

B.S. Biology, Ecology and Conservation Biology Emphasis

2023-24

DEPARTMENT PERSONNEL

Chair

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Faculty

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The need for passionate and skilled ecologists and conservation biologists is increasing as human populations continue to grow, expand, and consume Earth's natural resources. Ecologists study whole organisms and the living and nonliving things around them. Conservation biologists are primarily concerned with preserving biodiversity using applied science. Southwestern Adventist University's Bachelor of Science degree in Biology with an emphasis in Ecology and Conservation Biology offers students the practical and theoretical training necessary for acquiring a job in this highly competitive field. Individuals who want to help protect declining global biodiversity and who enjoy working with animals and in the field will enjoy this hands-on program. Ecology and Conservation Biology students will have the opportunity to take courses in herpetology, ichthyology, ornithology, mammalogy, botany, and wildlife management. In addition, students will receive hands-on training in field sampling techniques such as plant identification, soil analysis, ocean sampling, electrofishing, reptile handling, bird banding, and mammal camera trapping, just to name a few. Furthermore, students will have the opportunity to explore a diverse array of ecosystems on multiday field trips, meet professional field scientists, and work alongside faculty on valuable research projects.

Job Market

Fish/Wildlife Technician, Fish/Wildlife Biologist, Naturalist, Forester, Park Ranger, Game Warden, Natural Resource Manager, Environmental Scientist, Wildlife and Conservation Outreach/Advocacy Specialist, Wildlife Consultant, Environmental Policy Analyst, Environmental Economist, Educator, Zookeeper, Zoo/Museum Curator, Animal Trainer, Aquarist.

Job Outlook

Zoologists and Wildlife Biologists, Median Pay: \$62,290/year; Job Outlook (next 10 years): 8% growth (as fast as average). Animal Care and Service Workers, Median Pay: \$23,160; Job Outlook (next 10 years): 22% (much faster than average). Conservation Scientists and Foresters. Median Pay: \$60,970/year; Job Outlook (next 10 years): 6% (as fast as average).

Source: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, on the Internet at <https://www.bls.gov/ooh/> (visited March 28, 2019)

Earnings

Environmental Scientists Median Pay: \$69,400; Job Outlook (next 10 years): 11% (faster than average).

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Source: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, on the Internet at <https://www.bls.gov/ooh/> (visited March 28, 2019)

Biology B.S. Core Curriculum Required of all B.S. students.

Item #	Title	Credits
BIOL 111	General Biology I	4
BIOL 112	General Biology II	4
BIOL 230	Ecology	4
BIOL 320	Genetics	4
BIOL 419	Philosophy of Science	3
	Sub-Total Credits	19

Required Courses

In consultation with the advisor, BIOL 480 Research in Biology, may replace one of the electives. In order for BIOL 480 to count as an elective, at least three credit hours of BIOL 480 must be completed and a final presentation must be given.

Item #	Title	Credits
BIOL 328	Biostatistics	3
BIOL 345	Environment and Mankind	4
BIOL 360	Plant Biology	4
BIOL 443	Comparative Vertebrate Anatomy	4
BIOL 475	Management of Fish & Wildlife Resources	4
	Sub-Total Credits	19

Botany electives:

Item #	Title	Credits
BIOL 314	Systematic Botany	4
BIOL 465	Plant Physiology	4
	Sub-Total Credits	4

Ecology electives:

Item #	Title	Credits
BIOL 325	Field Ecology	4
BIOL 335	Limnology	4
	Sub-Total Credits	4

Zoology electives: Choose one course.

Item #	Title	Credits
BIOL 331	Vertebrate Ectotherms	4
BIOL 336	Endotherms	4
BIOL 443	Comparative Vertebrate Anatomy	4
	Sub-Total Credits	7-8

Required Cognates

Item #	Title	Credits
CHEM 111	General Chemistry I	4
CHEM 112	General Chemistry II	4
	MATH 141 or 180	3-4
	Sub-Total Credits	11-12

Sample 4 Year Curriculum

General Education Requirements

To view general education requirements for this major please visit: <https://catalog.swau.edu/core-curriculum-for-a-bachelors-degree>

First Year First Semester

Item #	Title	Credits
BIOL 111	General Biology I	4
CHEM 111	General Chemistry I	4
ENGL 121	Freshman Composition	3
UNIV 111	Wellness for Life	2
	History General Education Requirement	6
	Sub-Total Credits	19

First Year Second Semester

Item #	Title	Credits
BIOL 112	General Biology II	4
CHEM 112	General Chemistry II	4
	Computer Applications GE Curriculum Guide	3
	Religion GE Requirement	3
	Sub-Total Credits	14

Second Year First Semester

Item #	Title	Credits
BIOL 230	Ecology	4
MATH 141	Introduction to Probability and Statistics	3
ENGL 220	Research Writing	3
	Communication GE Requirement	3
	Kinesiology GE Requirement	1
	Sub-Total Credits	14

Second Year Second Semester

Item #	Title	Credits
BIOL 320	Genetics	4
BIOL 328	Biostatistics	3
BIOL 360	Plant Biology	4
	Religion GE Requirement	3
	Sub-Total Credits	14

Third Year First Semester

Item #	Title	Credits
BIOL 443	Comparative Vertebrate Anatomy	4
HIST 303	Geographic Information Systems for Social Science and Criminal Justice	3
	Religion GE Requirement	3
	Literature General Education Requirement	3
	Kinesiology GE Requirement	1
	Sub-Total Credits	14

Third Year Second Semester

Item #	Title	Credits
BIOL 331	Vertebrate Ectotherms	4
BIOL 345	Environment and Mankind	4
	Fine Arts General Education Requirement	3
	Upper Division Elective Course for 120	3
	Sub-Total Credits	14

Fourth Year First Semester

Item #	Title	Credits
BIOL 314	Systematic Botany	4
BIOL 474	Management of Plant Resources	4
BIOL 475	Management of Fish & Wildlife Resources	4
	History GE Requirement	3
BIOL 482	Senior Portfolio	1
	Sub-Total Credits	16

Fourth Year Second Semester

Item #	Title	Credits
BIOL 335	Limnology	4
BIOL 419	Philosophy of Science	3
BIOL 465	Plant Physiology	4
	Religion GE Requirement	3
	Social Science GE Requirement	3
	Sub-Total Credits	17