Department of
Biology

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Department Description

The Department of Biology provides a variety of classes for students seeking a degree in biology and many biology courses servicing a number of non-biology majors such as Nursing, Exercise Science and Health Science. Bachelor of Science degrees are offered in Biology, Ecology/Wildlife/Fisheries, and Biology Education. Minors can be earned in Biology, Natural Resources and Biology Education.

Program Descriptions

B.S. in Biology (700)

The biology degree provides a solid foundation in biology. It is designed to prepare students for professional programs in medicine, dentistry, optometry, podiatry, physical/occupational therapy, etc., or graduate programs in botany, ecology, natural resources, biotechnology, microbiology, neurobiology, etc. In addition, the degree provides preparation for those students seeking employment after completing a bachelors degree. Students majoring in Biology select one of the following emphases depending on their interests and career goals.

Microbiology (700-55)

The Microbiology emphasis is designed to prepare students for career opportunities and graduate work in microbiology and related fields such as bacteriology, immunology, medical microbiology, and virology. Although this emphasis does not give students the depth that a degree in microbiology does, it will give students sufficient background and training to work in laboratories using basic microbiological techniques and to pursue further study in the field.

Zoology (700-170)

The zoology emphasis is designed to prepare students for career opportunities and graduate work in zoology and related areas. This emphasis will provide students with opportunities to study the structure, function, diversity, ecology, and evolution with an appropriate minor or clusters. This emphasis can qualify students for entry-level positions in industry or government agencies, as well as for further study at the graduate level.

Neuroscience (700-62)

Neuroscience is a multi-disciplinary program that focuses on the development, structure and function of the nervous system and its regulation of body systems and behavior. The neuroscience emphasis examines topics such as molecular and cellular neurobiology, neuroanatomy, the neural basis of behavior, learning, memory, cognition and perception, neuroendocrinology, neurophysiology, neuronpharmacology, and neurological disorders. Students will be prepared to pursue advanced degrees in biology, psychology, and neuroscience or to enter into the pharmaceutical and biotechnology workforce. Neuroscience is an excellent pre-professional field of study for those interested in health professions, law, or business.

Environmental Biology (700-68)

The Environmental Biology emphasis is designed to prepare students for careers and graduate studies in the biology-related fields of environmental science. Students selecting this emphasis complete all core courses for the Biology Major, as well as specified coursework designed to prepare them for work as environmental biologists. This sector of environmental science is expected to undergo significant increases in employment opportunities for the foreseeable future, and career paths for people trained in this field are found in education, government, industry, and non-governmental organizations.

Human Biology (700-69)

The Human Biology emphasis is designed for students planning on careers centered on human health and well-being, such as medicine, dentistry, optometry, podiatry, physical/occupational therapy, etc., and for students desiring to pursue graduate degrees in anatomy and physiology. The courses were chosen to prepare students for further study in these professional schools as well as for students interested in continuing their education in graduate school.

Biotechnology (700-70)

Biotechnology is the application of biological information and techniques to meet medical, agricultural, and environmental needs. Students selecting this emphasis will be well prepared to pursue graduate studies in genetics, molecular biology, cellular biology, biochemistry and physiology. The emphasis will also prepare students for immediate employment as entry level technicians in one of hundreds of different biotechnology companies and university research labs. The emphasis will also serve pre-professional students interested in one of the medical professions.

B.S. in Plant and Wildlife Ecology (488)

This degree provides a powerful foundation for most ecological and natural resource related fields. It offers five separate areas of specialization, with course work requirements designed to meet State and Federal hiring prerequisites, and to prepare students for graduate studies.

Range Emphasis (488-179)

The Range emphasis prepares students for careers in rangeland conservation, rangeland ecology, rangeland/livestock production consulting, wildlife and livestock production in a rangeland setting, or for post-baccalaureate studies in rangeland ecology related fields.

Ecology Emphasis (488-180)

The Ecology emphasis is designed to be somewhat broader than the other emphasis in the 487 series and should be taken by students interested in careers in conservation biology, natural history education/interpretation, natural resource policy/law, as park rangers, or as a foundation for post baccalaureate studies in ecology related fields.

Wildlife Emphasis (488-176)

The Wildlife emphasis prepares students for careers as wildlife biologists, conservation officers, natural resource managers, park rangers, natural resource policy/administration officers, and for legal careers and post-baccalaureate studies in wildlife related fields.

Fisheries Emphasis (488-177)

The Fisheries emphasis prepares students for careers as fisheries biologists, conservation officers, natural resource managers, park rangers, natural resource policy/administration officers and for legal careers and post-baccalaureate studies in fisheries related fields.

Plant Biology Emphasis (488-178)

The Plant Biology emphasis prepares students for careers as botanists. The degree also provides a strong foundation for post-baccalaureate studies in plant ecology, physiology, systematic, pathology, or other related fields.

B.S. in Biology Education (800)

The Biology Education Major at BYU–Idaho requires completion of specific coursework in Biology, BYU–Idaho Foundations classes, and Education classes needed for certification as a secondary education teacher in the state of Idaho (Idaho certification qualifies graduates to teach in 44 states). The Biology Education major at BYU–Idaho also requires the completion of a Science Education Minor. Students who graduate from this program are eligible for teacher certification in biology and in their chosen Science education minor.

For a listing of approved Secondary Science Education majors and minors, see the Teacher Education section of this catalog or the program notes for BS in Biology Education.

B.S. in Biology Education Composite (805)

A second pathway to the Biology Education Major at BYU–Idaho requires completion of specific coursework in Biology, BYU–Idaho Foundation classes, and Secondary Education classes needed for certification as a teacher in the State of Idaho. The Composite Biology Education major at BYU–Idaho does not require a minor, but gives more emphasis to preparation in the various biological sciences. Students who graduate from this program are eligible for teacher certification in biology but do not receive any other teaching endorsements.

BS in Plant and Wildlife Ecology
Wildlife Emphasis (488-176)

Take required Foundations courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 199	1
BIO 208	4
CHEM 105	4
CHEM 106	4
	13

Take these courses:	
AGTEC 286	3
AGTEC 486	3
BIO 225	3
BIO 302	4
BIO 303	2
BIO 352	3
BIO 362	3
BIO 375	3
BIO 379	3
BIO 423	3
BIO 475	3
MATH 221B	3
	36
Take 1 course:	
BIO 398	1-4
BIO 498R	1-4
	1

Take these courses:	
AS 215	4
BIO 307	3
BIO 312	4
BIO 351	3
BIO 360	3
BIO 390	2
BIO 392	2
BIO 445	3
BIO 446	3
BIO 447	3
	30

Program Notes:

Total Major Credits=80

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Plant and Wildlife Ecology
Fisheries Emphasis (488-177)

Take required Foundations courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 199	1
BIO 208	4
CHEM 105	4
CHEM 106	4
	13

Take these courses:	
AGTEC 286	3
AGTEC 486	3
BIO 225	3
BIO 302	4
BIO 303	2
BIO 352	3
BIO 362	3
BIO 375	3
BIO 379	3
BIO 423	3
BIO 475	3
MATH 221B	3
	36
Take 1 course:	
BIO 398	1-4
BIO 498R	1-4
	1

Take these courses:	
BIO 307	3
BIO 312	4
BIO 314	3
BIO 331	3
BIO 351	3
BIO 360	3
BIO 420	3
BIO 445	3
BIO 446	3
	28
Take 1 course:	
BIO 390	2
BIO 392	2
	2

Program Notes:

Total Major Credits=80

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Plant and Wildlife Ecology
Plant Biology Emphasis (488-178)

Take required Foundations courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 199	1
BIO 208	4
CHEM 105	4
CHEM 106	4
	13

Take these courses:	
AGTEC 286	3
AGTEC 486	3
BIO 225	3
BIO 302	4
BIO 303	2
BIO 352	3
BIO 362	3
BIO 375	3
BIO 379	3
BIO 423	3
BIO 475	3
MATH 221B	3
	36
Take 1 course:	
BIO 398	1-4
BIO 498R	1-4
	1

Take these courses:	
APS 220	3
APS 220L	1
APS 413	1
BIO 209	4
BIO 210	3
BIO 391	2
BIO 392	2
BIO 393	4
BIO 401R	1
BIO 408	4
CHEM 351	4
	29

Program Notes:

Total Major Credits=79

Additional Elective Credits Required for Graduation=1

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Plant and Wildlife Ecology
Range Emphasis(488-179)

Take required Foundations courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 199	1
BIO 208	4
CHEM 105	4
CHEM 106	4
	13

Take these courses:	
AGTEC 286	3
AGTEC 486	3
BIO 225	3
BIO 302	4
BIO 303	2
BIO 352	3
BIO 362	3
BIO 375	3
BIO 379	3
BIO 423	3
BIO 475	3
MATH 221B	3
	36
Take 1 course:	
BIO 398	1-4
BIO 498R	1-4
	1

Take these courses:	
APS 220	3
AGRON 425	3
AS 220	3
AS 360	4
BIO 210	3
BIO 325	3
BIO 351	3
BIO 455	3
BIO 466	3
	28
Take 1 course:	
BIO 390	2
BIO 392	2
	2

Program Notes:

Total Major Credits=80

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Plant and Wildlife Ecology
Ecology Emphasis (488-180)

Take required Foundations courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:

BIO 199	1
BIO 208	4
CHEM 105	4
CHEM 106	4
	13

Take these courses:

AGTEC 286	3
AGTEC 486	3
BIO 225	3
BIO 302	4
BIO 303	2
BIO 352	3
BIO 362	3
BIO 375	3
BIO 379	3
BIO 423	3
BIO 475	3
MATH 221B	3
	36

Take 1 course:

BIO 398	1-4
BIO 498R	1-4
	1

Take 1 course:

BIO 445	3
BIO 446	3
BIO 447	3
BIO 448	3
	3

Take these courses:

APS 220	3
APS 220L	1
BIO 210	3
BIO 351	3
BIO 392	2
BIO 393	4
BIO 408	4
BIO 420	3
CHEM 351	4
	27

Program Notes:

Total Major Credits=80

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology
Microbiology Emphasis (700-55)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:

BIO 180	4
BIO 199	1
CHEM 105	4
CHEM 106	4
	13

Take these courses:

BIO 375	3
BIO 475	3
MATH 221B	3
	9

Take 1 course:

BIO 398	1-4
BIO 497	3
BIO 498R	1-4
	1

Take these courses:

BIO 181	4
BIO 377	3
	7

Take these courses:

BIO 321	4
BIO 410	3
BIO 411	3
BIO 412	3
BIO 413	2
	15

Take 6 credits:

BIO 376	3
CHEM 481	3
CHEM 482	3
HS 370	3
	6

Program Notes:

Total Major Credits=51

Additional Elective Credits Required for Graduation - 29

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology
Neuroscience Emphasis (700-62)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 180	4
BIO 199	1
CHEM 105	4
CHEM 106	4
	13
Take these courses:	
BIO 375	3
BIO 475	3
MATH 221B	3
	9

Take 1 course:	
BIO 398	1-4
BIO 497	3
BIO 498R	1-4
	1
Take these courses:	
BIO 181	4
BIO 377	3
	7

Take these courses:	
BIO 240	4
BIO 461	5
BIO 485	4
	13

Take 9 credits:	
BIO 376	3
BIO 380	4
BIO 460	4
BIO 462	2
PSYCH 342	3
PSYCH 370	3
PSYCH 384	3
	9

Program Notes:

Total Major Credits=52

Additional Elective Credits Required for Graduation - 28

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology
Environmental Biology Emphasis (700-68)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 180	4
BIO 199	1
CHEM 105	4
CHEM 106	4
	13
Take these courses:	
BIO 375	3
BIO 475	3
MATH 221B	3
	9

Take 1 course:	
BIO 398	1-4
BIO 497	3
BIO 498R	1-4
	1
Take these courses:	
BIO 181	4
BIO 379	3
	7

Take these courses:	
BIO 250	4
BIO 302	4
BIO 423	3
CHEM 220	5
GEOG 230	3
	19
Take 6 credits:	
BIO 314	3
BIO 351	3
BIO 352	3
BIO 362	3
BIO 390	2
BIO 391	2
BIO 392	2
BIO 393	4
BIO 420	3
	6

Program Notes:

Total Major Credits=55

Additional Elective Credits Required for Graduation - 25

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology
Human Biology Emphasis (700-69)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 180	4
BIO 199	1
CHEM 105	4
CHEM 106	4
	13
Take these courses:	
BIO 375	3
BIO 475	3
MATH 221B	3
	9

Take 1 course:	
BIO 398	1-4
BIO 497	3
BIO 498R	1-4
	1
Take these courses:	
BIO 181	4
BIO 377	3
	7
Take these courses:	
BIO 460	4
BIO 461	5
	9

Take 10 credits:	
BIO 240	4
BIO 321	4
BIO 376	3
BIO 380	4
BIO 381	3
BIO 383	3
BIO 386	3
BIO 410	3
BIO 411	3
BIO 413	2
BIO 462	2
CHEM 481	3
ESS 375	3
HRHP 359	3
	10

Take 3 credits of any 400 level Biology Course	
BIO 4XX	3
	3

Program Notes:

Total Major Credits=52

Additional Elective Credits Required for Graduation - 28

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology
Biotechnology Emphasis (700-70)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Take these courses during your first 2 semesters:	
BIO 180	4
BIO 199	1
CHEM 105	4
CHEM 106	4
	13
Take these courses:	
BIO 375	3
BIO 475	3
MATH 221B	3
	9

Take 1 course:	
BIO 398	1-4
BIO 497	3
BIO 498R	1-4
	1
Take these courses:	
BIO 181	4
BIO 377	3
	7

Take these courses:	
BIO 321	4
BIO 376	3
CHEM 351	4
CHEM 481	3
	14
Take 8 credits:	
BIO 410	3
BIO 411	3
BIO 412	3
BIO 413	2
CHEM 220	5
	8

Program Notes:

Total Major Credits=52

Additional Elective Credits Required for Graduation - 28

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology
Zoology Emphasis (700-170)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Introduction to Biology Module
Take these courses during your first 2 semesters:

BIO 180	4
BIO 181	4
BIO 199	1
MATH 221B	3
	12

Science Module
Take these courses:

BIO 375	3
BIO 377	3
BIO 475	3
CHEM 105	4
CHEM 106	4
	17

Animal Diversity Module
Take this course:

BIO 204	4
	4

Take 9 credits:

BIO 312	4
BIO 331	3
BIO 445	3
BIO 446	3
BIO 447	3
BIO 448	3
	9

Enrichment Module
Take 9 credits:

BIO 208	4
BIO 209	4
BIO 302	4
BIO 312	4
BIO 314	3
BIO 331	3
BIO 362	3
BIO 380	4
BIO 381	3
BIO 383	3
BIO 401R	1
BIO 420	3
BIO 445	3
BIO 446	3
BIO 447	3
BIO 448	3
BIO 460	4
BIO 461	5
BIO 499R	1-6
	9

Internship
Take 1 course:

BIO 398	1-4
BIO 497	3
BIO 498R	1-4
	1

Program Notes:

Total Major Credits=52

Additional Elective Credits Required for Graduation - 28

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology Education (800)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Education Core
Take these courses:

ED 200	2
ED 304	3
ED 448	3
ED 461	3
ED 492	10
SPED 360	2
	23

Take these courses:

BIO 180	4
BIO 181	4
BIO 204	4
BIO 209	4
BIO 305	2
BIO 375	3
BIO 405	3
BIO 475	3
	27

Take 1 course:

BIO 250	4
BIO 302	4
	4

Take 1 course:

BIO 210	3
BIO 312	4
BIO 321	4
BIO 331	3
BIO 445	3
BIO 446	3
BIO 447	3
	3

Take 1 course:

BIO 377	3
BIO 378	2
	2

Program Notes:

Students in this education major are required to take a Science Education Minor (worth 20 credits) for graduation.

The possible Minors are: Natural Science Education (130), Chemistry Education (172), Physics Education (178), Earth Science Education (181), or Physical Science Education (182)

Once you have completed 24 university credit hours a hold will be placed on your registration until you speak with the Biology Education Program Director.

Total Major Credits=36

Education Core Credits=23

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

BS in Biology Education Composite (805)

Take required Foundation courses (40 credits)

Major Requirements

No Double Counting of Major Courses - No Grade Less Than C- in Major Courses

Education Core
Take these courses:

ED 200	2
ED 304	3
ED 448	3
ED 461	3
ED 492	10
SPED 360	2
	23

Take these courses:

BIO 180	4
BIO 181	4
BIO 204	4
BIO 209	4
BIO 221	3
BIO 222	1
BIO 230	4
BIO 302	4
BIO 303	2
BIO 305	2
BIO 375	3

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BIO 405	3
BIO 475	3
CHEM 105	4
CHEM 106	4
	49

Take 1 course:

BIO 377	3
BIO 378	2
	2

Take 1 course:

BIO 210	3
BIO 312	4
BIO 321	4
BIO 331	3
BIO 445	3
BIO 446	3
BIO 447	3
	3

Take 1 course:

BIO 376	3
MATH 221B	3
	3

Program Notes:

Once you have completed 24 university credits hours a hold will be placed on your registration until you speak with the Biology Education Program Director.

Total Major Credits=57

Education Core Credits=23

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

Natural Resources Minor (141)

Minor Requirements

No Double Counting of Minor Courses - No Grade Less Than C- in Major Courses

Take these courses:

BIO 302	4
BIO 351	3
BIO 352	3
BIO 362	3
BIO 423	3
	16

Take 6 credits:

APS 220	3
APS 220L	1
BIO 208	4
BIO 209	4
BIO 210	3
BIO 307	3
BIO 312	4
BIO 314	3
BIO 331	3

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BIO 379	3
BIO 390	2
BIO 391	2
BIO 392	2
BIO 393	4
BIO 408	4
BIO 420	3
BIO 446	3
BIO 447	3
GEOG 230	3
	6

Program Notes:

Total Minor Credits=22

This minor is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

Minor in Biology (143)

Minor Requirements

No Double Counting of Minor Courses - No Grade Less Than C- in Minor Courses

Take these courses:

BIO 208	4
BIO 302	4
	8

OR

Take these courses:

BIO 180	4
BIO 181	4
	8

Take 4 credits:

CHEM 101	3
CHEM 101L	1
OR	
CHEM 105	4
	4

Take 8 credits:

BIO 302	4
BIO 312	4
BIO 314	3
BIO 321	4
BIO 331	3
BIO 351	3
BIO 352	3
BIO 362	3
BIO 375	3
BIO 376	3
BIO 377	3
BIO 379	3

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BIO 380	4
BIO 390	2
BIO 391	2
BIO 392	2
BIO 393	4
BIO 408	4
BIO 410	3
BIO 411	3
BIO 412	3
BIO 413	2
BIO 420	3
BIO 423	3
BIO 446	3

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BIO 447	3
BIO 460	4
BIO 461	5
BIO 475	3
BIO 485	4
CHEM 481	3
	8

Program Notes:

Total Minor Credits=20

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

Minor in Biology Education (173)

Minor Requirements

No Double Counting of Minor Courses - No Grade Less Than C- in Minor Courses

Take these courses:

BIO 204	4
BIO 208	4
BIO 302	4
BIO 475	3
	15

Take 1 course:

BIO 209	4
BIO 210	3
	3

Take 1 course:

BIO 375	3
BIO 378	2
	2

Program Notes:

Students wishing to take this education minor are required to combine it with a Science Education Major for graduation.

The possible majors are:
Chemistry Education (810), Earth Science Education (870), or Physics Education (870).

Total Minor Credits=20

This major is available on the following tracks:

Fall-Winter---- YES Winter-Spring---- YES Spring-Fall---- YES

Biology Pre-approved Clusters

Pre-Veterinary			1100
Take these courses:			
BIO 221	General Microbiology	3	
BIO 222	General Microbiology Lab	1	
BIO 375	Genetics and Molecular Biology	3	
PH 105	Introductory Applied Physics 1	4	
Take 1 course:			
BIO 180	Introduction to Biology I	4	
BIO 208	General Botany	4	
	Total Credits	**15**	

Recreation Therapy (Recreation Management Majors)			1101
Take these courses:			
BIO 264	Anatomy and Physiology I	3	
BIO 264L	Anatomy and Physiology I Lab	1	
BIO 265	Anatomy and Physiology II	3	
BIO 265L	Anatomy and Physiology II Lab	1	
Take 4 credits:			
BIO 240	Neurobiology	4	
HS 280	Medical Terminology	2	
HS 349	Sports Medicine	3	
HS 349L	Sports Medicine Lab	1	
HS 351	Gerontology	2	
	Total Credits	**12**	

Natural Resource (Recreation Management Majors)			1102
Take this course:			
BIO 202	Natural Resource Management	4	
Take 9 credits:			
BIO 225	Range Ecology	3	
BIO 302	Ecology I	4	
BIO 307	Wildlife Law and Enforcement	3	
BIO 351	Principles Wildlife Management	3	
BIO 423	Natural Resource Policy	3	
GEOG 230	Introduction to GIS	3	
	Total Credits	**13**	

Neuroscience (Psychology Majors)			1103
Take these courses:			
BIO 240	Neurobiology	4	
BIO 485	Advanced Neuroscience	4	
Take 4 credits:			
BIO 180	Introduction to Biology I	4	
BIO 264	Anatomy and Physiology I	3	
BIO 264L	Anatomy and Physiology I Lab	1	
BIO 265	Anatomy and Physiology II	3	
BIO 265L	Anatomy and Physiology II Lab	1	
	Total Credits	**12**	

Biological Illustrations (Art Majors)			1104
Take these courses:			
BIO 208	General Botany	4	
BIO 460	Human Anatomy	4	
Take 7 credits:			
BIO 204	Vertebrate and Invertebrate Strategies	4	
BIO 209	An Evolutionary Survey of Plants	4	
BIO 210	Plant Systematics	3	
BIO 221	General Microbiology	3	
BIO 331	General Entomology	3	
BIO 380	Histology with Lab	4	
BIO 445	Ichthyology	3	
BIO 446	Ornithology	3	
BIO 447	Mammalogy	3	
	Total Credits	**15**	

Microbiology			1105
Take these courses:			
BIO 221	General Microbiology	3	
BIO 222	General Microbiology Lab	1	
OR			
BIO 321	Biology of Microorganisms	4	
Take 8-11 credits:			
BIO 410	Immunology	3	
BIO 411	Medical Microbiology	3	
BIO 412	Virology	3	
BIO 413	Advanced Microbiology Lab	2	
HS 370	Epidemiology	3	
	Total Credits	**12**	

Biotechnology/Forensics			1106
Take these courses:			
BIO 180	Introduction to Biology I	4	
BIO 375	Genetics and Molecular Biology	3	
BIO 377	Techniques in Biochemistry and Molecular Biology	3	
Take 1 course:			
BIO 376	Cell and Molecular Biology	3	
CHEM 481	Biochemistry I	3	
	Total Credits	**13**	

Health Professions Prerequisites			1107
Take 12-15 credits:			
BIO 180	Introduction to Biology I	4	
BIO 181	Introduction to Biology II	4	
BIO 221	General Microbiology	3	
BIO 222	General Microbiology Lab	1	
BIO 321	Biology of Microorganisms	4	
CHEM 105	General Chemistry I	4	
CHEM 106	General Chemistry II	4	
CHEM 351	Organic Chemistry I	4	
CHEM 352	Organic Chemistry II	4	
PH 105	Introduction to Applied Physics I	4	
PH 106	Introduction to Applied Physics II	4	
	Total Credits	**12**	

Pre-Profession			1200
Take these courses:			
BIO 180	Introduction to Biology I	4	
BIO 181	Introduction to Biology II	4	
Take 5-7 credits:			
BIO 375	Genetics and Molecular Biology	3	
BIO 376	Cell and Molecular Biology	3	
BIO 460	Human Anatomy with Lab	4	
BIO 461	Principles of Physiology	5	
CHEM 481	Biochemistry I	3	
	Total Credits	**13**	

Course Descriptions — Credits*

BIO 180 Introduction to Biology I (4:3:2)
Biology 180 is the first semester of a year-long Introduction to Biology course. It includes the areas of biological chemistry, cellular structure and function, and metabolism. There is a weekly lab in addition to the lecture. This course is a prerequisite for most other upper division courses in Biology.
(Winter, Spring, Fall)

BIO 181 Introduction to Biology II (4:3:2)
Course Fees: $10.00
Prerequisites: BIO 180
Bio 181 is the second semester of a year-long Introduction to Biology course. It includes the areas of classical genetics, molecular biology, ecology, and evolution. There is a weekly lab in addition to the lecture.
(Winter, Spring, Fall)

BIO 199 Biology Orientation (1:1:0)
The course will be divided into 6 modules as follows: 1: General Overview *Required for all students* 2: Ecology/Wildlife 3: Graduate Programs / Academic Careers 4: Pre-Professional Careers (med, dent, opt, vet, etc.) 5: Industry Careers (lab, pharmaceutical reps, etc.) 6: Allied Health (chiropractics, PA, OP, PT, etc.) Each student will be expected to attend all of Module 1: General Overview, then select three of the remaining five modules. Modules may be taught by different faculty members. Each module will have its own unique information pertinent to the topics covered and a set of requirements for those students who attend that module. These requirements may include reading assignments, reports, summary sheets or written papers.
(Winter, Spring, Fall)

BIO 202 Natural Resource Management (4:3:3)
Course Fees: $25.00
The management of natural resources such as wildlife, fisheries, forests, range, and recreational lands. The orientation of the course will be ecological with emphasis on economic principles, ecosystem interrelationships and current National Natural Resource Policy.
(Winter and Fall)

BIO 204 Invert/Vertebrate Zoology (4:3:3)
Course Fees: $10.00
Comparative organization and evolutionary significance of adaptive morphological, physiological, behavioral, reproductive and ecological differences in vertebrates and invertebrates.
(See Rotation Schedule on page 144)

BIO 208 General Botany (4:3:2)
Course Fees: $10.00
An introduction to Botany including cell structure/function, plant physiology, heredity, evolution, reproduction, plant anatomy. Lab is required.
(Winter, Spring, Fall)

BIO 209 An Evolutionary Survey of Plants (4:3:3)
Course Fees: $10.00
Prerequisite: BIO 208
An introduction and overview to the evolution, phylogeny, morphology, anatomy, and life history of various photosynthetic organisms, including cyanobacteria, archaea, protists, algae, and land plants, but also including some non-photosynthetic organisms traditionally considered plants, such as fungi, slimemolds, and watermolds.
(See Rotation Schedule on page 144)

BIO 210 Plant Systematics (3:2:3)
Course Fees: $20.00
Prerequisite: BIO 208
A basic course in vascular plant classification, systematics, and nomenclature, including a survey of common or important vascular plant families, with emphasis on flowering plants and the local flora. Students will also learn the skills necessary for plant identification.
(See Rotation Schedule on page 144)

BIO 221 General Microbiology (3:3:0)
In this course, students will study the microorganisms (especially bacteria and viruses), their metabolism and requirements for growth, the methods used to grow and study them, the disease processes caused by them, methods used to control their growth, and the immune response to infection and disease.
(Winter, Spring, Fall)

BIO 222 General Microbiology Lab (1:0:2)
Course Fees: $5.00
Co-requisite: BIO 221
In this course, students use the microscope to study different types of microorganisms and learn the methods used to grow, identify, and characterize them.
(Winter, Spring, Fall)

BIO 225 Range Management (3:3:0)
Subject material will focus on: rangeland management history, physical characteristics descriptions of rangelands, rangeland plant physiology, ecology, inventory, monitoring, stocking rates, grazing methods, wildlife livestock distribution, animal nutrition, multiple use management, livestock production on rangelands, rangeland wildlife and manipulation of range vegetation.
(Winter, Spring, Fall)

BIO 230 Human Biology (4:3:2)
Course Fees: $10.00
An introductory course in human anatomy and physiology for non-science and non-health professions majors.
(See Rotation Schedule on page 144)

BIO 240 Neurobiology (4:3:2)
This is an introductory course in Neuroscience. It covers the elements of Neurobiology by providing an introduction to the nervous system; examines cellular communication, sensory, motor and integrating systems, such as, the neural basis of behavior; and explores the plasticity of neural systems in learning, during development and via hormonal influences.
(See Rotation Schedule on page 144)

BIO 250 Environmental Biology with Lab (4:3:2)
This course will use basic ecological principles to examine environmental issues. The environmental issues range from local to global and include direct and indirect human impact on ecosystems. This class includes a 2 hour lab (Bio 250L) to allow hands on understanding of what is covered in lecture.
(See Rotation Schedule on page 144)

BIO 250L Environmental Biology Lab (1:0:2)
Selected experiments dealing with possible human impact on the ecosystems.

BIO 264 Human Anatomy and Physiology I (3:3:0)
First part of a two semester course to prepare students for further study in the health and medical fields. Specifically designed for students of nursing and the allied health professions. Includes basic biochemistry, structure and function of the cell, tissues, skeleton, muscles and nervous systems of the body. Not acceptable for biology major credit.
(Winter, Spring, Fall)

BIO 264L Human Anatomy and Physiology I Lab (1:0:2)
Course Fees: $10.00
Bio 264 L is the laboratory accompaniment of the first part of a two-semester course studying the anatomy and physiology of the human body. While the lecture mainly focuses on physiology, most of the anatomical learning occurs in this lab. The course is designed for students of nursing and the allied health professions. Students wishing to apply to the nursing program must complete both the lecture and lab components. This course is not acceptable for biology major credit. (These students should take Bio 460 and 461 instead of 264 and 265.)
(Winter, Spring, Fall)

BIO 265 Human Anatomy and Physiology II (3:3:0)
Prerequisite: BIO 264
Second part of a two-semester course to prepare students for further study in the health and medical fields. Specifically designed for students of nursing and the allied health professions. Includes structure and function of the senses, circulatory, lymphatic, respiratory, urinary, digestive, endocrine and reproductive systems. Not acceptable for biology major credit.
(Winter, Spring, Fall)

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)

BIO 265L Human Anatomy and Physiology II Lab (1:0:2)
Course Fees: $10.00
Bio 265 L is the laboratory accompaniment of the second part of a two-semester course studying the anatomy and physiology of the human body. The course is designed for students of nursing and the allied health professions. Students wishing to apply to the nursing program must complete both the lecture and lab components. This course is not acceptable for biology major credit. (These students should take Bio 460 and 461 instead of 264 and 265.)
(Winter, Spring, Fall)

BIO 302 Ecology I (4:3:3)
Course Fees: $25.00
Prerequisites: BIO 208 or BIO 181
An introduction to Ecology including climates and distribution of life, adaptations of life to environmental conditions, life history characteristics, population characteristics, competition, predation and parasitism. Lab is required.
(Winter, Spring, Fall)

BIO 303 Ecology II (2:2:0)
Prerequisite: BIO 302
A continued introduction to Ecology including energy and nutrient cycling, community composition, succession, ecosystem function, distribution and characterisitics of major biomes.
(See Rotation Schedule on page 144)

BIO 305 Science Teaching Principles (2:1:2)
Prerequisites: All Education 200 level courses, BIO 204, BIO 208, and BIO 221; and BIO 209 or BIO 210
This class is designed to be taken in the 1st semester of the junior year. Students in this class receive experience in lesson preparation and teaching of general biology topics to non-majors biology students. This class is based on a mix of classroom discussion on various aspects of science teaching, and preparation and execution of mentor-directed teaching experiences.
(See Rotation Schedule on page 144)

BIO 307 Wildlife Law and Enforcement (3:3:0)
In-depth analysis of legal mandates, (Federal and State) from a resource protection paradigm. Review of environmental law and evidence collection in relation to the atmosphere associated with the judicial system. Description of field techniques for evidence collection, case investigation and arrest.
(See Rotation Schedule on page 144)

BIO 311 Professional School Preparation (1:1:0)
The goal of this class is to familiarize students with the principles of effective scientific communication. We will cover areas of scientific communication that students will need to know to be successful in their careers. Students will learn the basic rules of word, grammar, and punctuation usage; as well as an approach to the style of writing. They will then apply these principles when writing papers, reports, resumes; and when preparing scientific presentations and posters.
(See Rotation Schedule on page 144)

BIO 312 Invertebrate Zoology (4:3:3)
Course Fees: $10.00
Prerequisites: BIO 181, BIO 204, or BIO 302
An introduction to the diversity, anatomy, physiology, ecology, and evolution of invertebrate animals.
(See Rotation Schedule on page 144)

BIO 314 Marine Biology (3:3:0)
Prerequisites: BIO 302 or BIO 181
An introduction to the ecology, diversity, structure, and function of marine communities.
(See Rotation Schedule on page 144)

BIO 321 Biology of Microorganisms (4:3:2)
Course Fees: $10.00
Prerequisite: BIO 208
Concurrent requisite: BIO 181
The topics covered will include microbial diversity, the methods used to study microorganisms, microbial metabolism and genetics, the role of microorganism in causing disease, the immune response, the methods used to control microorganisms, and the use of microorganisms by man.
(Winter, Spring, Fall)

BIO 325 Range Ecology Systems Management (3:3:0)
Areas of discussion include pasture lay out, fence design, water systems, herding effect, grazing systems, leasing, permits, BLM, state ground, private ground, lease ground, forage estimates, photosynthesis, energy store, tools of land management, drought management.
(See Rotation Schedule on page 144)

BIO 331 General Entomology (3:2:3)
Course Fees: $10.00
An introduction to Entomology with lectures and laboratories on insect structure, development, classification, behavior and control. An insect collection and fieldwork are required.
(See Rotation Schedule on page 144)

BIO 351 Principles Wildlife Management (3:3:0)
Course Fees: $15.00
Introduces students to the art and science of wildlife management. This course will provide a foundation course from which students who major in Ecology and Wildlife may build a successful collegiate experience and professional career. It will also provide insight into the wildlife discipline for non-wildlife majors.
((See Rotation Schedule on page 144)

BIO 352 Wildland Ecology and Range Plants (3:2:2)
Course Fees: $50.00
This course requires identification of some 200 species from the intermountain area of the west. Successful students will be able to identify mounted specimens by common, scientific, and family names. Species are taken from a variety of habitats. Manditory fieldtrip.
(See Rotation Schedule on page 144)

BIO 360 Principles of Fish Management (3:3:0)
Course Fees: $10.00
Prerequisite: BIO 302
Introduces students to the science of fisheries management and demonstrate how fishery biology principles and methods are applied to management of recreational and commercial fisheries.
(See Rotation Schedule on page 144)

BIO 362 Stream Ecology (3:2:2)
Course Fees: $25.00
Prerequisites: BIO 181 or BIO 302
An in-depth examination of riparian ecology. Emphasis is placed on the structure and function of running waters. Links to terrestrial and riparian components of applicable ecosystems will be investigated. The political issues that impinge on water issues are explored.
(See Rotation Schedule on page 144)

BIO 375 Genetics and Molecular Biology (3:3:0)
Prerequisites: BIO 208 or BIO 181
An investigation of the transmission of heritable material in prokaryotes and eukaryotes. Topics include classical genetics (patterns of inheritance, linkage and chromosome mapping), molecular biology (DNA structure and function, gene expression, biotechnology), and population genetics.
(Winter, Spring, Fall)

BIO 376 Cell and Molecular Biology (3:3:0)
Prerequisites: BIO 181 or BIO 302
Principles, processes and methodology of molecular and cell biology. Interactions at the cellular level including: structure and function of membranes, organelles and cytoskeletal elements, energy metabolism, signal transduction, cell cycle, cell-cell communication and cellular movement.
(See Rotation Schedule on page 144)

BIO 377 Biochemistry and Molecular Biology (3:0:6)
Course Fees: $50.00
Prerequisites: BIO 208 or BIO 181
Biology 377 is a comprehensive laboratory course designed to familiarize students with essential laboratory techniques in molecular biology, cellular biology, genetics, and biochemistry. The course topics demand a rigorous but rewarding schedule that enables students to follow several multi-session projects from start to finish. Students successfully completing the course will find they have most of the skills necessary to work as an entry level laboratory technician.
(Winter, Spring, Fall)

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)

BIO 378 Technology in Biochemistry and Molecular Biology (2:0:6)
Course Fees: $50.00
Prerequisites: BIO 208 or BIO 181
BIO 378 is a 10 week comprehensive laboratory course designed to familiarize students with essential laboratory techniques in molecular biology, genetics, and biochemistry. The course topics demand a rigorous but rewarding schedule that enables students to follow several multi-session projects from start to finish.
(Winter, Spring, Fall)

BIO 379 Range and Wildlife Analysis (3:0:6)
Course Fees: $40.00
Prerequisites: MATH 221A or MATH 221B; and BIO 181 or BIO 302)
Laboratory course designed to familiarize students with essential laboratory and field techniques in ecology and natural resource based fields.
(See Rotation Schedule on page 144)

BIO 380 Histology with Lab (4:3:3)
Course Fees: $50.00
Prerequisites: BIO 264 and BIO 265; or BIO 181
Microscopic anatomy of cells and tissues and their relationship to the function of the cell.
(See Rotation Schedule on page 144)

BIO 381 Pathophysiology (3:3:0)
Prerequisites: CHEM 101; and one of the following: BIO 264 and BIO 265; or BIO 461
A study of the derangement of function of the body seen in disease states.
(See Rotation Schedule on page 144)

BIO 383 Human Embryology (3:3:0)
Prerequisites: BIO 265 or BIO 180
This course is intended to provide a foundation of understanding for the processes involved in creating gametes and their participation in the process of conception. A discussion will then continue to discover the processes important in the development of a fully formed and functional fetus. This course will examine the cellular and morphological development of most of the major human body systems. The study of human embryology is important to provide a logical framework for understanding structure and function in the study of anatomy and physiology.
(See Rotation Schedule on page 144)

BIO 386 Pharmacology (3:3:0)
Prerequisites: BIO 264 and BIO 265; or BIO 461
This course is designed to help Biology students understand the basic principles of pharmacokinetics, pharmacodynamics and the clinical application of drugs. The mechanisms of drug action are emphasized to correlate physiological and pharmacological principles.
(See Rotation Schedule on page 144)

BIO 390 Fire Ecology (2:2:0)
Prerequisite: BIO 302
This course will focus on fire history, safety, terms, behavior, current and past polices, general effects of fire on soils, watersheds, and animal and plant communities.
(See Rotation Schedule on page 144)

BIO 391 Weed Ecology (2:0:0)
Prerequisite: BIO 302
This course will evaluate the ecological and economic impacts of invasive species in a variety of habitats. What governs their invasions and treatment feasibility.
(See Rotation Schedule on page 144)

BIO 392 Range and Wildland Restoration (2:2:0)
Prerequisite: BIO 302
Restoration ecology is the study of the restoration of degraded and damaged ecosystems. This class will examine the current state of knowledge in this area through case studies and project design/implementation.
(See Rotation Schedule on page 144)

BIO 393 Range and Wildland Plant Ecology (4:3:2)
Prerequisite: BIO 302
The purpose of this course is to elaborate on information gained in ecology (Bio 302). We will explore plants' complex interactions with their environments, looking often to adaptations which enable species to exploit particular ecological niches. Understanding such interactions will require the incorporation of concepts drawn from various other fields including: geology, chemistry, climatology, and mathematics.
(See Rotation Schedule on page 144)

BIO 398 Natural Resource Internship (1-4:0:0)
This course is designed to award university credit for occupational training-based internships in any biomedical or ecological field. This course is meant for students engaged in operational duties of a facility. Students wishing to engage in research-based internship training are encouraged to enroll in the department's research internship (Bio 498R).
(Winter, Spring, Fall)

BIO 401R Readings in Biology (1:1:0)
Repeatable Course: may earn maximum of 3 credits
Selected readings in biology.
(Winter, Spring, Fall)

BIO 405 Biology Teaching Methods (3:2:3)
Course Fees: $10.00
Prerequisites: BIO 305, ED 304, and ED 361
General science teaching methods needed for certification in secondary education in the field of biology are taught. The course focuses on classroom and laboratory techniques specific to science teaching. Practical experience in teaching laboratories, lectures and demonstrations will be emphasized. Students will build a science unit which demonstrates their understanding and application of inquiry and the use of a multitude of other teaching, learning, and assessment strategies.
(See Rotation Schedule on page 144)

BIO 408 Advanced Botany (4:3:3)
Course Fees: $15.00
Prerequisite: BIO 208
This course covers advanced topics in plant structure and function. Advanced concepts in plant morphology, anatomy, and physiology. Previous or concurrent enrollment in organic chemistry is required.
(See Rotation Schedule on page 144)

BIO 410 Immunology (3:3:0)
Course Fees: $25.00
Prerequisite: BIO 321
An introduction to the functions of the cells and proteins that make up the immune system of the body. The topics that will be discussed include innate immunity, structure and function of immune system molecules, the genetics of the immune system, lymphocyte development and activation, failure of immunity, and immune system diseases.
(See Rotation Schedule on page 144)

BIO 411 Medical Microbiology (3:3:0)
Course Fees: $25.00
Prerequisite: BIO 321
Medical microbiology includes the study of bacteriology, mycology, and virology. The major areas of emphasis will focus on host-parasitic interactions between humans and bacteria. Paradigms in bacterial virulence factors will be stressed.
(See Rotation Schedule on page 144)

BIO 412 Virology (3:3:0)
Course Fees: $25.00
Prerequisite: BIO 321
An introductory course on viruses that explores the characteristics common to all viruses. Particular emphasis will be placed on the replication strategies used by various animal viruses as well as the interactions between these viruses and the host cells they infect.
(See Rotation Schedule on page 144)

BIO 413 Advanced Microbiology Lab (2:0:4)
Prerequisite: BIO 321
This course is a comprehensive laboratory experience designed to familiarize students with the essential and commonly practiced techniques in the field of microbiology. Topics include microbial culturing, staining, and detection through biochemical, fluorescent, and serological methods, as well as experience with animal tissue culture. Students will learn and practice common technical procedures that apply to a variety of molecular and microbiological laboratory settings. Students will develop proficiency in experimental design, aseptic technique, data analysis, record-keeping, and scientific writing.
(Winter, Spring, Fall)

BIO 420 Principles of Limnology (3:3:0)
Prerequisites: BIO 302 or BIO 181
An introduction to the physical, chemical, and biological aspects of inland water systems, with a particular focus on lakes, ponds, and reservoirs.
(See Rotation Schedule on page 144)

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)

BIO 423 Natural Resource Policy (3:3:0)
Course Fees: $10.00
Introduction to theory, processes, and techniques for the management of natural resources.Emphasis on ecological processes and public policy issues.
(See Rotation Schedule on page 144)

BIO 445 Ichthyology (3:2:2)
Course Fees: $25.00
Prerequisites: BIO 302 or BIO 181
A study of the biology of fishes.
(See Rotation Schedule on page 144)

BIO 446 Ornithology (3:2:2)
Course Fees: $25.00
Prerequisites: BIO 208 or BIO 181
An in-depth study of avian (bird) biology including evolutionary history, systematics, anatomy, physiology, behavior and reproduction. Lab is required.
(See Rotation Schedule on page 144)

BIO 447 Mammalogy (3:2:2)
Course Fees: $25.00
Prerequisites: BIO 208 or BIO 181
A study of mammalian diversity, systematics, evolution, morphology, distribution, and natural history. At least one field trip is required.
(See Rotation Schedule on page 144)

BIO 448 Insect Systematics (3:2:3)
Prerequisite: BIO 331
This is an advanced course that will cover the diversity of insect biology and structure with an emphasis on the identification of adults. It will include coverage of speciation, evolutionary relationships, approaches to classification, nomenclature, zoogeography and techniques of collection. One extended camping field trip is required.
(See Rotation Schedule on page 144)

BIO 455 Rangeland Inventory/Analysis Lab (3:2:2)
Course Fees: $20.00
Prerequisite: BIO 225
Rangeland ecology and vegetation measurements including condition, trend, utilization, suitability and production.
(See Rotation Schedule on page 144)

BIO 460 Human Anatomy with Lab (4:3:2)
Prerequisite: BIO 181 or Instructor Authorization
Regional human anatomy for Biology Majors. Comprehensive regional study of gross human anatomy with emphasis on the limbs, and the thoracic, abdominal and pelvic cavities.
(Winter, Spring, Fall)

BIO 461 Principles of Physiology (5:4:3)
Course Fees: $15.00
Prerequisites: BIO 181; and BIO 180 or BIO 208 or Instructor Authorization
In-depth coverage of general physiologic principles and homeostatic mechanisms regulating human organ system function.
(Winter, Spring, Fall)

BIO 462 Head and Neck Anatomy (2:1:3)
Course Fees: $20.00
Prerequisites: BIO 264 or BIO 460
Anatomy of the human head and neck for Biology Majors. Comprehensive, in depth study of the development, organization and relationships of the anatomical structures of the head and neck. The lecture component of the course introduces the content, while the lab allows the opportunity to study the regions of interest from models, atlases and from dissected cadavers.
(See Rotation Schedule on page 144)

BIO 466 Rangeland Vegetation Improvement (3:3:0)
Prerequisite: BIO 225
Rangeland habitat improvement by manipulating plant communities. Techniques include: prescribed fire, biological control, herbicide treatments, mechanical treatments and manipulation by herbivory. Economic considerations of these techniques are investigated.
(See Rotation Schedule on page 144)

BIO 475 Evolutionary Science (3:2:2)
Prerequisites: BIO 375 and BIO 181 or BIO 208
Basic Darwinian evolution and the history of evolutionary thought is presented. Includes the study of the scientific processes through with both microevolution and macroevolution occur, the history of life on earth, phylogenetics, cladistics, molecular evolution, sexual selection, population genetics, and rates of evolution.
(Winter, Spring, Fall)

BIO 485 Advanced Neuroscience (4:3:3)
Course Fees: $20.00
Prerequisite: BIO 240
Fundamentals of Neuroscience covering neuroanatomy, cellular and molecular neuroscience, development of the nervous system, sensory systems, motor systems, regulatory systems and behavioral and cognitive neuroscience. The associated lab offers students the chance to perform hands-on experiments involving modern neuroscience techniques using state-of-the-art equipment and protocols.
(See Rotation Schedule on page 144)

BIO 490 Special Problems (1-3:0:0)
Repeatable Course: may earn maximum of 6 credits
Determined by consultation with a faculty mentor.
(Winter, Spring, Fall)

BIO 497 Senior Seminar (3:3:0)
Prerequisites: BIO 302 and BIO 181
A capstone course in which participants discuss topics related to the practice of scientific writing. Each participant produces a written review paper or research proposal, and other relevant support documents such as a letter of application and a curriculum vitae.
(Winter, Spring, Fall)

BIO 498R Research/Occupational Internship (1-4:0:0)
Repeatable Course: may earn maximum of 8 credits
This course is designed to award university credit for research-based internships in any biomedical or ecological field. This course is meant for students engaged in laboratory or field research. Students wishing to engage in occupational training (ie. working in a doctor's office) are encouraged to enroll in the department's occupational internship (BIO 398).
(Winter, Spring, Fall)

BIO 499R Undergraduate Research (1-6:0:0)
This course is designed to award University credit for student mentored research on the BYU-I campus by a faculty member in the Biology Department.
(Winter, Spring, Fall)

* Credit Description (Credit Hours : Lecture Hours per week : Lab Hours per week)

Biology Course Rotation Schedule

Some classes will not appear in this rotation schedule because they are offered **every** semester.

Class	Fall 14	Win 15	Spr 15	Fall 15	Win 16	Spr 16	Fall 16
Bio 204		X		X		X	
Bio 209	X	X			X		X
Bio 210			X	X		X	
Bio 230	X		X		X		X
Bio 240	X		X		X		X
Bio 250		X		X		X	
Bio 303	X		X		X		X
Bio 305	X	X		X	X		X
Bio 307	X		X		X		X
Bio 311	X		X		X		X
Bio 312		X		X		X	
Bio 314			X		X		X
Bio 325		X		X		X	
Bio 331	X		X	X		X	X
Bio 351		X		X		X	
Bio 352		X		X		X	
Bio 360	X		X		X		X
Bio 362		X		X		X	
Bio 376	X		X		X		X
Bio 379	X		X	X		X	X
Bio 380		X		X		X	
Bio 381	X	X		X	X		X
Bio 383	X		X		X		X
Bio 386	X		X		X		X
Bio 390			X		X		X
Bio 391		X		X		X	
Bio 392		X		X		X	
Bio 393	X		X		X		X
Bio 405		X	X		X	X	
Bio 408		X		X		X	
Bio 410	X		X	X		X	X
Bio 411	X	X		X	X		X
Bio 412		X	X		X	X	
Bio 420	X			X		X	
Bio 423		X	X		X		X
Bio 445		X		X		X	
Bio 446		X		X		X	
Bio 447	X		X		X		X
Bio 448				X			
Bio 455	X		X				
Bio 462		X		X			
Bio 466	X		X		X		X
Bio 485		X		X		X	

Although unforeseen circumstances may result in occasional changes to this schedule, we will make every attempt to adhere to it.