

Biology

Checklist for Discovery, Biology Core and Major Requirements

Discovery Requirements

Category	Course	Semester	Credits	Grade
Writing	ENGL 401		4	
Quantitative Reasoning	BIOL 528 ¹		4	
Biological Sciences ²	BIOL 412		4	
Physical Sciences ²	PHYS 401		4	
Fine and Performing Arts				
Humanities				
Historical Perspectives				
World Cultures				
Social Science				
Env. Tech. and Society ³				
Inquiry ²	BIOL 412		4	
Capstone ⁴				

¹Or BIOL 555 Experimental Design & Analysis Lab

²These Discovery requirements are fulfilled by Biological Sciences Core courses.

³A few of these courses can also be used for BIOL electives

⁴Capstone Course should be fulfilled by a major requirement

Biology Core Requirements

(All Core courses except CHEM, MATH and PHYS must be completed with a grade of C- or better, except 1st semester BIO) *Prior to Dec 2014)*

Course	Semester	Credits	Grade
BIOL 400		1	
BIOL 412		4	
BIOL 411		4	
BIOL 528 or BIOL 555		4	
BIOL 541		4	
BMCB 658/659		5	
BMS 503		5	
CHEM 403		4	
CHEM 404		4	
CHEM 545/546		5	
GEN 604		4	
MATH 424B		4	
PHYS 401		4	
PHYS 402		4	
		56	

Biology Major Requirements

(Take 7 courses. One each from Categories I, II & III)

(Selection must include 1 plant and 1 animal course)

(All 7 courses must be completed with a grade of C- or better)

	Course	Semester	Credits	Grade
Category I.				
Form & Function				
(Take at least 1 course)				
Category II.				
Genetics & Development				
(Take at least 1 course)				
Category III.				
Ecology, Evolution & Biodiversity				
(Take at least 1 course)				
Biology Electives				
(Take minimum of 4 courses dealing with the biological sciences at 500 or higher level)				

Optional Courses for professional schools

Course	Instead of	Credits	Grade
CHEM 651/653	CHEM 545	5	
CHEM 652/654	free elective	5	
ENGL 501 or other	free elective	4	
(PA school only below)			
PSYC 402	BIOL 528		
BMS 507	category 1	PA school	
BMS 508	category 1	PA school	

Writing Intensive

4 courses must be writing intensive (WI). The WI course-in-major requirement is satisfied by BIOL 541

Course	Semester	Credits	Grade
ENGL 401		4	
BIOL 541		4	
600-level or above			
Elective			

Minor (if any): _____

Biology BS Degree Requirements

In addition to the Discovery and Biology Core Requirements, Biology BS majors must choose a minimum of 7 courses in the biological sciences. Three of the 7 courses must be selected from those listed in the three categories below, with a minimum of one course chosen from each category; the other four may be chosen from those listed in the categories or can be any other biological science course with approval of the student's advisor. At least 1 plant course (marked P below) and 1 animal course (marked with A below) must be taken. At least two of these must be courses with labs. Co-requisite lecture and lab courses count as one course. All UNH students must take 4 writing intensive (WI) courses, and one must be in their major. Courses marked (SML) are offered only during summer at the Shoals Marine Lab. Courses taught alternate years are indicated by an asterisk.

One 600, 795, or 796 experience totaling 3 or more credits or any two 795-796 experiences of 2 credits each can fulfill one course requirement in any category with advisor's approval. A Petition for Academic Variance approved by the advisor and Chair of the Department of Biological Sciences is required to count 795-796 experiences for more than one major required course.

Category 1. Form and Function (Morphology, Anatomy and Physiology)

Course	Lab	Credits	Course	Lab	Credits
ANSC 511 Anatomy and Physiology (A)	Y	4	PBIO 709 Plant Stress Physiology (P)*	N	3
ANSC 512 Anatomy and Physiology (A)	Y	4	PBIO 713 Biochemistry of Photosynthesis (P)*	N	4
ANSC 701 Reproductive Physiology (A)	N	4	PBIO 727 Algal Physiology (P)*	N	3
BIOL 601 Biology of Plants (P)	N	4	PBIO 758 Plant Anatomy (P)*	Y	5
BIOL 702 Tech in Plant Phys&Biochem (P)(C)	Y	4	ZOOL 518 Vertebrate Morphology (A)	Y	5
BMS 507 Human Anat & Phys (A) (PA school)	Y	4	ZOOL 625 Principles of Animal Physiology (A)	N	3
BMS 508 Human Anat & Phys (A) (PA school)	Y	4	ZOOL 773 Fish Physiology (A)	N	4
BMS 602 Pathogenic Microbiology	Y	4	ZOOL 777 Neurobiology and Behavior (A)	N	4
BMS 702 Endocrinology (A)	N	4	BioSM 1650 Whales, Seals and Sharks (A, SML)	Y	3
BMS 718 Mammalian Physiology (A)	N	4	MEFB 754 Anat&Func of Marine Verts (A, SML)	Y	3
PBIO 701 Plant Physiology (P)	N	3			

Category 2. Genetics/Development (including molecular biology and bioinformatics)

Course	Lab	Credits	Course	Lab	Credits
BMCB 605 Eukary. Cell and Develop. Biol.	Y	4	GEN 753 Cytogenetics*	Y	4
GEN 704 Genetics of Prokaryotes	N	5	GEN 771 Molecular Genetics	N	4
GEN 705 Population & Quant. Genetics*	Y	4	GEN 772 Evolutionary Genetics of Plants (P)* (C)	N	4
GEN 706 Human Genetics (A)	N	3	GEN 774 Plant Biotech & Genetic Engineering (P) (C)	Y	4
GEN 711 Genomes and Bioinformatics	Y	4	ZOOL 529 Developmental Biology (A)	Y	4
GEN 717 Molecular Microbiology	N	4			

Category 3. Evolution, Ecology and Biodiversity (Including population biology)

Course	Lab	Credits	Course	Lab	Credits
BIOL 510 Mushrooms, Molds & Mildews	N	4	PBIO 752 Mycology (P)	Y	4
GEN 713 Microbial Ecology and Evolution	N	4	ZOOL 628 Marine Invert. Ecology Evolution (A)	Y	4
GEN 715 Molecular Evolution	Y	4	ZOOL 690 Evolution (WI) (C)	N	4
MEFB 525 Introduction to Aquatic Botany (P)	Y	4	ZOOL 708 Stream Ecology*	Y	4
MEFB 616 Tropical Coastal Plant Ecology (P)	Y	4	ZOOL 710 Ichthyology* (A)	Y	4
NR 642 Biogeography	N	4	ZOOL 713 Animal Behavior (A, WI)	Y	4
NR 712 Mammalogy (A)	Y	4	ZOOL 719 Field Studies in Lake Ecology (WI) (C)	Y	4
NR 713 Quantitative Ecology	N	4	ZOOL 726 Conservation Behavior (A, WI) (C)	N	4
NR 765 Community Ecology	N	4	ZOOL 733 Behavioral Ecology (A, WI) (C)	Y	4
PBIO 566 Systematic Botany (P)	Y	4	ZOOL 745 Biology and Diversity of Insects (A) (C)	Y	4
PBIO/ZOOL 717 Biology of Lakes	N	4	BioSM 1780 Evolution and Marine Diversity (SML)	Y	4
PBIO 721 Microscopic Algae (P)* (C)	Y	4	MEFB 510 Field Ornithology (A, SML)	Y	3
PBIO/ZOOL 725 Marine Ecology (C)	Y	4	MEFB 630 Biodiversity & Biology Marine Inverts (A, SML)	Y	3
PBIO 722 Marine Phycology (P) (C)	Y	4	MEFB 674 Ecology & the Marine Environment (SML)	Y	3
PBIO 747 Aquatic Plants in Conservation (P)	Y	4	MEFB 714 Field Animal Behavior (A, SML) (C)	Y	3

Courses that can be used to fulfill the Capstone Requirement are indicated with a (C).

Free Electives/Minor:

The Biology BS curriculum leaves majors with 20 free elective credits. Since up to 8 credits from a student's major can be counted toward the 20 credits required for a minor, a BS Major can pursue a minor in one of the other biological sciences without taking a course overload or an additional semester. Majors wishing to pursue a minor in a field outside the biological sciences should be able to complete all requirements within 8 semesters, but may need to take one or two additional courses during summer (SML), J-term, or as an overload depending on course availability.

Biology and Zoology BA/BS Capstone Experiences (April 8, 2014)

Note: The Capstone must be taken during the senior year, or after 90 credits have been taken.

Courses and Experiences that will satisfy or serve as the Capstone Experience

BIOL/PBIO/ZOOL 795 and 795W Independent investigations, with approval of advisor

BIOL/PBIO/ZOOL 797 Senior seminar

BIOL/PBIO/ZOOL 799 Honors Senior Thesis

Capstone courses taught in other majors within DBS with approval of advisor

BIOL 700 Current and controversial issues in Biology

BIOL 702 Techniques in Plant Physiology and Biochemistry

GEN 772 Evolutionary Genetics of Plants

GEN 774 Techniques in plant genetic engineering and biotechnology

INCO 790 Advanced Research Experience

MEFB 702 Sustainable Marine Fisheries

PBIO/ZOOL 719 Field Studies in Lake Ecology

PBIO 722 Marine Phycology

PBIO/ZOOL 725 Marine Ecology

PBIO/ZOOL 732 Lakes Management

PBIO 752 Mycology

PBIO 796 Special Topics

NR 663 Applied Directed Research in New Zealand

TECH 797 Undergraduate Ocean Research Project

ZOOL 690 Evolution

ZOOL 721 Aquatic Invasive Species

ZOOL 726 Conservation Behavior

ZOOL 733 Behavioral Ecology

ZOOL 736 Genes and Behavior

ZOOL 745 Insect Biology & Biodiversity

Shoals Courses (2 week courses):

BIOSM 365/MEFB 730: Underwater Research

EAB 2012/MEFB 714: Field Animal Behavior

Informal experiences, often non-credit:

IROP and SURF projects

Internships

Experiential activities deemed acceptable as a capstone experience by the advisor