

ECOLOGY AND CONSERVATION BIOLOGY - BS, VERTEBRATE ZOOLOGY TRACK

The Department of Ecology and Conservation Biology provides one of the most advanced educational opportunities available to prepare undergraduate students for leadership in the science and stewardship of terrestrial and aquatic ecological systems. The BS in ECCB degree will emphasize acquisition of fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and the management of complex systems, such as interactions involving aspects of ecology from genes to ecosystems, landscape, hydrology, and climate. Four tracks (Ecology and Conservation Biology, Ecoinformatics, Forest Resources, and Vertebrate Zoology) are offered to provide flexibility in one's chosen career path.

Vertebrate Zoology Track

The Vertebrate Zoology track is tailored specifically for those ECCB students with a deep interest in vertebrates, their diversity, ecology, and conservation. This track capitalizes on the collective experience of ECCB faculty in the areas of vertebrate ecology, evolution, genetics, anatomy, physiology, and behavior to provide a comprehensive understanding of vertebrate biology and ecology that will prepare students for professional studies, as well as careers within government and non-government agencies associated with the conservation and management of vertebrates. In addition to core courses in ecology and conservation, ECCB students enrolled in this track complete coursework in vertebrate ecology, diversity, and evolution, and enroll in other national or international field courses that focus on vertebrates, including their collection and identification. This is a flexible track, which permits the inclusion of courses specifically required by graduate programs as well as schools of veterinary medicine. Students on this track may also use free electives to personalize or broaden their experience or tailor to meet certification requirements for many vertebrate-focused professional societies (e.g., American Fisheries Society or The Wildlife Society).

Program Requirements

First Year

		Semester Credit Hours
Fall		
BIOL 111	Introductory Biology I	4
ESSM 201	Exploring Ecosystem Science and Management	1
MATH 140	Mathematics for Business and Social Sciences	3
RENr 205	Fundamentals of Ecology	3
General elective ¹		3
Semester Credit Hours		14
Spring		
BIOL 112	Introductory Biology II	4
MATH 142	Business Calculus	3

American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ²	3
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) ²	3
Social and behavioral sciences (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) ²	3
Semester Credit Hours	
	16

Second Year

Fall

CHEM 119	Fundamentals of Chemistry I	4
RENr 215	Fundamentals of Ecology–Laboratory	1
STAT 302	Statistical Methods	3
WFSC 302	Natural History of the Vertebrates	3
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) ²	3	
Semester Credit Hours		
	14	

Spring

CHEM 222	Elements of Organic and Biological Chemistry	3
WFSC 304	Wildlife and Fisheries Conservation	3
Biodiversity ³		3
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication) ²		3
Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) ²		3
Semester Credit Hours		
	15	

Third Year

Fall

WFSC 403	Animal Ecology	3
Select one of the following:		4
CHEM 120	Fundamentals of Chemistry II	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
PHYS 201	College Physics	
SCSC 301	Soil Science	
Ecosystem		3
Select one of the following:		
ESSM 309	Forest Ecology	
ESSM 320	Ecosystem Restoration and Management	
ESSM 416	Fire Ecology and Natural Resource Management	
WFSC 404	Aquatic Ecosystems	
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) ²		3
Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) ²		3
Semester Credit Hours		
	16	

Spring		
ESSM 304	Rangeland Plant Taxonomy	3
ESSM 311	Biogeochemistry and Global Change	3
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication) ²		3
Ecology practice ⁴		4
Professional development ⁵		3
Semester Credit Hours		16

Fourth Year

Fall		
WFSC 433	Molecular Ecology in Wildlife and Fisheries	3
Biodiversity ³		3
Ecology practice ⁴		4
Professional development ⁵		3
General elective ¹		3
Semester Credit Hours		16

Spring		
ESSM 485	Directed Studies	1
Individual function		3-4
Select one of the following:		
BIOL 206	Introductory Microbiology	
BIOL 318	Chordate Anatomy	
BIOL 351	Fundamentals of Microbiology	
BIOL 388	Principles of Animal Physiology	
VTPB 405	Biomedical Microbiology	
WFSC 422	Ethology	
WFSC 448	Fish Ecophysiology	
Ethical dimensions		3
Select one of the following:		
AGEC 350	Environmental and Natural Resource Economics	
ESSM 308	Fundamentals of Environmental Decision-Making	
ESSM 318	Coupled Social and Ecological Systems	
ESSM 404	Changing Natural Resource Policy	
ESSM 405	Forest Resource Assessment and Management	
ESSM 406	Natural Resources Policy	
REN 460/ RPTS 460	Nature, Values, and Protected Areas	
WFSC 303	Fish and Wildlife Laws and Administration	
Professional development ⁵		3
General elective ¹		2-3
Semester Credit Hours		13
Total Semester Credit Hours		120

¹ Select from any 100-499 course not used elsewhere.

² Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours of Cultural Discourse (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>) courses. A course satisfying a Core category, a college/department requirement, or a general elective can be used to satisfy this requirement.

³ Select from WFSC 311, WFSC 315, WFSC 401, WFSC 402.

⁴ Select from ESSM 305, ESSM 324, ESSM 351/REN 405, ESSM 417, ESSM 444, ESSM 446, ESSM 459, ESSM 462/GEOG 462, ESSM 484, ESSM 485, ESSM 491, WFSC 314, WFSC 316, MARB 415/WFSC 415, PHYS 201, PHYS 202, RENR 400, STAT 307, WFSC 462/BIOL 462, ENTO 300/WFSC 300, ENTO 450/WFSC 450, ENTO 451/WFSC 451, WFSC 408, WFSC 410, WFSC 484, WFSC 485, WFSC 491.

⁵ Select from ANSC 303/NUTR 303, ANSC 318, ANSC 320; CHEM 227 & CHEM 237, CHEM 228 & CHEM 238; ENTO 201, ESSM 203, ESSM 301, ESSM 302, ESSM 303, ESSM 314, ESSM 420, ESSM 430, OCNG 251, RENR 470, WFSC 311, WFSC 315, WFSC 335, WFSC 401, WFSC 402, WFSC 444, WFSC 447, WFSC 457.

Must make a grade of C or better in BIOL 111, BIOL 112, and all ECCB major core coursework (ESSM 201, ESSM 304, ESSM 311, ESSM 485, RENR 205, WFSC 302, WFSC 304, WFSC 403, and WFSC 433.)