

Interdisciplinary Education in Sustainability, Energy, and Environment at Illinois

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INSTITUTE FOR SUSTAINABILITY, ENERGY, AND ENVIRONMENT



GOALS

- Preparing graduate and undergraduate students to be responsible global leaders with collective responsibility for the environment
- Understanding the interdependence and interconnectedness among ourselves, our societies, and our environment
- Integration with research and campus sustainability efforts
- Empowering others through public education



APPROACH

- **Interdisciplinary:** No single solution to a complex, multidimensional problem
 - Connections between economics, business, environmental sciences, and technology
- **Systems thinking:** Connections/feedbacks between individual behavior and societal and environmental outcomes in the aggregate
- **Operational:** Problem solving tools and techniques to implement the concepts of sustainability in practice
- **Professional:** Enhance career opportunities through improved understanding of sustainability issues.



UNDERGRADUATE CAMPUSWIDE MINOR

- 16-19 hours of targeted coursework
- Introductory course on interdisciplinary, systems approach to sustainability
- Tools for sustainability
- Economic/policy/social dimensions of sustainability
- Environmental dimensions of sustainability
 - Air and climate, energy, ecosystems, water, cities
- Summer internship/research experience
- Capstone course



PARTICIPATING ACADEMIC UNITS

Six Academic Units

- Agricultural and Consumer Economics
- Civil Engineering
- Integrative Biology
- Natural Resources and Environmental Sciences
- School of Earth, Society and the Environment
- Urban Planning

Their Contributions

- Disciplinary expertise, concepts and tools
- Teaching and advising resources



TOOLS FOR SUSTAINABILITY

Quantitative approaches that involve integrating biophysical, environmental, economic concepts, such as ...

- Life cycle analysis
- Cost benefit analysis
- Sustainability auditing/accounting



CAPSTONE COURSE

- Applying sustainability knowledge to solve real-world problems
- Interdisciplinary team-based learning experience
- Projects could be developed in conjunction with ...
 - Campus units and Facilities and Services related to campus sustainability
 - External partners (companies, government/nonprofit organizations, advocacy groups)
- Examples of projects
 - Costs and benefits of environmental technologies and regulations for conservation/mitigation/adaptation by producers, households or government
 - Evaluating sustainability of supply chains
 - Environmental citizenship and communication strategies



OTHER EXPERIENCES: WORKING TOWARD SUSTAINABILITY

- Summer undergraduate research experience with faculty member
- Summer internship with companies, government and NGOs
- Field trips
- Job shadowing
- Environmental career fair



GRADUATE EDUCATION

CLEAN ENERGY EDUCATION FELLOWSHIPS

- Integrating research with public engagement on clean energy
- PhD dissertation
- Development of educational materials for schools and community colleges
 - Lesson plans, videos, websites, demonstration kits
 - Web-based and in-class dissemination
- Projects in progress in 2014
 - Wind energy
 - Energy recovery from waste
 - Energy and water conservation



WE NEED YOUR INPUT!

- Design of the undergraduate minor
- Skills and training expectations from our undergraduates
- Feedback on learning outcomes
- Partnership opportunities
 - Capstone projects
 - Internships
 - Other?
- Career paths



THANK YOU!

ANY QUESTIONS?



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