

Environmental Resiliency (ENRC)

JoAnn Kvamme
Assistant Director
Environmental Dynamics Program
jkvamme@uark.edu

The various graduate certificates and graduate microcertificates in Environmental Resiliency have been created for people already in the workforce who need additional training in resiliency and sustainability certifications, accounting and metrics. These courses will introduce the concepts and prepare students for advancement in their current jobs or open doors to new opportunities.

Graduate Microcertificate in Environmental Resiliency

Environmental Resiliency Graduate MicroCertificate

The Environmental Resiliency Graduate MicroCertificate will be the first step in understanding resiliency.

Students enter the program with a minimum of a BS/BA from an accredited university. Students must have a 3 point GPA, or better, and for non-native speakers must have language test scores acceptable for admission by the University of Arkansas graduate school standards.

ENRE 5123	Foundations of Environmental Resiliency	3
Choose 2 of the 3 electives below:		6
ENRE 5223	You Cannot Manage What You Do Not Measure	
ENRE 5323	Survey of Watershed Hydrology and Water Resource Management	
ENRE 5423	Business and the Environment	
Total Hours		9

Graduate Microcertificate in Resiliency Certifications, Accounting and Metrics

Environmental Certification, Accounting, and Metrics Graduate MicroCertificate

The Environmental Certification, Accounting, and Metrics Graduate MicroCertificate will be the first step in understanding the new standard certifications being used to move companies and government toward a more sustainable and resilient future.

Students enter the program with a minimum of a BS/BA from an accredited university. Students must have a 3 point GPA, or better, and for non-native speakers must have language test scores acceptable for admission by the University of Arkansas graduate school standards.

ENRE 5123	Foundations of Environmental Resiliency	3
Choose two of the three electives below:		6
ENRE 5233	Carbon Accounting	
ENRE 5333	ESG Reporting	
ENRE 5433	Built Environment Certification Systems	
Total Hours		9

Environmental Resiliency Leadership Graduate Microcertificate

The Environmental Resiliency Leadership Graduate Microcertificate will be the first step to understanding resiliency and the foundations of good leadership. Together these skills will provide opportunities for the employee.

Students enter the program with a minimum of a B.S./B.A. from an accredited university. Students must have a 3.0 GPA, or better, and for non-native speakers must have language test scores acceptable for admission by the University of Arkansas graduate school standards.

ENRE 5123	Foundations of Environmental Resiliency	3
Choose two of the four listed electives:		6
ENRE 5113	Adaptive Leadership	
ENRE 5133	Science Communication for Executives	
ENRE 5213	Leadership is Convening, Do You Know How to Convene?	
ENRE 5313	Working with Stakeholders	
Total Hours		9

Sustainability Courses

SUST 5103. Foundations of Sustainable and Resilient Systems. 3 Hours.

Exploring sustainability foundations, application, and assessment, this course provides students the skills and competencies to understand, communicate, and evaluate sustainability at multiple scales. Using core sustainability concepts, such as systems and complexity, resilience and vulnerability, we evaluate interrelationships among environmental, societal, and economic well-being and the implications for decision-making. (Typically offered: Fall)

SUST 5203. Decision Making, Analysis and Synthesis in Sustainability. 3 Hours.

Provides an applied framework for analyzing decision dynamics, supporting and promoting more sustainable decisions, and measuring the sustainability of systems. The course applies theories of change, institutional decision theory, social and institutional constructs of sustainability, indicator and metric development across social, ecological, and economic domains, and communication strategies. (Typically offered: Spring)

SUST 5303. Sustainable Global Food, Energy and Water Systems. 3 Hours.

Provides a detailed review of the existing global food production/distribution and water systems, with an emphasis on scarcity, equity, management and challenges from changing global systems. This course explores the inputs and efficiencies of existing agricultural production systems, and examines equity and value in these systems. (Typically offered: Fall)

SUST 5603. Environmental Sociology. 3 Hours.

The course provides a social perspective on environmental issues. It examines the linkage between society, ecological systems and the physical environment. It provides conceptual framework(s) for analyzing environmental issues, considers the role of humans in environmental issues, and enhances understanding the complexity of the relationship between societal organization and environmental change. Graduate degree credit will not be given for both SUST 4603 and SUST 5603. (Typically offered: Fall)

SUST 5693. Environmental Justice. 3 Hours.

This course deals with the ethical, environmental, legal, economic, and social implications of society's treatment of the poor, the disenfranchised, and minorities who live in the less desirable, deteriorating neighborhoods, communities, and niches of our country. The class integrates science with philosophy, politics, economics, policy, and law, drawing on award-winning films, current news, and case studies. Graduate degree credit will not be given for both SUST 4693 and SUST 5693. (Typically offered: Spring)

SUST 590V. Special Problems in Sustainability. 1-6 Hour.

Special Problems is intended to fulfill a need in the sustainability curriculum to offer one-time pilot course work in any semester prior to the formal curriculum approval process, offer seminars on unusual but timely topics in sustainability on a one-time basis, or independent study for students seeking additional expertise in sustainability research and scholarship. Prerequisite: Graduate standing. (Typically offered: Irregular) May be repeated for up to 6 hours of degree credit.

SUST 6913. Sustainable Design and Construction: Remediation and Plants on Structure. 3 Hours.

Plants on Structure introduces students to strategies and techniques of plant use in the built environment. Potential topics include green infrastructure (e.g., green roofs and walls), site, soil, and water remediation techniques (e.g., phytoremediation, bioswales, and living machines), and structural considerations. Technical documentation methods and other representation and/or communication techniques as a means of conveying design intent are included. (Typically offered: Spring)

Environmental Dynamics Courses

ENDY 5053. Quaternary Environments. 3 Hours.

An interdisciplinary study of the Quaternary Period including dating methods, deposits soils, climates, tectonics and human adaptations. (Typically offered: Fall) This course is cross-listed with ANTH 5053, GEOS 5053.

ENDY 5113. Global Change. 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. (Typically offered: Spring) This course is cross-listed with GEOS 5113.

ENDY 5653. GIS Analysis and Modeling. 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. Students will receive degree credit for only one of ENDY 5653, GEOS 5653, or ANTH 5653. (Typically offered: Spring) This course is cross-listed with GEOS 5653.

ENDY 5853. Environmental Isotope Geochemistry. 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. (Typically offered: Spring) This course is cross-listed with GEOS 5853.

ENDY 600V. ENDY Thesis Research. 1-6 Hour.

Master's Thesis. May be repeated for degree credit. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

ENDY 6013. Environmental Dynamics. 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. (Typically offered: Fall)

ENDY 602V. Current Topics Seminar. 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. (Typically offered: Irregular) May be repeated for up to 6 hours of degree credit.

ENDY 6033. Society and Environment. 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. (Typically offered: Spring) This course is cross-listed with ANTH 6033.

ENDY 689V. Special Problems in Environmental Dynamics. 1-6 Hour.

Independent study of a topic related to environmental dynamics under the guidance of an ENDY faculty member. (Typically offered: Fall, Spring and Summer) May be repeated for up to 12 hours of degree credit.

ENDY 6991. Environmental Dynamics Colloquium. 1 Hour.

Weekly meetings for discussion of current research in environmental dynamics. Graduate students must register for colloquium each semester during their first three semesters. Colloquium credit does not count towards minimum hours required for the doctorate. Prerequisite: Graduate standing. (Typically offered: Fall and Spring) May be repeated for up to 20 hours of degree credit.

ENDY 700V. Doctoral Dissertation. 1-18 Hour.

Doctoral dissertation. Prerequisite: Graduate standing. (Typically offered: Fall, Spring and Summer) May be repeated for degree credit.