SIU CARBONDALE
SOUTHERN ILLINOIS UNIVERSITY
SCHOOL OF EARTH SYSTEMS AND SUSTAINABILITY

Enviromental Resources & Policy PhD Program

Environmental Resources & Policy
PhD Program – SIU Carbondale & Edwardsville
1000 Faner Drive
Carbondale IL 62901

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PROGRAM INFORMATION

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AREAS OF CONCENTRATION

Climatology

Students who take the Climatology concentration will study the past, present, and future of Earth's atmospheric system that, in interaction with the land and the hydrosphere, generate long-term weather patterns-that is climate. Methods for investigating paleoclimates, such as dendrochronology, ice and sediment cores, will be emphasized along with use of Atmospheric-Oceanic General Circulation Models for the investigation of climate change.

Earth and Environmental Processes

Students who select this specialization combine elements of the modern, process-oriented geology curriculum (sedimentology, geomorphology, petrology, basin analysis, seismology, potential-field geophysics, organic and water geochemistry, tectonics, and paleo-environmental analysis) with allied disciplines to prepare for research into a broad range of environmental studies. This concentration emphasizes the geological process approach to analysis of such problems as flooding, earthquake hazards, land-use practices, aquifer degradation, and mine site remediation.

Ecology

Students who take the ecology concentration will work with faculty from the Center for Ecology. Ecology studies the complex relationships between organisms, populations, communities, ecosystems, biomes and the biosphere, which are deeply affected by human decisions, actions and policies-actions and policies which are themselves influenced by the environment. ER&P-ecology students will focus on the ecosystem-society relationship, such as the provision and management of ecosystem services. As the human footprint widens, and active management of ecosystems becomes more policy-relevant, understanding these connections is a vital component of training the next generation of scientists.

Energy and Mineral Resources

Energy and mineral resources include hydrocarbons (oil, natural gas, coal, and their naturally occurring and manufactured derivatives), and both metallic and non-metallic (industrial) mineral and rock deposits. This specialization comprises studies of the origins and physical occurrences of these resources, together with technologies and policies concerning their extraction and use.

Environmental Policy and Administration

Making and administering environmental policy has become an exceedingly complex arena where science interacts strongly with law and the political process. Students enrolled in this concentration will examine these interactions and complexities with a focus on the socioeconomic driving forces that generate resource use and attendant environmental problems, and the political and legal frameworks through which societies make and implement public policy in the environmental field.

Forestry, Agriculture and Rural Land Resources

Many environmental problems, challenges and policies take place in rural landscapes where forestry and agricultural land uses are intermingled with non-farm rural residents and others. Many rural land uses contribute to environmental problems and the development of environmentally benign and sustainable methods of production are goals of environmental policy. Consequently, through this concentration, students will examine the interaction among environmental quality, production, process, and public policy.

Geographic Information Systems and Environmental Modeling

Modern environmental sciences, management and planning rely on acquisition, analysis and integration of large data bases using remote sensing, digital image processing, geographic information systems and environmental modeling. The purpose of this concentration is to enable students to develop high skills in these areas and to apply them to one or more natural resource domains (e.g., hydrogeology, forest inventory, spatial decision support systems, environmental modeling).

Water Resources

As a critical flow resource, water is of central importance to society and, through hydrologic processes, is involved in many environmental issues from water shortages in populous arid regions to ground water quality concerns associated with agri-chemical use. Through this concentration, students will examine the interaction among hydrologic processes, environmental quality, water resource use, and the processes and institutions of the private sector and public policy that govern water resources.

Program Information - Curriculum

Credit Hour Requirements

- Core: 12 credit hours of core curriculum (ERP502, ERP598 and a methodology and a science course.)
- Concentration: 24 credit hours minimum (only 3 hours of ERP599 may be credited toward the degree.)
- Dissertation Hours: 24 credit hours in ERP600

Total: 60 credit hours

Southern Illinois University Carbondale (SIUC) Students

All new students must take the core curriculum courses in the first semester they are offered. The ERP curriculum is 60 credit hours of both core and concentration-specific courses. The EPR core consists of four courses. The primary course required of all first-year students is ERP502-Environmental Decision Making. The other required courses include ERP598- Applied Environmental Resources & Policy, a methodology course and a science course. ERP598 is taken each semester until the student passes the comprehensive exams. Only 3 credits count toward the degree. The methodology and science courses should be chosen by the student after consultation with their advisor. Beyond the core requirements, students are encouraged to work closely with their faculty advisor and committee to identify appropriate courses.

Southern Illinois University Edwardsville (SIUE) Students

The required core course work includes: ERP502- Environmental Decision Making and three credit hours of ERP598-Applied Environmental Resources & Policy, either the methodology or science course must be taken from SIUC. The 24 hours of concentration course work will be taken in consultation with the student's graduate committee. The student must register for 12 of the 24 hours of dissertation research hours at SIUC and the remaining 12 hours at SIUE. SIUE students will register for ERP601 at SIUC without any charge.

All Students

No more than six hours of the deferred dissertation credit may be applied toward fulfillment of the 24 semester hour residency requirement. Doctoral students will not be permitted to sign up for more than six hours of dissertation credits until candidacy has

been achieved without express written permission of the ERP Director. Any dissertation hours registered for above the six permitted prior to candidacy will not be counted toward completion of the doctoral degree.

The lists below provide examples of the possible methodology and science courses at SIUC but are not meant to be comprehensive.

Methodology Courses (examples only):

Course Number	Course Title
ECON 567a	Econometrics
QUAN 506 or 507	Inferential Statistics
GEOG 512	Applied Geographic Statistics
GEOL 513	Data Analysis in Earth Sciences
SOC 512	Social Research Methods and Design
ZOOL 557	Biostatistics

Science courses *(examples only):*

Course Number	Course Title
FOR 508	Historical Ecology
FOR 531	Disturbance Ecology
GEOG 534	Water Resources Hydrology
GEOG 536	Natural Hazards
GEOL 524	Sedimentary Geology

Course Number	Course Title
PLB 443	Restoration Ecology
PLB/ZOOL 444	Community Ecology and Analysis
PLB/ZOOL 445	Wetland Ecology and Management
PLB 545	Ecosystem Ecology
ZOOL 411	Environmental Risk Assessment
ZOOL 521	Stream Ecology
ZOOL 569	Advanced Fisheries Management

Residency

The residency requirement for the doctorate must be fulfilled after admission to the doctoral program and before formal admission to doctoral candidacy. The residency requirement is satisfied by completion of 24 semester hours of graduate credit on campus as a doctoral student within a period not to exceed four calendar years. No more than six hours of deferred

dissertation credit may be applied toward fulfillment of the 24-semester hour residency requirement. **No doctoral student will be permitted to sign up for more than six hours of dissertation until candidacy has been achieved without express written permission of the ERP Director**. **Any dissertation hours registered for above the six permitted prior to candidacy will not be counted towards completion of the doctoral degree.**

Requirements when leaving campus, requesting a leave of absence, or enrollment in ERP601

Any ERP student who intends to leave campus prior to completion of their degree or not enrolled in classes for the following semester must notify the ERP Director at least six weeks prior to the end of the semester. The program will then inform the students in writing of all the requirements they need to fulfill to complete their degree.

Complete the degree after leaving campus or enrollment in ERP601

Before being reinstated into the program, returning students must submit a plan for completing the program to the ERP Director. The plan should include the following information:

- A summary of the research they have completed toward the dissertation
- A summary of the research they need to undertake to complete the dissertation
- Identification of a potential primary advisor/dissertation chair that is current faculty at SIU;
- Identification of a potential dissertation committee members; and
- A timeline for their anticipated completion of the program.

Comprehensive Exams and Defenses

Graduate Faculty Committee

SIUC Students

SIUC ERP students must have a 5-member inter-departmental committee that should be developed in cooperation with their advisor.

The graduate committee must include:

- At least four SIUC faculty members and have a maximum of three members from the same department.
- Qualified researchers from outside SIUC are eligible to be committee members. A current CV should be sent to the ERP Director to obtain adjunct status approval from the Graduate School. The Graduate School Faculty Committee from can be found here or on the Graduate School website.
- A non-academic person with practical expertise can be usefully included as a sixth member.

SIUE Students

SIUE ERP students must have a 5-member inter-departmental committee that should be developed in cooperation with their advisor.

The graduate committee must include:

- Two SIUE graduate faculty
- Two SIUC graduate faculty
- An additional member from either institution or;
- An external member who holds graduate status or adjunct graduate status as appropriate from the respective institution. A current CV should be sent to the ERP Director to obtain adjunct status approval from the Graduate School Faculty Committee via their form.
- A non-academic with practical expertise can be a sixth member.

Comprehensive Exam

The dissertation proposal must be approved by the student's advisor before they can take the comprehensive (comps) exam. The exam should be taken within three months following the completion of all required coursework at a time determined by the student's dissertation advisor, in consultation with the ERP Director. Comps are difficult and standards are high, especially given the demands of the inter-disciplinary degree. It is wise to discuss expectations with each committee member and perhaps take an independent study course to prepare for the prelims an have "mock" oral exam. When you are ready to take the exams, please reach out to the ERP office specialist or the ERP Director to make the necessary arrangements.

Written and oral exams will consist of two parts. The instructor of ERP 502 will give questions regarding the core curriculum and the student's committee members will provide questions on the student's dissertations proposal.

Exams must be conducted in the following manner in either a written or oral exam.

Written Exam

The written comprehensive exam consists of three 4-hour sessions taken within a seven-day period. Students have the option of typing or handwriting their exam answers. Laptops are checked out from the ERP office. The format of the questions is at the discretion of each committee member.

The committee Chairperson collects all exam questions and prepares the exam. The questions are then sent to the office specialist or ERP director who hands them out and oversees the exam. After each session, the student can take a copy of their responses to make the grammatical revisions only and prepare the final draft. Any other changes to the content of the exam will result in failure of the exam. Diagrams and illustrations can be hand drawn or created on the computer. Images cannot be imported or scanned into the final draft. Students working away from SIUC may take their written exams at their place of employment. The employer must supervise the student.

The first day of exam should be the core curriculum questions and questions from one of the committee members. The other two days can be divided into two committee member's questions each day. To pass, the student must pass the core curriculum and four of the five committee members questions.

Repetition of the written exam

The student will have an opportunity to retake the portions of the written exam not passed on the first try. This will occur during the semester following the first attempt. If the student fails on the second try, they will be dismissed from the program.

Oral Exam

Once the student passes the written exam, the oral exam will be scheduled. This will normally occur approximately three weeks after the written exam. There will be six examiners: the first five members of the dissertation committee, plus the instructor of ERP502. The best practice for oral exams is to have them in person with all committee members present in the room. When committee member(s) cannot physically attend the oral exam, a video conferencing platform such as Microsoft Teams or ZOOM shall be used to allow them to virtually attend the exam. A maximum of two examiners can be present by video conferencing platforms. The student must physically be present for the exam.

The exam is scheduled for two to three hours. The questions will cover, but not be limited to the following:

- ERP core curriculum; and
- student's dissertation proposal

The format of the exam should include but not be limited to:

- 15 minutes of initial questions by each examiner;
- additional questions; and
- evaluation of the student.

At the close of the exam, the committee will vote on the student's performance. The students will pass if they receive at least five positive votes from the six members.

Repetition of the Oral Exam

If the student fails the oral exam, they will have one opportunity to retake it. This will occur during the semester following the first attempt. If the student fails on the second try, they will be dismissed from the program.

Learning Objectives for Exams

1. Understanding of environmental problems
    a. Understanding of critical issues and analytical approaches in environmental sciences and policy
    b. Ability to answer questions at a level equivalent to the level of expertise presented in graduate textbooks and professional literature.
2. Analytical Skills
    a. Presentation of critical assessment of literature
    b. Ability to integrate material from various sources into coherent, comprehensive answers.
    c. Use of references
3. Communication Skills
    a. Thought patterns are logical and the manner in which information is provided is unambiguous; grammar and pronunciations are correct.
4. Professionalism
    a. Individual responsibility and reliability
        i. Attending classes and appointments
        ii. Completing GA assignments on time
        iii. Developing and Maintaining habits of courtesy
        iv. Ability to contribute to group effort

Dissertation Proposal

Prior to the dissertation proposal defense students must present their proposal in ERP598. Proposals should be written in a manner consistent with research grants to U.S. science or policy research agencies, but with no page limits. The Office of Sponsored Projects Administration (OSPA) offers useful tips for writing proposals. The students should give a presentation of approximately 30-45 minutes, plus 45-60 minutes of Q&A in an open forum. If the committee approves the proposal, the student will be ABD (All but Dissertation). If there are revisions to be made to the proposal, the advisor will determine when it is acceptable and then forward the approval paperwork to the office specialist or ERP Director.

Candidacy

When the student has the residency requirements (24 graduate credit hours), passed the comprehensive examinations and the committee has accepted their dissertation proposal, they will be admitted to candidacy. The Admit to Candidacy Form must be completed, signed and sent to the office specialist or ERP Director who will forward the form to the graduate school. The doctoral degree may not be conferred less than six months after admission to candidacy, except upon approval of the Dean of the Graduate School.

Dissertation

Students can write a traditional full-length dissertation, or a group of three articles suitable for peer-reviewed academic journals, with an introduction and conclusion sections. The Committee will determine the nature of those three articles.

The dissertation must be presented in ERP598 prior to defending the dissertation to the committee. Candidates will be required to present an acceptable dissertation describing original research. The dissertation should be presented to the committee only after it has passed the standards of the advisor as described in the proposal. The committee members should provide feedback to the advisor to whether the dissertation is ready for defense and if there are any weaknesses that need to be addressed before the defense. The defense is scheduled for approximately three hours. Defenses are open to the public and anyone can participate in questioning and discussion subject to reasonable limitations imposed by the chairperson of the committee. Only members of the committee may vote or make recommendations concerning acceptance of the dissertation and final examination. A student will be recommended for the degree only if the members of the committee, with at most one exception, judge both the dissertation and the performance at the oral examination to be satisfactory. In cases where a committee of more than five members has been approved, the requirement of not more than one negative vote will still apply.

Student Information

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Suggested Milestones for Full-Tune ERP Students

1. Students are at liberty to change advisors if required to make progress on their program of study. The advisor will guide the student in the selection of courses, determination of an acceptable dissertation topic, and the selection of other members for the student's committee.
2. By the start of student's third semester, the student must identify a dissertation topic and select the other members of their committee.
3. By the end of the student's fourth semester, the students must complete, in consultation with their committee, a dissertation proposal
4. By the beginning of their fifth semester, the student must schedule their comprehensive exams, meet with all members of their committee and the course instructors regarding expectations for the exams. Ideally these meetings will take place at the beginning of the students' fourth semester.

Online Registration

Prior to registering, students must discuss their classes with their advisor. If there is a registration error for a course in another department, the student needs to contact the course instructor and ask them to place the appropriate course overridden in the Banner or other course management system.

Computer Lab

The ERP Lab is in Parkingson building, room 209. ERP students are allowed key access to the building and lab 24 hours a day. Please see the office specialist if you would like keys. There is a wide variety of computer hardware and software available for many aspects of research use. The lab contains also contains printers and plotter for posters.

Travel Support

The Graduate and Professional Student Council (GPSC) gives $250 per fiscal year. They will reimburse $125 per conference attended (up to 2) or $250 for presenting at 1 (one) conference. For more information, go to the Career Development Reimbursement Form on the GPSC website under Fee Allocation Board.

The Graduate School will support graduate students by providing $50 each for conferences for research presentations and have also secured other sources of support. If a department or school organizes a research talk or colloquium, which at least 10 graduate students will attend and have secured other sources of support, the Graduate School will provide $100 for such an event.

The Graduate School will assist graduate students with professional development expenses by reimbursing up to $500 per student per professional event. Students are required to professionally participate in the event to receive this support. See Graduate Student Professional Development Monetary Support page for more information and eligibility.

Useful Websites

Graduate School Forms and Office of Sponsored Projects Proposal Aids

Graduate School Forms	https://siu.edu/admissions/graduate/resources/forms.php
Tips for Writing Proposals	https://ospa.siu.edu/_common/documents/training-grad-student-proposal-writing.pdf
Proposal Tools and Samples	https://ospa.siu.edu/resources/

Dissertation Information

ETD Guidelines (Electronic Dissertation)	https://siu.edu/admissions/graduate/academic-support/thesis-dissertation-research/etd/etd-submission.php
ProQuest SIU Submission	https://www.etdadmin.com/?siteId=48

Graduation Information and Application

Graduation Information	https://policies.siu.edu/other-policies/chapter1/graduation.php
Graduation Application	https://commencement.siu.edu/graduate/apply.php

Travel

GPSC Professional Development Request	https://gpsc.rso.siu.edu/programming/index.php
Graduate Student Professional Development and Eligibility	https://siu.edu/admissions/graduate/funding-aid/professional-development/

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ERP Program Checklist

		Program	Name
1	**Committee Chair**		
2	Committee Member		
3	Committee Member		
4	Committee Member		
5	Committee Member		
6	Committee Member (optional)		

Completed	Date	Requirement
		Core Curriculum
		ERP 502 Environmental Decision Making
		ERP 598 Seminar (3 credit hours applies)
		Methods course (3 or 4 credit hours)
		Science course (3 or 4 credit hours)
		Concentration and other course work (24 Credit Hours)
		Faculty committee approval form
		Written exam
		Oral exam
		ERP-598 Proposal
		Dissertation hours prior candidacy (6 Credit Hours)
		Proposal defense
		Admittance to candidacy form received form graduate school
		Research Dissertation Credit Hours (18 or more credit hours)
		Check Dissertation
		Apply for Graduation
		ERP 598 Dissertation Presentation
		Dissertation Defense
		Dissertation Format Check
		Dissertation Submission Date

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