

BS in BIODIVERSITY AND CONSERVATION (282025)

2016–2017

Suggested Sequence of Courses:

FRESHMAN YEAR

<u>1st Semester</u>	
Bio 130 (Biological Science)	4.0
Chem 105	4.0
First-year Writing or A Htg 100	3.0 (3.0)
Quantitative Reasoning (if needed)	0–3.0
Religion Cornerstone course	2.0
Total Hours	13.0–16.0

2nd Semester

A Htg 100 or First-year Writing	3.0 (3.0)
Civilization 1 elective	3.0
Chem 106, 107	4.0
Math 112 (Lang. of Learning)	4.0
Religion Cornerstone course	2.0
Total Hours	16.0

SOPHOMORE YEAR

<u>3rd Semester</u>	
Bio 220	4.0
Tools elective	3.0
Civilization 2 elective	3.0
Religion Cornerstone course	2.0
General electives	3.0
Total Hours	15.0

4th Semester

MMBio 240	3.0
Management Policy elective	3.0
Arts or Letters elective	3.0
Religion Cornerstone course	2.0
Social Science elective	3.0
Total Hours	14.0

JUNIOR YEAR

<u>5th Semester</u>	
Chem 285 or 351	3–4.0
PWS 340	3.0
Stat 201	3.0
Tools elective	2.0
Arts or Letters elective	3.0
Total Hours	14–15.0

6th Semester

Chem 352 (if needed)	3.0
Chem 353 (if needed)	1.0
Bio 350	3.0
Management Policy elective	3.0
Religion elective	2.0
Bio 494R (if needed)	1.0
General elective	2.0
Total Hours	15.0

SENIOR YEAR

<u>7th Semester</u>	
Bio 450	3.0
Bio 230	3.0
Biology electives	5.0
Adv. Written & Oral Communication	3.0
Religion elective	2.0
Total Hours	16.0

8th Semester

Religion elective	2.0
Bio 420	2.0
Bio 421	1.0
Biology elective	3.0
Global & Cultural Awareness elective	3.0
Bio 347	3.0
Total Hours	14.0

THE DISCIPLINE:

We all depend on the diversity of life for personal and societal survival. We need all forms of life for the beauty it holds, the food it gives, the life-saving drugs it provides, the clean water we use, or any number of other valid and important reasons. The services that healthy ecosystems perform, if only from our human perspective, are immense and irreplaceable. Conservation Biology deals with identification, protection, maintenance, development, and restoration of the earth's biological diversity (biodiversity), including genetic diversity within species, species richness in different regions, and the diversity of ecological communities. This focus differs substantially from traditional wildlife management and forestry-range programs in two fundamental ways: (1) it seeks to protect all life on earth; and (2) it seeks to preserve biological processes (ecological and evolutionary interactions) that generate and maintain biodiversity over the long-term. Our program offers a large number of natural history courses (botany, mammalogy, entomology, etc.) and includes courses relevant to policy, management, ethical, and socioeconomic factors.

SUPPORTING MINORS

Students majoring in conservation biology should consider completing a minor to strengthen their technical or applied sociological skills. Possible minors in anthropology, geography (geography; geographic information systems; urban and environmental planning), international development, management (global management), political science, recreation management and youth leadership (nonprofit management), sociology, women's studies.

RESEARCH OPPORTUNITIES:

Students in this program conduct research projects with professors in many departments and with expertise at all scales of modern conservation biology. Projects range from those focusing on genetic variation within key species of concern to inventorying species, communities, and ecosystems locally, regionally, and around the world. Others carefully examine interactions between species and their environments. Our students provide scientific information to aid government and private institutions in making decisions of how best to maintain, develop, and restore biodiversity resources at all these levels, while others work to improve biological science education curricula in local public schools. We have great museum and data-basing resources, and links with communities worldwide to gather, store, and use information on distribution of many kinds of living organisms. Many students choose to study conservation biology simply for the intrinsic joy and beauty it brings to their lives. Our students participate in all these efforts.

INTERNSHIPS, CO-OP ED, PRACTICAL EDUCATION:

Common experiences for our students include participating in extended field trips with faculty, assisting with long-term research and museum curation or education projects, participating in international exchange programs, working as volunteer interns and performing community outreach education. Many of our students planning on medical and dental careers use these opportunities to enhance their knowledge of key conservation issues and involvement in programs combining the "natural" world with their interests in human health and well-being. As a result of participation in research projects, many students present papers or posters with faculty sponsors at scientific meetings, and co-author papers in peer-reviewed journals.

Note: This degree program requires a minimum of 120.0 hours for graduation. Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.

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FINANCING:

Many students work part-time in faculty research labs. Some work with museum curators as curatorial assistants in research collections in the Monte L. Bean Life Science Museum, or as docents in museum education and outreach programs. Junior and senior students often obtain teaching assistantships or receive salaries as mentored research assistants, and many students obtain summer jobs that capitalize and extend their formal course work training and interests in conservation issues.

CAREERS:

Conservation careers –

- state-federal agencies (Utah Division of Wildlife Resources; National Park Service, Forest Service, Bureau of Land Management, etc.), with the proper selection of course work to acquire particular job skills
- private non-government organizations (Conservation International, The Nature Conservancy, etc.), consulting firms, large corporations

Education careers–

- primary/secondary public school systems, with teaching certification
- museums/nature centers
- zoos/aquaria/botanical gardens

Academic careers – graduate school preparation in anticipation of college/university

- teaching/research careers; this program is designed so that students planning to continue their education in conservation-related fields will be strongly competitive upon entering graduate school. Advanced degrees will then provide teaching and research opportunities in college and universities.

Professional careers in other areas – a large number of pre-professional students (medical, dental, etc.) choose Conservation Biology as a major simply because of long-standing interests in nature, the outdoors, and conservation issues in general

Family life – many students choose to use their training as conservation biologists to be better mothers, fathers, and private citizens. They quietly seek to make the world a better place. Whether leading a child on an exploration in nature or leading an action group to right perceived environmental wrongs, our graduates make a difference in the world.

(see faculty advisor for additional career choices)

FACILITIES:

Facilities maintained by BYU include field stations and research stations around the western US, greenhouses and experimental plots, multi-user ecology and molecular laboratories, large computational laboratories, the Monte L. Bean Life Science Museum research collections and educational programs, and an excellent library. Linkage to the Biological Science Education faculty provides a unique outlet for dissemination of Conservation Biology information to several levels of Utah's public education system. Off campus, tens of millions of acres of public lands across the western US – encompassing a large variety of ecological communities – provide outdoor laboratories for a range of natural history and conservation studies as well as established professional rapport with potential mentors who manage these resources. For students with foreign language skills and/or interests in international issues, many faculty maintain strong research interactions with international collaborators. These are especially well-developed in a number of Latin American, tropical Pacific, and Asian countries, as well as Antarctica. Collectively these collaborations offer students access to a variety of aquatic and terrestrial ecosystems, each with local cultural and socio-economic contexts within which biodiversity conservation programs operate.