NDSU
NORTH DAKOTA STATE UNIVERSITY

Natural Resources Management

Doctoral Degree Program

Program Description

The Doctor of Philosophy (Ph.D.) degree in Natural Resources Management (NRM) is an interdisciplinary curriculum dealing with problems of managing natural resources. Students gain a breadth of knowledge in relevant planning, analysis, and management areas, while developing thorough knowledge in one of the following six specialty areas: biotic resources science, environmental communication, natural resources economics, physical/earth resources science, social sciences, and pollution control. This interdisciplinary program prepares students to work on problems that require assimilation of data, methods, and strategies from many supporting disciplines. Problem recognition, definition, analysis, and resolution are the ultimate learning objectives. The program prepares students to compete for, and be productive in, jobs where problems and issues extend beyond a single discipline or subject area.

After selecting a specialty area, the student chooses a faculty advisor from one of the following participating academic units: Agribusiness and Applied Economics, Agricultural and Biosystems Engineering, Biological Sciences (Botany, Biology and Zoology), Civil Engineering, Earth and Climate Science, Communication, Engineering and Landscape Architecture, Entomology, Geosciences, Natural Resources Management, Plant Sciences, Range Science, Sociology, Anthropology and Emergency Management, Soil Science, and Veterinary and Microbiological Sciences.

The educational objective of the program is to provide formal training in a chosen area of specialty, appropriate course work in analytical methods, and introductions to other subject matter areas and to provide course work, research, and writing experiences in the general area of environmental problem solving.

Admissions Requirements

The doctoral program in Natural Resources Management is open to qualified graduates of universities and colleges of recognized standing. To be admitted with full status to the program the applicant must:

1. Preferably hold a master's (MS, MA) degree from an educational institution of recognized standing. Degree requirements vary by department.
2. Have adequate preparation in specialty area and show potential to undertake advanced study and research as evidenced by academic performance and experience.
3. At the baccalaureate level, have earned a cumulative grade point average (GPA) in all courses of at least 3.0 or equivalent. Students with a previous graduate degree with a GPA of 3.0 or equivalent may be admitted in full standing.
4. General Graduate Record Examination (GRE) scores may be required by participating departments. GRE and TOEFL scores are required of international students. Both general and subject GRE scores are required of all Zoology applicants.

Applications should be submitted directly to The Graduate School. Applications should specify the Natural Resources Management Program.

Official transcripts (transcripts having an appropriate seal or stamp) of all previous undergraduate and graduate records must be received by the Graduate School before the application is complete. When a transcript is submitted in advance of completion of undergraduate or graduate studies, an updated transcript showing all course units and grades must be received prior to initial registration at NDSU.

Three letters of recommendation are required before action is taken on any application. Personal reference report forms are available from The Graduate School.

Degree Requirements

To qualify for this degree the candidate must satisfactorily complete a course of study of not less than 90 semester units (including the MS or MA degree) and must present a dissertation.

The Graduate School enforces a policy of continuous enrollment, during which time only grades of A, B, C or S (satisfactory) are accepted. Coursework must be completed within seven years of continuous enrollment.

Financial Assistance

Both research and teaching assistantships may be available through the participating academic units. Application for financial aid must be made directly to a department. Applicants are considered on the basis of scholarship and potential to undertake advanced study and research. Limited scholarships are available. Contact Student Financial Services for information and applications.

Potential NRM doctoral degree candidates have an interest in broadening their understanding of natural resources from an interdisciplinary approach

For Further Information:

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Web: http://www.ag.ndsu.nodak.edu/nrm/

Courses Offered:

The supporting areas of resource analysis include computer science, natural resource planning, mathematics, statistics, and resource systems analysis.

Most program courses are offered by individual academic departments. Suggested courses include, but are not limited to:

Agribusiness and Applied Economics – 670, 701, 711, 739, and 741

Agricultural and Biosystems Engineering – 664, 682, 758, and 765

Agricultural Systems Management – 654, 675

Anthropology – 658, 662, 680

Animal Sciences – 660, 663, 728, 730, 740

Botany/Biology – 660, 671, 672, 716, 717, 720, 762, 764, and 782

Civil Engineering – 610, 621, 672, 673, 677, 678, 679, 770, 775, and 776

Computer Science – 653, 658, 668, 728, 711, 725, 734, 737 and 765

Economics – 610,656, 661, 670, 672, 681,741, and 743

Entomology – 610, 731, 732, 742, 750, 765, and 770

Environmental Communications – 633, 642, 643, 700, 705, 755, 767, 785, and 786

Environmental & Conservation Sciences – 770

Geography – 655, 656

Geology – 612, 613, 614, 628, 640, 650

Industrial and Manufacturing Engineering – 640 and 660

Microbiological Sciences – 652, 653, 654, 660, 661, 665, 670, 674, 675, 750, 762, 770, 775, and 785

Natural Resources Management – 631, 632, 653, 654, 690, 701, 702, 720, and 730

Philosophy - 681

Plant Pathology – 655, 656

Plant Sciences – 653, 665, 686, 724, 734, 753 and 763

Political Science – 620, 621, and 642

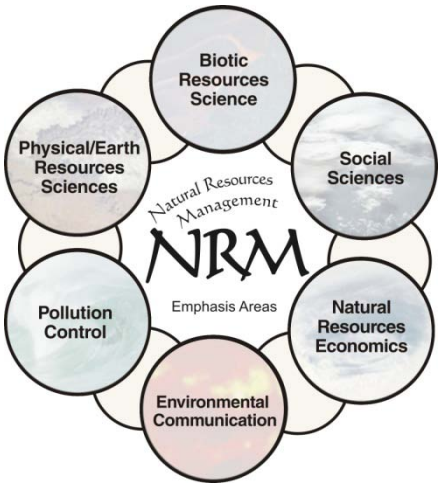
Range Science – 650, 652, 656, 658, 660, 716, 717, 765

Sociology – 603, 605, 610, 612, 613, 622, 631, 639, 643, 645, 665, 700, 701, and 723

Soil Science – 610, 633, 644, 647, 655, 680, 733, 755, 763, 784, and 785

Statistics/Mathematics – 660, 661, 662, 663, and 725

Zoology – 652, 654, 656, 658, 660, 662, 664, 670, 672, 674, 675, 676, 682, 720, 760, 770, and 776



NATURAL RESOURCES MANAGEMENT

Grygiel, Chair; Ashworth, Barker, Biondini, Bleier, Casey, Clambey, Goreham, Hearne, J. Leitch, Meister, Norland, Padmanabhan, Rider, Steele, Zeleznik

UNDERGRADUATE AND GRADUATE COURSES

150 Natural Resources Management Orientation 1
Introduction to natural resources management issues, concepts, and careers.

225 Natural Resources & Agroecosystems 3
Introduction to scientific theories and their relation to natural resources and agriculture. Influence of these theories on current perspectives toward the environment.

264 Natural Resource Management Systems 3
General principles of management of natural resource systems including hydrology, soil erosion, irrigation, drainage, and water quality.

431/631 NEPA and Environmental Impact Assessment 2
The interaction and effects of NEPA with national environmental policy; implementation of NEPA; public opinion on the state of the environment.

432/632 Environmental Impact Statements 2
An in-depth review of EISs including instruction and practice in the preparation of an EIS

453/653 Rangeland Resource/Watershed Management 3
Study of the management of physical/biological settings and processes along with human activities on water and watersheds considering preventative and restorative strategies in a rangeland setting. Prerequisite: ARSC 336 or NRM 225.

454/654 Watershed Resource Management 3
Study of the management of physical/biological settings and processes along with human activities on water and watersheds considering preventative and restorative strategies in a rangeland setting. Prereq: RNG 336 or NRM/RNG 225. Cross-listed with RNG.

491 Seminar 2
Capstone experience employing problem based learning on topics relating to natural resources management. Prerequisite: Senior standing.

690 Graduate Seminar – Natural Resources Management 1-3
Capstone experience employing problem based learning on topics relating to natural resources management. Prerequisite: Graduate standing.

701 Terrestrial Resources Management 3
Management and ecology of heterogeneous landscapes where ecosystem processes and human activities interact as dynamic components. Prerequisite: Bot 660 and 754, or program director approval.

702 Natural Resources Management Planning 2
Presentation of the principles, practices and key policy issues of natural resources management and planning. Prerequisite: NRM 701, or program director approval.

720 Natural Resources Administration and Policy 2
A comprehensive analysis of the theory of externalities and their application to the design of natural resources policy. Prerequisite: Econ 681, NRM 702, or program director approval.

730 Environmental Law 3
Overview of the subject of environmental law.