

Upper Division Biology Distribution Guide

Course Abbreviation	Course Title	Crd.	List A	List B	List C	No List
BIOL 300	Principles of Genetics (New Number)	4				X
BIOL 301	Fossil Record	3			X	
BIOL 302	Evolutionary Survey of Vascular Plants	4			X	
BIOL 304	Principles of Genetics (Old Number)	4				X
BIOL 305	Introduction to Conservation Biology	3			X	
BIOL 305W	Case Studies in Wildlife Conservation	3			X	
BIOL 320	Invertebrate Zoology	4			X	
BIOL 341	Principles of Ecology	3			X	
BIOL 345	Urban Horticulture	3			X	
BIOL 347	Human Anatomy Lab	1		X		
BIOL 348	Human Anatomy	3		X		
BIOL 349	Human Physiology Foundations	3		X		
BIOL 351	Microbiology	4				X
BIOL 360	Biomathematics I	3	X	X	X	
BIOL 361	Biomathematics II	3	X	X	X	
BIOL 401R	Course-based Undergrad Research: Design to Data – Mutant Enzymes Topic	4	X			
BIOL 401R	Course-based Undergrad Research: Design to Data – Respiratory Physiology Topic	4		X		
BIOL 402	Great Biological Discoveries	3	X			
BIOL 403	Restoration Ecology	3			X	
BIOL 405	Molecular Biology	3	X			
BIOL 406	Climate Change Physiology (New Number)	3		X		
BIOL 409	Virology	3	X			
BIOL 410BX	Artificial Intelligence (AI) for Biology	3	X			
BIOL 411X	Ecology, Evolution, and Biodiversity of Desert Plants and Animals	3			X	
BIOL 412	Molecular Evolution	3	X			
BIOL 413	Scientific Writing	3			X	
BIOL 414	Endocrinology	3		X		
BIOL 415	Evolution	4				X
BIOL 416	Bioinformatics	3	X			
BIOL 417	Biochemical Adaptions	3		X		
BIOL 418	Microbial Ecology	3			X	

BIOL 419SX	Soil Ecology	3			X	
BIOL 420SX	Natural History of Biological Soil Crusts	3			X	
BIOL 421G	Conservation Genetics	3			X	
BIOL 422	Taxonomy of Vascular Plants	4			X	
BIOL 424X	Climate Change Physiology (Old Number)	3		X		
BIOL 425	Genomics	3	X			
BIOL 426	Plant Anatomy	3		X		
BIOL 427	Bryology	3			X	
BIOL 428EX	Extremophile Microbiology	3			X	
BIOL 431	Ichthyology	4			X	
BIOL 432	Herpetology	4			X	
BIOL 433	Ornithology	4			X	
BIOL 434	Mammalogy	4			X	
BIOL 435	Forest Ecology	3			X	
BIOL 436	Biometry	3	X	X	X	
BIOL 437	Entomology	4			X	
BIOL 437X	Evolution of Insects	3	X		X	
BIOL 438	Soil Plant Water Relations in Arid Environments	3			X	
BIOL 439X	Epigenetics, Health and Disease	3	X			
BIOL 440	Mammalian Physiology	3		X		
BIOL 441	Field Ecology	3			X	
BIOL 442	Principles of Plant Physiology	3		X		
BIOL 443	Molecular Biotechnology	3	X			
BIOL 444	Principles of Plant Ecology	3			X	
BIOL 445	Cell Physiology	3	X			
BIOL 447	Advanced Comparative Animal Physiology	3		X		
BIOL 448	Mammalian Physiology Lab	1		X		
BIOL 449	Comparative Nutrition	3		X		
BIOL 449X	Neurophysiology	3		X		
BIOL 450EX	Modern Plant Ecophysiology	3			X	
BIOL 451	Comparative Vertebrate Anatomy*	2		X		
BIOL 452	Comparative Behavioral Endocrinology	3		X		
BIOL 453	Immunology	3	X			
BIOL 455	Comparative Vertebrate Anatomy & Biomechanics*	3		X		
BIOL 458	Stem Cells & Regeneration Biology	3	X			
BIOL 460	Microbial Physiology	3	X			
BIOL 461	Prokaryotic Diversity	3			X	
BIOL 463	Genetics of Human Disease	3		X		
BIOL 464	Bacterial Pathogenesis	3	X			
BIOL 465	Vertebrate Embryology	3		X		
BIOL 466	Developmental Biology	3	X			
BIOL 467X	Geomicrobiology	3	X		X	

BIOL 468	Histology	4		X		
BIOL 469	RNA Biology	3	X			
BIOL 470	Topics in Applied Microbiology	3	X			
BIOL 471	Aquatic Ecology	3			X	
BIOL 473	Advanced Topics in Cell and Molecular Biology	3	X			
BIOL 474C	Climate Change Ecology	3			X	
BIOL 475	Neurobiology	3		X		
BIOL 475D	Neurobiology of Disorders	3		X		
BIOL 476N	Sensorimotor Systems and Neural Control	3		X		
BIOL 476X	Pharmacology	3	X			
BIOL 477NX	Cellular Neurophysiology and Plasticity in the Central Nervous System	3	X			
BIOL 478	Genetics and Cell Biology of Cancer	3	X			
BIOL 478P	Biopharmacology	3		X		
BIOL 480	Introduction to Biological Modeling	3	X	X	X	
BIOL 481	Advanced Cell Biology	3	X			
BIOL 485	Microbial Genetics	3	X			
BIOL 486	Animal Behavior	3			X	
BIOL 487	Principles of Systematics	3			X	
BIOL 489	Developmental Genetics	3	X			
BIOL 490	Biogeography	3			X	
BIOL 491X	Ecology, Evolution, and Biodiversity	3			X	
BIOL 492	Undergraduate Research	1-3				X
BIOL 493	Undergraduate Seminar	1				X
BIOL 494	Biology Colloquium	1				X
BIOL 496	Advanced Topics in Modern Biology	1-3				X
BIOL 499	Instruction in Biological Sciences	1-2				X

Notes About This Guide

- The upper-division Biology list topics are as follows:
 - List A: Cell Structure and Function
 - List B: Organismal Structure and Function
 - List C: Biological Diversity
- Courses that appear on more than one list, including concentration lists, cannot count toward two list requirements. In this case, the course will default to the concentration list first, followed by lists based on alpha order. Students may request the course to apply to a different eligible list by contacting their academic advisor. For use with fall 2015 and newer catalogs.
- BIOL 300, 351, and 415 do not apply to a list as they are required courses.

- Before attempting enrollment into BIOL 492, 493, 494, 496, or 499, please contact a sciences advisor to determine degree applicability.
- Courses designated with the '*' must be taken together as a corequisite.
- BIOL 439X was previously offered as 'Advanced Marine Physiology', which is now a discontinued course. The new course is titled "Epigenetics, Health and Disease".
- GEOL 301 is the same as BIOL 301 and can apply towards the List C requirement.
- List applicability for BIOL 401R depends on the course topic. Please talk to your advisor if a topic you're enrolled into is not listed on this document.
- This guide was last updated on April 13, 2026.