The Master of Science degree in Environmental Sciences and Policy provides an advanced education for scientists and managers in the interdisciplinary environmental sciences. In-depth study of the environment has become increasingly dependent upon knowledge of the interactions between the natural world and human society. Neither today's environmental scientist, nor today's environmental policy analyst, can be content to specialize in a single field of study. Instead, environmental scientists and policy analysts are expected to be familiar with the interactions between natural resource disciplines such as ecology, geology, chemistry and social science disciplines such as policy and politics, communications, sociology and economics. Graduates of the program will obtain the skills necessary to (1) analyze and understand environmental systems, (2) interpret and apply environmental rules and regulations, (3) predict the impact of human activities on our environment, and (4) develop effective methods for addressing environmental issues from a rigorous, interdisciplinary perspective.

This program is unique in its focus on interdisciplinary study. Students are encouraged and, in fact, required to think and learn across traditional disciplinary boundaries and situate their research in society. The masters program involves significant cross-campus collaboration between a number of different departments and colleges, with Environmental Sciences and Political Science being the two most integral to the program. Research and teaching focuses on Arizona and Colorado Plateau issues, though knowledge gained will apply to national and international environmental issues as well.

ES&P GRADUATE STUDIES COMMITTEE
The ES&P Graduate Committee oversees the ES&P graduate program. The Committee is comprised of faculty members from SES ENV Programs, the SES graduate coordinator and is coordinated by the ES&P Graduate Program chair. The ES&P Graduate Committee is responsible for periodic review of policies and procedures concerning the graduate programs of the department. The ES&P Graduate Committee is also responsible for admission decisions, recommendations for different types of financial support, and resolving ES&P related issues.

MS THESIS COMMITTEE IN ESP
Throughout your tenure in the program, you will work most closely with your faculty advisor, or co-advisors. In addition, each student admitted to the program will select an interdisciplinary Graduate Program Committee during your second semester in the Environmental Sciences and Policy program. The Program Committee Form is available on the ESP website, and should be submitted to your faculty advisor or co-advisors and Graduate Coordinator for approval and signatures by the end of your first year in the program.
Each student's committee will consist of three or four faculty members, and all committees must include at least one NAU faculty member representing the social sciences (e.g. political science, anthropology, sociology, psychology, etc) and another NAU faculty member representing the natural sciences (e.g. biology, geology, chemistry). The goal of diverse committee composition is to ensure a robust thesis that addresses the natural and human dimensions of the topic of investigation. Two committee members must be NAU faculty members with appointments (regular, adjunct or affiliated) in SES, including the committee chair or one of the two co-chairs, if this responsibility is shared. In cases of deadlocked committee decisions, the committee chair or the ES&P co-chair will have the deciding vote. Program Committees must be approved by the ES&P Graduate Coordinator. Students may change their advisors or committees during their program by resubmitting a revised Program Committee form, but this practice is discouraged, and will be approved only under compelling circumstances. Committee changes may not occur within the final semester preceding thesis defense and graduation.

PROGRAM OF STUDY

Student’s must develop a formal program of study detailing the student’s intended coursework in consultation with the student’s advisor and committee by the end of the first semester of residence. A Program of Study Worksheet is available on the ES&P website. Programs must be approved by the student’s advisor and the ES&P Graduate Coordinator. The Program of Study worksheet must indicate a schedule for completion of 36 hours of graduate credit, including required core courses.

The Program Core for both the Science & Policy Emphasis and the Paleoenvironmental Sciences Emphasis (15 credit hours required) is as follows.

- EES 605*: Regional Topics in Earth and Environmental Science and Policy
- EES 606*: Research Methods in Earth and Environmental Science
- ENV 555*: The Environmental Science-Policy Interface

Quantitative Analysis and Research (5-7 hours required)
- BIO 682: Quantitative Biology
- MAT 542/543: Wildlife Population Modeling and Lab (3-5 units)
- POS 601: Research Methods/Analysis
- POS 605: Topics in Research Methods
- STA 570: Statistical Methods I
- STA 571: Statistical Methods II
- STA 676: Experimental Design

Thesis (7 hours required)
- EES 699*: Thesis

* Indicates required courses
Students may choose either the Science and Policy Emphasis or the Paleoenvironmental Sciences Emphasis.

Science and Policy Emphasis (21 units) The intent of the formal course menu below is to provide a guide to obtaining interdisciplinary breadth and depth in the Environmental Science and Policy emphasis. Thesis and specialty credits provide the intended depth. The interdisciplinary breadth is met through natural science coursework outside of, and complementary to, the student thesis (6 credits) and at least one course drawn from social sciences (3 credits). If a student, in consultation with their major advisor and committee, believes other courses can meet this goal in relation to the student’s interests, they may propose alternate courses to meet the breadth requirements. The ES&P graduate coordinator will need to approve any deviations from the course menu above.

A. Take one course each from two of the three areas listed below (6 credit hours required)
   Water Resources
   - BIO 572: Limnology
   - FOR 560: Wetland Ecology and Management
   - FOR 563: Watershed Hydrology
   - FOR 565: Watershed Restoration
   - GLG 451: Hydrogeology
   - GLG 575: Geochemistry of Natural Waters
   - GLG 670: Advanced Hydrogeology
   Atmosphere and Climate
   - CHM440/ENV 430: Environmental Chemistry
   - ENV 580: Atmospheric Change
   - ENV 591: Science and Management of Greenhouse Gases
   - ENV 595: Global Environmental/Climate Change
   - ENV 596: Quaternary Climate Change
   - ENV 675: Topics in Environmental Discourse
   Land Resources
   - BIO 570: Plant Ecology
   - BIO 573: Field Ecology
   - BIO 660: Organic Evolution
   - BIO 663: Biogeography
   - ENV 530: Arid Lands Geomorphology
   - ENV 540 & 540L: Conservation Biology and Lab
   - ENV 544: Landscape Ecology
   - ENV 550: Historical Ecology
   - ENV 571: Microbial Ecology
   - ENV 640: Ecological Assessment and Monitoring
   - FOR 544: Landscape Ecology
   - FOR 545: Rangeland Ecology and Management
   - FOR 580: Ecological Restoration Principles
   - FOR 582: Ecological Restoration Applications
B. Choose one course from the list below (3 credit hours required)

Environmental Laws, Regulations, and Policy
- CENE 540: Environmental Protection
- ENV 520: Collaboration in Environmental Management
- FOR 573: Human Dimensions of Natural Resource Management
- FOR 593: Natural Resource Economics
- FOR 605: Policy Process in Multi-Resource Management
- FOR 633: Ecological Economics
- GSP 514: Planning Sustainable Communities
- GSP 521: Land Use Planning and Ethics
- GSP 522: Fundamentals of Development Law and Community Sustainability
- GSP 524: Fundamentals of Environmental Law
- GSP 698: Seminar in Rural Geography
- POS 659: Environmental Policy

C. Specialty Courses, chosen in consultation with your committee (12 credit hours required)

Paleoenvironmental Sciences Emphasis (19-20 units)

The courses from the menu below are intended to provide the necessary breadth and depth to support student interests. Students, in consultation with their major advisor and committee, may propose alternative courses that fulfill the intention of the degree.

A. Take one course each from each of the three areas listed below (12-13 credit hours required)

Quaternary Geology
- GLG 527: Quaternary Geology

Paleoecology
- ENV 550: Historical Ecology
- ENV 573: Quaternary Pollen Analysis

Climatology/Paleoclimatology
- ENV 595: Global environmental and Climate Change
- ENV 596: Quaternary Climate Change
- ENV 675: Topics in Environmental Discourse

Human Systems
- ANT 517: Southwestern Archeology
- ANT 550: Analysis of Archaeological Materials
- ANT 552: Ceramic Analysis
- ANT 554: Paleoethnobotany
- ANT 555: Lithic Analysis
- ANT 635: Archeological Theory
- ANT 636: Archaeological Methods and Inference

B. Specialty Courses chosen in consultation with your committee (7 credit hours required).
EXTERNAL FINANCIAL SUPPORT
Funds are available from a variety of sources to supplement student income and to defray some of the costs of thesis research and preparation. Our graduate students have been very successful at procuring this support in the past. Opportunities include the following.

WESTERN REGIONAL GRADUATE PROGRAM
The Master of Science Environmental Sciences and Policy program was the first graduate program at Northern Arizona University to be selected for participation in the Western Regional Graduate Program (WRGP). Graduate programs included in the WRGP are identified as providing a unique, interdisciplinary graduate education experience for their students. The Western Interstate Commission on Higher Education allows graduate students who are presently residents within 15 participating states (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming) to enroll in one of 51 participating institutions outside of their home state, including NAU, and pay resident (in-state) tuition. Amount of award: varies.

WYSS SCHOLARSHIP FOR THE CONSERVATION OF THE AMERICAN WEST
The Wyss Scholars Program supports the graduate-level education of a new generation of leaders in western land conservation. Wyss Scholars learn the latest in conservation science and policy and apply that knowledge in careers at land management agencies and nonprofit conservation groups. Amount of award: $5,000 for summer research, additional amounts vary. Applications are due in November and open to 1st year ES&P graduate students.

BILL MORRALL MEMORIAL SCHOLARSHIP
The Bill Morrall Conservation Scholarship was established in 1983 by the Arizona Wildlife Federation to honor the memory of Bill Morrall. Bill was actively involved in the work of the foundation and conservation issues important to Northern Arizona. Past recipients may apply. For more information on how to apply to this scholarship, check out the SES Scholarships page.

JOHN PRATHER MEMORIAL SCHOLARSHIP
The John W. Prather Scholarship supports graduate student research in conservation biology. Application is open to all graduate students in good standing at Northern Arizona University who are engaged in research related to the conservation of biological diversity. John Prather, 1969-2006, was a talented conservation biologist committed to the conservation of biological diversity. He was also a willing mentor, an avid birder, a spelunker, a member of Democrats for America, a fan of The Onion, and the brewer of Bayesian Brown Ale. For more information on how to apply to this scholarship, check out the SES Scholarships page.