CONSERVATION ECOLOGY - BACHELOR OF SCIENCE IN CONSERVATION ECOLOGY

Co-directors of the Program:

Regents Professor, Michelle K. Nishiguchi, Department Head, Biology
Professor, Kathryn E. Stoner, Department Head, Fish, Wildlife and Conservation Ecology

Professors Boecklen, Boeing, Caldwell, Cowley, Desmond, Hanley, Houde, Milligan, Nishiguchi, Roemer, G. Smith, Wright; Associate Professors Bailey, Cain, Mabry, Assistant Professor 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 Biology, Fish, Wildlife and Conservation Ecology, Geography and Range Science.

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.

New Mexico and University Requirements

Area I: Communications
ENGL 111G Rhetoric and Composition 4
ENGL 218G Technical and Scientific Communication 3
or ENGL 318G Advanced Technical and Professional Communication
Select one from the following: 3
AXED 201G Effective Leadership and Communication in Agricultural Organizations
COMM 253G Public Speaking
COMM 265G Principles of Human Communication

Area II: Mathematics
MATH 121G College Algebra 3
Area III: Science, with Laboratory
Select one from the following groups: 8
Group 1:
BIOL 111G & 111GL Natural History of Life and Natural History of Life Laboratory
Group 2:
PHYS 211G & 211GL General Physics I and General Physics I Laboratory
PHYS 212G & 212GL General Physics II and General Physics II Laboratory
Group 3:
PHYS 221G & 221GL General Physics for Life Sciences I and Laboratory to General Physics for Life Science I
PHYS 222G & 222GL General Physics for Life Sciences II and Laboratory to General Physics for Life Sciences II
Select a total of 15 combined credits from Areas IV and V, with at least 9 credits in one of the two areas: 15
Area IV: Social Behavioral Sciences: Select 6-9 credits including one from the following:
ECON 201G Introduction to Economics
ECON 251G Principles of Macroeconomics
ECON 252G Principles of Microeconomics
Area V: Humanities and Fine Arts: Select 6-9 credits 1
Viewing a Wider World
Select 6 credits from Viewing a Wider World courses 2 6
Core Curriculum
A ST 311 Statistical Applications 3
CHEM 111G General Chemistry I 4
CHEM 112G General Chemistry II 4
CHEM 211 Organic Chemistry 4
ECON 337V Natural Resource Economics 3
Physiology
Select 3-4 credits from the following: 3-4
ANSC 370 Anatomy and Physiology of Farm Animals
BIOL 314 Plant Physiology
BIOL 354 Physiology of Humans & 354 L and Laboratory of Human Physiology
BIOL 381 Animal Physiology
FWCE 432 Environmental Biology of Fishes

Major Requirements
BIOL 111G & 111GL Natural History of Life and Natural History of Life Laboratory 4
BIOL 211G & 211GL Cellular and Organismal Biology and Cellular and Organismal Biology Laboratory 4
BIOL 301 Principles of Ecology or FWCE 301 Wildlife Ecology 3
AGRO 305 Principles of Genetics or BIOL 305 Principles of Genetics 3
BIOL 312 Plant Taxonomy 3
or RGSC 316

BIOL 313 Structure and Function of Plants 3
BIOL 322 Zoology 3
BIOL 462 Conservation Biology 3
BIOL 467 Evolution 3
BIOL 488 Principles of Conservation Genetics 3
FWCE 110 Introduction to Natural Resources Management 4

FWCE 255 Principles of Fish and Wildlife Management 3
FWCE 330 Natural History of the Vertebrates 4
FWCE 402 Seminar in Natural Resource Management 1
FWCE 409 Introduction to Population Ecology 3
FWCE 447 Wildlife Law and Policy 3
FWCE 464 Management of Aquatic and Terrestrial Ecosystems 4

MATH 142G Calculus for the Biological and Management Sciences 3-4
or MATH 190G Trigonometry and Precalculus

MATH 191G & MATH 192G Calculus and Analytic Geometry I and II 8

**Requirements in Diversity of Life**

Select 6-8 credits from BIOL or FWCE: 6-8

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOL 408</td>
<td>Ecology of Plants</td>
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<tr>
<td>BIOL 465</td>
<td>Invertebrate Zoology</td>
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<td>BIOL 480</td>
<td>Animal Behavior</td>
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<td>BIOL 447</td>
<td>Ornithology</td>
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<td>or FWCE 430</td>
<td>Avian Field Ecology</td>
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<td>FWCE 431</td>
<td>Mammalogy</td>
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<td>FWCE 467</td>
<td>Herpetology</td>
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<td>FWCE 482</td>
<td>Ichthyology</td>
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**Other Related Courses**

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<tr>
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<tbody>
<tr>
<td>BCHE 341</td>
<td>Survey of Biochemistry</td>
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<td>BIOL 436</td>
<td>Disease Vector Biology</td>
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<td>BIOL 442</td>
<td>Genomics Technology</td>
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<td>BIOL 446</td>
<td>Bioinformatics and NCBI Database</td>
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<td>BIOL 469</td>
<td>Biology of Emerging Infectious Diseases</td>
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<td>BIOL 489</td>
<td>Genetic Aspects of Population Biology</td>
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<td>FWCE 457</td>
<td>Ecological Biometry</td>
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<td>FWCE 471</td>
<td>GIS for Natural Resource Scientists</td>
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<td>GEOG 381</td>
<td>Cartography and Geographic Information</td>
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<td>Systems</td>
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<td>GEOG 481</td>
<td>Fundamentals of Geographic Information</td>
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<td>Science and Technology (GIS &amp; T)</td>
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<td>GEOL 111G</td>
<td>Introductory to Geology</td>
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<td>GEOL 295</td>
<td>Environmental Geology</td>
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<td>GEOL 424</td>
<td>Soil Chemistry</td>
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<td>GOVT 378</td>
<td>U.S.-Mexico Border Politics</td>
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<td>RGSC 318</td>
<td>Watershed Management</td>
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<td>RGSC 325</td>
<td>Rangeland Restoration Ecology</td>
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RGSC 452 Vegetation Measurements for Rangeland Assessment

Total Credits 134-138

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1. Areas IV and V are linked. You have to take a total of 15 credits between these two areas, for example, either 9 credits in Area IV and 6 credits in Area V or vice versa. See Required Courses (http://catalogs.nmsu.edu/nmsu/essential-information-students/general-education-courses) section.

2. 3 credits can be taken inside the College of ACES, but 3 credits must also be taken outside the College of ACES or 9 credits can be taken within a single department (e.g. Biology) that is outside the College of ACES.