

NRM 601: RESEARCH METHODS IN NATURAL RESOURCES MANAGEMENT

Fall Semester 2015

COURSE SYLLABUS

CLASSES

Lectures and discussions, Wednesday, 3:00 pm to 5:00 pm, AHRB 183

INSTRUCTOR AND COORDINATOR

Dr. Jenifer Huang McBeath

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OFFICE HOURS

Tuesday and Thursday 11:30 am—1:30 pm. and by appointment

SCOPE AND LEARNING OBJECTIVES

This course is designed as an introduction for graduate students to the research methods employed in various fields of natural resources management, including agriculture, forestry, pathology, entomology, ecology, climatology and the social sciences. This course is intended to acquaint students with the relationship between theory and research, the nature of scientific inquiry, approaches to research, the sequence of steps involved in scientific investigation, obtaining grant funds to support research, analysis and interpretation of research results, and presentation of results.

The primary objectives of this course are:

- 1) introduce students to the concepts of scientific research,
- 2) instruct students in rules and guidelines of research ethics,
- 3) expose students to diverse methods and instruments in biological and social science research,
- 4) instruct students in grant writing.

This course will be taught by experts on the subject matters and disciplines.

GRADING SYSTEM

Final grades will be assigned based on merit. The bottom and top three percentage points of each letter grade below will be assigned a ‘-’ and ‘+’, respectively.

A = 90% or higher

B = 80-90%

C = 70 -79%

D = 60-69%

F = <60%

REQUIREMENTS

1. Attendance and Participation. Regular attendance is essential and good attendance will be rewarded. Attendance counts for 20 percent of the course grade. Active participation in class by asking questions and engaging in discussion improves the learning environment for all students, and is strongly encouraged. Please avoid distracting classmates (and instructor) by open cell phones, texting in class, and surfing the web.
2. Write a grant proposal for a research project in natural resources. Each student will develop a proposal by selecting a research topic in natural resources to be submitted to a granting agency. This proposal should follow the criteria of the NSF Graduate Student Fellowship Program. The grant proposal accounts for 35 percent of the final grade.
3. Proposal presentation. Each student will present and defend his/her proposal. This presentation accounts for 20 percent of the final grade.
4. Other Work. Students will read others proposals and serve as reviewers. Proposal evaluations will be submitted after each of the oral presentations based on a list of criteria given during the lecture on grantsmanship. This evaluation accounts for 25 percent of the final grade.
4. Plagiarism and cheating are serious offenses, prohibited by the UAF Student Code of Conduct. Any source directly quoted or paraphrased in your assignments should be properly cited.
- 5) Contact the instructor immediately if you are unable to attend the class or hand in an assignment on time.

COURSE OUTLINE AND READING SCHEDULE

<u>Date</u>	<u>Topic</u>	<u>Lecturer(s)</u>
Sept. 9	Introduction Grantsmanship: Nuts-Bolts of a Research Career	J. McBeath S. Boatwright
Sept. 16	Ethics	D. Valentine
Sept. 23	Experimental Design	R. Barry
Sept. 30	Questionnaire Design, Quantitative data collection and analysis	P. Fix
Oct. 07	Participation Observation, Elite Interviewing, Qualitative data collection and analysis,	E. Drew

Oct. 14	Animals in Research: Animal care and research design	J. Rowe, and J. Blake
Oct. 21	Weed Science Research	S. Seefeldt
Oct. 28	Entomological Research	D. Sikes
Nov. 04	GIS Technology	D. Verbyla
Nov. 11	Modeling the Arctic Climate System	J. Walsh
Nov. 18.	Environmental microbiology research methods	M. Leigh
Nov. 25	Ag-bioresearch—integrating science with practical Experience—plant pathology	J. McBeath M. Karlsson
Dec. 02	Ag-bioresearch—integrating science with practical Experience—horticulture	M. Karlsson J. McBeath
Dec. 9	Proposal Presentation (25 minutes per presenter)	
Dec. 16	Proposal submission	

LIST OF LECTURERS

Dr. Ronald Barry, Professor of Mathematics and Statistics, CNSM

Dr. John Blake, Associate Vice Chancellor for Research, Director of Animal Resource Center, Attending Veterinarian.

Ms. Sandra Boatwright, Manager, Proposal and Publication Office, Institute of Northern Engineering.

Dr. Elaine Drew, Assistant Professor of cultural anthropology, Department of Anthropology, CLA

Dr. Peter Fix, Associate Professor of Outdoor Recreation, Department of Natural Resources, School of Natural Resources and Extension (SNRE)

Dr. Meriam Karlsson, Professor of Horticulture, AFES, and Department of Agriculture and Horticulture, SNRE

Dr. Mary Beth Leigh, Associate Professor, Institute of Biology and Wildlife. CNSM

Dr. J. H. McBeath, Professor of Plant Pathology and Biotechnology, AFES and Department of Agriculture and Horticulture, SNRE

Dr. Jan Rowe, Assistant Professor of Animal Sciences, Agricultural and Forestry Experiment Station, SNRE

Dr. Steven Seefeldt, Agriculture and Horticulture Extension Agent, CES, SNRE

Dr. Derek Sikes, Associate Professor, Curator of Insects, Biology and Wildlife, Museum of the North, UA Museum

Dr. David Valentine, Professor and Director of Instruction, SNRE

Dr. David Verbyla, Professor of GIS, Department of Natural Resources, AFES, SNRE

Dr. John Walsh, Chief Scientist and Director, Center for Global Change and Arctic System Research and Cooperative Institute for Alaska Research (CIFAR), International Arctic Research Center (IARC).