BIOLOGY - FIELD ECOLOGY

Bachelor of Science - Biology; Field Ecology Concentration

College Humanities & Sciences

Degree Specific Credits: 69

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: The Field Ecology Concentration is for students interested in field-based ecology. Students with this concentration spend one or two summers taking field courses at the Flathead Lake Biological Station (http://flbs.umt.edu) . This concentration is a graduate prep program, and is for students interested in academia or employment at a governmental, private or non-profit agency.

General Education Requirements

Information regarding these requirements can be found in the General Education Section (http://catalog.umt.edu/academics/general-education-requirements) of the catalog.

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Chemistry	
Physics	
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Total Hours	77-98

Biology/Microbiology Lower Division Core

Rule: All of the following courses are required.

Note: The lower division core should be completed before attempting most upper division major courses.

AP Biology credit may be substituted for either BIOB 160N/BIOB 161N or BIOB 170N/BIOB 171N.

BIOB 160N	Principles of Living Systems	3
BIOB 161N	Prncpls of Living Systems Lab	1
BIOB 170N	Princpls Biological Diversity	3
BIOB 171N	Princpls Biological Dvrsty Lab	2
BIOB 260	Cellular and Molecular Biology	4
BIOB 272	Genetics and Evolution	4
Total Hours		17

Minimum Required Grade: C-

Upper Division Core Courses Required for the Field Ecology Concentration

Select one of the following:		5
BIOE 342	Field Ecology (at Flathead Lake Biological Station)	
BIOE 370 & BIOE 371	General Ecology and Gen Ecology Lab (equiv to 271)	
Total Hours		5

Minimum Required Grade: C-

Additional Upper Division Major Courses Required for the Field Ecology Concentration

Rule: Complete a minimum of 8 credits of Upper Division Biology or Microbiology, with at least one course from each subcategory

Minimum Required Grade: C-

8 Total Credits Required

Evolution Course Requirement

Rule: Complete at least one evolutionary biology course from the following list

Select at least one of the following:		3
BIOB 480	Conservation Genetics	
BIOB 483	Phylogenics and Evolution	
BIOB 486	Genomics	
BIOE 406	Behavior & Evolution	
BIOL 484	Plant Evolution	
Total Hours		3

Minimum Required Grade: C-

-Ology Course Requirement

Select at least one of the following:		3-5
BIOM 360 & BIOM 361	General Microbiology and General Microbiology Lab (equiv to 260)	
BIOM 427 & BIOM 428	General Parasitology and General Parasitology Lab	
BIOO 320	General Botany	
BIOO 335	Rocky Mountain Flora	
BIOO 340	Biology and Mgmnt of Fishes	
BIOO 462	Entomology	
BIOO 470	Ornithology	
BIOO 475	Mammalogy	
Total Hours		3-5

Minimum Required Grade: C-

Ecology Requirement at the Flathead Lake Biological Station

Rule: Complete either the Aquatic Emphasis or the Terrestrial Emphasis

Minimum Required Grade: C-

Aquatic Emphasis

Rule: All of the following courses are required for the Aquatic Emphasis

BIOE 439	Stream Ecology	3
BIOE 440	Conservation Ecology	3
BIOE 451	Landscape Ecology	3
BIOE 453	Ecology of Small & Large Lakes	3
BIOL 492	Seminars in Ecol & Res Man	1
Total Hours		13

Minimum Required Grade: C-

Terrestrial Emphasis

Rule: All of the following courses are required for the Terrestrial Emphasis

BIOE 416	Alpine Ecology	3
BIOE 440	Conservation Ecology	3
BIOE 451	Landscape Ecology	3
BIOE 458	Forest and Grassland Ecol	3
BIOL 492	Seminars in Ecol & Res Man	1
Total Hours		13

Minimum Required Grade: C-

Required Courses Outside of the Major

Minimum Required Grade: C-

Mathematics - Calculus

Rule: Required

M 162	Applied Calculus	4
or M 171	Calculus I	
Total Hours		4

Minimum Required Grade: C-

Mathematics - Statistics

Select either one semester or a full year of statistics from the following:		4-8
One Semester:		
STAT 216	Introduction to Statistics	
Full Year:		
STAT 451 & STAT 452	Statistical Methods I and Statistical Methods II	
STAT 457 & STAT 458	Computer Data Analysis I and Computer Data Analysis II	
Total Hours		4-8

Minimum Required Grade: C-

Chemistry

Select either one or two years of chemistry from the following:		8-20
One Year:		
CHMY 121N	Introduction to General Chemistry	
CHMY 123 & CHMY 124	Introduction to Organic and Biochemistry and Introduction to Organic and Biochemistry Lab	
Two Years:		
CHMY 141N	College Chemistry I	
CHMY 142N	College Chemistry I Lab	
CHMY 143N	College Chemistry II	
CHMY 144N	College Chemistry II Lab	
CHMY 221 & CHMY 222	Organic Chemistry I and Organic Chemistry I Lab	
CHMY 223 & CHMY 224	Organic Chemistry II and Organic Chemistry II Lab	
Total Hours		8-20

Minimum Required Grade: C-

Physics

Select one of the following physics sequences:		10
Algebra- and Trigonometry-based:		
PHSX 205N & PHSX 206N	College Physics I and College Physics I Laboratory	
PHSX 207N & PHSX 208N	College Physics II and College Physics II Laboratory	
Calculus-based:		
PHSX 215N & PHSX 216N	Fund of Physics w/Calc I and Physics Laboratory I w/Calc	
PHSX 217N & PHSX 218N	Fund of Physics w/Calc II and Physics Laboratory II w/Calc	
Total Hours		10

Minimum Required Grade: C-

Advanced College Writing Requirement

Rule: Complete the equivalent of a full writing course (either three 1/3 writing courses or one 2/3 writing course + one 1/3 writing course or one complete writing course)

Note: To meet the Advanced College Writing Requirement, Biology students take 2 or 3 partial writing courses (either three 1/3 writing courses or one 1/3 writing course and one 2/3 writing course) or one complete writing course. The Field Ecology concentration requires BIOE 371 or BIOE 342 (both 2/3 writing courses). The Advanced College Writing Requirement is completed with one additional course, chosen from any of the following.

Minimum Required Grade: C-

1/3 Advanced Writing Courses

BCH 482	Advanced Biochemistry II	3
BIOB 410	Immunology	3
BIOB 425	Adv Cell & Molecular Biology	3
BIOB 483	Phylogenics and Evolution	3
BIOE 403	Vert Design & Evolution	5

BIOE 409	Behavior & Evolution Discussion	1
BIOE 428	Freshwater Ecology	5
BIOL 484	Plant Evolution	3
BIOM 402	Medical Bacteriology& Mycology	3
BIOO 320	General Botany	5
BIOO 434	Plant Physiology Lab	1
BIOO 470	Ornithology	4
BIOO 475	Mammalogy	4

Minimum Required Grade: C-

2/3 Advanced Writing Courses

BCH 486	Biochemistry Research Lab	3
BCH 499	Senior Thesis/Capstone	3-6
BIOB 411	Immunology Laboratory	2
BIOB 499	Undergraduate Thesis	3-6
BIOE 342	Field Ecology	5
BIOE 371	Gen Ecology Lab (equiv to 271)	2
BIOM 411	Exprmntl Microbial Genetcs Lab	1
BIOM 499	Undergraduate Thesis	3-6

Minimum Required Grade: C-

Complete Advanced Writing Course

BIOH 462	Principles Medical Physiology	3

Exception to the Modern/Classical Languages Requirement

Rule: Choose one of the following Math courses

Note: The Division of Biological Sciences has been granted an exception to the Modern/Classical Language Requirement. Either of these Calculus courses (required by the major) will satisfy this requirement.

M 162	Applied Calculus	4
or M 171	Calculus I	
Total Hours		4

Minimum Required Grade: C-