CONSERVATION ECOLOGY - BACHELOR OF SCIENCE IN CONSERVATION ECOLOGY

Co-directors of the Program:
Professor, Michele Nishiguchi, Department Head, Biology
Professor, Gerald Sims, Interim Department Head, Fish, Wildlife and Conservation Ecology

Professors Bailey, Boecklen, Boeing, Caldwell, Cowley, Desmond, Hanley, Houde, Milligan, Nishiguchi, Roemer, Smith, Wright; Associate Professors Cain, James, Mabry; Assistant Professors Ferrenberg

New Mexico State University offers an interdisciplinary, undergraduate program in Conservation Ecology. The goal of this program is to train biologists for the current and future challenges that we face in the conservation and wise use of our Earth's natural resources. An overriding principle of the program is to provide a solid foundation in basic science coupled with a practical approach towards sustainability and stewardship. The curriculum encompasses several disciplines and includes a wide variety of courses from the Biology, Fish, Wildlife and Conservation Ecology; Geography; and Range Science departments.

The educational experience will provide students with an overview of global biodiversity and an understanding of the ecological and evolutionary processes that have created and sustained it. Courses in population and community ecology coupled with population viability analysis and risk assessment will give students the necessary background to understand the theory and development of these fields as well as the tools to tackle real-world problems. Courses in basic genetics, evolution, and conservation genetics will expose students to the importance of conserving genetic variation in order to maintain adaptive potential within populations, thereby sustaining the evolutionary process. Students will also receive background on wildlife law and environmental policy, information vital for assisting governing bodies in making decisions regarding the protection and wise use of our natural resources. Skills obtained in the application of geographic information systems, molecular genetics, and professional communication can also be acquired through various electives. In sum, we seek to provide undergraduate students with an education that will allow them the opportunity to contribute to the conservation of all life on Earth.

The requirements are listed below. In addition, each required course must be passed with a grade of C- or better.

Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 120 credits with 48 credits in courses numbered 300 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework.

### Prefix | Title | Credits
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**General Education**<br>
**Area I: Communications** | 10<br>
English Composition - Level 1 | 1<br>
English Composition - Level 2 | **Area II: Mathematics** | 3-4<br>
MATH 142G | Calculus for the Biological and Management Sciences | 2<br>
or MATH 192G | Calculus and Analytic Geometry II | 11
**Area III/IV: Laboratory Sciences and Social/Behavioral Sciences**<br>
CHEM 111G | General Chemistry I | 3<br>
CHEM 112G | General Chemistry II | 3<br>
Choose one from the following (3 credits):<br>
ECON 201G | Introduction to Economics | 3<br>
ECON 251G | Principles of Macroeconomics | 3<br>
ECON 252G | Principles of Microeconomics | 3
**Area V: Humanities**<br>
Choose one from the following (3 credits):<br>
ENGL 218G | Technical and Scientific Communication (either are preferred)<br>
or ENGL 318G | Advanced Technical and Professional Communication | 3
**Area VI: Creative and Fine Arts**<br>
Choose one from the following (3 credits):<br>
CHEM 111G | General Chemistry I | 3<br>
CHEM 112G | General Chemistry II | 3<br>
Choose one from the following (3 credits):<br>
ECON 201G | Introduction to Economics | 3<br>
ECON 251G | Principles of Macroeconomics | 3<br>
ECON 252G | Principles of Microeconomics | 3
**Viewing a Wider World**<br>
One VWW course will be meet with the 9-credit rule<br>
**Major Requirements**<br>
Choose one from the following (11 credits):<br>
Biol 111G | Natural History of Life | 3<br>
Biol 111GL | Natural History of Life Laboratory | 1<br>
Biol 211G | Cellular and Organismal Biology | 3<br>
Biol 211GL | Cellular and Organismal Biology Laboratory | 1<br>
Biol 301 | Principles of Ecology | 3<br>
or FWCE 301 | Wildlife Ecology | 3<br>
Biol 305 | Principles of Genetics | 3<br>
or AGRO 305 | Principles of Genetics | 3<br>
Biol 312 | Plant Taxonomy | 3<br>
or RGSC 316 | Rangeland Plants | 3<br>
Biol 313 | Structure and Function of Plants | 3<br>
Biol 322 | Zoology | 3<br>
Biol 455 | Biometry | 3<br>
or FWCE 457 | Ecological Biometry | 3<br>
Biol 462 | Conservation Biology | 3<br>
Biol 467 | Evolution | 3<br>
Biol 488 | Principles of Conservation Genetics | 3<br>
or BCHE 341 | Survey of Biochemistry | 3<br>
FWCE 255 | Principles of Fish and Wildlife Management | 3<br>
FWCE 330 | Natural History of the Vertebrates | 4<br>
FWCE 402 | Seminar in Natural Resource Management | 1<br>
FWCE 409 | Introduction to Population Ecology | 3<br>
FWCE 447 | Wildlife Law and Policy | 3<br>
FWCE 464 | Management of Aquatic and Terrestrial Ecosystems | 4
**Physiology Requirement** | 3-4
BIOL 314  Plant Physiology
BIOL 354  Physiology of Humans
& 354 L  and Laboratory of Human Physiology
BIOL 381  Animal Physiology
ANSC 370  Anatomy and Physiology of Farm Animals
FWCE 432  Environmental Biology of Fishes

Diversity of Life Requirement  6-8
BIOL 465  Invertebrate Zoology
BIOL 480  Animal Behavior
EPWS 303  Economic Entomology
EPWS 462  Parasitology
FWCE 430  Avian Field Ecology
FWCE 431  Mammalogy
FWCE 467  Herpetology
FWCE 482  Ichthyology

Non-Departmental Requirements (in addition to Gen.Ed/ VWW)
CHEM 211  Organic Chemistry  4
Choose one from the following:  4

PHYS 211G  General Physics I
& 211GL  and General Physics I Laboratory
PHYS 221G  General Physics for Life Sciences I
& 221GL  and Laboratory to General Physics for Life Science I

Choose one from the following:  4

PHYS 212G  General Physics II
& 212GL  and General Physics II Laboratory
PHYS 222G  General Physics for Life Sciences II
& 222GL  and Laboratory to General Physics for Life Sciences II

Second Language: (not required)
Electives, to bring the total credits to 120  4
Select additional electives to bring total to 120 credits including 48 upper division credits.  5

Total Credits  120

1 See the General Education Section of the catalog for a full list of courses.
2 Either MATH 142G Calculus for the Biological and Management Sciences or MATH 192G Calculus and Analytic Geometry II is required for the degree but students may need to take any prerequisites needed to enter these courses.
3 One Viewing a Wider World course will be satisfied using the 9-hour rule: students with Biology as home department use FWCE courses and students with Fish, Wildlife and Conservation Ecology as home department use BIOL courses.
5 Elective credit may vary based on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The elective credits in the requirements list is the amount needed to bring the total to 120 credits and may vary based on the degree. Students may need to complete more or less courses on a case-by-case basis and each student should discuss elective requirements with their advisor.

Second Language Requirement
For the Bachelor of Science in Conservation Ecology there is no second language requirement for the degree.