

Upper Division Biology Lists 2015-2016

Biology Course Lists for Upper Division Degree Requirements

Courses that appear on more than one List cannot count toward two list requirements. BIOL 300 can be used only toward the Biology Core requirement. BIOL 304 may be used toward EITHER the Biology Core requirement OR List B.

**BIOL 351 is not part of the Core requirements in catalogs prior to 2010-2012, and is part of the upper division biology course requirements in some concentrations. BIOL 351 is part of the Core requirements in 2010 catalog forward.

NOTE: students following catalogs PRIOR to fall 2015 may NOT use BIOL 499 toward the biology upper division requirement.

ONE credit of BIOL 492, 493 and 496 may count toward the upper division biology requirement for any concentration for catalogs prior to fall 2015. Other catalogs, read your degree requirements.

		CREDITS	List A: Ecology & Evolutionary Biology (formerly "EEB")	List B: Cell & Molecular Biology (formerly "CMB")	List C: Anatomical & Morphological Biology (formerly "IOB/Anatomy")	List D: Physiological Biology (formerly "IOB/Physiology")	List E: Systematics (formerly "IOB/Taxonomy")	Additional ONE (1) credit May be used toward Biology upper division credits required by the major
BIOL 301(301X)	Fossil Record	3	X				X	
BIOL 302	Evolutionary Survey of Vascular Plants	4	X				X	
BIOL 304	Molecular Genetics	4		X				
BIOL 305	Introduction to Conservation Biology	3	X					
BIOL 320	Invertebrate Zoology	4					X	
BIOL 341	Principles of Ecology	3	X					
BIOL 348(348X)	Human Anatomy	3			X			
BIOL 351**	Microbiology before 2010	4		X				
BIOL 360	Biomathematics I	3	X	X		X		
BIOL 361	Biomathematics II	3	X	X		X		
BIOL 402X	Genomics, Proteomics, & Bioinformatics	3		X				
BIOL 403X	Biological Discoveries	3		X				
BIOL 405	Molecular Biology	3		X				
BIOL 407X	Bioinformatics	3	X	X		X		
BIOL 409	Virology	3		X				
BIOL 412	Molecular Evolution	3	X	X				
BIOL 414	Endocrinology	3		X		X		
BIOL 417(417X)	Biochemical Adaptations	3		X		X		
BIOL 418(418X)	Microbial Ecology	3	X	X		X		
BIOL 419X	Concepts in Pharm & Med Bioche	3		X		X		
BIOL 420X	Introduction to Restoration Ecology	3	X					
BIOL 422	Taxonomy of Vascular Plants	4					X	
BIOL 421X	General Pharmacology	3		X		X		
BIOL 423X	Ecosystem Management	3	X					
BIOL 425	Genomics	3		X				
BIOL 426	Plant Anatomy	3			X			
BIOL 427	Bryology	3	X					
BIOL 431	Ichthyology	4					X	
BIOL 432	Herpetology	4					X	
BIOL 433	Ornithology	4					X	
BIOL 434	Mammalogy	4					X	
BIOL 437	Entomology	4					X	
BIOL 438X	Soil Plant Water Relations in Arid Env	3	X					
BIOL 440	Mammalian Physiology	3				X		
BIOL 441	Field Ecology	3	X					
BIOL 442	Principles of Plant Physiology	4				X		
BIOL 444	Principles of Plant Ecology	3	X					
BIOL 445	Cell Physiology	3		X		X		
BIOL 447	Adv Comparative Animal Physiology	3				X		
BIOL 449X	Comparative Nutrition	3		X		X		
BIOL 451(350)/455	Comparative Vertebrate Anatomy	2/3			X			
BIOL 452X	Behavioral Endocrinology	3		X		X		
BIOL 453	Immunology	3		X				
BIOL 460	Microbial Physiology	3		X		X		
BIOL 461X	Comparative Biomechanics	3				X		
BIOL 464X	Bacterial Pathogenesis	3		X				
BIOL 465	Vertebrate Embryology	4			X			
BIOL 466	Developmental Biology	3		X				
BIOL 468	Histology	4			X			
BIOL 470	Topics in Applied Microbiology	3		X				
BIOL 471	Aquatic Ecology	3	X					
BIOL 472	Limnology	3	X					
BIOL 473	Adv Topics in Cell and Molecular	3		X				
BIOL 475	Neurobiology	3		X		X		
BIOL 478X	Cancer Cell Biology removed C&D 91412	3		X	X	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				X	
BIOL 487	Principles of Systematics	3	X				X	
BIOL 489	Developmental Genetics	3		X				
BIOL 490	Biogeography	3	X					
BIOL 492	Undergraduate Research	1	See note above					*Check your degree requirements!
BIOL 493	Undergraduate Seminar	1						
BIOL 494	Biology Colloquium	1						
BIOL 496	Advanced Topics in Modern Biology	1						
BIOL 499	Undergraduate Teaching Assistant	1						

NSHE Transfers

Only credits transfer to UNLV from other institutions; grades do not transfer and do not affect GPA at UNLV (this includes other Nevada institutions).

If you receive a passing grade at UNLV and you choose to retake the class, you must do so at UNLV, NOT at CCSN or other NSHE institutions; if you fail a class at UNLV, you may retake the class at CSN or other NSHE institutions.

BIOL 251G (Honors Microbiology) from CSN may fill a requirement for BIOL 351 (BS Biology) at UNLV.

Credit Load

The university considers 12 semester credits as the *minimum* full-time undergraduate credit load. The maximum credits allowed during a regular semester are 17 for freshmen level, and 18 for sophomore, junior, and senior levels.

Biomedicine or Graduate School

It is strongly recommended that students interested in biomedicine or graduate school take additional appropriate upper-division biology courses and research units to meet their elective credit requirements. Make an appointment to see the Pre-health Advisor. 702-895-2077

Four- and five-year degree plans

can be found at <http://sciences.unlv.edu/advising/degreeworksheets>

B.S. Biology

To earn a Bachelor of Science degree in Biology, students must satisfy the general education core curriculum required by the university and the College of Sciences, plus the program requirements of the Department of Life Sciences. The departmental program includes courses in biology, chemistry, physics and mathematics. Biology majors choose one of eight areas of concentration: Biotechnology, Cell and Molecular Biology, Comprehensive, Ecology and Evolutionary Biology, Education, Integrative Physiology, Microbiology, and Preprofessional.

The **Biotechnology** concentration provides strong preparation for careers in biotechnology, biomedical science research and the pharmaceutical industry, as well as for transition to graduate or other advanced educational programs.

The **Cell & Molecular** concentration provides Biological Sciences majors with the intellectual tools essential for careers in biotechnology and biomedical science research, as well as for transition to graduate PhD programs in Biology, and Cell and Molecular Biomedical research.

The **Comprehensive** concentration provides the educational background necessary for a career in modern life science, including all requirements for admission to graduate school or related postgraduate study. The concentration's curriculum provides a solid foundation in fundamental areas of biology while permitting wide choice in course selection, allowing majors to explore and develop their education.

The **Ecology & Evolution** concentration is recommended for those students who desire a strong foundation in evolution, and whose interests are at the interface between organisms and their environments.

The **Education** concentration is designed for students seeking exceptionally strong backgrounds for professional teaching careers that include biology as a first teaching field. Students also enroll in course work to satisfy the Minor in Secondary Science Education in the UNLV College of Education.

The **Integrative Physiology** concentration provides the biology major with the intellectual and technical tools essential for success in a broad array of life sciences careers including application to all the health care-related professional schools, graduate school, or related postgraduate study as well as biomedical science research. IP provides an in-depth examination of how animals and/or plants work from the molecular/cellular level of organization to a systems level understanding and up to the integration of physiology with behavior and evolutionary processes.

The **Microbiology** concentration provides the biology major with the intellectual and technical skills required for success in the broad area of microbiology which includes clinical, environmental, ecological, evolutionary, molecular, metabolic and physiological perspective of microbes, including aspects of virology and immunology.

The **Preprofessional** concentration provides Biological Sciences majors with the intellectual tools essential for application to health care-related professional schools, including medical, dental, veterinary, optometric and related programs.

Many of the eight areas of specialization provides an excellent and well-rounded background for those interested in applying for professional schools including medical, dental, veterinary. Most degrees in biology ensure the course work required for professional school is completed at the time of graduation.