

Bachelor of Science in Conservation Biology, Wildlife & Fisheries Management Four Year Curriculum Plan

The following is a suggested four year plan of study for freshmen entering LMU during the 2017 academic year. Transfer students should contact the department chair to determine how their credits will apply. This plan is to be used in conjunction with the university catalog & advice of the faculty advisor. Courses on the plan may be taken in semesters other than those listed based upon availability & course placement. This plan meets LMU's Liberal Art Common Core requirements, major requirements & 300/400 level course requirements.

First Year

Fall

BIOL 111+L - General Biology I + Lab	4
MATH 110 - Reasoning & Problem Solving	3
ENGL 101 - Composition 1	3
History Sequence 1	3
UACT 100 - College Success	2
TOTAL	15

Spring

BIOL 112+L - General Biology II + Lab	4
CHEM 100 + L - Intro to Chemistry + Lab	4
MATH 270 - Statistics	3
LNCN 100 - Lincoln's Life & Legacy	1
History Sequence 2	3
TOTAL	15

Second Year

Fall

CBIO 250+L - Soils + Lab	4
CBIO 330+L - Ichthyology + Lab	4
ENGL 102 - Composition 2	3
BIOL 370+L - Ecology + Lab	4
ISYS 100 - Computer Literacy	2
TOTAL	17

Spring

CBIO 200 - Conservation Biology	3
CBIO 220+L - Freshwater Fisheries Mgmt. + Lab	4
BIOL 290 - Scientific Writing	1
SOCI 100 - Sociology	3
COMM 200 - Speech Communication	3
Fine Arts Elective	3
TOTAL	17

Third Year

Fall

CBIO 210 - Wildlife Management	3
BIOL 315+L - Molecular Genetics + Lab	4
CBIO 370 - Land Use & Environmental Policy	3
CBIO 397 - Junior Research Seminar	1
ECON 212 - Principles of Microeconomics	3
ENGL 240, 250, or 260	3
TOTAL	17

Spring

CBIO 483 - Undergraduate Research in ConBio	1
Biodiversity: Vertebrate Option	4
Ecosystems Option	3
BIOL 330+L - Field Botany + Lab	4
BIOL 380 - Research Design & Analysis	3
LNCN 300 - American Citizenship & Civic Life	1
TOTAL	16

Fourth Year

Fall

Biodiversity: Invertebrate Option	4
Ecosystems Option	3
CBIO 421 - Geographic Information Systems I	3
PHIL 420 - Ethics	3
BIOL 320+L - Principles of Botany + Lab	4
TOTAL	17

Spring

CBIO 400 - Conservation Biology App. & Analy.	3
CBIO 422 - Geographic Information Systems II	3
CBIO 497 - Senior Research Seminar	1
Biodiversity: Vertebrate Option	4
Elective	3
TOTAL	14

Note: In order to graduate in four years (eight regular semesters) the student must average passing 16/17 hours per semester.

CBIO 200 - Conservation Biology

The course examines the meaning and significance of biodiversity from local to global scales. Current and emerging threats to biodiversity, including extinction, habitat fragmentation, land use change, over exploitation, invasive species, and global climate change are explored. Efforts to manage and maintain biodiversity, including how human activity impacts conservation efforts, natural resource policy and management, as well as the social, political and ethical decisions for conservation management are discussed. Prerequisites: BIOL 111 and 112 with labs. Spring.

CBIO 210 – Wildlife Management

This course provides an overview of the principles of wildlife conservation and management. We will explore the history and philosophy of wildlife management, as well as characteristics of the wildlife management triad: the wildlife, habitat, and human dimensions. Through the analysis of primary literature, we will assess the application of theoretical principles to problems in wildlife management and explore how landscapes can be managed to achieve long-term sustainability of wildlife populations. Prerequisites: BIOL 111 and 112 with labs. Fall even years.

CBIO 400 – Conservation Biology Application & Analysis

The seminar course explores advanced topics in the conservation of biological diversity via two major emphases. Emphasis 1: Foundational and current papers in the primary literature are critiqued and discussed. A wide range of conservation topics, including but not limited to, captive breeding, species reintroductions, reserve design, management of ecosystems and endangered species as well as conservation tools are explored. Each meeting consists of a brief summary lecture (initially by the instructor, but later by the student) followed by required discussions. The student will, in consultation with the instructor, select discussion papers, develop a brief lecture, and facilitate the discussion. Emphasis 2: Hands-on experience will be gained via exercises in solving the types of problems typically encountered by conservation biologists. Pre-requisites: BIOL 200, BIOL 370 and lab, two biodiversity courses and senior standing, or permission of instructor. Spring odd years.

CBIO 420 – Wetland Ecosystems

This course provides an overview of wetland ecology, management, and policy. We will explore how wetlands are defined, the history of wetland attitudes and values, and wetland ecosystem services. Wetland ecosystems addressed will include tidal marshes, mangroves, and peatlands, but will focus mostly on freshwater marshes, swamps, and riparian wetlands. We will also examine U.S. wetland policy, the practice of wetland delineation, wetland restoration, as well as wetland management to promote valuable ecosystem services, including the maintenance of biodiversity. Prerequisites: BIOL 370 and lab. Fall odd years.

CBIO 430 – Terrestrial Ecosystems

This course investigates the structure and function of terrestrial ecosystems and explores the benefits of utilizing an ecosystem approach in the development of management and conservation plans. A global survey of terrestrial ecosystems is conducted and the impact of abiotic and biotic interactions in structuring these systems is evaluated. The flow of energy, nutrients, and water are traced through both aboveground and belowground linkages extending through trophic levels considering microorganisms, plants, and animals. Temporal and spatial scales are considered through the examination of both natural and anthropogenic disturbance events, succession, global climate change, and remote sensing data. The course will examine selected papers from the primary literature and the student will develop a written management plan for an ecosystem located in the Eastern United States. Prerequisite: BIOL370 and lab. Spring even years.

CBIO440 – Freshwater Aquatic Ecosystems

CBIO 440 will explore the basic ecological processes that occur in freshwater aquatic systems from creeks and ponds to rivers and lakes. Although these systems are diverse, there are many processes that are common to all and we will examine these processes in closer detail in CBIO 440. Specifically, students will address the concepts of specialized adaptations that allow organisms to live in water including respiration, feeding and reproductive systems. We will look at aquatic food webs and energy flow through aquatic systems. Students will examine the interactions of aquatic organisms, both plant and animal, with and within the water column. In addition, CBIO 440 will include an overview of the ecology of shallow littoral habitats, deep water zones in both lakes and oceans, and special characteristics of flowing water systems. Finally, we will explore community organization in freshwater habitats. Pre-requisites: BIOL 370 and lab. Spring odd years.

Biodiversity Vertebrate Options:

CBIO 340+L- Herpetology, 4hrs
CBIO 350+L- Ornithology, 4hrs
CBIO 360+L- Mammology, 4hrs

Biodiversity Invertebrate Options:

BIOL 340+L- Invertebrate Zoology, 4hrs
BIOL 350+L- Entomology, 4hrs

Ecosystems Options:

CBIO 420- Wetland Ecosystems, 3hrs
CBIO 430- Terrestrial Ecosystems, 3hrs
CBIO 440- Freshwater Ecosystems, 3hrs

This Bachelor of Science track is intended to prepare the student for application to be certified as an Associate Wildlife Biologist through The Wildlife Society or an Associate Fisheries Professional through the American Fisheries Society. The student must work with their advisor to assure that they are picking the appropriate options for their intended certification application.