and Advanced Biochemistry Lab	
ECON 410	Health Care Economics	
NUTR 108	Introduction to Nutrition	
HSCI 225	Introduction to Hematology	
HSCI 300	Seminar in Health Sciences	
MGT 450	Population Health Management: Systems and Policies	
PSY 440	Health Psychology	
SOC 275	Social Psychology	
SOC 462	Sociology of Health and Illness	
SPAN 103	Spanish for Special Purposes	
Total Credit Hours		41-46

Molecular Biology Emphasis

Code	Title	Credit Hours
Required Courses		
BIOL 309	Cellular & Molecular Biology	4
BIOL 450	Advanced Molecular Biology	4
CHEM 351	Biochemistry I	4
PHYS 205 & 205L	General Physics I and Physics I Laboratory	5
Select one of the following:		5-10
CHEM 250 & 250L	Fundamentals of Organic Chemistry and Fundamentals of Organic Chemistry Lab	
or		
CHEM 360 & 360L	Organic Chemistry and Organic Chemistry Laboratory	
and		
CHEM 361 & 361L	Organic Chemistry and Organic Chemistry Laboratory	
Select 9-12 credit hours of the following:		9-12
BIOL 311	Bioethics	
BIOL 325	Medical Terminology	
BIOL 401	Principles of Immunology	
BIOL 404	Developmental Biology	
BIOL 440	Infectious Diseases	
BIOL 461	Human Genetics	
BIOL 468	Parasitology	
BIOL 468L	Parasitology Laboratory	
BIOL 465	Physiology	
CHEM 301 & 301L	Analytical Chemistry and Analytical Chemistry Lab	
CHEM 352	Biochemistry II	
CHEM 352L	Advanced Biochemistry Lab	
PSY 407	Psychopathology	
PSY 465	Psychopharmacology	
PSY 470	Neuropsychology	
Total Credit Hours		31-39

[1]

The Biology degree, General Emphasis and Health Science Emphasis require a minimal mathematical competency at the level of trigonometry. Students with sufficient preparation may enter the mathematics program at a higher level, reducing the total credit hours needed. **See advisor for math placement.**

[2]

The Molecular Biology Emphais requires a minimal mathematical competency at the level of calculus. Students with sufficient preparation may enter the mathematics program at a higher level. Students are required to take a LOPERs 4: Mathematics, Statistical, and Quantitative Reasoning course regardless of entry level. **See advisor for math placement.**

[3]

Designated courses with the appropriate content may be approved to satisfy one of the Broad Knowledge requirements plus LOPER 9 or Broad Knowledge plus LOPER 10. Courses may be approved to satisfy LOPER 9 or LOPER 10 alone. (Courses satisfying LOPER 9 or LOPER 10 alone must be 3 credit hours.) Students applying this option will need to take additional hours in other categories to meet the required GS hours.

This document represents a sample 4-year plan for degree completion with this major. Actual course selection and sequence may vary and should be discussed individually with your academic advisor. Advisors can also help you plan other experiences to enrich your undergraduate education such as internships, education abroad, undergraduate

research, learning communities, and service learning and community-based learning.

Code	Title	Credit Hours
Semester 1		
BIOL 105	Biology I	4
CHEM 160 & 160L	General Chemistry and General Chemistry Laboratory	4
LOPER 1: First-year Seminar		3
LOPER 2: Writing Skills		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 2		
BIOL 106	Biology II	4
CHEM 161 & 161L	General Chemistry and General Chemistry Laboratory	4
LOPER 3: Oral Communication Skills		3
MATH 103	Plane Trigonometry	3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 3		
BIOL 231	Research Methods I	3
BIOL 359	Evolution	3
CHEM 360 & 360L	Organic Chemistry and Organic Chemistry Laboratory	5
LOPER 7: Social Science		3
Unrestricted Elective		3
Total Credit Hours		17

Code	Title	Credit Hours
Semester 4		
BIOL 305	BioStatistics	3
CHEM 361 & 361L	Organic Chemistry and Organic Chemistry Laboratory	5
Biology Lab Elective #1		4
LOPER 9: Civic Competency and Engagement		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 5		
BIOL 307	Ecology	3
PHYS 205 & 205L	General Physics I and Physics I Laboratory	5
LOPER 10: Respect for Human Diversity		3
Unrestricted Elective		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 6		
Biology Field Elective #1		4
Biology Lab Elective #2		3
CHEM 351	Biochemistry I	4
or		
CHEM 301 & 301L	Analytical Chemistry and Analytical Chemistry Lab	
LOPER 5: Visual or Performing Arts		3
Unrestricted Elective		3
Total Credit Hours		17

Code	Title	Credit Hours
Semester 7		
BIOL 360	Genetics	4
BIOL 421	Seminar in Biology	1
or BIOL 431A	Research Methods IIA	
Biology Field Elective #2		4
Biology Lab Elective #3		3
LOPER 6: Humanities		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 8		
BIOL 421	Seminar in Biology	1
or BIOL 431B	Research Methods IIB	
Biology Field Elective #3		4
Unrestricted Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		14

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Code	Title	Credit Hours
Semester 1		
BIOL 105	Biology I	4
BIOL 213	Introduction to Fish and Wildlife Management	2
LOPER 1: First-year Seminar		3
LOPER 3: Oral Communication Skills		3
MATH 103	Plane Trigonometry	3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 2		
BIOL 106	Biology II	4
LOPER 5: Visual or Performing Arts		3
LOPER 2: Writing Skills		3
LOPER 7: Social Science		3
LOPER 10: Respect for Human Diversity		3
Total Credit Hours		16

Code	Title	Credit Hours
Semester 3		
BIOL 359	Evolution	3
BIOL 305	BioStatistics	3
CHEM 160 & 160L	General Chemistry and General Chemistry Laboratory	4
LOPER 9: Civic Competency and Engagement		3
Unrestricted Elective		3
Total Credit Hours		16

Code	Title	Credit Hours
Semester 4		
BIOL 231	Research Methods I	3
BIOL 307	Ecology	3
CHEM 161 & 161L	General Chemistry and General Chemistry Laboratory	4
Select one GIS Course:		3-4
BIOL 409	Biological Studies using GIS	
GEOG 417	GIScience Principles and Concepts	
GEOG 418	Working with GIScience and Spatial Analysis	
LOPER 6: Humanities		3
Total Credit Hours		16-17

Code	Title	Credit Hours
Semester 5		
BIOL 330	Wildlife Conservation	3
Zoology Course:		3
BIOL 435	Herpetology	
BIOL 470	Insect Biology	
BIOL 472	Ichthyology	
BIOL 473	Ornithology	
BIOL 474	Mammalogy	
Wildlife Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 6		
BIOL 405	Range and Wildlife Management	3
Botany Course:		3
BIOL 403	Plant Physiology	
BIOL 406	Plant Ecology	
BIOL 416	Plant Diversity and Evolution	
Zoology Course:		3
BIOL 435	Herpetology	
BIOL 470	Insect Biology	
BIOL 472	Ichthyology	
BIOL 473	Ornithology	
BIOL 474	Mammalogy	
Human Dimensions Course:		3
BIOL 311	Bioethics	
BIOL 426	Human Dimensions of Wildlife and Fisheries	
BIOL 442	Wildlife and Fisheries Laws and Policies	
PSCI 332	Environmental Politics & Policy	
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 7		
BIOL 421	Seminar in Biology	1
or BIOL 431A	Research Methods IIA	
BIOL 360	Genetics	4
BIOL 418	Plant Taxonomy	3
Wildlife Elective		3
Unrestricted Elective		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 8		
BIOL 421	Seminar in Biology	1
or BIOL 431B	Research Methods IIB	
Botany Course:		3
BIOL 403	Plant Physiology	
BIOL 406	Plant Ecology	
BIOL 416	Plant Diversity and Evolution	
Wildlife Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		13

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research, learning communities, and service learning and community-based learning.

Code	Title	Credit Hours
Semester 1		
BIOL 105	Biology I	4
CHEM 160 & 160L	General Chemistry and General Chemistry Laboratory	4
LOPER 1: First-year Seminar		3
LOPER 2: Writing Skills		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 2		
BIOL 106	Biology II	4
CHEM 161 & 161L	General Chemistry and General Chemistry Laboratory	4
SPCH 100	Fundamentals of Speech Communication	3
Math By Placement		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 3		
BIOL 359	Evolution	3
BIOL 225	Anatomy and Physiology	4
CHEM 360 & 360L	Organic Chemistry and Organic Chemistry Laboratory	5
LOPER 7: Social Science		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 4		
BIOL 231	Research Methods I	3
BIOL 226	Anatomy and Physiology	4
CHEM 361 & 361L	Organic Chemistry and Organic Chemistry Laboratory	5
LOPER 9: Civic Competency and Engagement		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 5		
BIOL 305	BioStatistics	3
CHEM 351	Biochemistry I	4
BIOL 309	Cellular & Molecular Biology	4
PHYS 205 & 205L	General Physics I and Physics I Laboratory	5
Total Credit Hours		16

Code	Title	Credit Hours
Semester 6		
BIOL 211	Human Microbiology	4
BIOL 360	Genetics	4
LOPER 5: Visual or Performing Arts		3
Supporting Course		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 7		
BIOL 421 or BIOL 431A	Seminar in Biology Research Methods IIA	1
Biology Elective		3
LOPER 6: Humanities		3
LOPER 10: Respect for Human Diversity		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		16

Code	Title	Credit Hours
Semester 8		
BIOL 421 or BIOL 431B	Seminar in Biology Research Methods IIB	1
Biology Elective		3
BIOL 465 or KSS 459 or KSS 460	Physiology Special Topics Gross Anatomy Gross Anatomy of Movement	3
Unrestricted Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		16

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Code	Title	Credit Hours
Semester 1		
BIOL 105	Biology I	4
CHEM 160 & 160L	General Chemistry and General Chemistry Laboratory	4
LOPER 1: First-year Seminar		3
LOPER 2: Writing Skills		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 2		
BIOL 106	Biology II	4
CHEM 161 & 161L	General Chemistry and General Chemistry Laboratory	4
SPCH 100	Fundamentals of Speech Communication	3
Math By Placement		3
Total Credit Hours		14

Code	Title	Credit Hours
Semester 3		
BIOL 359	Evolution	3
BIOL 231	Research Methods I	3
CHEM 360 & 360L	Organic Chemistry and Organic Chemistry Laboratory	5
LOPER 7: Social Science		3
Unrestricted Elective		3
Total Credit Hours		17

Code	Title	Credit Hours
Semester 4		
BIOL 305	BioStatistics	3
CHEM 361 & 361L	Organic Chemistry and Organic Chemistry Laboratory	5
MATH 115 or MATH 123	Calculus I with Analytic Geometry Applied Calculus I	3-5
LOPER 9: Civic Competency and Engagement		3
Total Credit Hours		14-16

Code	Title	Credit Hours
Semester 5		
BIOL 309	Cellular & Molecular Biology	4
PHYS 205 & 205L	General Physics I and Physics I Laboratory	5
LOPER 10: Respect for Human Diversity		3
Unrestricted Elective		3
Total Credit Hours		15

Code	Title	Credit Hours
Semester 6		
BIOL 360	Genetics	4
Molecular Elective #1		3
CHEM 351	Biochemistry I	4
LOPER 5: Visual or Performing Arts		3
Unrestricted Elective		3
Total Credit Hours		17

Code	Title	Credit Hours
Semester 7		
BIOL 421 or BIOL 431A	Seminar in Biology Research Methods IIA	1
Molecular Elective #2		3
Molecular Elective #3		3
LOPER 6: Humanities		3
Unrestricted Elective		3
Total Credit Hours		13

Code	Title	Credit Hours
Semester 8		
BIOL 421 or BIOL 431B	Seminar in Biology Research Methods IIB	1
BIOL 450	Advanced Molecular Biology	4
Unrestricted Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
Unrestricted Elective		3
Total Credit Hours		17