Environmental Dynamics (ENDY)

Faculty
Mohamed H. Aly, Assistant Professor
Mark E. Arnold, Associate Professor
Steven J. Beaupre, Professor
Steve K. Boss, Professor
Kristofer R. Byre, Professor
Ken Coffey, Professor
Jackson David Cothren, Associate Professor
Matthew D. Covington, Assistant Professor
Fiona M. Davidson, Associate Professor
Ralph K. Davis, Professor
John C. Dixon, Professor
Gregory Dumond, Assistant Professor
Song Feng, Assistant Professor
Kevin M. Fitzpatrick, University Professor, Bernice Jones Chair in Community Education
John Gaber, Professor
Johnnie L. Gentry Jr., Professor
Joel Samuel Gordon, Professor
Margaret J. Guccione, Professor
Brian Edward Haggard, Professor
Phil Hays, Associate Professor
John G. Hehr, Professor
Marvin Kay, Professor
Kenneth L. Kvamme, Professor
Fred Limp Jr., University Professor
Christopher L. Liner, Professor
Mary Cathleen Savin, University Professor
Jerry Rose, University Professor
Mary Cathleen Savin, Professor
Bill Schwab, University Professor
Carl Alan Smith, Associate Professor
Kimberly G. Smith, Distinguished Professor
Frederick W. Spiegel, Distinguished Professor
David William Stahle, Distinguished Professor
Steven Lee Stephenson, Research Professor
Celina A. Suarez, Assistant Professor
Ted R. Swedenburg, Professor
Greg Thoma, Professor, Bates Teaching Professorship in Chemical Engineering
Jason A. Tullis, Associate Professor
Peter S. Ungar, Distinguished Professor
Elliott West, Alumni Distinguished Professor

Requirements for Admission: Applicants should hold a master’s degree in an environmental field such as anthropology; geography; geology; biological sciences; crop, soil and environmental sciences; environmental engineering; or in a social science field with an environmental focus (e.g. environmental economics, environmental policy, environmental sociology). Further, these students will be required to have at least a 3.20 GPA in graduate courses and strong scores on all components of the Graduate Record Examination (GRE). Applicants without the master’s degree but with exceptionally strong qualifications may be admitted directly into the ENDY program but must complete the master’s requirements. Admission into the program will be by committee evaluation. In addition to fulfilling the requirements for admission to the Graduate School, applicants must also supply the following materials:

1. Three recommendations from individuals familiar with the applicant’s academic or work history who can give candid assessments of the applicant’s ability to perform at the Ph.D. level.
2. A three-page Statement of Purpose outlining the applicant’s plans for the ENDY degree program that includes relevance of previous academic or work experience, current research interests or employment that bear on doctoral research, special skills, fieldwork
experience, familiarity with interdisciplinary work (if any), and future career goals.
3. An example of the applicant’s writing such as a publication reprint, report, major term paper, undergraduate honors thesis, chapter from M.A./M.S. thesis, or similar document that demonstrates the applicant’s organizational skills, research ability, familiarity with a body of literature, ability to report clearly on an academic topic, and/or general writing skills.
4. TOEFL (Test of English as a Foreign Language) and TSE (Test of Spoken English) scores for international students whose native language is not English.
5. GRE scores and other relevant information that would assist the Admissions Committee in selecting applicants to the program.

Requirements for the Degree: During the first semester of study, all students will be assigned an advisory committee to determine the student’s particular program of study. Students are required to integrate both environmental and human components into their Ph.D. coursework and dissertation research. The advisory committee will determine the courses required and assist the student in balancing courses among disciplines.

Students become candidates for the doctorate only upon passing written and oral comprehensive exams. The examination must be passed at least nine months before graduation.

Each candidate must complete a doctoral dissertation on a topic determined through collaboration with a major professor and dissertation committee. This dissertation must be a scholarly and significant original contribution to knowledge within the field of Environmental Dynamics.

A final oral examination is required and must be taken at least two weeks before graduation. The examination will be concerned primarily with the candidate’s dissertation but may include other aspects of the graduate work.

Individually tailored programs of study will be designed with the expectation that the student will complete a minimum of 24 hours of course work beyond the master’s level, to include three required courses

**Courses**

**ENDY 5043. GIS Analysis and Modeling (Sp). 3 Hours.**
Unlike conventional GIS courses that focus on studying "where", this course will teach students to address beyond "where" using various GIS analysis and modeling techniques to explore "why" and "how". The course will provide theoretical and methodological reviews of the principles of cartographic modeling and multi-criteria decision-making.
This course is cross-listed with GEOS 5653, ANTH 5653.

**ENDY 5053. Quaternary Environments (Fa). 3 Hours.**
An interdisciplinary study of the Quaternary Period including dating methods, deposits soils, climates, tectonics and human adaptations.
This course is cross-listed with ANTH 5053, GEOS 5053.

**ENDY 5113. Global Change (Sp). 3 Hours.**
Examines the interacting natural and anthropogenic factors involved in global change, concentrating on climate variability and change. Prerequisite: Graduate standing or instructor’s approval.
This course is cross-listed with GEOS 5113.

**ENDY 513. Environmental Site Assessment (Irregular). 3 Hours.**
Principles, problems, and methods related to conducting an environmental site assessment. An applied course covering field site assessment, regulatory documentation, and report preparation. Prerequisite: GEOS 4033 or GEOS 5263 (formerly GEOS 4033).
This course is cross-listed with GEOS 513.

**ENDY 5853. Environmental Isotope Geochemistry (Sp). 3 Hours.**
Introduction to principles of isotope fractionation and distribution in geological environments isotopic analytical methods, and extraction of isotope samples; application of isotopes in characterization of geologic processes and interaction with hydrologic, surficial, and biologic attenuation, paleothermometry soil and biochemical processes.
This course is cross-listed with GEOS 5853.

**ENDY 6013. Environmental Dynamics (Fa). 3 Hours.**
Required course for ENDY doctoral candidates. Overview of Earth Systems: Lithosphere; Hydrosphere, Atmosphere, Biosphere, Cryosphere, and human interaction across Earth systems. Emphasis on understanding of processes within Earth systems and interactions across Earth Systems as they pertain to global self-regulation, secular variation, climate stability, development and sustainability of human societies. Prerequisite: Graduate standing.

**ENDY 6023. Seminar in Environmental Dynamics (Irregular). 3 Hours.**
Seminar examining specific contemporary topic of topics in Environmental Dynamics. Topics will change with each offering. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ENDY 602V. Current Topics Seminar (Irregular). 1-2 Hour.**
Various aspects of the environment will be explored through topic specific seminars. Subject matter will change each semester addressing current environmental issues and research. Seminars will be one or two hours credit. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

**ENDY 603. Society and Environment (Sp). 3 Hours.**
This course examines the complex interrelationships between human societies and the natural environment. Drawing on diverse and interdisciplinary perspectives in archaeology, ethnography, history, geography, and palaeo-environmental studies, readings and discussion will explore the co-production of social and environmental systems over time.
This course is cross-listed with ANTH 603.
ENDY 689V. Special Problems in Environmental Dynamics (Sp, Su, Fa). 1-6 Hour.
Independent study of a topic related to environmental dynamics under the guidance of an ENDY faculty member. May be repeated for up to 6 hours of degree credit.

ENDY 6991. Environmental Dynamics Colloquium (Sp, Fa). 1 Hour.
Weekly meetings for discussion of current research in environmental dynamics. Graduate students must register for colloquium each semester. Colloquium credit does not count towards minimum hours required for the doctorate. Prerequisite: Graduate standing. May be repeated for up to 6 hours of degree credit.

ENDY 700V. Doctoral Dissertation (Sp, Su, Fa). 1-18 Hour.
Doctoral dissertation. Prerequisite: Graduate standing. May be repeated for degree credit.