

# ECOLOGY AND CONSERVATION BIOLOGY - BS, ECOLOGY AND CONSERVATION BIOLOGY TRACK

The Department of Ecology and Conservation Biology at Texas A&M University provides advanced educational opportunities to prepare students for careers in the science and stewardship of biological diversity, ecosystems and their services, and the biosphere. Our undergraduate and graduate degrees in Ecology and Conservation Biology emphasize fundamental ecological knowledge and its application to biodiversity conservation, environmental health, and management of complex systems, involving diverse aspects of ecology, ranging from genes to ecosystems and microcosms to the entire biosphere. ECCB is home to more than 70 experts and 300 students, representing a community of scholars working to understand nature, to conserve our natural resources, and to maintain the health and services of natural and human-dominated systems that sustain our communities.

## Ecology and Conservation Biology Track

The Ecology and Conservation Biology track is designed to meet the needs of students interested in understanding issues related to conserving, managing, and restoring species, habitats, and ecosystems. The curriculum prepares students for careers with natural resource agencies, conservation and environmental organizations, environmental consulting firms, and education and research institutions. Students enrolled in this track gain an understanding of the core body of knowledge used by ecologists and conservation biologists, including ecological concepts, ecological practices, human-environmental interactions, and biodiversity exploration and conservation. This track offers a diversity of courses, including several upper-level electives, that allow students to tailor their education to fit their interests. For example, students can take courses that position them for external certification through organizations such as the Ecological Society of America and the Society for Ecological Restoration. Students completing this track successfully will have a strong background in ecosystem functioning, field experience, human and ethical dimensions, organism biology, and quantitative applications, including the skills necessary for pursuing graduate degrees.

## Program Requirements

### First Year

Fall		Semester Credit Hours
BIOL 111	Introductory Biology I	4
ECCB 101	Introduction to Ecology and Conservation Biology	1
ECCB 205	Fundamentals of Ecology	3
MATH 140	Mathematics for Business and Social Sciences	3
General elective <sup>1</sup>		2
<b>Semester Credit Hours</b>		<b>13</b>

### Spring

BIOL 112	Introductory Biology II	4
MATH 142	Business Calculus	3
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> ) <sup>2</sup>		3
Language, philosophy and culture ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture</a> ) <sup>2</sup>		3
Social and behavioral sciences ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences</a> ) <sup>2</sup>		3

**Semester Credit Hours 16**

### Second Year

#### Fall

CHEM 119	Fundamentals of Chemistry I	4
ECCB 302	Diversity and Evolution of Vertebrates	3
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> ) <sup>2</sup>		3
Communication ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication</a> ) <sup>2</sup>		3
Creative arts ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts</a> ) <sup>2</sup>		3

**Semester Credit Hours 16**

#### Spring

CHEM 222	Elements of Organic and Biological Chemistry	3
ECCB 215	Fundamentals of Ecology–Laboratory	1
ECCB 304	Conservation Biology	3
STAT 302	Statistical Methods	3
Communication ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication</a> ) <sup>2</sup>		3
Government/Political science ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science</a> ) <sup>2</sup>		3

**Semester Credit Hours 16**

### Third Year

#### Fall

Select one of the following:		4
CHEM 120	Fundamentals of Chemistry II	
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	
OCNG 251 & OCNG 252	The Blue Planet - Our Oceans and The Blue Planet - Our Oceans Laboratory	
PHYS 201	College Physics	
SCSC 301	Soil Science	
Ecosystem		
Select one of the following:		3
ECCB 309	Forest Ecology	
ECCB 320	Ecosystem Restoration and Management	

ECCB 416	Fire Ecology and Natural Resource Management	
RWFM 404	Aquatic Ecosystems	
Government/Political science ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science</a> ) <sup>2</sup>		3
Ecology practice <sup>3</sup>		3
General elective <sup>1</sup>		3
<b>Semester Credit Hours</b>		<b>16</b>
<b>Spring</b>		
ECCB 285	Directed Studies	1
ECCB 301	Diversity and Evolution of Plants	3
ECCB 303	Fire Ecology and Biogeochemistry	3
ECCB 400	Molecular Ecology	3
ECCB 403	Population and Community Ecology	3
Ecology practice <sup>4</sup>		2
<b>Semester Credit Hours</b>		<b>15</b>
<b>Fourth Year</b>		
<b>Fall</b>		
Biodiversity <sup>5</sup>		3
Ecology practice <sup>4</sup>		3
Ecology practice <sup>6</sup>		3-4
Human-environment interaction <sup>7</sup>		3
Human-environment interaction <sup>8</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Spring</b>		
ECCB 485	Directed Studies	1
Individual Function		
Select one of the following:		3-4
BESC 401	Bioenvironmental Microbiology	
BIOL 318	Chordate Anatomy	
ECCB 307	Forest Protection	
ECCB 310	Forest Tree Physiology and Breeding	
ECCB 422	Behavioral Ecology	
ECCB 448	Fish Ecophysiology	
ENTO 306	Insect Structure and Function	
HORT 313	Introduction to Plant Physiology	
Biodiversity <sup>5</sup>		3
Human-environment interaction <sup>9</sup>		3
General elective <sup>1</sup>		1-3
<b>Semester Credit Hours</b>		<b>13</b>
<b>Total Semester Credit Hours</b>		<b>120</b>

<sup>3</sup> Select from ECCB 300/ENTO 300, ECCB 314, ECCB 316, ECCB 324, ECCB 417, ECCB 446, ECCB 450/ENTO 450, ECCB 451/ENTO 451, ECCB 462, ECCB 484, ECCB 485, ECCB 491; RWFM 325, RWFM 400/ ECCB 452, RWFM 408, RWFM 410, RWFM 485.

<sup>4</sup> Select from ECCB 300/ENTO 300, ECCB 314, ECCB 316, ECCB 324, ECCB 351, ECCB 406/GEOG 462, ECCB 407, ECCB 417, ECCB 444, ECCB 446, ECCB 450/ENTO 450, ECCB 451/ENTO 451, ECCB 462, ECCB 484, ECCB 485, ECCB 491; PHYS 201, PHYS 202; RWFM 325, RWFM 400/ECCB 452, RWFM 408, RWFM 410, RWFM 485; STAT 307.

<sup>5</sup> Select from BESC 204; ECCB 203, ECCB 311, ECCB 312, ECCB 313, ECCB 315, ECCB 401, ECCB 402; ENTO 201; RWFM 302.

<sup>6</sup> Select from ECCB 351, ECCB 406/GEOG 462, ECCB 407, ECCB 444; PHYS 201, PHYS 202, STAT 307.

<sup>7</sup> Select from ECCB 319, ECCB 420; RWFM 301, RWFM 314, RWFM 443, RWFM 447, RWFM 470.

<sup>8</sup> Select from AGECE 350; ECCB 308, ECCB 318/RWFM 318. ECCB 319, ECCB 405, ECCB 420, ECCB 460/RPTS 460; RWFM 301, RWFM 308, RWFM 314, RWFM 436, RWFM 443, RWFM 447, RWFM 470.

<sup>9</sup> Select from AGECE 350; ECCB 308, ECCB 318/RWFM 318, ECCB 405, ECCB 460/RPTS 460; RWFM 308, RWFM 436.

Must make a grade of C or better in BIOL 111. BIOL 112 and all ECCB major core coursework (ECCB 101, ECCB 205, ECCB 301, ECCB 302, ECCB 303, ECCB 304, ECCB 400, ECCB 403, and ECCB 485.)

<sup>1</sup> Select from any 100-499 course not used elsewhere.

<sup>2</sup> 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.