

**Handbook of Graduate Program Policies**

**Environmental Dynamics (ENDY) Ph.D. Program**

**2021-2022**

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## **I. Academic Honesty and Honor Code**

The Environmental Dynamics Program is committed to the principle of academic honesty and has a zero-tolerance policy regarding infractions of University of Arkansas policies on academic honesty. It is the responsibility of ALL students in the ENDY program to know and understand the Academic Honesty Policy of the University of Arkansas. The entire academic honesty policy and procedures related to the academic honesty policy are available for review at the following URL: <http://honesty.uark.edu>

The ENDY Program Director expects every student matriculating in the ENDY program to be familiar with this policy and to comply absolutely with its application and enforcement during the term of your study and research in the ENDY Program. Additionally, students should endeavor to remain aware of periodic updates to the academic honesty policy of the University of Arkansas.

***Any breach of standards of academic honesty by ENDY students will be referred to the Academic Integrity Monitor for the Graduate School and adjudicated as specified by the Academic Honesty Policy of the University of Arkansas. Determinations resulting from this process will be duly followed by the ENDY Program Director, ENDY Assistant Director, ENDY Faculty, and ENDY students.***

### **A. Honor Code for the Graduate School**

The mission of the Graduate School is to provide post-baccalaureate students with the opportunity to further their educational goals through programs of study, teaching, and research in an environment that promotes freedom of expression, intellectual inquiry, and professional integrity. This mission is only possible when intellectual honesty and individual integrity are taken for granted. The graduate student at the University of Arkansas is expected to:

- a) know and abide by the regulations for all students, as described in the Student Handbook published by the Vice Chancellor for Student Affairs, and
- b) know and abide by the regulations contained within the Academic Honesty Policy for Graduate Students and the Research Misconduct Policy.

It is expected that graduate students will refrain from all acts of academic and research dishonesty and will furthermore report to the Graduate School any acts witnessed. The pledge of the Honor Code is this:

***“On my honor as a graduate student at the University of Arkansas, I certify that I will neither give nor receive inappropriate assistance on the work I do for my degree.”***

Students will be asked to sign this pledge when they are admitted to the Graduate School. Faculty, Department Chairs and/or Program Directors also may require students to sign this pledge before completing the requirements of a course or a program of study. The Environmental Dynamics Program requires students to sign this pledge. The Environmental Dynamics Program further

requires that the signed pledge be placed in the student's file. Lack of a signed pledge on file in the Program office may result in delay of graduation from the doctoral program.

## **II. Introduction**

As part of the University of Arkansas Graduate School, the Environmental Dynamics Program (ENDY) offers a Master of Science degree in Environmental Dynamics and Doctor of Philosophy (Ph.D.) degree in Environmental Dynamics. This handbook describes admissions and degree requirements and includes an example schedule as a guide to earning your degree. You are expected to be familiar with the handbook contents as they apply to your program of studies.

This handbook supplements the *University of Arkansas Graduate School Catalog* that lists all courses approved for graduate credit, as well as requirements for all campus graduate programs and the *University of Arkansas Graduate School Handbook* containing similar information. Each of these documents is available online and can be accessed via the Internet at:

*University of Arkansas Graduate Catalog*  
<http://catalog.uark.edu/graduatecatalog/>  
*University of Arkansas Graduate Handbook*

<https://graduate-and-international.uark.edu/graduate/current-students/student-support/student-resources/graduate-handbook/index.php>

Additional information regarding student life, responsibilities, and University of Arkansas Policies governing student conduct can also be obtained by reading the Code of Student Life – Student Conduct and Disciplinary Proceedings online at:

*University of Arkansas Code of Student Conduct*  
<http://ethics.uark.edu/>

Finally, information related to the University of Arkansas Graduate School and its policies and procedures can be obtained from the Graduate School website at:

*University of Arkansas Graduate School*  
<http://grad.uark.edu/>

or you may choose to contact the Graduate School directly at:

The Graduate School  
213 G. David Gearhart Hall  
University of Arkansas  
Fayetteville, AR 72701  
Phone: (479) 575-4401 Voice

[Gradinfo@uark.edu](mailto:Gradinfo@uark.edu) (Email)

## **A. Description of the Environmental Dynamics Program**

The Environmental Dynamics program focuses on the study of complex human -- environmental interactions. It stresses interdisciplinary regional analysis of geophysical, biological, climatic, and socio-cultural interactions and changes, including natural and social impacts of such dimensions as global climate change, human demography, pollution, landscape evolution and degradation, earthquakes, groundwater depletion, and global sustainability. The program stresses the application of appropriate methodologies such as GIS, GPS, remote sensing, computer modeling, and cartography to environmental problems. The research approach integrates the power, efficiency, and economy of advanced computer-based technologies into the study of human-environmental interactions within recent Earth history.

For more information about the University of Arkansas Environmental Dynamics Program, see our website at:

*Environmental Dynamics Program*  
<http://environmental-dynamics.uark.edu/>

or contact the Environmental Dynamics Program at:

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University of Arkansas  
Fayetteville, AR 72701  
Phone: 479-575-6603 Voice  
479-575-3469 FAX

E-mail: [endy@uark.edu](mailto:endy@uark.edu)

### **1. Purpose and Goals of the Environmental Dynamics Program**

The ENDY Program emphasizes original research at the interface between the natural sciences and socio-cultural disciplines. This often requires creative formulation of problem solving between established academic disciplines. Attention is given to both theoretical and applied issues. Each student is expected to develop an original, innovative research program in consultation with appropriate faculty members who serve as mentors and supervisors of their research, to successfully complete core course requirements and elective courses, and to complete a distinctive thesis or dissertation that significantly advances human knowledge.

Students may choose one of four-degree paths:

- 1. Enter the PhD program with a master's degree in hand.**
- 2. Enter the PhD program with a bachelor's degree in hand with the intent to go straight through to the PhD (most rigorous program).**
- 3. Enter the PhD program with a bachelor's degree in hand, complete a master's thesis and continue to the PhD (typically requiring more time than option #2).**
- 4. Enter the MS program with a bachelor's degree in hand and terminate.**

The ENDY degree paths provide students the flexibility needed to focus on a program leading to diverse careers in academia, international non-governmental organizations, foreign and domestic governments on all levels, and the private sector.

## 2. Dissertation Titles Completed in the Environmental Dynamics Program

The table below provides the titles of doctoral dissertations completed in the Environmental Dynamics Program since its inception in 1998. A review of these titles reveals the breadth and depth of investigations in Environmental Dynamics at the University of Arkansas. This list highlights the diversity of interdisciplinary topics within the domain of Environmental Dynamics.

| <b>Table 1. Dissertations Completed in the Environmental Dynamics Program, 2001-2021</b> |                        |  |
|--|------------------------|--|
| <b>2001</b>  |                        |  |
| Sp   | Alakkam, Abdulla Ahmed | Climate Change and Archaeological Site Distribution during the Past Four Millennia in Northern Jordan Utilizing Oxygen Isotope Analysis of Human Tooth Enamel and Geographic Information Systems.                    |
| Sp   | Dixon, Barnali Mitra   | Applications of Fuzzy Logic to the Prediction of Potential Soil Erosion in a Large Watershed.  |
| Sp   | roll, Rita Louise      | Environmental Dynamics of Drought and its Impact on Sixteenth-Century Indigenous Populations in the Central Mississippi Valley.  |
| Su   | Garner, Michael E.     | Effects of Anthropogenic Activities upon Land Cover Change in Johnson County, Arkansas.  |
| Su   | Gould, Dorianne Abra   | An Interdisciplinary Study of the Creation of Perceptual Map Layers for Predictive Modeling in a Geographic Information System (GIS): A Case Study of the Roman Roads in the Eastern Desert of Egypt.                |
| Fa   | Weiss, Elizabeth, A.   | A Cross-Cultural Study of Humeri: Environmental Causes of Morphology.  |
| <b>2002</b>  |                        |  |
| Su   | Campbell, Sean William | Landscape Geochemistry of Karkevagge, Swedish Lapland.   |
| Sp   | McGinnis, Shelley Rene | Factors Affecting Surface-Water and Ground-Water Quality within Tribal Lands of Eastern Nebraska.  |
| Sp   | Holt, David Harms      | Did Extreme Climate Conditions Stimulate the Migrations of the Germanic Tribes in the 3 <sup>rd</sup> and 4 <sup>th</sup> Centuries AD? An Examination of Historical Data, Climate Proxy Data, and Migration Events. |
| Fa   | Odhiambo, Ben K.       | Bathymetry, Sedimentation, Watershed Physiography and Historical Water Quality of Two Arkansas Lakes, Lake Shepherd Springs and Lee Creek Reservoir: A Geographical Information System (GIS) Approach                |
| <b>2003</b>  |                        |  |
| Su   | Al Neimi, Mohamed R.   | Population Growth and Water Management Analysis in the United Arab Emirates from 1975 to 2000 by Using Geographical Information Systems  |
| Su   | Frentz, Irene C.       | man Population Growth and Public Lands   |



|             |                         |  |
|-------------|-------------------------|--|
| Fa          | Fye, Falko K.           | Analyses of North American Moisture Anomalies, 1500-1978.  |
| Su          | Therrell, Matthew D.    | Tree-Rings, Climate, and History in Colonial Mexico  |
| <b>2004</b> |                         |  |
| Su          | McClennahan, Patricia L | Subsistence-Settlement Patterns on the Central Alaska Peninsula, Alaska.   |
| Fa          | Schubert, Blaine        | Dental Microwear, Paleodiets, and a Paleoenvironmental Reconstruction for the Makapansgat Cave fauna, Mpumalanga Province, South Africa  |
| <b>2005</b> |                         |  |
| Sp          | Thawaba, Salem          | Integrating Perception Analysis and GIS Technology in Urban Growth Modeling: A Case Study from Fayetteville, Arkansas  |
| Fa          | Vogel, Gregory          | A View from the Bottomlands: Physical and Social Landscapes and Late Prehistoric Mound Centers in the Northern Caddo Area  |
| Fa          | Wintory, Blake          | Environmental and Social Change in Lee County, Arkansas and the St. Francis River Basin, 1865-1905   |
| <b>2006</b> |                         |  |
| Su          | De Fauw, Sherri         | Hydrodynamics of a Hillslope Soil Assemblage in the Ozark Highlands, USA   |
| Sp          | Pollard, Stephan        | Recyclables Compost Target, and Household Hazardous Waste: Characterizing Tenant-Generated Municipal Solid Waste at a Multi Family Dwelling  |
| Sp          | Varnell, Curtis         | Environmental Dynamics Associated with Assessing the Feasibility of Using Water from Flooded Coal Mines for a Municipal Water Supply   |
| <b>2007</b> |                         |  |
| Sp          | Al-Hedhaif, Mohammed    | Sustainability of Agriculture in the Al-Qassim Region Saudi Arabia   |
|             | Lockhart, Jami J.       | Prehistoric Caddo of Arkansas a Multiscalar Examination of Past Cultural Landscapes  |
| Fa          | Kim, Burmshik           | Hydro-Geochemical Evolution of Ground Water in an Intensive Pumped Alluvial Aquifer and Its Proper Management  |
|             | Kirera, Francis         | GIS Modeling of Koobi for a Plio-Pleistocene Paleoenvironment: Northern Kenya  |
| Fa          | Sharif, Salah           | Hydrochemical Evolution of Arsenic in Groundwater sources and Sinks in the Mississippi River Valley Alluvial Aquifer, Southeastern Arkansas, USA                                   |
|             | Tanimoto, Phillip       | Advances in Biogeographic Modeling of Montane-Obligate Avifauna in Mesoamerica   |
| Su          | Ward, John              | Changing Patterns of Land-Use and Basin Morphometry: Impacts on Stream Geomorphology in the Illinois River Basin Northwest Arkansas 1941-2004                                      |
| <b>2008</b> |                         |  |
| Sp          | Ata, Husam              | Determining Tectonic Activity from ASTER Derived DEMs Utilizing Tectonic Geomorphology, Remote Sensing, Geographic Information Systems (GIS) in the Jordan-Dead Sea Transform Zone |
| Fa          | Ernenwein, Eileen G.    | Advancing Archaeological Geophysics: Interpreting the Archaeological Landscape, Ground Penetrating Radar Data Processing, and Multi-sensor Fusion                                  |

|             |                           |  |
|-------------|---------------------------|--|
| Su          | Patton, Jason             | Comparative Sedimentation and Geochemistry of Three Coves, Beaver Reservoir, Northwest Arkansas  |
| <b>2009</b> |                           |  |
| Fa          | Burnette, Dorian J.       | Reconstruction of the Eastern Kansas Temperature and Precipitation Records into the Mid-19 <sup>th</sup> Century Using Historical Sources  |
| Fa          | Defibaugh y Chavez, Jason | Forest Structure Monitoring with Small Footprint Lidar-Optimized Spectral Remote Sensing   |
| Sp          | Alkendi, Ruwaya           | Identification of Unique Bacteria among Different Warm-Blooded Animal Species Using Denaturing Gradient Gel Electrophoresis (DGGE), and Single Strand Conformation Polymorphism (SSCP) Methods |
| Su          | Khwaileh, Ali             | Temporal Trends in Human Stature in Egypt During the Predynastic and Dynastic Periods and Contemporary Southern Levant   |
| Fa          | Nderitu, George           | Ecology of Protostelids and Myxomycetes in Relation to Land Use Regimes in the Aberdare Region, Central Kenya  |
| Fa          | Proebsting, Eric          | Economy and Ecology on the Edge of America: An Interdisciplinary Study of the History, Geography, and Archaeology of Three Farming Communities in Arkansas 1820-1860                           |
| <b>2010</b> |                           |  |
| Su          | Shepherd, Stephanie L.    | Headwater Stream Morphology within the Illinois River Watershed, Arkansas  |
| Su          | Lewis, Sarah E.           | Perception vs. Reality: Stakeholder Perception of an d Willingness to Pay for Watershed Ecosystem Integrity  |
| Su          | Vance, Leisha A.          | The Institutional Demotecnich Index: A Comparison of Technological Energy Consumption at U.S. Colleges and Universities  |
| Fa          | Moon, Zola                | Environmental Resources as Proximate Causes of Human Migration Flows   |
| <b>2011</b> |                           |  |
| Sp          | Dennis, Robyn             | Spatial Variations in Willingness-to-Pay for Water at the Local and Regional Scales Using Geographically Weighted Regression   |
| Su          | Winston, Byron            | Understanding the Effects of Reservoir Ageing, Land Use Change and Climate on Water Quality at Beaver Reservoir, Northwest Arkansas  |
| Fa          | Salem, Mohammad           | Perception of Aquifer Depletion and the Effects of Land Use Change Across the Madaba Plain, Jordan   |
| <b>2012</b> |                           |  |
| Sp          | Njuguna, Peter            | Integrating Human Variables in Cross-Boundary Monitoring of Aberdare Preserves in Kenya  |
| Sp          | Bhattacharya, Ruchi       | The Use of diatoms to Infer Environmental Change of the Lower White River, Southeastern Arkansas   |
| Sp          | Scott, Jessica            | Dental Microwear Texture Analysis of Pliocene Fossil Bovids from Four Early Hominin Sites in Eastern Africa: Implications for Paleoenvironmental Dynamics and Human Evolution                  |
| Su          | Dennis, John              | Impacts of Hard Stabilization on the Shore of Yellowstone Lake, Yellowstone National Park, Wyoming, USA  |
| Fa          | Herrmann, Jason           | Ancient Human Ecodynamics in the Rub al Khali Desert, Dubai, UAE   |

|             |                        |   |
|-------------|------------------------|---|
| <b>2013</b> |                        |   |
| Sp          | Smith, Stephen Aaron   | Greenhouse Gas Emissions and New Returns Implications for Cow-Calf Producers in the Ozark Highlands   |
| Fa          | Francis Onduso         | Ecological Effects of Prescribed Burning in the Forests of the Buffalo River, Arkansas  |
| <b>2014</b> |                        |   |
| Sp          | Kwasi Asante           | Assessment of the Predictive Reliability of a SWAT Flow Model and the Evaluation of Runoff Generation and BMP Effectiveness in a Shale-Gas Impacted Watershed Using a Modeling Approach |
| Fa          | Donna Davis            | Modeling Scenarios of Sea Level Rise and Human Migration: Rita Village, Republic of The Marshall Islands  |
| Fa          | Jozef Laincz           | Investigation of Groundwater Flow and of the Fate of Nitrate in the Epikarst at the Savoy Experimental Watershed, Northwest Arkansas  |
| Fa          | Tareefa Al Sumaiti     | Structure, Above Ground Biomass, and Soil Characterization of Avicennia Marina in Eastern Mangrove Lagoon National Park, Abu Dhabi  |
| <b>2015</b> |                        |   |
| Sp          | Katherine Knierim      | Stable Isotopes as a Tool to Characterize Carbon Cycling and Develop Hydrologic Budgets in Mantled Karst Settings   |
| <b>2016</b> |                        |   |
| Sp          | John Kester            | Applications of Cultural Theory and Empirical Analysis of Sustainable Energy Preferences in Arkansas  |
| Sp          | Johnnie Chamberlin     | Algal Wastewater Treatment and Biofuel Production: An Assessment of Measurement Methods, and Impact of Nutrient Availability and Species Composition                                    |
| Sp          | David Lyon             | Quantifying, Assessing, and Mitigating Methane Emissions from Super-Emitters in the Oil and Gas Supply Chain  |
| Su          | Brandy Garrett-Kluthe  | Eucalyptus in Kenya; Impacts on Environment and Society   |
| Su          | Amie West              | Optical Water Quality and Human Perceptions of Rivers   |
| Su          | Victor Roland          | The Role of Organic Matter in the Fate and Transport of Antibiotic Resistance, Metals, and Nutrients in the Karst of Northern Arkansas  |
| Su          | Christopher Craig      | Electricity Generation, Electricity Consumption, and Energy Efficiency in the United States: A Dual Climatic-Behavioral Approach  |
| Su          | John Magugu            | Agro-Climatic Change, Crop Production and Mitigation Strategies – Case Studies in Arkansas, USA and Kenya   |
| <b>2017</b> |                        |   |
| Sp          | Christopher Angel      | The Spatial Ordering of Nabataea: An Integrated Analysis of the Geography, Architecture, and Morphology of Nabataean Petra  |
| Sp          | Kaelin Groom           | Rock Art Management and Landscape Change: Mixed Field Assessment Techniques for Cultural Stone Decay  |
| Su          | Joanna Person-Michener | Exploring the Empirical Relationship between Civic Agriculture and Community Resilience   |

|             |                        |   |
|-------------|------------------------|---|
| Fa          | Dorine Reed Bower      | An Investigation of Biological Carbon Sequestration at the Pea Ridge National Military Park   |
| <b>2018</b> |                        |   |
| Sp          | Diana Chen             | Got Breadfruit? Marshallese Foodways and Culture in Springdale, Arkansas  |
| Sp          | Aaron M. Shew          | Sustainable Intensification of Agriculture: Opportunities and Challenges for Food Security and Agrarian Adaptation to Environmental Changes in Bangladesh |
| Su          | Richie Donahou         | Evaluating Climate Change Policy Through the Endangered Species Act   |
| <b>2019</b> |                        |   |
| Sp          | Mark Agana             | Climate Change Governance and Politics of Scale: Local Climate Protection Policies and Practices in the United States and Germany                         |
| Sp          | Jason Burgess-Conforti | The Potential Acidification of the Mulberry River, Arkansas   |
| Sp          | Michelle Rathgeber     | The Archaeology of Mississippian Vulnerability and Resilience in the New Madrid Seismic Zone  |
| <b>2020</b> |                        |   |
| Su          | Sharon 'Faye' Smith    | Using Soil Geospatial Properties and Environments to Explore Microbial Diversity  |
| <b>2021</b> |                        |   |
| Su          | Chang Liu              | Assimilation of Seasonal Moisture Variability in North America and Asia for the Last Millennium   |

## **B. Appropriate Students for the Environmental Dynamics Program**

The Environmental Dynamics Program seeks qualified, highly motivated students interested in interdisciplinary research that embraces the complex interactions of human populations with their natural world through time. As such, the academic discipline and background of prospective students are open. Graduates and current candidates within the ENDY Program have experience and degrees in Anthropology, Atmospheric Sciences, Biology, Computer Sciences, Engineering, Forestry, Geosciences, Geography, History, Hydrology, Landscape Architecture, Soil Science, Water Resources, and other disciplines.

## **C. Administrative Structure and Contacts**

ENDY appropriate courses are taught by regular faculty from the Departments of Anthropology, Agricultural Economics and Agribusiness, Architecture, Biological and Agricultural Engineering, Biological Sciences, Communication Crop, Soil and Environmental Sciences, Geosciences, Law, Plant Pathology, Political Science, and Sociology and Criminology, with new faculty and courses being added all the time. The ENDY program began in 1998 with 40 regular faculty and 20 cooperating faculty. An up-to-date listing of current faculty is available on the ENDY web page: <http://environmental-dynamics.uark.edu/people/faculty.php>

The ENDY program has an organizational structure of a Director, an Associate Directors, an Assistant Director, and an Administrative Board comprised of representatives from each department that hosts a primary mentor for an ENDY student (see table below). A number of

faculty from the Arkansas Archeological Survey, both on campus and at different research stations throughout the state, also participate in mentoring and supervising ENDY students.

The Environmental Dynamics Program maintains strong associations with several University of Arkansas research units including the Center for Advanced Spatial Technologies (CAST), the Arkansas Water Resource Center (AWRC), the Center for Agricultural and Rural Sustainability (CARS), the Office for Sustainability, the Sustainability Consortium, the University of Arkansas Tree Ring Laboratory, the U. S. Geological Survey and the U.S. Department of Agriculture, National Water Management Center. In addition, ENDY faculty and students collaborate with other interdisciplinary degree programs at the University of Arkansas, including the Public Policy Program and the Arkansas Center for Space and Planetary Sciences.

The table below provides the names, and contact addresses of the director, associate directors, and Environmental Dynamics Administrative Board members.

Table 2. Organizational Structure of the Environmental Dynamics Ph.D. Program

|   |   |   |
|---|---|---|
| <b>Director: Peter Ungar</b><br>Distinguished Professor,<br>Dept. of Anthropology<br>MAIN 330<br>e-mail: <a href="mailto:pungar@uark.edu">pungar@uark.edu</a> | <b>Board Member: JoAnn D'Alisera</b><br>Chair and Associate Professor,<br>Dept. of Anthropology<br>MAIN 330<br>e-mail: <a href="mailto:dalisera@uark.edu">dalisera@uark.edu</a>   | <b>Board Member: David McNabb</b><br>Chair and Professor<br>Dept. of Biological Sciences<br>SCEN 601<br>email: <a href="mailto:dmcnabb@uark.edu">dmcnabb@uark.edu</a>                                 |
| <b>Associate Director: Song Feng</b><br>Professor, Dept. of Geosciences<br>216 G. David Gearhart Hall<br>e-mail: <a href="mailto:@uark.edu">@uark.edu</a>     | <b>Board Member: Robert Brady</b><br>Professor, Department of<br>Communication<br>KIMP 417<br>e-mail: <a href="mailto:rbrady@uark.edu">rbrady@uark.edu</a>  | <b>Board Member: L. Lanier Nalley</b><br>Associate Professor Agri<br>Economics and Agri Business<br>AGRI 217<br>e-mail: <a href="mailto:llnalley@uark.edu">llnalley@uark.edu</a>                      |
| <b>Assistant Director: Jo Ann Kvamme</b><br>ENDY Program Coordinator<br>MAIN 336<br>e-mail: <a href="mailto:jkvamme@uark.edu">jkvamme@uark.edu</a>            | <b>Board Member: Kristofor Brye</b><br>University Professor, Crop, Soil<br>and Environmental Science<br>PTSC 115<br>e-mail: <a href="mailto:kbrye@uark.edu">kbrye@uark.edu</a>  | <b>Board Member: Christopher Liner</b><br>Chair, Dept. of Geosciences<br>GEAR 216<br>email: <a href="mailto:liner@uark.edu">liner@uark.edu</a>  |
|   | <b>Board Member: Jackson Cothren</b><br>Director, CAST and Associate<br>Professor Geosciences<br>JBHT 304<br>e-mail: <a href="mailto:jcothre@uark.edu">jcothre@uark.edu</a>   | <b>Board Member: Benjamin Runkle</b><br>Assistant Professor Biological<br>Engineering<br>ENGR 231<br>e-mail: <a href="mailto:brrunkle@uark.edu">brrunkle@uark.edu</a>                                 |
|   | <b>Board Member: Marty Matlock</b><br>Executive Director Resiliency<br>Center, Professor Ecological<br>Engineering, Department of<br>Biol. & Agri. Engineering<br>BELL 4183<br><a href="mailto:mmatlock@uark.edu">mmatlock@uark.edu</a> | <b>Board Member: Kate Shoulders</b><br>Associate Professor, Agricultural<br>Education, Communications &<br>Technology<br>AGRI 205<br>e-mail: <a href="mailto:cshoulde@uark.edu">cshoulde@uark.edu</a> |

### **D. Example Program Schedule**

The table below provides a schematic illustration of a typical program of study for students admitted to the ENDY program. The ENDY program currently employs a cohort admissions strategy, admitting new students as a group (cohort) for the Fall semester of each academic year. Cohort admissions are viewed as a best practice by the Council of Graduate Schools, enabling students to assimilate more quickly into the program and permitting students to develop stronger bonds with their peers as they progress through the program together. We also strongly recommend applying for the Graduate Certificate in Sustainability. All your required courses in ENDY count toward this certificate. Information regarding the Graduate Certificate in Sustainability is available from the ENDY Program Assistant Director.

The information presented below is intended to serve as a general guide to the sequencing of events during the student's tenure in the ENDY program. However, individual circumstances may result in slight modifications to this model scheme. The ENDY program and its faculty are committed to helping students progress through the program efficiently but recognize the value of maintaining some flexibility to accommodate individual needs (give consultation with individual student advisory committees).

| <b>Semester</b> | <b>ENDY Program Target Milestones for Students Entering with a Master's Degree (Degree Plan 1)</b>  | <b>Hours</b>                                       |
|-----------------|---|--|
| 1               | Establish an Advisory Committee, complete the first two courses and 1 <sup>st</sup> semester of ENDY Seminar, initiate discussions with potential dissertation advisors to identify appropriate dissertation research topic.  | 6 + Colloquium (does not count toward total hours) |
| 2               | Complete second two core courses, the 2 <sup>nd</sup> semester of ENDY Seminar, finalize discussions with potential dissertation advisor regarding dissertation research project, initiate development of dissertation proposal including library research and writing of grant proposals to support dissertation research in consultation with dissertation advisor and Advisory Committee, complete Annual Review of Graduate Student Progress. | 6 + Colloquium (does not count toward total hours) |
| Summer          | Conduct preliminary research with the objective of finalizing dissertation proposal, initiate discussions with ENDY faculty to assemble Comprehensive Examination Committee and Dissertation Committee, make preparations for Written Comprehensive Examinations, to include final identification and assembly of Comprehensive Examination Committee.  | 3  |
| 3               | Continue with completion of elective coursework and 3 <sup>rd</sup> semester of ENDY Seminar, finalize dissertation proposal, complete Written Comprehensive Examination, select final  | 6 + Colloquium (does not count toward total hours) |

|        |  |    |
|--------|--|----|
|        | Dissertation Committee members, schedule and present Oral Defense of Dissertation Proposal.  |    |
| 4      | Finish any Comprehensive exam procedure not completed in the 3 <sup>rd</sup> semester. Continue with completion of elective coursework, conduct research related to dissertation project, complete Annual Review of Graduate Student Progress. | 6  |
| Summer | Conduct research related to dissertation project and initiate writing of dissertation.   | 6  |
| 5      | Conduct research related to dissertation project and initiate writing of dissertation  | 6  |
| 6      | Complete dissertation, schedule and present public defense of dissertation, complete Annual Review of Graduate Student Progress, graduate.   | 6  |
|        | Total  | 42 |

Note that some dissertation credits or coursework may be reserved for Summer sessions to ensure continuous enrollment of the student during his/her tenure in the ENDY program. All students on 12-month appointments are required to take 3 hours during Summer session. Students on a 9-month appointment are only required to register for class in summer if that is the anticipated graduation semester. Once a student is ABD he/she must be enrolled in at least one hour each semester (Spring and Fall) until graduation (excluding Summer unless it is the semester of graduation).

If a student enters the program with a bachelor's degree and plans to continue to the doctorate, a total of 72 hours past bachelor's degree is required by the State of Arkansas for a PhD. Courses that satisfy those additional 30 hours are selected in consultation with the student's advisory committee.

The example below provides an illustration of the typical sequence of course work for a student entering the ENDY program in the Fall semester of the academic year on a 50% appointment as a graduate assistant.

Entering with a bachelor's degree with direct path to a PhD (Degree Plan 2).

Bachelors direct to PhD

| SEMESTER   | MILESTONE FOR STUDENT ENTERING WITH A BACHELORS AND PROCEEDING THROUGH PHD | HOURS  |
|------------|--|--|
| Semester 1 | Take two ENDY core course, ENDY 6991, submit Advisory Committee form       | 6 + Colloquium (does not count toward total hours) |

|            |  |   |
|------------|--|---|
| Semester 2 | Take remaining two ENDY core Courses, ENDY 6991 and Qualifying Assessment (at the end of semester 2) The outcome if this exam will decide if the student may 1) proceed to PhD, 2) may need additional time/funding to proceed toward the PhD, or 3) be restricted to a MS | 6 + Colloquium (does not count toward total hours)    |
| Summer     | Electives, Conduct research  | 3   |
| Semester 3 | Electives, ENDY 6991, submit Comprehensive Exam Committee form   | 9 plus Colloquium (does not count toward total hours) |
| Semester 4 | Electives, Comprehensive Exams, Dissertation Committee Form  | 9   |
| Summer     | Electives, Conduct research  | 3   |
| Semester 5 | Electives  | 9   |
| Semester 6 | Electives, Dissertation Title Form   | 9   |
| Summer     | Dissertation hours   | 6   |
| Semester 7 | Dissertation hours   | 6   |
| Semester 8 | Dissertation hours, Dissertation Defense   | 6   |
|            |  | TOTAL 72 hours  |

#### Bachelors to terminal MS with Thesis (Degree Plan 4)

| <b>Semester</b> | <b>Milestones for Students Entering with a Bachelors and Terminating with a Masters – Degree Plan 4</b> | <b>Hours</b>                                       |
|-----------------|---|--|
| Semester 1      | Take two ENDY core courses, ENDY 6991, submit Advisory Committee form                                   | 6 + Colloquium (does not count toward total hours) |
| Semester 2      | Take remaining two ENDY core courses  | 6  |
| Summer          | Electives, Conduct research   | 6  |
| Semester 3      | Electives, Submit a Thesis committee form, Thesis Title   | 6  |
| Semester 4      | Thesis Hours, Thesis Defense  | 6  |
|                 |   | TOTAL 30   |

Students entering with a bachelor's degree, completing a masters, then the PhD. Please note this while in principle can be achieved in four years, it would likely take additional time and funding. This is Degree Plan 3.

| <b>Semester</b> | <b>Milestones for Students Entering with a Bachelors, Completing a Masters, then Proceeding through the PhD – Degree Plan 3</b> | <b>Hours</b>                                       |
|-----------------|---|--|
| Semester 1      | Take two ENDY core course, ENDY 6991, submit Advisory Committee form  | 6 + Colloquium (does not count toward total hours) |



|            |  |   |
|------------|--|---|
| Semester 2 | Take remaining two ENDY core Courses, ENDY 6991                                      | 6 + Colloquium (does not count toward total hours)    |
| Summer     | Electives, Conduct research  | 6   |
| Semester 3 | Electives, ENDY 6991   | 6 plus Colloquium (does not count toward total hours) |
| Semester 4 | Electives, Thesis hours, Thesis defense MS earned                                    | 6   |
| Summer     | Electives  | 3   |
| Semester 5 | Electives  | 9   |
| Semester 6 | Electives, Comprehensive exams, Dissertation Committee Form, Dissertation Title Form | 9   |
| Summer     | Elective Dissertation Research   | 3   |
| Semester 7 | Dissertation hours   | 9   |
| Semester 8 | Dissertation hours, Dissertation Defense   | 9   |
|            |  | TOTAL 72 hours  |

### III. Admission Requirements and Procedures

#### A. The University of Arkansas Graduate School

Admission to the Graduate School is a co-requisite for admission to the ENDY program. Admission procedures and requirements are outlined in detail in the [Graduate School Catalog](#). Application forms and catalogs can be obtained from the ENDY office or from the Graduate School:

Graduate School Admissions Office  
213 G. David Gearhart Hall  
University of Arkansas  
Fayetteville, AR 72701  
(479) 575-4401  
toll-free 1-866-234-3957

##### 1. Admissions Requirements

The general requirements for regular admission to graduate standing within the University of Arkansas Graduate School and acceptance in the ENDY program of study leading to a doctoral degree are:

- A Bachelor's or Master's degree from an institution of higher education with recognized accreditation.
- a cumulative grade-point average of 3.00 or better (A=4.00) on all course work taken prior to receipt of this degree from a regionally accredited institution of higher education, or
- a grade-point average of 3.20 or better on the last 60 hours of coursework taken prior to receipt of the highest degree obtained by the student from a regionally accredited institution of higher education, or
- a grade-point average between 2.50 and 3.2 on all course work taken prior to receipt of a master's degree from a regionally accredited institution of higher education
- a satisfactory score on the Graduate Record Examinations general test or a similar test acceptable to the Graduate Dean

Additional details regarding admissions and categories of graduate admission are available in the [\*Graduate School Catalog\*](#). Prospective applications are encouraged to refer to the *Graduate School Catalog* for any additional information they may require.

## 2. Application Procedure

You may apply online for admission to the Environmental Dynamics Program. You may contact the program for a checklist of materials needed to complete your application by contacting Assistant Director Jo Ann Kvamme ([jkvamme@uark.edu](mailto:jkvamme@uark.edu)). This information will also be listed on your applicant checklist once an application is submitted.

- Apply online at: <https://application.uark.edu/>
- Answer the questions on the online application. A copy of the application form is sent directly to the Environmental Dynamics Program office. The processing fee is collected online at the time the online application is completed. If for any reason the online application is not accessible, the form and check is to be sent to the Graduate School and a copy sent to the ENDY Program. An applicant must also arrange for copies of official transcripts to be sent from **every** college or university you have attended. A copy of your transcripts may be sent directly to the Environmental Dynamics Program office.
- Finally, applicants are required to forward results of the Graduate Record Examination (GRE) or equivalent standardized examination to the Graduate School for inclusion in their application file. A copy of GRE scores should be forwarded to the Environmental Dynamics Program office as well.

The International Admissions Office, located within the Graduate School in G. David Gearhart Hall, provides evaluation services for all international graduate applicants. International Applicants should refer to the web site of the International Admissions <https://international-admissions.uark.edu/graduate-studies/index.php> for specific information related to the application procedure for international students.

The International Admissions Office may require international applicants to successfully complete the TOEFL exam (550 or above on the written exam). International students who teach at the University of Arkansas must in addition take a proficiency exam before they begin their teaching duties. See the Graduate Handbook for details: at

<http://international-admissions.uark.edu/graduate-studies/english-proficiency.php>

### 3. Application Forms

All necessary application materials may be uploaded to the student center in SLATE, which is created at the time an application is submitted and processed (this may take a few days). You will be given instruction how to upload documents. Complete the application online at the Graduate School website <https://www.uark.edu/admissions/apply/index.php>

The application deadline for Fall admission each year is January 15<sup>th</sup>. If a student wishing to start graduate school in Fall of 2022 would need to arrange for ALL application materials to be on file by January 15<sup>th</sup>, 2022.

## **B. Environmental Dynamics Program**

**Admission to the University of Arkansas Graduate School does not automatically confer admission into the Environmental Dynamics Program.** Admission to the Environmental Dynamics Program is decided by the ENDY Administrative Board following review and evaluation of application materials submitted by prospective students.

Applicants will be accepted or declined based on review of submitted application materials. However, in considering applications, the ENDY Administrative Board may evaluate not only the applicant's academic record, but also the applicant's stated interests and their relevance to the ENDY program, the availability or potential for extramural funding support for the applicant's research, and the availability of faculty with requisite expertise to supervise the dissertation research.

All applicants will be informed in writing about admissions decisions.

Once an applicant is admitted to the ENDY program, that student must comply with policies and procedures of both the Graduate School and the ENDY program. The student is responsible for adhering to regulations outlined in the Graduate School Catalog, the Code of Student Life, and ENDY policies and procedures as set forth in this handbook.

### 1. Admissions Requirements

To be considered for admission to the ENDY program, students must meet the following criteria:

- The applicant must have an undergraduate or graduate degree;

- while the applicant may apply to the ENDY program while still working on a bachelor's degree, all requirements for that degree must be completed by the beginning of the first semester of ENDY course work;
- The applicant must have a 3.2 or better GPA for work associated with their highest education level.

If the applicant is currently (or recently has been) a graduate student at the University of Arkansas, it is necessary to reapply to the Graduate School. If you have not attended any other universities or colleges, we may not need additional transcripts. If you have GRE or an approved test of English as a Foreign Language score uploaded for a different degree at the University of Arkansas you will not have to resubmit those scores. When in question contact the Assistant Director, Jo Ann Kvamme [jkvamme@uark.edu](mailto:jkvamme@uark.edu) for clarification on what is needed to complete your application.

## 2. Application Deadlines

The regular admission cycle begins in December for Fall admission, with a funding application deadline of 15 January (check our admissions page to confirm the deadline: <https://environmental-dynamics.uark.edu/prospective-students/admissions.php>).

To be considered for admission for the Fall semester of the academic year (typically beginning in late-August), applicants should arrange for all necessary application materials to be submitted to the ENDY program no later than the 15 January deadline.

For students applying for financial support through a competitively-awarded graduate assistantship, applicants should arrange for all necessary application materials to be submitted to the Graduate School and the ENDY program on or before the 15 January deadline of the year in which admission is desired.

## 3. Application Procedure

Applicants must apply for admission to the University of Arkansas Graduate School. The remainder of the materials must be uploaded through your UA admissions portal. You may additionally send materials directly to the ENDY program if you desire. In addition to the application form, the ENDY program requires the following application materials be uploaded as instructed by your SLATE Admissions portal:

- Three letters of recommendation 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 (the perspective student is asked to provide emails for your references);
- a statement of intent (three pages maximum) including the applicant's reasons for pursuing a doctoral degree in ENDY, relevance of prior academic or work experience, current research interests or employment that bears on the degree, special skills, fieldwork experience, familiarity with interdisciplinary work, if any, and future career goals;

- a writing sample, such as a publication, report, major term paper, undergraduate honors thesis, chapter of an MA or MS thesis, or similar document that demonstrates the applicant's organizational skills, ability to conduct meaningful research, familiarity with the body of research literature, ability to report clearly on academic topics, and general writing skills (note: please send a copy, not an original, of a thesis or term paper; this sample will not be returned); and
- Curriculum Vitae or Resume
- GRE scores
- TOEFL, IELTS, or PTE-A score for international students
- any other relevant information that would assist the Administrative Board in selecting applicants.
- For students requesting consideration for a graduate assistantship, an Application for Graduate Assistantship form should also be submitted

<http://graduate-and-international.uark.edu/resources/forms/ga-application.pdf>

### **C. Financial Assistance**

Financial assistance is available for qualified applicants in the form of a limited number of graduate assistantships, research assistantships, doctoral fellowships, and other scholarships made available through the University of Arkansas, private foundations, and public resources.

#### **1. Graduate Assistantships**

The ENDY program has a limited number of graduate assistantships available to assist highly qualified individuals in defraying much of the cost of their graduate education. Graduate assistantships are awarded annually on a competitive basis following review of application. Generally, graduate assistantships are awarded for the academic year in which admission to the ENDY program is desired. Each award carries a stipend for either a nine- or twelve-month academic year during which the awardee is expected to assist with various duties within the ENDY program and the host department (typically the home department of the student's faculty mentor). These duties usually involve assistance with classroom teaching and laboratory teaching, but may also involve assistance with research, grant writing, or other service activities depending on departmental needs. All ENDY Teaching Assistants must either demonstrate that they are native English speakers (English was the language spoken in the home as a child), pass the SLPT (Spoken Language Placement Test) or pass ELAC 5050 with a "B" or better within one year of entering the program to keep their ENDY funding.

In addition to the stipend associated with the graduate assistantship, for purposes of tuition, awardees are considered residents of Arkansas and therefore eligible for in-state resident tuition rates. However, the assistantship carries a tuition waiver for the duration of the award up to 21

hours per year of graduate credit. Students with graduate assistantships are still required to pay various university fees (e.g. activity fee, parking fee, technology fee, etc.).

Additional information regarding graduate assistantships is available in the Graduate School Handbook or online at:

<https://graduate-and-international.uark.edu/graduate/costs-and-funding/index.php>

## 2. Research Assistantships

Research Assistantships are stipends paid from a grant/contract held by a faculty member or organizational unit on campus. Normally, the Graduate School does not award research assistantships; rather, these are paid by an individual department, faculty member, or organizational unit on campus. However, the Dean of the Graduate School must approve all requests for new graduate assistant positions.

Students desiring a research assistantship should contact individual faculty within the ENDY program or other organizational units on campus to determine the potential availability of these awards.

## 3. Distinguished Doctoral Fellowships

Resulting from a \$300 million gift to the University of Arkansas in 2003, the Graduate School has a number of Distinguished Doctoral Fellowships (DDF) that may be awarded to the ENDY program on a competitive basis. These fellowships are the most prestigious fellowships offered to graduate students at the University of Arkansas and are reserved for applicants of exceptional ability and promise for advanced research. Distinguished Doctoral Fellowships carry a stipend of \$22,000 in addition to the \$18,000 base stipend provided by ENDY annually plus paid tuition. These fellowships are awarded for up to four years to qualified candidates. To qualify for the Distinguished Doctoral Fellowship, students must have percentage scores indicative of your ability to complete doctoral work, 4.5 (GRE Analytical Writing), and a cumulative graduate GPA of 3.8.

## 4. Doctoral Academy Fellowships

Resulting from a \$300 million gift to the University of Arkansas in 2003, the Graduate School has a number of Doctoral Academy Fellowships (DAF) that may be awarded to the ENDY program on a competitive basis. These fellowships are reserved for applicants of exceptional ability and promise for advanced research. Doctoral Academy Fellowships add \$12,000 in addition to the \$18,000 base stipend provided by ENDY annually plus paid tuition. These fellowships are awarded for up to four years to qualified candidates. To qualify for the Doctoral Academy Fellowship, students must have percentage scores indicative of your ability to complete doctoral work, 4.0 (GRE Analytical Writing), and a cumulative graduate GPA of 3.65.

## 5. Doctoral Fellowships

The Graduate School also awards a limited number of other Doctoral Fellowships each year. They are stipends paid to students of outstanding ability for recruitment to doctoral programs of proven strength and vigor. These fellowships may supplement other stipends and grants that the students receive. Contact the Graduate School for the specific amounts of these fellowships.

The fellowships will be granted for up to four years with annual renewal contingent upon superior academic performance and progress toward the degree.

Additional details regarding doctoral fellowships can be obtained from the Graduate School Handbook or online at:

<https://graduate-and-international.uark.edu/graduate/costs-and-funding/index.php>

## 6. Other Forms of Financial Assistance

Other forms of financial assistance may be available to students in the form of scholarships, foundation awards, student loans, or other grants of various kinds. Students interested in obtaining financial assistance or identifying appropriate opportunities for financial assistance are directed to contact the University of Arkansas, Office of Financial Aid:

Office of Financial Aid  
114 Silas Hunt Hall  
Fayetteville, AR 72701  
(479) 575-3806

or online at:

<https://graduate-and-international.uark.edu/graduate/costs-and-funding/index.php>

# IV. Core Curriculum and Elective Courses

## A. Declaration of Intent

Students who wish to commence study for the degree of Master of Science or Doctor of Philosophy in the ENDY program must submit a statement of their intention to become master's or doctoral candidates to the Dean of the Graduate School. This is part of the acceptance procedure completed on the admission portal.

## B. Faculty Advisor and Advisory Committee

Upon entry into the ENDY program, all students will be assigned an advisor. Students must have an advisor to commence and proceed in the program. The student may elect to change

advisors (especially from an interim assigned advisor to a permanent one, once the student is part of the program).

Once a faculty advisor is selected as advisor, the student must assemble an Advisory Committee consisting of the faculty mentor and two additional faculty members selected by the student in consultation with his/her advisor. This committee must include persons representing two or more disciplines. Once the Advisory Committee is selected, the Advisory Committee form should be completed, signed, and submitted to the ENDY office and Graduate School for inclusion in the student's permanent file. It is important that students and faculty advisors recognize the importance of establishing the Advisory Committee as soon as possible following the student's entry into the ENDY program and should endeavor to do so no later than the 4<sup>th</sup> week of the student's first semester. This Advisory Committee will also serve as the Master's Committee for those students who pursue a Master's Degree in Environmental Dynamics.

The function of the Advisory Committee is to provide guidance to the student in selecting courses appropriate to completing the degree program. The committee will assist the student in selecting courses that balance the natural and social sciences based on discussion with the student regarding areas of interest and potential dissertation projects.

### **C. Residency**

Residency is intended to ensure that every doctoral student has ample opportunity for significant intellectual development, which can result from a sustained period of intensive study and close association with other scholars in the intellectual environment of the University. We recognize that growth as an independent scholar is not merely a matter of class attendance, but also involves a broader development of the intellect that comes about through intensive study, independent research, sustained association with faculty members and other colleagues who share common scholarly and professional interests, attendance at seminars and colloquia, intensive reading and familiarization with library resources, consultation with specialists in other disciplines and resource centers, and the opportunity for broadened exposure to current intellectual issues as they are revealed in various campus offerings. While a specific length of residency is not mandated, the student should recognize that engagement in the campus community is critical to the development of a scholar.

### **D. Coursework beyond the bachelor's degree**

Terminal Master's Degree: For the masters only (Degree Plan 4), coursework totaling 30 hours including six hours of thesis or 30 hours of coursework for the "no thesis" option is required. This includes the four required ENDY core courses, 12 elective hours, and six thesis hours or additional coursework totaling 18 hours elective courses. In addition, all students will take an additional one hour of ENDY 6991 Colloquium, generally the first semester. Courses beyond the required courses will be decided based on necessity to complete the desired research and with the help of the students advisory/thesis committee.

Bachelors to Ph.D. Degree: For the option of earning a Ph.D. degree without the master's degree (Degree Plan 2), students should be aware that this is an extremely rigorous program. Students are required to take the four core classes plus two colloquia their first year. At the end of



the first year a qualifying exam is taken to decide how the student will proceed. Students who obtain an “A” rating from two or more committee members will go directly into the PhD program. This requires the student to immediately begin preparation for the comprehensive exams that will follow at the end of the second year in the program. Students need a total of 12 core classes, 42 hours of electives, three hours of colloquium and 18 hours of dissertation hours for the PhD. Students who obtain “B” rating from two or more committee members on the qualifying exam will be required to obtain a master’s degree first while being simultaneously enrolled in the PhD program. See page 24 for additional details.

Bachelor to Master’s to Ph.D. Degree at the U of A: (Degree Plan 3): If a student is required to or chooses to earn a master’s degree before beginning the Ph.D. degree, coursework totaling 24 hours plus six hours of thesis is required. This includes the four ENDY core courses and 12 hours of electives plus the six hours of thesis. Once these are satisfied the student must enroll in an additional 24 hours of elective course (chosen in cooperation with the Advisory or Dissertation committee), 18 hours of dissertation (only after comprehensive exams are passed), and three semesters of ENDY 6991 Colloquium.

Students receiving a “C” or lower from two committee members on the qualifying exam will be restricted to a master’s program Degree Plan 4, (see p. 24). Moving forward the student will be required to take an additional 18 hours of coursework and pass an exit examination conducted by the Master’s Committee to insure the student has a firm grasp on the foundational concepts.

### **E. Coursework Beyond the Master’s Degree**

Coursework totaling 24 hours beyond the master’s degree is required of all students in the ENDY program. In addition, students are required to register for 1 hour of ENDY 6991 (ENDY Seminar) each semester for the first three semesters of their tenure in the ENDY program. Whereas 24 hours is the required minimum course work toward the ENDY PhD degree, additional courses may be required to provide necessary background or skills to complete the degree program. The student, the dissertation advisor, the Advisory Committee, the Comprehensive Examination Committee, the Dissertation Committee, or some combination of these entities will help the student identify such additional course work.

### **F. Master’s Thesis/Doctoral Dissertation Credits**

In addition to required course work, the Graduate School requires six hours of master’s thesis credit or 18 hours of dissertation credit to complete the respective degree. Masters students usually take thesis hours their last semester during the final preparation of their thesis. It should be noted that master’s students do not have to be continuously enrolled unless required by their funding source or status.

For Doctoral students these dissertation hours are taken at the end of the student’s course of study, upon the completion of regular course work and following successful assessment of competence as demonstrated by passing written and oral comprehensive examinations, and while the student is conducting dissertation research.

Furthermore, the Graduate School requires all students who are candidates for a doctoral degree (students who have successfully completed their comprehensive examinations) to be continually enrolled, which means that during both Fall and Spring semesters of the academic year and in Summer session if the student is graduating that semester. Students with a DDF, DAF, or 12-month appointment must be registered for three hours during the Summer semester.

### **G. Required Core Curriculum**

All students beginning the ENDY program are required to take ENDY 6013, ENDY 5053, ENDY 6033, and ENDY 5113

| <b>SEMESTER</b> | <b>COURSE #</b> | <b>COURSE NAME</b>          |
|-----------------|-----------------|-----------------------------|
| Fall            | ENDY 5053       | Quaternary Environments     |
| Fall            | ENDY 6013       | Environmental Dynamics      |
| Spring          | ENDY 6033       | Society and the Environment |
| Spring          | ENDY 5113       | Global Change               |

Collectively, these courses constitute 12 of the required hours of graduate credit required to satisfy the ENDY coursework requirement. Students must receive a minimum ‘3.0’ average GPA (‘B’ average grade) in the ENDY core courses. Failure to maintain a 3.0 average GPA in core courses may result in dismissal from the ENDY program.

#### **1. ENDY 5053 – Quaternary Environments**

**Core course for ENDY master’s and doctoral candidates.** An interdisciplinary study of the Quaternary Period including dating methods, deposits, soils, climates, tectonics and human adaptations. Prerequisite: graduate standing or permission of instructor.

#### **2. ENDY 6033 – Society and Environment**

**Core course for ENDY master’s and doctoral candidates.** 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 paleo-environmental studies, readings and discussion will explore the co-production of social and environmental systems over time and consider environmental policy today. Prerequisite: graduate standing or permission of instructor.

#### **3. ENDY 6013 – Environmental Dynamics**

**Core course for ENDY master’s and 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 or permission of instructor.

#### 4. ENDY 5113 – Global Change

**Core course for ENDY master's and doctoral candidates.** This course examines central issues of global change including natural and human induced climate change, air pollution, deforestation, desertification, wetland loss, urbanization, and the biodiversity crisis. The U.S. Global Change Research Program is also examined. Prerequisite: graduate standing or permission of instructor.

If any of the courses above was taken to satisfy a master's degree requirement on this campus or another one, then the student, in consultation with their Advisory Committee, shall select a substitute course of the same general nature.

#### 5. ENDY 6991 Environmental Dynamics Seminar

All ENDY students are required to register for 1 hour of ENDY 6991 (Environmental Dynamics Seminar) each semester for at least the first **three** semesters of tenure in the ENDY program (for masters-only one semester is required). Either Section 001 or Section 002 may be taken. The purpose of the ENDY Seminar is to expose students to rigorous analysis of recently published research results and discussion of those results among faculty and students from different disciplines, to impress upon students the importance of engaging in active discourse on complex problems, to promote active consideration of the larger realm of Environmental Dynamics beyond the student's dissertation topic or research work group, and to promote the intellectual growth of doctoral candidates during their time in residence at the University of Arkansas.

Section 001 seminars may be attended in any field relevant to the student's research interests with a minimum of 13 attended per semester. Details of the lecture (Lecturer's name, Host Department, location, time, and title of presentation) are reported to the Assistant Director each week.

Section 002 Ecology and Evolutionary Biology is one-credit seminar course offered intermittently in conjunction with the ANTH and BIOL departments. Students will refer to the course syllabus for requirements.

These courses cannot be not applied towards required credit hours for the PhD Degree.

### H. Elective Courses

Elective courses totaling a minimum of 12 hours of graduate credit will satisfy the remaining coursework requirement for the ENDY doctoral degree for students entering with a master's degree. Students entering with a bachelor's degree (Degree Plans 2 and 3) will need an extra 30 hours of electives (including six thesis hours if an MS thesis option is selected).

Elective courses may be taken in any area pertinent to the student's program of research or to obtain additional technical skills relevant to future employment goals. However, the student should choose a program of study in consultation with the mentor and Advisory Committee and only take those courses that are approved by the committee or required by mandate of the faculty

advisor, the Comprehensive Exam Committee, the Dissertation Committee, or a combination of those entities.

## **V. Qualifying and Comprehensive Examinations**

### **A. Qualifying Examination**

The qualifying exams (for students in Degree Plan 2 or 3) will be a one-day exam and consist of materials covered in the core classes and examines knowledge of the student's specific research interests. The exam will be evaluated by the students Advisory Committee and the results and recommendations for the student's future path within the Environmental Dynamics program will be discussed with the student following this exam.

For students entering the program from the bachelor's level with intent to pursue the PhD (Degree Plans 2 and 3), there is a written qualifying examination at the end of the first year. This examination covers the material in the core courses and area of general interest and helps guide the student along the appropriate program path.

- Students receiving a score of A by at least two committee members will qualify for PhD study without the need to write and successfully defend an MS thesis.
- Students receiving a score of B by at least two committee members (or one B and one lower grade) will be required to write an MS thesis and earn that degree before continuing on the PhD study.
- Students receiving a score of C or lower by at least two committee members will enter the terminal MS program and be expected to write and successfully defend an MS thesis to earn the MS in Environmental Dynamics.
- Students who underperforms and does not receive at least two C grades or higher may, at the discretion of the advisory committee, be given the option of retaking the examination once. If at least two C grades (or higher) are earned for the retaken exam, the student will be placed in the terminal MS program. Otherwise, the student will be dismissed from the program.

### **B. Comprehensive Examinations**

This section describes the nature and procedures used for ENDY comprehensive examinations. These examinations are referred to as the comprehensive examinations and are preferably taken in the student's *third or fourth semester of enrollment in the ENDY PhD program*. Any requests for deferral must be accompanied by strong supporting justification from the student's primary advisor or advisory committee. This document provides guidance to all ENDY students, faculty advisors, and committees regarding the intent and purpose of the new written examination format as well as program procedures to be followed in the conduct of these examinations.

The comprehensive examinations consist of both written and oral components. The written examination consists of two manuscripts, the first being an overview of the subject of your doctoral research and the second is a proposal for funding of this research following an NSF or other appropriate grant proposal format, as approved by the student's comprehensive examination committee. Once the overview and proposal are approved, an oral defense of the dissertation proposal completes the comprehensive exams. Both examinations are intended to evaluate the level of scholarship of the student by assessing the student's command of information learned in required courses and by determining the adequacy of the student's intellectual preparation to engage in significant research leading to completion of the dissertation. As such, successful completion of these examinations marks an important milestone in the student's progress toward the degree with the transition from largely classroom-oriented study to independent research that is the hallmark of the doctoral tradition of academic achievement.

Policies and procedures related to completion of the new written comprehensive examination format are provided below as a reference for all students, committee chairs, and committee members.

### **Quick Reference: ENDY Written Qualifying Exam Procedure**

**This is only required for students entering with a bachelor's degree with intent to continue to the PhD.**

1. Student creates an Advisory committee in the first semester in the program in consultation with the assigned major advisor.
2. The qualifying exam is taken at the end of the second semester in the program.
3. The committee will consist of the Advisory Committee with a minimum of 3 members (all must have Faculty status I or II).
4. Students will sit for a one-day written examination of the student's grasp of the core course content and general material related to the student's research interest.

The examination will be generated and graded by the student's advisor committee. A grade of "A" by at least two of three committee members places the student on the direct to PhD path. One "A" and one "B" (or two "B" grades) places the student on a path to the PhD through the MS program. One "A" or "B" and one "C" (or two "C" grades) places the student in a terminal master's program. A Student who does not receive at least two "C" grades or higher may, at the discretion of the advisory committee, be given the option of retaking the examination once. If at least two "C" grades (or higher) are earned for the retaken exam, the student will be placed in the terminal MS program. Otherwise, the student will be dismissed from the program.

### **ENDY Written Comprehensive Examination Procedures**

**2<sup>nd</sup> or 3<sup>rd</sup> Semester Tasks** this is delayed until 3rd semester for students entering with a BA/BS.

1. Comprehensive Examination Committee assembled during the student's 2<sup>nd</sup> semester in the ENDY program.
2. Committee membership restricted to faculty with Graduate Faculty I or II Status.
3. Committee must have five faculty members (advisor + four) representing at least two disciplines.
4. Committee meets with the student to become familiar with the student's background, coursework, dissertation interest, and other experiences.
5. General topics are selected by the student and the committee together. The student prepares reading lists of journal articles, books, chapters, etc. that are appropriate for the topic, but the committee must approve and may modify the list. These reading lists shall define the "universe" of materials for which the student shall be responsible on the written exam.

**3<sup>rd</sup> or 4<sup>th</sup> Semester Tasks** This is conducted the 4th semester for students entering with a BA/BS

1. During the preceding summer or earliest two weeks of the semester, a student convenes the committee to discuss the written comprehensive exams.
2. The Comprehensive Examination Committee prepares the topic for a) review paper and b) research proposal that will constitute the written comprehensive examination.
3. Students are given exactly 30 days to complete both writing tasks. It is imperative that all committees adhere to this policy.
4. Committee chair informs the ENDY director in writing of the start date for the exam. Both written assignments are due no later than 5:00 p.m. exactly 30 days later. No exceptions except under the most extraordinary circumstances.
5. Written comprehensive examination has two parts: a) scholarly review paper, b) formal research proposal in NSF style. Both written assignments are due at 5:00 p.m. on the 30<sup>th</sup> day following their assignment to the student.
6. Written works are evaluated "Excellent", "Very Good", "Good", "Fair", "Poor", four out of five committee members must agree that the works rank at least "Good" to pass the exam.

### **A. Written Comprehensive Examinations**

#### **1. Comprehensive Examinations Committee**

During the second or third semester of enrollment in the ENDY program, 4<sup>th</sup> semester for students entering with a BA/BS, and in consultation with the Advisory Committee, each student will form a Comprehensive Exam Committee. This committee consists of the advisor and at least four other faculty members who hold the rank of Faculty I and II on the Graduate Faculty and who represent two or more disciplines.

This committee is selected to reflect an understanding of the student's general research program. The committee's function is to prepare and grade the student's written comprehensive exams and oversee the oral defense of the dissertation proposal. Normally, there is some correspondence between the Advisory Committee, the Comprehensive Examination Committee, and the Dissertation Committee. Further, these committee members are preferably Fayetteville campus faculty members so that they can know the student and follow her/his work and interests.

The student's written examinations will be tailored to the individual student, stressing that student's background, course work, dissertation interest, and other experiences that are relevant to the student's career goals. The committee will consult with the student during the student's second semester in the ENDY program. The purpose of an early meeting with the student is to allow the committee members to determine the nature of the examination.

## 2. Structure of the Written Comprehensive Examination

The student's Comprehensive Examination Committee will approve the topic for the examination, critique the written works, and determine whether the student has passed all the sections of the exam. All members of the student's committee will participate in these three tasks. In evaluating student performance on the written comprehensive exam, there must be at least four favorable votes (of five) among the committee to confer successful completion of that part of the examination.

The Comprehensive Written Examination will be composed of two written works to be completed within a 30-day period in the student's 3<sup>rd</sup> or 4<sup>th</sup> (if beginning at the Bachelors level this exam would be the 4<sup>th</sup>) semester of enrollment in the ENDY program. The chair of the Comprehensive Examination Committee will provide a written memo to the ENDY Director indicating the start date of the student's examination. The examination will end at 5:00 p.m., exactly 30 days later. This date will be monitored by the ENDY assistant director and verification of submission of both written examination documents will be provided by the committee chair. *No extensions to this time frame will be permitted except under the most extraordinary of circumstances.* The ENDY director and co-directors will have sole purview for determining whether an exception will be granted.

The first of the required written works will be a comprehensive, scholarly review of a topic relevant to the student's intended dissertation research. This written work will examine in critical detail knowledge in this topic area, significant concepts and controversies related to this topic, and gaps in knowledge related to this topic that may lead to new, innovative research to enhance knowledge related to this topic. It is expected that the quality of this review paper will be such that it could be submitted for review to a relevant academic journal with minor or no revision.

The paper should conform to formatting requirements of a specific academic journal to be determined and agreed upon by the Comprehensive Examination Committee. The paper should be of page length appropriate for that journal, double-spaced, with full citations, figures and tables compiled at the end of the manuscript. A typical manuscript prepared for submission to an academic journal will be at least 25 pages of text with tables, figures, and references cited as necessary.

In preparation for the written comprehensive examination, it is imperative for the committee chairs and all the committee members to meet early with the student to discuss research interests, the direction of desired dissertation research, and the student's background relevant to conducting this research. Once the committee reaches consensus regarding the nature of prospective research, it should begin deliberation on a suitable topic to be reviewed by the student. It is the responsibility of the committee to develop a topic for review that is sufficiently broad that it enables adequate evaluation of the student's background and ability yet sufficiently narrow that the review paper can be completed during the 30-day interval of the examination.

The second written work to be assessed by the Comprehensive Examination Committee will be a research proposal composed by the student in the format typical of a National Science Foundation grant proposal or that of another funding agency as appropriate to the student's intended discipline. It is expected that the document will conform to all proposal formatting requirements as specified in relevant funding agency guidelines.

Throughout the 30-day interval of the examination, the student is permitted to confer with individual committee members to receive clarification or additional guidance with technical or scholarly issues. However, the committee shall not edit portions of either the review manuscript or research proposal during the examination interval; a primary purpose of the exams is to determine the adequacy of the student's technical writing capabilities.

Upon completion of the written works, the student will provide each member of the Comprehensive Examination Committee with a copy (either hard copy or electronic version if requested by committee members). It is the duty of the Comprehensive Examination Committee to review both documents objectively, critically, and fairly to assess the student's preparation and scholarship regarding the assigned topics. After review of the written works, the committee will convene to discuss the strengths and weaknesses of the documents and to determine the student's overall performance in completing the assigned tasks. Evaluation will take the form of a qualitative statement of "Excellent", "Very Good", "Good", "Fair", or "Poor". Following evaluation of the written works, the committee will report their assessment to the student and ENDY director. Students must receive passing assessments (an average of "good" or above) from at least 4 of the 5 committee members to be permitted to move on to the next phase of the qualifying examinations (oral defense of dissertation proposal).

### 3. Procedure for Failed Written Comprehensive Examination

If the student does not pass a written assignment, a second opportunity to take and pass the assignment(s) may be arranged *at the discretion of the Comprehensive Examination Committee*. The second written comprehensive exam will be conducted using a format composed of specific questions submitted by the committee members. The general subject areas to be covered during this second examination will be:

- Environmental Dynamics issues from the core curriculum and related courses,
- Methods related to the student's research topic;
- Theory and previous works of other related to the student's research topic;



- Substantive material related directly to the student's dissertation topic.

The student's Comprehensive Examination Committee will prepare the questions, grade the answers, and determine if the student has passed all the sections of the exam using the qualitative evaluation "Pass" or "Fail". All members of the student's committee will participate in these three tasks. In evaluating student performance on each section of the exam, there must be at least four favorable votes (out of five) among the committee members to confer successful completion of that part of the examination.

Exams will be given over four consecutive days one part being written each day. The period for taking each exam will be approximately four hours per day. The advisor will be responsible for locating a suitable room in which the student may write the exam. Unless the committee agrees to a change in the normal procedures, for a particular part of the exam, these exams are closed-book exams. Necessary preparations will be given for securing space and a neutral computer, to which the student does not normally have access. Exams may be computer written or handwritten, depending upon the student's choice. *The second written comprehensive exam must be passed in entirety. That is, four of the five committee members must agree that the exam is passing in its entirety.*

If the student fails to pass all sections of the exam on the second opportunity, the committee has additional discretion to recommend, under very special circumstances, that the student be permitted to take the exam of a third (and final) time. If a student needs to take the exam for a third time, that will occur during the following semester (at the next earliest opportunity) and the student must pass the entire exam using the criteria as afforded the second opportunity before proceeding further in the ENDY program.

If a student fails any portion(s) of the written comprehensive exam, declines to retake the exam, or is not afforded the option of a second or third exam by the committee, the failing grade will stand, and the student will be dismissed from the ENDY program.

## **B. Defense of the Dissertation Proposal**

Following completion and passing of all parts of the Written Comprehensive Examination, the student will submit a dissertation proposal to the Comprehensive Examination Committee for review. The proposal should be organized and written so that it could, in most cases, be submitted as a proposal to an appropriate funding agency (e.g., NSF doctoral dissertation improvement grant, etc.), and will conform to the formatting and contain the required elements of that proposal type.

### **1. Structure of the Defense of the Dissertation Proposal**

Once a proposal is submitted to the Comprehensive Examination Committee, it must be defended through a public oral presentation and examination in a venue open to the university community at large. During the defense, the student is expected to make a brief presentation outlining the proposed program of dissertation research, including background and justification for the proposed research, methods to be employed during the research, and the significance of the research with respect to the specific field of inquiry and the broader realm of Environmental Dynamics.

At the end of the student's presentation, members of the university community, the public, and the Comprehensive Examination Committee shall ask questions of the student in order to clarify the research agenda, probe the depth of the candidate's understanding of the proposed research, and further assess the adequacy of the candidate's preparation to proceed with research leading to the doctoral degree. The oral exam must be successfully passed before the student advances to candidacy and before the dissertation can be written. Failure to pass this important examination will result in dismissal from the ENDY program. At the discretion of the student's committee, the oral exam may be taken a second time if it is not passed the first time. The students should strive to complete all parts of the Written Comprehensive Examination and Defense of the Dissertation Proposal defense by the end of her/his second year in the program.

If a student fails the oral defense of the dissertation proposal declines an opportunity to defend the proposal a second time or is not given the option of defending the proposal a second time, the failing grade will stand, and the student will be dismissed from the ENDY program.

## **VI. Research**

### **A. Master's Research**

Students working toward a master's degree with a thesis are expected to contribute to the scholarly advancement of knowledge in their area of expertise. The topic and scope of the research will be guided by the Master's Committee. This committee is formulated the first semester and guides the student's choice of elective courses and research objectives. The major faculty advisor must all hold Faculty Status I, II or III and faculty must represent at least two disciplines.

The specific problem and subject of the thesis will be determined by the student in consultation with and with approval of the major advisor and the Master's Committee. The completed thesis must be a definite, scholarly contribution to the major field. This contribution may be in the form of new knowledge of fundamental importance, or of modification, amplification, and interpretation of existing significant knowledge. This research topic may be changed at any time while the student is in the program, but such changes must be approved by the Master's Committee. Copies of the completed thesis in the prescribed form must be presented to the candidate's Master's committee for approval at least two weeks before the defense is to be held. The copy of the thesis shall be presented to the ENDY Program.

#### **1. Purpose of the Thesis**

The degree of Master of Science is awarded in recognition of scholarly attainment as evidenced by a period of successful advanced study with at least a 3.0 graduate grade point average in ENDY core classes, the satisfactory completion of certain prescribed examinations, and the development of a thesis covering some significant aspect of a major field of learning.

The purpose of the thesis is to engage the candidate in scholarship and research that contributes significantly to human knowledge. This requires active research on the candidate's chosen topic, including a thorough review of previous works of a similar or related nature, formulation, testing, and validation of hypotheses through data gathering and analysis, and

synthesis of results of experiments or observations in a substantial body of work that can be disseminated to the broader academic community through publication in refereed academic journals, proceedings, and books.

## 2. Structure and Composition of the Thesis

In consultation with the Advisor and the Master's Committee, the student will develop an outline for the structure and composition of the thesis. In general, faculty advisors and committee members encourage students to structure their thesis in such a way that a peer-reviewed contribution to the scholarly literature may be extracted from the body of the work.

Details regarding the most suitable format in which to achieve this objective are reserved for discussion among the candidate and her/his committee. It will be the role of the Master's Committee to approve the final format, structure, and composition of the thesis. The Graduate School provides additional requirements for formatting of the thesis in the Guide to Theses and Dissertations (<http://graduate-and-international.uark.edu/resources/forms/thesis-dissertation-guide.pdf>). Students are expected to adhere to all requirements of the Graduate School in completing the final thesis document.

### **B. Doctoral Dissertation Research**

Each candidate in the ENDY program must complete a doctoral dissertation on some topic in the major field. The topic assignment shall be made, and a title filed with the Dean of the Graduate School at least one year before the dissertation defense. The specific problem and subject of the dissertation to be determined by the student in consultation with and with approval of the major advisor and the Doctoral Committee. The completed dissertation must be a definite, scholarly contribution to the major field. This contribution may be in the form of new knowledge of fundamental importance, or of modification, amplification, and interpretation of existing significant knowledge.

Each candidate will formulate a research topic on which to focus during her/his tenure in the ENDY program. This research topic will be selected through consultation with the Advisory Committee. The research topic will be conveyed to the director during the first year of studies, who will affirm that the topic is compatible with ENDY principles of studying human-environmental interactions. This research topic may be changed at any time while the student is in the program, but such changes must be approved by the Advisory or Doctoral Committee.

In cases where a student has successfully passed qualifying examinations and desires to change the dissertation topic, the Dissertation Committee will have discretion to determine whether re-examination of all or parts of the candidate's qualifications is necessary or justified. It is expected that any decision to re-examine the candidate will be made with the consent of the candidate and the dissertation advisor. If a candidate desires to change dissertation topics but refuses to submit to re-examination, either all or part, the Dissertation Committee will have discretion to reject the proposed change. A change in dissertation topic may necessitate appointment of a new Dissertation Committee composed of faculty better qualified to direct and advise the new topic.

Copies of the completed dissertation in the prescribed form must be presented to the candidate's doctoral committee for approval at least six weeks before the defense is to be held. The copy of the dissertation shall be presented to the ENDY Program.

### 1. Purpose of the Dissertation

The degree of Doctor of Philosophy is awarded in recognition of high scholarly attainment as evidenced by a period of successful advanced study with at least a 3.0 cumulative graduate grade point average, the satisfactory completion of certain prescribed examinations, and the development of a dissertation covering some significant aspect of a major field of learning.

The purpose of the dissertation is to engage the candidate in rigorous scholarship and research that contributes significantly to human knowledge. This requires active research on the candidate's chosen topic, including a thorough review of previous works of a similar or related nature, formulation, testing, and validation of hypotheses through data gathering and analysis, and synthesis of results of experiments or observations in a substantial body of work that can be disseminated to the broader academic community through publication in refereed academic journals, proceedings, and books.

### 2. Dissertation Committee

Upon successful completion of the written comprehensive examinations and the oral dissertation proposal defense, the student will assemble a Dissertation Committee to be charged with oversight of the dissertation. This committee consists of the student's advisor and a minimum of two additional faculty members. At least two disciplines (i.e., faculty members housed in different departments) must be represented in the makeup of this committee.

The primary purpose of this committee is to guide the student while conducting original research for a dissertation. Therefore, faculty members who are knowledgeable about dimensions of the student's research should be selected to serve on this committee. In addition to at least three faculty members from the University of Arkansas, a student may select an external member from a non-University of Arkansas (Fayetteville) institution to serve on his/her committee provided the member is approved for faculty status of adjunct by the university on our campus. This fourth person, although not required, may add particular expertise in some dimension that is not reflected by other members of the committee. An example would be an expert who is very familiar with some subject matter treated by the student in his/her dissertation. All faculty members who are providing substantive dissertation advising (significant substantive input) will normally be included on the dissertation committee.

### 3. Structure and Composition of the Dissertation

In consultation with the Dissertation Advisor and the Dissertation Committee, the student will develop an outline for the structure and composition of the dissertation. In general, faculty advisors and committee members encourage students to structure their dissertation in such a way that a minimum of three peer-reviewed contributions to the scholarly literature may be extracted from the body of the dissertation.

Details regarding the most suitable format in which to achieve this objective are reserved for discussion among the candidate and her/his committee. It will be the role of the Dissertation Committee to approve the final format, structure, and composition of the dissertation. The Graduate School provides additional requirements for formatting of the dissertation in the Guide to Theses and Dissertations (<http://graduate-and-international.uark.edu/resources/forms/thesis-dissertation-guide.pdf>). Students are expected to adhere to all requirements of the Graduate School and their respective dissertation committees in completing the final dissertation document.

## **VII. Final Examination**

### **A. Masters Defense**

The final step for students wishing to earn a Master of Science in Environmental Dynamics (degree plan three or four) is the thesis defense. This is a public presentation of the student's masters research and demonstration of the student's competence in their specific area of expertise. The presentation logistics and content will be developed in consultation with and approved by the students Master's Committee.

This presentation should be scheduled at least two weeks before the submission deadline for the thesis for the graduation semester. This will give the student ample time to make any final changes to the thesis before submission.

When a title, date, time, and location are set the information should be sent to the Jo Ann Kvamme [jkvamme@uark.edu](mailto:jkvamme@uark.edu) and she will advertise the presentation to the ENDY community.

### **B. Dissertation Defense**

A final examination (commonly referred to as the dissertation defense) of each candidate for the degree of Doctor of Philosophy will be organized as a public presentation (oral). ***The student will forward to the Dean of the Graduate School, not less than ten (10) business days before the date of the final oral examination, an announcement of the title, date, time, and place of the oral examination*** <https://graduate-and-international.uark.edu/graduate/current-students/dissertation-defense.php> The examination will be primarily concerned with the field of the dissertation but may also include other aspects of the candidate's graduate work. The examining committee shall consist of the student's Dissertation Committee and others who may be included at the discretion of the dissertation advisor and the Dean of the Graduate School.

#### **1. Structure and Composition of the Dissertation Defense**

The dissertation defense will be scheduled at a time and place accessible to any members of the university community and the public at large. Typically, the dissertation defense will begin with a presentation by the candidate outlining the general principles of the dissertation topic, the hypotheses that were investigated as part of the research project, discussion of research methodologies, and synthesis of results of the research.

Following the presentation, the dissertation advisor will serve as moderator of an open questioning period. During this time, it will be the responsibility of the dissertation advisor, as chair of the Doctoral Committee and moderator of the dissertation defense, to ensure that questions from either committee members or the public are relevant to the candidate's body of work as represented by the dissertation. It is recognized that free and open discourse during the dissertation defense is part of the centuries-old doctoral tradition, and while the questioning period can be intense, wide-ranging, highly focused, and/or introspective, it is expected that examination of the candidate throughout the dissertation defense will be conducted with professional decorum and in the long-standing spirit of academic inquiry.

The student must secure all "good" or above to pass the Dissertation Defense. If a "fair", or worse, is recorded the student needs to discuss with the doctoral committee how to improve the dissertation. Once these changes are made a second vote may be taken.

### **VIII. Submitting the Completed Thesis or Dissertation**

Copies of the completed thesis or dissertation in the prescribed form must be presented to each of the candidate's dissertation committee for approval at least six weeks before the final examination. After approval by the committee and the Dean of the Graduate School, A copy of the dissertation must pass a pre-check in the graduate school. Once this happens the student is instructed on how to upload the thesis or dissertation to meet the graduate school requirements.

One copy of a student's completed thesis or dissertation must be submitted to the student's advisor.

### **IX. Graduation**

A student cannot be cleared for graduation until an application for the degree has been filed with the Registrar's Office and the appropriate graduation fee has been paid. The degree application card is obtained from the Graduate School Office and filed with the Registrar for the semester in which the student expects to receive the degree. If the student does not graduate in the indicated semester, the student must reapply for graduation by contacting the Registrar's Office. Please refer to the Master's Calendar or Doctoral Calendar for specific deadline dates at <https://graduate-and-international.uark.edu/graduate/current-students/commencement-graduation.php>.

University of Arkansas offers graduation ceremonies in both the months of May and December for graduates who have completed graduation requirements within the academic year. Graduate students are recognized at the All-University Commencement ceremony on the 2nd Saturday of May or the third Saturday of December. Additional information is available on the Graduate School website.

#### **A. Participation in Commencement Ceremony**

Summer, Fall, and Spring Degree Recipients/Applicants are invited to participate in the All-University Commencement ceremony. Degree applicants for the future Summer and Fall semester MAY participate with approval of their advisor. A form is required and may be obtained from the Graduate School or our home page. An immediate family member (spouse, parent, or

child) who is a member of the academic faculty within the University of Arkansas system may present your diploma. Please contact the Graduate School for arrangements.

*While earning the masters or doctoral degree is primarily an individual achievement, that achievement is never accomplished without the dedicated assistance of many people. As a courtesy to those who may have sacrificed many hours on your behalf, you should consider participating in the commencement ceremony as a gesture of respect and thanks to those who helped you reach the pinnacle of academic achievement.*

#### **B. Deadline for the Name of Graduate to be Included in Commencement Program**

The Graduate School makes the effort to include as many graduate students in the Commencement Program as possible. Keep in mind that there are printing deadlines. We tell students that their name should be included if they apply for graduation by late February (October 1<sup>st</sup> to be included in the Fall Commencement). All past degree recipients for the academic year are automatically included.

### **X. Annual Review of Graduate Student Progress**

In accordance with the policies of the University of Arkansas Graduate School and the Graduate Council, it will be the policy of the Environmental Dynamics Program (ENDY) to conduct an annual review of progress toward the degree for each enrolled student. At a minimum, the review will examine progress:

1. Toward completing required course work with the minimum grade point average defined by the Graduate School;
2. In successfully completing all qualifying examinations required to be admitted to candidacy for the degree as required by the Environmental Dynamics Program and the Graduate School;
3. Toward completing thesis or dissertation requirements including but not limited to:
  - a. Establishing Advisory, Comprehensive Exam, and Master/Dissertation Committees as prescribed in the Environmental Dynamics Graduate Handbook;
  - b. Preparing a formal, written thesis or dissertation proposal as prescribed in the Environmental Dynamics Graduate Handbook;
  - c. Conducting an initial meeting with members of the Advisory and Master/Dissertation committee as prescribed in the Environmental Dynamics Graduate Handbook;
  - d. Conducting research related to the thesis or dissertation.
  - e. Preparing manuscripts describing results of original research to be submitted to appropriate academic journals;
  - f. Initiating annual review with committee members;
  - g. Writing the thesis or dissertation;

4. Toward completing other specified requirements for the degree (e.g. satisfactory evaluations of teaching, participation in ENDY or University of Arkansas service activities, etc.).

#### **A. Annual Review Procedure**

The annual review of graduate student progress to be enacted by the Environmental Dynamics Program will follow the procedure outlined below. The ENDY Program has created a checklist of milestones that should be accomplished each semester to aid the student/advisor in evaluating the progress made each year:

During the Spring semester of each academic year, the assistant director of the ENDY program will remind each student enrolled in the ENDY program to initiate a meeting with his/her advisor for the purpose of evaluating student progress toward the degree. The student should plan sufficiently so that this review is completed on or before 15 April each Spring semester.

1. The annual progress review will consist of a face-to-face interview with the student and the committee member(s) selected to serve as reviewers. In situations where it may be impractical to meet the student face-to-face, the review may be conducted with the advisor and committee member(s) via telephone or e-mail correspondence, or other vehicle agreed to by the involved parties.
2. Upon completion of the review, the committee will articulate its assessment regarding progress toward the degree directly to the student by indicating that the student is making normal progress, adequate progress, or inadequate progress.

Normal progress is defined as a combination of the items listed below appropriate to the student's seniority within the ENDY program:

1. Establishment of an Advisory, Comprehensive Exam, or Doctoral Committee;
2. Completion of required ENDY core courses during the first year of enrollment;
3. Completion of the qualifying exam at the end of the 2nd semester (for students in the bachelors to PhD program)
4. Completion of at least 18 hours of course work per academic year or comparable work towards completion of the degree (15 if on a teaching assistants);
5. Maintenance of a minimum grade point average of 3.20;
6. Completion of qualifying examinations at the end of the first year
7. Completion of Comprehensive Exam during the 3<sup>rd</sup> or 4<sup>th</sup> semester of enrollment (4<sup>th</sup> semester for those entering with a BA/BS);
8. Significant progress toward defining a thesis or dissertation topic
9. Student is in the process of writing a formal thesis or dissertation proposal to be presented to advisory or dissertation committee
10. Student is working with advisor to secure funding for research leading to the dissertation.
11. Student is conducting research related to the thesis or dissertation;
12. Student is preparing manuscripts detailing results of original research to be submitted to appropriate academic journals;
13. Student is writing thesis or dissertation.



14. Student entering with a master's are on pace to complete the PhD in 3 years (6 academic semesters); Students entering with a BA/BS will be on pace to complete the PhD in 4 years (8 academic semesters). Master's students will complete the degree in 2 years (4 academic semesters).
15. Student performs teaching duties satisfactorily.

Adequate progress toward the degree is defined as a combination of the items listed below appropriate to the student's seniority within the ENDY program:

1. Completion of required ENDY core courses during first 4 semesters of enrollment;
2. Completion of at least 15 hours of coursework per academic year or comparable work towards completion of the degree;
3. Completion of the qualifying exam at the end of the 2nd semester (for students in the bachelors to PhD program)
4. Maintenance of a minimum grade point average of 2.85;
5. Student is on schedule to complete comprehensive examinations during the 4<sup>th</sup> semester of enrollment;
6. Student has established an Advisory or Dissertation committee;
7. Student has made significant progress toward defining a dissertation topic;
8. Student is in the process of writing a formal thesis or dissertation proposal to be presented to advisory or master's or dissertation committee;
9. Student is on pace to complete the PhD in 4 years; Master's students are on pace to complete in 2 years
10. Student is working with advisor to secure funding for research leading to the dissertation.
11. Student has performed teaching duties satisfactorily.

Inadequate progress toward the degree is defined as a combination of the items listed below appropriate to the student's seniority within the ENDY program:

1. ENDY core courses not completed during first 3 semesters of enrollment;
2. Less than 12 hours of coursework per academic year or comparable work towards completion of the degree;
3. Student did not sit for qualifying exam at the end of the 2<sup>nd</sup> semester (for students in the bachelors to PhD program)
4. Minimum grade point average falls below 2.85;
5. Student not on schedule to complete qualifying examinations during the 4<sup>th</sup> semester of enrollment
6. Student has not established an Advisory, Comprehensive Exam, or Dissertation Committee;
7. Student has not made significant progress toward defining a dissertation topic;
8. Student has not written a formal thesis or dissertation proposal to be presented to advisory or dissertation committee;
9. Student is not on pace to complete the PhD in 4 years (for a terminal master's student - not on pace to complete the Master's in four semesters)
10. Student is not working with advisor to secure funding for research leading to the dissertation.
11. Student has not performed teaching duties satisfactorily.

Following the review of student progress, the review form provided by the Graduate School will be completed to include written comments regarding the student's progress, as well as recommendations for continued progress or recommendations to remediate inadequate progress within a realistic time frame (since the review occurs during late Spring semester, either end of Summer or midway through Fall semester might be a reasonable time frame).

At the conclusion of the review, the student and advisor will sign the review form, and copies will be distributed to the student, the advisor, and the Director of the ENDY program. The annual review forms will become part of the student's permanent file.

The Director of the ENDY program will report the progress of each student in the program to the ENDY Administrative Board, including necessary remediation steps for those students whose progress was evaluated as inadequate. The ENDY Administrative Board will make the final decision regarding student progress when it is deemed by the reviewer(s) to be inadequate. Once this final decision is rendered, the Director of the ENDY program will forward the original signed review forms of all students to the Graduate School for inclusion in the students' permanent files.

Students who refuse to participate in the review process will be placed on short-term probation while reasons for their refusal are heard.

If adequate cause for bypassing the review cannot be affirmed and the student still refuses to participate in annual reviews of progress, a statement reporting the student's refusal to be reviewed will be forwarded to the Dean of the Graduate School and dismissal proceedings will be initiated by the Graduate School.

## **B. Failure to Progress**

If a student who receives an evaluation of inadequate progress fails to meet the minimum remedial steps specified by the review committee within the specified time frame, a Report-of-Non-Progress will be provided to the Director of the ENDY program by the chair of the student's evaluation committee (usually the PhD advisor). This report will provide details of the failed steps.

1. The Report-of-Non-Progress will be treated as confidential information and will be forwarded to members of the ENDY Administrative Board for review. If a majority of ENDY Administrative Board members agree with the findings of the Report-of-Non-Progress, this report will be forwarded to the Graduate School for additional action.
2. At each stage of this process, the student will be informed by the Director of the ENDY program what actions are being taken. The student may appeal decisions regarding inadequate progress in accord with guidelines of the Graduate School at the University of Arkansas through the formal grievance process.
3. In developing guidelines for the annual review of graduate student progress, the ENDY Administrative Board recognizes that extenuating circumstances of employment, research funding, or other relevant conditions may impact on students' progress. As such, the ENDY

Administrative Board reserves the right to consider such circumstances on a case-by-case basis.

## **XI. Academic Warning Policy**

The ENDY program holds the academic standards established by the University of Arkansas Graduate School in high esteem and expects students to perform at least to the minimum established standards. If, for any reason, student performance falls below these minimum standards such that the student is placed on academic probation, the ENDY program regards this as a serious matter. In these situations, the student should recognize that the first priority is to raise performance such that academic warning is lifted by the Graduate School. A student in academic warning status will not be permitted to progress toward the doctoral degree until such time that academic performance improves to the point that academic probation is lifted.

The following policy regarding academic warning is that of the Graduate School and is in effect in the ENDY program.

Whenever a regularly admitted graduate student earns a cumulative grade point average below 2.85 on graded course work taken in residence for graduate credit, he/she will be warned of the possibility of academic dismissal. When a graduate student has accumulated a minimum of 15 hours of graded course work taken in residence for graduate credit with a cumulative grade point average below 2.85, and has received at least one warning, he/she will be academically dismissed from the Graduate School.

Graduate teaching and research assistants and students on Benjamin Franklin Lever fellowship must maintain a cumulative grade point average of at least 2.85 on all course work taken for graduate credit. If a student's cumulative GPA falls below 2.85 on 6 or more hours of graduate work (one full-time semester), notification will be sent to the student and his/her department. If the CGPA is below 2.85 at the end of the next major semester (Fall or Spring), the department will not be allowed to appoint the student to an assistantship until his/her CGPA has been raised to the required level.

## **XII. Miscellaneous Information**

### **A. Grievance Procedure**

If at any time during the tenure of a student in the ENDY program, she/he wishes to appeal a decision rendered about her/his level of achievement, the student should (1) contact her/his advisor in writing about the nature of the problem. If the advisor cannot resolve the issue to the student's satisfaction, the student may (2) contact the ENDY Director in writing about the problem. If the Director cannot resolve the issue to the student's satisfaction, the student may (3) proceed through a formal appeal procedure as set forth in the Graduate School catalog.

<https://catalog.uark.edu/undergraduatecatalog/academicregulations/studentacademicappeals/>

## **B. Teaching Opportunities**

Although the Ph.D. is primarily a research degree, communication skills are critical to professional development. Therefore, the ENDY faculty places an emphasis on providing candidates an opportunity to teach at either the undergraduate or graduate level. ENDY assistantships are typically assigned to students to teach labs and classes, and therefore teaching experience normally comes from these assignments. For other students, the ENDY faculty will attempt to help identify teaching opportunities by which classroom skills may be acquired.

## **C. Publishing Opportunities**

Successful pursuit of a graduate degree will include the candidate becoming a contributing member of the broader academic community by disseminating information and results of research through traditional media, primarily refereed academic journals and professional meetings. The ENDY faculty recognizes the priority of demonstrating academic achievement through publication of research results in respected journals and will encourage candidates to do so at appropriate opportunities.

### **1. Refereed Journals, Proceedings, Books, Etc.**

While the ENDY program advocates and actively promotes publication of student research results in appropriate academic media, the responsibility for the content of such publications resides solely with the student author and coauthors of the work.

In addition, it should be understood that any fees or page charges accrued in the process of publishing in the academic literature should be borne by either the student author or coauthors.

### **2. Professional Meetings**

Students in the ENDY program are encouraged to become active professionals in organizations appropriate to their chosen fields of study and are encouraged to disseminate results of their research at research symposia, national or international professional meetings, and regional professional meetings.

While the principal costs associated with student participation in professional meetings and research symposia cannot be borne by ENDY, students may qualify for travel funds provided by the graduate school (up to \$1000 from the graduate school matched with \$100 from the ENDY program for PhD students and \$600 from the graduate school matched with \$60 from the ENDY program for MS students). For details regarding the possible availability of funds, ENDY students should contact the Assistant Director of the ENDY program.

## **D. Service Opportunities**

Members of the ENDY faculty recognize that service to the University of Arkansas, the community of Fayetteville, state, nation, and discipline are required elements of successful completion of the doctoral degree. Further, the faculty recognizes that the service of members of the university within the community provides necessary technical assistance, improves the living

environment of the community, and creates a collegial atmosphere between the university and its host city.

As such, the ENDY faculty recognizes engaging ENDY students in active service to the university and community is an essential part of the training of successful doctoral candidates. Therefore, all ENDY students are encouraged to participate in service-related opportunities as they arise. Examples of appropriate service activities are 1) participation in University Day events, 2) participation in local and regional science fairs, 3) participation in community public service events such as Stream Team clean-up days, Devil's Den highway clean-up, etc., 4) participation as representatives of the ENDY program and the University of Arkansas at community festivals such as Autumn Fest and Spring Fest, and 5) participation in educational outreach as representatives of the ENDY program and the University of Arkansas, such as speaking to public school classes.

While there is no formal requirement for service as an element of the ENDY degree, it is expected that ENDY students will assist with various service-related projects as they are able.

#### **E. Office/Lab Space**

The ENDY program has extremely limited space available for its students. On the other hand, ENDY teaching assistants are often assigned an office desk for preparing lessons and meeting with students by the department for which they are teaching. ENDY students may also be afforded laboratory space to work in by their major advisor or the advisor's host department. Those students requiring space for this dissertation research should be prepared to specify the size and kind of space required, whether computer or other equipment connections are needed, the times of day the space is to be used, and similar details. Every attempt will be made to match student space needs with available facilities.

#### **F. Continuing Graduate Credit and Transfer Credits**

The university does permit the transfer of credits from other institutions to apply towards doctoral degrees however all independent special problems courses, candidacy exams and dissertation hours must be taken at the University of Arkansas. The Graduate Catalog specifies that: "For doctoral candidates, at the discretion of the advisory committee, the program of study may be adjusted in lieu of work taken at other colleges or universities and recognized by the candidate's committee, but it will not appear on the University of Arkansas academic record."

Up to 12 graduate credits may be taken to apply toward a doctoral degree such as the ENDY Ph.D. prior to the student being formally accepted into the degree program. However, all core courses and research hours must be taken on our campus.

**DRAFTED:** 15 AUGUST 2002  
**REVISED:** 02 AUGUST 2010  
REVISED: 11 AUGUST 2014  
REVISED: NOVEMBER 2015  
REVISED: AUGUST 2016  
REVISED: JUNE 2017

REVISED: JUNE 2018  
REVISED: AUGUST 2019  
REVISED: MAY 2020  
REVISED: AUGUST 2021