EDUCATION AND OUTREACH PROJECT
FINAL SUMMARY

SUBMITTED BY
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August 31, 2008

Photo from: www.indiana.edu/~econweb/album/dunnpathfork-2.jpg
INTRODUCTION:

Indiana University has a tremendous amount to offer its students, faculty, staff, and the local (even) global community. Obviously, it is difficult to be in Bloomington without feeling the enormity of Indiana University. It is because of this great presence that IU should be involved in the many sustainability efforts taking place across the many departments of the university. Education and outreach provides an interesting arena for dealing with sustainability in that being sustainable is really about a kind of cultural and educational shift in which environmental literacy, commitment to biological and cultural diversity, and community action are prominent. This requires, however, a commitment to encouraging more coursework dealing with sustainability and more involvement in the local community through outreach opportunities and the integration of these elements. This is inherently complex for it requires the collaboration of different departments and faculty and a commitment to deepening environmental literacy across campus.

One primary goal of the projects within the education and outreach component was to integrate academic and outreach activities. In effect, to harness the great resources which Indiana University has to offer so as to be a better steward of the land, a positive role model for institutionalized sustainability efforts, and a beneficial community member. Due to the incredible resource base which IU maintains, it is incumbent upon the university to preserve the landscapes which it owns, foster a greater awareness of environmental literacy for its students, staff, and faculty, and offer assistance to the local community in collaborative and sustainable endeavors.

The foundation for these projects and the integration of academics and outreach is environmental literacy. Environmental Literacy builds awareness in how our actions and choices affect the environment in both good and bad ways and how an individual or group can work to preserve ecosystems, maintain healthy environments, and sustain the earth so that all people can maintain a good quality of life for themselves and their children. The ability to critically evaluate the environmental, social, and economic impacts of our actions as humans should be a central part of our educational endeavors. This would have the effect of individuals and groups making responsible decisions about how they live and foster a greater connection to the natural world, ultimately forcing humans, as Aldo Leopold (1968) wrote, to recognize that we are plain members of the land community, rather than its conquerors.

EDUCATION AND OUTREACH PROJECT TASKS:

Within the Education and Outreach Project for the summer of 2008, four different yet correlative tasks were established to work in practical ways towards integrating academics and outreach and engendering an atmosphere in which environmental literacy is encouraged. The four tasks are listed below with a short description and are fully explained further in the report.

1. Conceptualizing a university sustainability clearinghouse which is to foster greater university and local community collaboration. This basically sets out a plan for development of this clearinghouse, one which is both a physical entity and a web-based one. This plan includes a rationale for the clearinghouse and specific ways that the clearinghouse can be organized and who might be involved.
2. **Update course list** of classes dealing with sustainability to include the current semesters. This was important for there were several gaps in the listings that the task force had. This updated list took advantage of specific department websites and the catalog of courses.

3. **A Coffee Hour and Service-Learning panel discussion** was developed in coordination with the Office of Service Learning which is to deal specifically with Service-Learning, Sustainability, and Environmental Literacy. The panel is to focus on these issues from a practical standpoint, bringing together both faculty and their community partners to present side by side. The second half of the event will be an informal and interactive coffee hour in which faculty and community organizations have the chance to mingle, network, and discuss ways in which outreach and service-learning opportunities can be developed between the two.

4. A proposal for campus wide **Interactive Habitats** was developed to promote natural habitat restoration, academic, research, and service-learning opportunities. The proposal outlines how habitat restoration across campus can foster not only bio-diversity, but also lessen IU’s carbon footprint, and encourage academic and outreach opportunities. The proposal suggests classes and departments, faculty, and campus organizations which would potentially take part and offers a case study of one specific site. The proposal attempts to present a holistic approach to habitat restoration on campus which brings many elements of the university together for the creation and maintenance of these areas.

**SUSTAINABILITY CLEARINGHOUSE:**

*Rationale*

The purpose of a clearinghouse for sustainability is to provide an avenue for experts, faculty, students, staff, and the local community to find information, instruction, collaboration, community links and networks, and direction in regards to issues relating to sustainability. This would encourage the development of university/local community partnerships allowing all to enlist the incredibly diverse range of expertise which the university and local community can provide for sustainability efforts.

This type of clearinghouse would foster the integration of both academics and outreach for the university and provide a valuable community service for the locality. One of the responsibilities of the university with regards to sustainability should involve offering knowledge and guidance to the local community, thereby extending the university’s own efforts at sustainability. It seems also imperative that the range of knowledge concerning sustainability be accessible for diverse groups to find and use. This arrangement positions knowledge of sustainability as a public or common good which necessitates access and reciprocity between the local community and the university. Fostering sustainable lifestyles and action requires this type of reciprocity, knowledge sharing, and partnership.

*Goals of the clearinghouse*

- Storehouse for the wealth of expertise at IU as a source of community knowledge
- Build a structure which allows greater university involvement in the local community
- Build relationships and collaboration between IUB and the locality
- Bring together individuals and groups interested in sustainability issues
- Need for virtual and physical entity

**Faculty Expertise**

The clearinghouse would consist of different categories of faculty (and local community) expertise would be highlighted. This would provide an easy navigational tool for those interested in specific topics of sustainability. The clearinghouse could provide contact information, areas of interest, research topics, links to articles, information, other experts, and community groups interested and involved in the various topics. The goal would be for those interested in seeking out an expert or information to have access to the vast network of people and groups doing work in the field of sustainability. There are certainly many more ways to categorize knowledge concerning sustainability, but an initial starting point may include:

- Education
- Research
- Workshops
- Lectures/Speakers
- Outreach
- Habitat restoration

**Community Involvement**

The clearinghouse is meant as a way of encouraging university/community involvement. It is hoped that this will generate reciprocity of knowledge sharing between various entities and a networking tool for collaborative work in the local environment.

- K-12 Schools and local home-school networks
- Non-Profits/Community organizations
- Local governments

* A list of potential community/local government organizations that may have an interest in the clearinghouse is provided in Appendix A.

**Virtual and Physical Clearinghouse**

While a virtual space for the clearinghouse could be sufficient to allow the intended networking and knowledge sharing, a physical entity would allow for a greater sense of community and collaboration through direct and face to face interactions. This space could be located anywhere, yet the space could be developed to provide a space for lectures, workshops, research, and outreach, while still being close to the core campus. Hilltop Gardens would be an ideal location for the clearinghouse for it already provides the structural elements necessary for workshops and lectures, not to mention outside space necessary for direct experiential opportunities. Further, it fosters community involvement as part of its mission. Areas adjacent to the gardens have gone to “no-mow zones”, which may allow for some type of habitat restoration, which can be a vehicle for education and outreach experiences.
together university and local experts and interested individuals and groups to work directly with issues
of sustainability and knowledge sharing would be a valuable asset to the university and local
community. Virtual networking is an important means of doing this, yet a physical space for this type of
relationship is ultimately more enriching for all those involved.

UPDATED COURSE LIST:

Rationale

Updating the course list is important in many ways. First, it is important as a record of the
classes offered at IU which deal with sustainability. In this way the list acts as an archive of the diversity
of coursework spanning the topic. Second, as a continually updated list, it will provide prospective and
current students up to date information concerning the range of classes they could take at IU which
address sustainability and service-learning related to sustainability in some way. The updated list is to
appear on the sustainability web site.

Procedure

It was fundamentally important to consider the incredible range of topics associated with the
environmental, social, and economic components of sustainability. While many classes which deal with
the topic reside in the sciences and SPEA, there are a great many others which may have a more implicit
association with the subject of sustainability. Thus, I deliberately considered classes very broadly to try
to account for the full range of coursework. This included classes in Labor Studies dealing with
globalization, in Business dealing with supply chains and leadership, and Journalism dealing with
scientific writing. The catalog of classes and specific departments were used to gather the information
as well a direct correspondence to specific department heads to help in the formulation of the list and
to provide information about future coursework being offered. The information concerning the Spring
2009 classes is still being compiled.

Some examples of the diversity of classes are provided below.

P399 Space, Place and Landscape (Alt)
Above class meets first eight weeks only
This course is a short but intensive look at different ways of thinking about space and place. We will engage with ideas from philosophy,
geography, architecture, critical theory, anthropology and more to develop understandings of how interactions of people, places and the built
environment both intentionally and unintentionally create specific sensibilities. Although we will have an archaeological view point the
concepts are applicable to many different considerations of the spatiality of human experience. We ask how space shapes us, and how we
shape space, what are architectures of power, or what constitutes sacred spaces? Can the built environment encode inequality, or foster
communalism? Can space ever really be empty?

C204 Topics in Media, Culture, and Society-Topic: Performances of Human/Nature: Defining Relationships with the Environment (Robinson)
This course uses fiction, journalism, public relations materials, and students’ first-hand experiences to explore how people construct their
relationships to the natural world. We will develop definitions of terms such as human, nature, environment, wilderness, society, and
civilization. Our study will place special emphasis how understandings of the human/nature relationship are performed and otherwise
communicated in everyday life.

L100 Edible Wild Plants: Fall (Bertuccio)
FOUR WEEKS: Meets September 2 to 30
We will be spending time in the outdoors observing, learning, drawing, and collecting edible wild plants. Each session will be in a different
location: woods, fields, wetlands, lawns etc. We will have the opportunity to see where these plants are growing, what their needs are and to
collect and use them in recipes. Each session will result in a recipe booklet with its own artwork and recipes, tested and tasted by the group.

L320 The Ecology of Eating (Cafer du Plessis)
Recent exposés such as Michael Pollan’s Omnivore’s Dilemma have drawn attention to the rise of factory farms in the Midwest, providing a
glimpse of the region’s agricultural and environmental history. This course provides an in-depth examination of historical documents and
current scholarly writings on agriculture and the environment in the Midwest, from the pre-Columbian era to the present. Students will
participate in a group research project by locating historical materials on Indiana agriculture and environment. The class will also interview guest speakers about their understandings of Indiana agricultural history. We will use our collective research to create a public website featuring primary sources and student projects, such as essays or photographs. Most classes will consist of discussing a scholarly article or book chapter (25-35 pages per class meeting); analyzing historical documents; viewing film clips; interviewing guest speakers; student presentations; and group work on the research project.

E104 14280 Global Consumer Culture (3 cr.) (Wilk)
Does everyone in the world wear Nike and eat at McDonalds? Is the planet going to become one big shopping mall, full of people who listen to the same music and watch the same movies? Or is the world entering a period of tribalism and fundamentalism, as nations break apart and everyone scrambles for their own piece of territory? Scholars simply don't agree. We have to look at the evidence, listen to the arguments, and try to figure out what kind of world we will be living in during the next century.

G110 Intro to Human Geography (3 cr.)
An introduction to the principles, concepts, and methods of analysis used in the study of human geographic systems. Examines geographic perspectives on contemporary world problems such as population growth, globalization of the economy, and human-environmental relations.

J400 Social Movements in Western Europe-1850-2000 (3 cr.) (Roos)
Even democratically elected governments of the present often fail to represent adequately the interests and viewpoints of important parts of the population. This was even truer of European states of the nineteenth and early twentieth centuries, when a majority of the population (especially men without property, and all women) was disenfranchised. In Europe, democratization was a slow and bumpy process, frequently driven forward by the protests of groups traditionally excluded from political participation. Since the second half of the nineteenth century, Europe witnessed the emergence of social movements challenging the state and established elites to relinquish their monopoly on power. In this course, we will trace the origins and successive waves of a broad range of social movements from the 1850s to the present. Important examples include, among others, the labor and women's movements, peace movements, movements for sexual reform and homosexual rights, and environmental movements.

H205 GAS PRICES AND PETROLEUM (GEOLOGY) (3 cr.)
This freshman level course, in seminar format, combines geology, costs associated with exploration, extraction, transportation and political realities that largely determine gas prices. The content is focused on the science of the origin and occurrence of petroleum inside the earth at the present time. We explore the geological inevitability of concentrating anomalously high accumulation of petroleum only in a few regions of Earth. A large deposit is economically viable only if the cost of exploration, extraction and delivery to consumers is not prohibitive because of natural and political strife. Students discuss and debate geological and other factors controlling gas prices we pay at the pump.

* A complete list of courses currently being offered is included in Appendix B.

Recommendations for the course list

- Need for updates at the end of every semester—Information should be solicited from departments early enough that students can access the course list with enough time to register for these classes.
- Need for a database which has archived materials and current classes being offered for the next semester
SERVICE-LEARNING COFFEE HOUR AND PANEL DISCUSSION:

Office of Service-Learning Coffee Hour and Panel Discussion: Service-Learning, Sustainability, and Environmental Literacy.
October 24, 2008
8:30-10:30 a.m.

Rationale
The Office of Service-Learning has periodic events as a way of encouraging and supporting faculty interested in developing service-learning opportunities for their students. On October 24, 2008 the event will be a coffee hour and panel discussion dealing with service-learning, sustainability, and environmental literacy. This particular coffee hour was developed as a model event to not only highlight the importance of service-learning and sustainability but foster university and local community interactions and collaboration. What is unique about this event is that faculty and their community partners will present side by side on the panel to discuss their experiences of service-learning from their own unique perspectives. Further, the coffee hour provides a venue for local community groups and faculty to interact in an informal session to foster partnerships.

Structure of Event
- Panel Discussion (8:30-9:30 a.m.)
The panel discussion is meant to introduce service-learning and provide information dealing with service-learning and sustainability, practical experiences, and collaborations.

Panel guests include:
  o Nicole Schonemann—Office of Service-Learning
  o Michael Hamburger—Dean of Faculties, Geology
  o Diane Henshel—SPEA
  o Lucille Bertuccio—Center for Sustainable Living, CLLC Instructor
  o Tom Evans—Geography

*Please note that this list is current as of August 25, 2008. Some change of panelists is possible.

- Interactive Session (9:30-10:30)
The interactive session will allow faculty and representatives from local community groups who have an interest in issues dealing with sustainability to meet one another and discuss possibilities for future outreach and service-learning opportunities.

Local groups represented:
  o Local Growers Guild
  o Bloomington Permaculture Guild
  o Center for Sustainable Living
  o Bloomington Parks and Recreation
  o Bloomington Transit
  o WFHB Community Radio
- Indiana Forest Alliance
- Indiana Department of Natural Resources—Division of State Parks and Reservoirs
INTERACTIVE HABITATS PROPOSAL:

Introduction

Imagine a university in which biological diversity is valued alongside cultural diversity, a university campus which not only encourages exposure and experience with cultural diversity, but with natural diversity as well. A university which preserves and restores natural habitats and promotes these areas for the benefit of students and faculty, academics and service-learning. Imagine a university which integrates the diverse elements of sustainability; operations and the physical environment, education and outreach in an innovative way which fosters community oriented collaboration and preservation of the natural landscape while providing students with educative opportunities. Their creation, development, and continued maintenance would encourage involvement from various departments across campus, ranging from site preparation and monitoring (Biology or SPEA for example) to passive learning interpretive signs (Graphic Designs) to curricular programs (Environmental Education through the School of Education or HPER).

Indiana University is endowed with an incredible variety of resources, from its landholdings, to its faculty, to the progressive and innovative local community of Bloomington. As the largest land-holder in the area and as an important model of possible sustainability initiatives, it is imperative that IU take a greater role in the urban renewal of natural areas, and provides students, faculty, and the local community with a prolonged exposure to these areas to foster environmental literacy.

Environmental literacy is foundational to sustainability efforts, and all students should have the opportunity to experience the natural world as part of their university career. Students to IU, who never visit Bradford Woods or Griffy Lake, would leave the university with the understanding that the natural world simply looks like a city park; mowed and trimmed. Interactive habitats created on campus would blend natural ecosystems with the remainder of the campus, exhibiting that both natural and human environments can co-exist side by side. Further, these habitats would encourage the use areas of campus as outdoor laboratories and opportunities for direct, experiential lessons. It is envisioned that their locations around campus and the different types of ecosystems exhibited would appeal to different departments for different purposes.

This proposal offers an innovative look at ways in which IUB can restore natural areas focused on the core campus as a way of integrating academics and outreach while ensuring ecological benefits. The purpose of the proposal is to argue for this type of multiple use areas and ways in which they can be conceptualized. The proposal offers specific ecological, academic, and outreach goals and provides a model habitat as an illustration. The proposal is a conceptualized stepping stone for this type of interactive habitat.
**Definition of Interactive Habitats**

Restored natural areas of the IUB core campus which provide a living example of Indiana’s native ecological diversity and which offer students, faculty, and the local community experiential opportunities for research, academic programming, and service-learning. They are interactive in that they foster direct experience with natural systems, allowing students, faculty, staff, and the local community to interact with natural habitats and each other to deepen awareness, understanding, and appreciation for the natural world.

**Rationale for their development**

- Integrate academic, outreach, and ecological dimensions of sustainability
- Highlight the ecological diversity of Indiana; A living testament
- Provide ecological and sustainability benefits to university and local community
- Take advantage of areas already designated as “no-mow zones” to develop them as multiple use habitats that provide for differentiated involvement and activity
- Foster environmental literacy in an experiential method as a foundation to sustainability

**Areas of interest**

- Kinsey Hollow—Jordan River north of School of Education/Wetland Restoration
- Dunn Woods—Hardwood Forest
- Hilltop Gardens—West of buildings and gardens/Prairie Restoration

These areas were selected due to their accessibility to various areas of campus and different schools and departments. Also, these would provide different types of ecosystems which highlight important Indiana historical natural areas. All would need site evaluations to determine the procedure for restoration (invasives, drainage, site preparation, and maintenance). There are other areas which could be of interest, including the Arboretum and the Jordan River as it flows through campus.

**Goals**

1. **Ecological:**
   - Diversify habitats around campus, recreate diversity of Indiana ecosystems
     - Wetland
     - Prairie
     - Woodland
   - Diversification of native and desirable plants, animals, and other living organisms on campus, reducing the need for pesticides/herbicides, watering, and maintenance
   - Increasing the proportion of native species
     - Need for less watering, less maintenance, encourage native bio-diversity
- **Eradication of invasive species**
  - Invasive plants hurt wildlife by eliminating the plants native animals need for food and cover
  - Invasive plants destroy habitat for rare wildflowers and animals
  - Invasives cost money in their eradication
  - Dunn Woods is an excellent example of a hardwood stand which has been inundated with invasive vines and ground covers. Areas where eradication has been successful has shown a resurgence of native wild flowers. Continued eradication efforts are needed, as is monitoring of invasive impacts, and native plant recovery.
- **Creation of habitat for native animals**
- **Storm water retention**
  - In major rain events, wetlands retain water providing flood control
- **Water filtration**
  - Wetlands filter out pollutants and toxins which would otherwise enter the stream
- **Riparian buffers**
  - Filters runoff from mowed areas as it enters streams
- **Beautify “degraded” areas of campus**
  - “No-mow zones” are aesthetically problematic, but well conceived restoration areas with appropriate interpretive signage would limit this problem
- **Reduce carbon footprint by reducing areas which are mowed and trimmed**
- **Become a Part of the Wild City Initiative**
  - National Wildlife Federation Program of certification for providing native cover, water, and forage needs for native wildlife. To be certified, a percentage of homes, apartments, businesses, schools, and churches in the city need to be individually certified. As the largest landholder in the area, this is a potentially exciting opportunity for IU to be a good community partner, model for sustainability practices, and steward of natural areas.
  - Potential partnership with Bloomington Environmental Commission and the Center for Sustainable Living

- **Precedents of work at IU**
  This work would support and augment work by SPEA student service group Students Taking Active Roles Today (START) who created an urban wildlife habitat in greenspace adjacent to the SPEA building in 2002. The Urban Wildlife Habitat Project was a collaborative endeavor between START, Wild City Initiative, SPEA professors and administration, the Biology Department, Hilltop Garden and Nature Center, the University Architect’s Office, and the University Campus Division.
Further, an additional urban wildlife habitat project was established around Jordan Hall. This project was a cooperative effort among the Biology Department, the University Architect's Office, the Council for Environmental Stewardship, the Student Environmental Action Coalition, Hilltop Garden and Nature Center, and the Wild City Initiative. Both projects provide models of “green landscaping,” using native plants and organic methods for gardening.

2. **Service-Learning**

Create opportunities for university and local community collaboration through outreach activities. Providing students with direct experiences in local community or the IU community in sustainability efforts promotes environmental literacy and ultimately action.

- Workshops dealing with creation, development, and maintenance of natural areas
  - Integration of academic work with service-learning in the interactive habitats
- Networking between IU and local community on similar projects of habitat restoration and environmental literacy
- Educative experiences for IU students which allow for contact with the local community
  - K-12 schools and environmental education
  - Involvement with organizations working for local sustainability

3. **Academics and curricular development**

Interactive and direct involvement with the habitats by various departments for diverse purposes. There is a need for all students attending IU to acquire environmental literacy to make more informed decisions and to take action which is ultimately sustainable. Providing these opportunities in hands-on and experiential ways is important for IU efforts of sustainability. Restored natural habitats located across the core campus and within easy walking distance from different departments would foster the type of interaction envisioned.

**Examples of classes which may have an academic interest in these areas:**

**P399 Space, Place and Landscape (Alt)**
Above class meets first eight weeks only
This course is a short but intensive look at different ways of thinking about space and place. We will engage with ideas from philosophy, geography, architecture, critical theory, anthropology and more to develop understandings of how interactions of people, places and the built environment both intentionally and unintentionally create specific sensibilities. Although we will have an archaeological view point the concepts are applicable to many different considerations of the spatiality of human experience. We ask how space shapes us, and how we shape space, what are architectures of power, or what constitutes sacred spaces? Can the built environment encode inequality, or foster communalism? Can space ever really be empty?

**Z373 Entomology (3 cr.) (Moczek)**
Lectures cover anatomy, physiology, behavior, ecology and evolution of insects. Additional topics include biocontrol and forensic entomology. Laboratory sections emphasize insect diversity, identification, and taxonomy.

**C204 Topics in Media, Culture, and Society-Topic: Performances of Human/Nature: Defining Relationships with the Environment (Robinson)**
This course uses fiction, journalism, public relations materials, and students’ first-hand experiences to explore how people construct their relationships to the natural world. We will develop definitions of terms such as human, nature, environment, wilderness, society, and civilization. Our study will place special emphasis on how understandings of the human/nature relationship are performed and otherwise communicated in everyday life.

**L100 Edible Wild Plants: Fall (Bertuccio)**
FOUR WEEKS: Meets September 2 to 30
We will be spending time in the outdoors observing, learning, drawing, and collecting edible
wild plants. Each session will be in a different location: woods, fields, wetlands, lawns etc. We will have the opportunity to see where these plants are growing, what their needs are and to collect and use them in recipes. Each session will result in a recipe booklet with its own artwork and recipes, tested and tasted by the group.

G411 Sustainable Development Systems (3 cr.) (Evans)
An examination of the notion of sustainable development and its meaning as well as the manner in which it has been implemented in the areas of resources, agriculture, water, transport, cities, and tourism. How such systems can be implemented in developing and developed countries will also be examined.

G440 Topics in Environmental Geography-Topic: Political Ecology (3 cr.) (Lave)
Selected topics focus on the human dimensions of environmental change/conservation. Example focus topics: population-environment interactions, transport-environment interactions, and urban-environment interactions.

R241 Wildflowers and Wild Edibles (3 cr.) (Pluta-Figueiredo)
Identification of wildflowers and wild edible plants. Activities may include a weekend field trip, a chance to improve skills in identifying local plants, as well as a culinary experience in wild edibles.

R280 Natural History (3 cr.)
Investigation of general natural history and field ecology concepts in a laboratory setting. Weekly field trips.

E440 Wetlands: Biology & Regulation (3 cr.) (Brittian)
This course focuses on structural and functional characteristics of wetlands, their importance as a natural resource and value to society. Topics include characteristics used to identify and classify wetlands, adaptations for living in wetlands, community structure and ecosystem processes, functions and values. Management of wetlands includes jurisdictional delineation and hydrogeomorphic assessment.

E528 Forest Ecology and Management (3 cr.) (Wayson)
Field and laboratory exercises in quantitative analysis of forest ecosystems. Sampling and data collection methodologies. Data analysis and interpretation. Concepts in forest ecology and forest management.

Q540 Teaching Environmental Education (3 cr.)
For elementary and secondary teachers. Basic principles of environmental/conservation education stressed in grades K12. Methods and techniques for integrating these principles into existing curricula. Designed for the development and evaluation of new interdisciplinary teaching materials.

4. Alumni involvement
Alumni involvement is dependent upon marketing to alumni associations and specific department news sources. Alumni could play a vital role in interactive habitat development through monetary support and maintenance and work days.

- Adopt a habitat
  - Alumni would be solicited for support for various habitats to help fund creation and maintenance. Names of donors would be included on plaques at all habitats.

- Homecoming tours/work days
  - Organized work days around large campus events which would allow alumni and alumni groups interactive and fun opportunities to be involved with the university.
    - Invasive eradication
    - Native plantings
    - Trash pickup

Benefits to university community:
- Students
  - Exposure to Indiana native habitats/plants/animals
  - Opportunities for service-learning and academic programming
  - Recreational and passive learning opportunities
Environmental Literacy through education and outreach

- Academics
  - Allows for discipline specific curriculum development around these areas
  - Can be multiple use areas which can be tailored to each discipline.
- Service learning
  - Provide students with a range of possible service-learning experiences across a range of disciplines
- Aesthetics
  - Beautify “degraded” areas of campus
  - Encourage ecological diversity
- Community
  - Encourage collaborations between university and local community through service-learning and outreach
  - Provide guidance from university for similar projects
- University Standing
  - Esteem in regards to innovative land use and sustainable management/service-learning/academic programming
  - Recruitment tool for prospective students interested in experiential education

KINSEY HOLLOW WETLAND: A CASE STUDY

Introduction

Kinsey Hollow is a section of the Jordan River adjacent to the School of Education bordering its north entrance. At times this part of the River looks little more than a ditch; grassy slopes, little water, muddy bottom. It weaves a winding course west past the school and finds its way to a cement impoundment. During high water events, the little ditch becomes a rushing creek and due to the impoundment backs up to engulf large areas of mowed grass and recently “no-mow zones.” During the storms of early Summer 2008 the standing water was still present a week after the rains had ended, leaving nothing but beaten down grass and mud; a space which has little value for wildlife or university life.

The degraded area could be restored to an interactive habitat by the creation of a wetland in Kinsey Hollow. Wetland development would facilitate multiple benefits for the university and local community, both human and natural. Conceivably, planted with native wetland plants, allowing great cover and forage for local animals the habitat would be an inviting place. Building boardwalks over sections to allow greater viewing opportunities and engagement, plus
interpretive signs to explain particular aspects would encourage interaction with the habitat by passers by, local community members, and school groups.

The habitat could be a natural extension to the School of Education, which only sporadically offers environmental education courses, but would offer all departments the opportunity to be involved in various ways, from site evaluation to monitoring to curriculum development. The habitat would provide an ideal outdoor classroom for pre-service teachers, allowing nearly instant access for study, methods courses, and service-learning. The habitat would provide the vehicle for integrating ecological, service-learning, and academic goals for sustainability and bring a diverse range of departments and stakeholders together to work on the project.

1. **Ecological Benefits**
   - Diversification of native and desirable plants, animals, and other living organisms associated with wetlands, reducing the need for pesticides/herbicides, watering, and maintenance (reduce carbon footprint)
   - Increasing native species tolerant of wetland ecosystem
   - Eradication of invasive species
     - Site evaluation would have to be conducted to ascertain what types of invasives exist and what types of eradication methods are desirable
   - Creation of habitat for native animals
   - Storm water retention
     - In major rain events, wetlands retain water providing flood control
   - Water filtration
     - Wetlands filter out pollutants and toxins which would otherwise enter the stream
   - Riparian buffers
     - Filters runoff from mowed areas as it enters streams
   - Beautify “degraded” areas of campus
     - This would take an area of limited use which is periodically underwater and create a space which is aesthetically pleasing and has multiple functions

2. **Service-Learning**

Creating an atmosphere in which different departments have a stake in the development and continued success of the habitat is central to this proposal. A great deal of work can be done by using service-learning as a tool for education and outreach goals. The end product will be richer and more robust by bringing diverse disciplines together to work on the project. Below are listed three different types of service-learning associated with the Kinsey Hollow Wetland.
• Creation and maintenance of wetland
  o Creating and maintaining the wetland will require considerable planning and research dependent upon faculty and students with the technical know-how. Examples of relevant departments: Biology, Chemistry, SPEA
• Interpretive Signs
  o Creating interpretive signs is dependent upon artistic and visually stimulating work. Good signs need well written, engaging, and relevant material coupled with graphic designs which help tell the story. Examples of relevant departments: Fine Arts, English, History, Folklore,
• Environmental Education
  o The wetland would provide the site for environmental education related service-learning. Bringing in students from area K-12 schools to provide environmental education by IU students would extend the mission of IU’s sustainability initiative and would give IU students a superb, real-world experience of educating children in an outdoor classroom. Examples of relevant departments: Education, HPER

3. Academics
• Interactive Engagement
Academically, the habitat would provide a hands-on and experiential environment for students and faculty to engage with one another and with the natural world. While modeling and computer technology have their place, there is no substitution for direct experience, especially in regards to developing environmental literacy. The Kinsey Hollow Wetland would be a great resource for the School of Education and HPER for environmental education classes, and related workshops such as Project WET and Project WILD. However, other departments would certainly be able to take advantage of the habitat. Listed below are some examples of related courses:

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We will be spending time in the outdoors observing, learning, drawing, and collecting edible wild plants. Each session will be in a different location: woods, fields, wetlands, lawns etc. We will have the opportunity to see where these plants are growing, what their needs are and to collect and use them in recipes. Each session will result in a recipe booklet with its own artwork and recipes, tested and tasted by the group.

G411 Sustainable Development Systems (3 cr.) (Evans)
An examination of the notion of sustainable development and its meaning as well as the manner in which it has been implemented in the areas of resources, agriculture, water, transport, cities, and tourism. How such systems can be implemented in developing and developed countries will also be examined.

R241 Wildflowers and Wild Edibles (3 cr.) (Pluta-Figueiredo)
Identification of wildflowers and wild edible plants. Activities may include a weekend field trip, a chance to improve skills in identifying local plants, as well as a culinary experience in wild edibles.

R280 Natural History (3 cr.)
Investigation of general natural history and field ecology concepts in a laboratory setting. Weekly field trips.

E440 Wetlands: Biology & Regulation (3 cr.) (Brittian)
This course focuses on structural and functional characteristics of wetlands, their importance as a natural resource and value to society. Topics include characteristics used to identify and classify wetlands, adaptations for living in wetlands, community structure and ecosystem processes, functions and values. Management of wetlands includes jurisdictional delineation and hydrogeomorphic assessment.

**Q540 Teaching Environmental Education (3 cr.)**

For elementary and secondary teachers. Basic principles of environmental/conservation education stressed in grades K-12. Methods and techniques for integrating these principles into existing curricula. Designed for the development and evaluation of new interdisciplinary teaching materials.

- **Passive Learning**

  Environmental literacy can be accomplished through coursework, yet there are further opportunities to educate through passive learning techniques and interactions, such as interpretive signs. These signs would be prominently displayed at various spots along the edge of the wetland and on the boardwalk to explain particular topics or points of interest. These signs would be accessible for students, faculty, visitors, community members, school groups, or community organizations and would provide information and educative materials for someone “just passing by.”

**Topics for interpretive signs (passive pedagogical learning tool)**

- What is a wetland
- Relevance of wetlands to Indiana
  - Importance of ecosystem or habitat/Important as example of Indiana ecosystem
- Types of plant and animal communities present
  - Importance of native plants and animals
  - Impacts from invasives
- Relevance to life at IU
- Natural or cultural history of Kinsey Hollow. Telling the story of place

**Departments which may have an interest in areas as learning resource:**

- **IU Art Museum**
  - Sponsored the 2008 Jordan River Fest. A celebration of American Rivers and of the Jordan River, bringing together local activists, writers, artists, chefs, and integrating the university and the local community by way of the Jordan River. This would be a wonderful model to create a yearly celebration of the waters surrounding the university and the importance of their protection.
- **Fine Arts**
  - Service-Learning/Academics (interpretive signs, drawing courses)
- **Biology/SPEA/Chemistry**
  - Service-Learning/Academics (site evaluation, restoration activities, monitoring, impacts of invasives, eradication of invasives, scientific information interpretive signs)
- **English**
  - Service-Learning/Academics (interpretive signs, nature writing courses)
Conclusion

Part of the educational process is also dependent upon reflecting on cultural norms and attitudes. The creation of a natural habitat directly accessible to students can help break down the division between human and natural worlds, asserting that both can exist side by side and that there is a reciprocity of interactions between the two. Sustainability is not really a technical problem, but an educational and cultural problem. Preserving, restoring, and appreciating natural habitats as central elements of our educational institutions provide a powerful step in this direction. This type of project integrates ecological, service-learning, and academic goals in such a manner to include as many different stakeholders and departments as possible, while perpetuating goals of sustainability for the university and local community.

APPENDIX A: COMMUNITY GROUPS

Local K-12 Schools
Homeschool Networks
Area Religious Organizations
Bloomington Parks and Recreation
Bloomington Transportation Option for People
Bloomington Public Transportation Corporation
Boys and Girls Club
Caldwell Center
Center for Sustainable Living
Habitat for Humanity
Indiana Forest Alliance
Indiana Natural Builders
Heartwood
Local Growers Guild
Bloomington Permaculture Guild
Monroe County Green Party
Shalom Center
Sycamore Land Trust
United Way
Wonderlab
Indiana DNR
Hoosier Environmental Council
Monroe County YMCA
Mother Hubbard’s Cupboard
Non-profit Alliance of Monroe County
Sassafras Audubon Society
Bloomington Playwrights Project
WFHB
Big Brothers/Big Sisters
Girls Inc.
Bloomingfoods
Bloomington Commission on Sustainability
APPENDIX B: CURRENT COURSES BEING OFFERED

ANTHROPOLOGY

E328 Ecological Anthropology (3 cr.) (Tucker)
Ecological Anthropology (also referred to as Cultural Ecology and Environmental Anthropology) explores the interactions between human populations and the environmental systems within which they exist. It is strongly interdisciplinary, with linkages across the social and natural sciences. The course covers the development of theories of human-environment interrelationships from the mid-1900s through the present. It considers the range of human adaptations to different environmental conditions, including the arctic and high altitudes. The readings discuss the recent theoretical approaches including political ecology, and present contemporary research on major environmental issues, such as tropical deforestation, desertification, and global environmental change. Class discussions will address a range of questions: In what ways does the environment constrain or shape human adaptation? Are there patterns of human-driven environmental change through time and space? Under what circumstances may humans manage natural resources sustainably? We will also explore environmental issues of importance to Indiana University.

E621 Food and Culture (3 cr.) (Wilk)
This course will explore the important role of cooking and eating in different cultures, the symbolism and economic importance of food. We will focus on the current transformations of the world food system, through processes of globalization, the growth of new technologies, migration and fast food. The counter-movement for localization and ‘slow food’ will also be explored, and we will take some field trips to places where local food is produced, prepared and sold. We may also indulge in some taste testing of different products, and you can expect to take part in some cooking and eating as well!

P399 Space, Place and Landscape (Alt)
Above class meets first eight weeks only
This course is a short but intensive look at different ways of thinking about space and place. We will engage with ideas from philosophy, geography, architecture, critical theory, anthropology and more to develop understandings of how interactions of people, places and the built environment both intentionally and unintentionally create specific sensibilities. Although we will have an archaeological viewpoint the concepts are applicable to many different consideration of the spatiality of human experience. We ask how space shapes us, and how we shape space, what are architectures of power, or what constitutes sacred spaces? Can the built environment encode inequality, or foster communalism? Can space ever really be empty?

BIOLOGY

Z373 Entomology (3 cr.) (Moczek)
Lectures cover anatomy, physiology, behavior, ecology and evolution of insects. Additional topics include biocontrol and forensic entomology. Laboratory sections emphasize insect diversity, identification, and taxonomy.
BUSINESS

L409 Law and the Environment (3 cr.)
Uses of law to deal with problems involving the degradation of our physical environment.

P320 Supply Chain Management: Sourcing (3 cr.)
Sourcing/purchasing has become a major source of economic benefit to most firms. This course is a comprehensive look at this important area of supply chain management. The course examines the purchasing function in industrial firms. Topics include sourcing (domestic and international), specifications, and standards; contract and pricing practices; negotiation; quality assurance and reliability; inventory management; value analysis; capital equipment buying; make-or-buy decisions; evaluation of purchasing performance; and ethics.

Z447 Leadership, Teams, and Diversity (3 cr.)
In this course, students develop a "toolkit" of leadership behaviors to use in a variety of situations when those working with and/or for them need to be motivated toward a common good, particularly when that work involves the use of teams made up of diverse individuals.

CHEMISTRY

C100 The World as Chemistry (3 cr.) (Levy)
For non-science majors, the chemistry of everyday life: fuels, plastics, drugs, water, air, and living systems. Lectures illustrated by demonstrations, films, and molecular models. Readings include articles from current newspapers and magazines. Prerequisite: Curiosity.

G201 Service Learning in Chemistry (1 cr.) (Clark)
Students will work within the community to foster interest, knowledge, and appreciation in the sciences. Assignments will include the preparation and execution of demonstrations and in class lessons at the primary and secondary school levels. May be repeated for a maximum of 3 credit hours.

COMMUNICATION AND CULTURE

C204 Topics in Media, Culture, and Society-Topic: Performances of Human/Nature: Defining Relationships with the Environment (Robinson)
This course uses fiction, journalism, public relations materials, and students’ first-hand experiences to explore how people construct their relationships to the natural world. We will develop definitions of terms such as human, nature, environment, wilderness, society, and civilization. Our study will place special emphasis how understandings of the human/nature relationship are performed and otherwise communicated in everyday life.

C348 Environmental Communication-Topic: Environmental Tourism (Pezzullo)
Tourism is the largest global industry. For people who care about the environment, this fact provokes both hope and concern. On the one hand, the popularity of tourism promises great potential as a means to communicate the value of specific places, ecosystems, and cultures. On the other hand, increased communication does not necessarily correlate to environmental preservation or sustainable
local cultures, especially when “tourism” accounts for such a wide range of practices. This introductory course is organized around three themes: commercial “ecotourism”; commercial environmental tourism museums and parks; and noncommercial industrial tourism (e.g., toxic tours and waste management facility tours). We will engage interdisciplinary literature, primary tourist materials and sites, and each other to explore the limitations and possibilities of environmental tourism as mode of communicating about nature, culture, and social change.

C401 Communication and Culture-Senior Seminar in Communication and Culture-Topic: Peace-Building Communication (Ivie)
This course explores communication practices that address conflict constructively and contribute to the building of a peace culture. It examines how communication contributes alternatively to the articulation of cultures of war and peace, giving special attention to the role of language in shaping the meanings of war and peace in contemporary America and throughout the history of peace movements in the U.S. Language practices are located at the center of peace-building as a key resource for critiquing dehumanizing discourses of war and imagining re-humanizing alternatives. Peace-building communication, in this sense, is conceptualized as a creative and constructive practice of language critique, an expression of moral imagination that contributes to positive social change by transcending the cycle of mutual recrimination.

COLLINS LIVING LEARNING CENTER

L100 Edible Wild Plants: Fall (Bertuccio)
FOUR WEEKS: Meets September 2 to 30
We will be spending time in the outdoors observing, learning, drawing, and collecting edible wild plants. Each session will be in a different location: woods, fields, wetlands, lawns etc. We will have the opportunity to see where these plants are growing, what their needs are and to collect and use them in recipes. Each session will result in a recipe booklet with its own artwork and recipes, tested and tasted by the group.

L320 The Ecology of Eating (Cafer du Plessis)
Recent exposés such as Michael Pollan’s Omnivore’s Dilemma have drawn attention to the rise of factory farms in the Midwest, providing a glimpse of the region’s agricultural and environmental history. This course provides an in-depth examination of historical documents and current scholarly writings on agriculture and the environment in the Midwest, from the pre-Columbian era to the present. Students will participate in a group research project by locating historical materials on Indiana agriculture and environment. The class will also interview guest speakers about their understandings of Indiana agricultural history. We will use our collective research to create a public website featuring primary sources and student projects, such as essays or photographs. Most classes will consist of discussing a scholarly article or book chapter (25-35 pages per class meeting); analyzing historical documents; viewing film clips; interviewing guest speakers; student presentations; and group work on the research project.

COLLEGE OF ARTS AND SCIENCES
E103 Sacred Places (3 cr.) (Gruber)
In most parts of the world, religious activity is linked to specific places which have ritual, mythical, or historical significance. These "sacred spaces" become the focus of ritual activity, pilgrimage, and symbolism, and are usually endowed with buildings and art that celebrate the sanctity of the place, create a sense of awe, and accommodate the activities and people who travel to visit them. This course offers an introduction to a representative sample of significant sacred sites and shrines throughout the world. These holy places will be examined in terms of the festivals and religions with which they are associated: Egyptian, Greek, and Mesoamerican religions, Judaism, Christianity, Islam, Buddhism, Hinduism, and Shinto.

We will look at why the selected sites became holy to certain peoples or civilizations, how the sites and structures convey a sense of transcendence and awe, how the structures were planned to accommodate assembled groups of persons and the attendant festivals and rituals, the nature of the processions of the faithful to them, the symbolic meaning of these sites, and whether their functions and significance have survived to the present day unaltered or in a reconfigured form.

E104 14280 Global Consumer Culture (3 cr.) (Wilk)
Does everyone in the world wear Nike and eat at McDonalds? Is the planet going to become one big shopping mall, full of people who listen to the same music and watch the same movies? Or is the world entering a period of tribalism and fundamentalism, as nations break apart and everyone scrambles for their own piece of territory? Scholars simply don’t agree. We have to look at the evidence, listen to the arguments, and try to figure out what kind of world we will be living in during the next century.

One thing is clear: consumer culture – lives built around the media, celebrities, mass-produced goods, and shopping malls – is spreading everywhere. Can the earth sustain seven billion consumers, their cars, refrigerators, and appetites? Many ecologists don’t think so. Does the spread of consumer culture mean the end of cultural, religious, and linguistic diversity, of families and communities? Would anyone want to live in a world where Indianapolis, Tokyo, Bombay, and Paris looked, sounded, and tasted the same? Social science does suggest some ways that people in different parts of the world are using to preserve their own unique heritage, knowledge, and taste.

This course will examine the evidence for the spread of global consumer culture, looking at the ways that people around the world have learned to be consumers. We will ask the tough questions about the future, about the environmental impacts of consumption, and the way our own cups of coffee and running shoes tie us together with a whole globe of other producers and consumers.

E105 The Biology of Food (3 cr.) (Bonner)
The most intimate relationship people have with other organisms is to eat them. We kill animals, plants, and microbes, put them into our mouths, break them down into components, and then build them into our own bodies. We literally are what we eat. However, so few of us raise our own food even these close relationships are invisible. For example, what do you know about the life of a chicken, a cow, or an orange tree? Where do they live, what processes regulate their lives, and how does their use as human food affect them and us? The knowledge of how eating, a daily act, connects you with other organisms will give you the information necessary to appreciate and control these interactions in a more meaningful way.
By studying how organisms we use as food evolve, grow, reproduce, and interact, we will study many basic principles of biology. Among the foods we will study are milk, eggs, meat, vegetables, fruits, fermented products, and chocolate.

**S105 Food for Thought: The Cognitive Science of Eating (COLL) (Todd)**

People spend a lot of time thinking about food – by some estimates, we make upwards of 200 food-related decisions per day. But how do we think about food? What are the ways we make these decisions? These are the types of questions that cognitive scientists and psychologists ask about peoples’ thinking, and in this course, we will apply the ideas and methods of cognitive science to the domain of food decisions. We will look at how people learn about different foods and come to have particular preferences; how we remember what we’ve eaten and how that influences what we will eat in the future; how social influences affect our food choices; what factors make us eat more or less; and how we can influence our own decision making about food in healthy directions.

**ENGLISH**

**W170 Projects In Reading & Writing: Food for Thought (Welsch)**

Eating is always a cultural act, but it is always also determined by personal tastes, distastes, associations, and desires. Starting out with the idea that food represents one site of interchange between self and society, this course will explore the multiple meanings of eating for the psychological subject. We will practice reading and writing about essays, stories, television shows, and films in order to interrogate the many ways in which food might be more than just fuel. By thinking critically about representations of food and eating, we will consider how this seemingly trivial or straightforward activity might be connected to our conceptions of ourselves - as social animals, as consumers, as desiring subjects, etc. For the food-conscious and the "zone-out" eater alike, this class will encourage you to analyze the various foods and associations with food that surround us all daily. Although we will begin the course with personal reflections about our own relationships with certain foods or ways of eating, we will quickly move away from personal opinions and associations to writing in a scholarly fashion that engages and analyzes textual evidence. Texts for analysis will include Food Network episodes, short stories, the films Ratatouille and Chocolat, and others.

**FINE ARTS**

**E103 Sacred Places (COLL topics course) (Gruber)**

In most parts of the world, religious activity is linked to specific places which have ritual, mythical, or historical significance. These "sacred spaces" become the focus of ritual activity, pilgrimage, and symbolism, and are usually endowed with building and art that celebrate the sanctity of the place, create a sense of awe, and accommodate the activities and people who travel to visit them. This course offers an introduction to a representative sample of significant sacred sites and shrines throughout the world. These holy places will be examined in terms of the festivals and religions with which they are associated: Egyptian, Greek, Roman, and Mesoamerican religions, Judaism, Christianity, Islam, Buddhism, and Hinduism. We will look at why the selected sites became holy to certain peoples or civilizations, how the sites and structures convey a sense of transcendence, and in what ways the structures were planned to accommodate assembled groups of persons and attendant festivals and rituals. We also will examine whether their functions and significance have survived to the present day unaltered or in a reconfigured form.
GEOGRAPHY

G107 Physical Systems of the Environment (3 cr.) (Zlotin)
Introduction to the physical principles governing the geographical distribution and interrelationships of
the earth’s physical features (atmosphere and oceans, landforms, soils, and vegetation). The course
provides students with the background necessary to evaluate current environmental issues.

G110 Intro to Human Geography (3 cr.)
An introduction to the principles, concepts, and methods of analysis used in the study of human
geographic systems. Examines geographic perspectives on contemporary world problems such as
population growth, globalization of the economy, and human-environmental relations.

G120 World Regional Geography (3 cr.)
Analysis of population, culture, environment, and economies of major world regions. Examination of
issues of global importance, including development, demographic change, urbanization and migration,
and international conflict.

G208 Human Impact on Environment (3 cr.)
Aspects of the human role in changing the earth’s environment. Examples of how expanding use of the
physical environment has altered the equilibrium of natural systems or accelerated the rate of natural
changes in the environment. Environmental changes from a global or world regional perspective.

G235 Intro Geographical Methods (3 cr.)
Introduces geographical methodology in the major fields of study within geography (atmospheric
sciences, environmental studies, geographic information systems, global studies and human geography).
Topics include map interpretation, paradigms of inquiry, simple statistical methods, instrumentation,
introductory computer methods, fieldwork, and case studies.

G305 Envir Change: Nature & Impact (3 cr.) (Brown)
An integrated systems approach to examining the forcing, system response, and impacts of
environmental change. Specific case studies will be presented in addition to methods of documenting
change and identifying natural variability versus change due to anthropogenic forcing.

G315 Environmental Conservation (3 cr.) (Lave)
Conservation of natural resources, including soil, water, wildlife, and forests as interrelated components
of the environment emphasizing an ecological approach. Current problems relating to environmental
quality.

G380 Cultural Geography (3 cr.) (Knudsen)
Familiarizes students with the basic concepts and ideas that underpin the study of cultural geography,
including the history of cultural geography, the constitution of the cultural landscape, and how
landscape fractures across the lines of ethnicity, gender, and age.

G411 Sustainable Development Systems (3 cr.) (Evans)
An examination of the notion of sustainable development and its meaning as well as the manner in which it has been implemented in the areas of resources, agriculture, water, transport, cities, and tourism. How such systems can be implemented in developing and developed countries will also be examined.

G440 Topics in Environmental Geography-Topic: Science, Public Policy and Outreach (3 cr.) (Rahman)
Selected topics focus on the human dimensions of environmental change/conservation. Example focus topics: population-environment interactions, transport-environment interactions, and urban-environment interactions.

G440 Topics in Environmental Geography-Topic: Political Ecology (3 cr.) (Lave)
Selected topics focus on the human dimensions of environmental change/conservation. Example focus topics: population-environment interactions, transport-environment interactions, and urban-environment interactions.

G475 Climate Change (3 cr.) (Barthelmie)
Evidence for and theories of climate change over a range of time scales. Sources and interpretation of proxy climate data are presented along with modeling tools for assessing climate response to a range of forcing and paleoclimate perspectives on future climate change.

G511 Sustainable Development Systems (3 cr.) (Evans)
An examination of the notion of sustainable development and its meaning and implementation in the areas of resources, agriculture, water, transport, cities, and tourism. Also considers how such systems can be implemented in developed countries.

G540 Topics in Environmental Geography-Topic: Science, Public Policy and Outreach. (3 cr.) (Rahman)
Selected topics focus on the human dimensions of environmental change/conservation. Example focus topics: population-environment interactions, transport-environment interactions, and urban-environment interactions.

G540 Topics in Environmental Geography-Topic: Political Ecology (3 cr.) (Lave)
Selected topics focus on the human dimensions of environmental change/conservation. Example focus topics: population-environment interactions, transport-environment interactions, and urban-environment interactions.

G575 Climate Change (3 cr.) (Barthelmie)
Evidence for and theories of climate change over a range of time scales. Sources and interpretation of proxy climate data are presented along with modeling tools for assessing climate response to a range of forcing and paleoclimate perspectives on future climate change.

GEOLOGY

G105 Earth: Our Habitable Planet (3 cr.) (Douglas)
Introduction to planet Earth as a dynamic and complex global system. Course materials will demonstrate physical and chemical linkages between biosphere, atmosphere, hydrosphere, and geosphere that
directly impact lifestyles of human populations at time scales of years to centuries. Two lectures and one laboratory each week.

G116 Our Planet and Its Future (3 cr.) (Dunning)
The interaction between geologic and environmental processes in the earth. Special emphasis on how these processes affect public policies and laws. Multimedia exercises and videotape presentations (made specifically for this course) are included.

G171 Environmental Geology (3 cr.) (Attenoukon)
Examination of natural and man-induced geologic hazards: earthquakes, volcanoes, landslides, and land subsidence; environmental issues, disposal and management of solid, chemical, and radioactive waste, acid mine drainage as well as the environmental impact of mineral extraction and water resource utilization.

HISTORY

J400 Social Movements in Western Europe-1850-2000 (3 cr.) (Roos)
Even democratically elected governments of the present often fail to represent adequately the interests and viewpoints of important parts of the population. This was even truer of European states of the nineteenth and early twentieth centuries, when a majority of the population (especially men without property, and all women) was disenfranchised. In Europe, democratization was a slow and bumpy process, frequently driven forward by the protests of groups traditionally excluded from political participation. Since the second half of the nineteenth century, Europe witnessed the emergence of social movements challenging the state and established elites to relinquish their monopoly on power. In this course, we will trace the origins and successive waves of a broad range of social movements from the 1850s to the present. Important examples include, among others, the labor and women’s movements, peace movements, movements for sexual reform and homosexual rights, and environmental movements. Some key questions we will explore are: Under which historical and political conditions do new social movements emerge, and why? What binds together the participants in a specific social movement? What did the various European social movements achieve? What are some key differences between the European social movements of the late nineteenth and early twentieth centuries on the one hand and more recent protest movements on the other hand? Last but not least, are there examples of social movements directed against democracy?

HONORS

E162 Environment and People (SPEA) (3 cr.) (Shaw)
An interdisciplinary examination of the problems of population, pollution, and natural resources and their implications for society.

E272 Introduction to Environmental Science (SPEA) (3 cr.) (Edwards)
Application of principles from life and physical sciences to the understanding and management of the environment. Emphasis will be placed on (1) the physical and biological restraints on resource availability and use, and (2) the technological and scientific options to solving environmental problems.
H204 The Politics of Food (HON) (3 cr.) (Barbour)
Although our daily lives are organized around food, most of us, especially the fortunate few getting college educations in advanced western democracies, probably never think of it in political terms except in the narrowest of senses -- food stamp policy, perhaps, or farm subsidies. In truth, for human beings, food -- the control of our food supply and its distribution - is power, and power is the essential stuff of politics. This course focuses on the politics of food in contemporary America. The course will cover four major topics: food and political identity, politics and the American food industry, the politics of hunger in the United States, and the Slow Food movement against the McDonaldization of America (and the world).

H205 GAS PRICES AND PETROLEUM (GEOLOGY) (3 cr.)
This freshman level course, in seminar format, combines geology, costs associated with exploration, extraction, transportation and political realities that largely determine gas prices. The content is focused on the science of the origin and occurrence of petroleum inside the earth at the present time. We explore the geological inevitability of concentrating anomalously high accumulation of petroleum only in a few regions of Earth. A large deposit is economically viable only if the cost of exploration, extraction and delivery to consumers is not prohibitive because of natural and political strife. Students discuss and debate geological and other factors controlling gas prices we pay at the pump.

HPER
R115 Leave No Trace (1 cr.) (Calvin)
Provides the Leave No Trace principles and ethics and opportunity to practice minimum impact skills. Highly experienced based course where students will engage in camp settings and maintenance, genuine reflection, and new skill demonstration.

R241 Wildflowers and Wild Edibles (3 cr.) (Pluta-Figueiredo)
Identification of wildflowers and wild edible plants. Activities may include a weekend field trip, a chance to improve skills in identifying local plants, as well as a culinary experience in wild edibles.

R280 Natural History (3 cr.)
Investigation of general natural history and field ecology concepts in a laboratory setting. Weekly field trips.

R323 Ecosystem Management (3 cr.) (Knapp)
This course equips students with knowledge and application of the principles, concepts, and techniques in ecosystem management and restoration ecology; the ability to design and complete complex ecological projects; and the ability to interpret results of field studies and incorporate results into ecosystems management plans.

R338 Integrated Resource Management (3 cr.) (Hronek)
Provides a managerial understanding of ecological concepts, resource management practices, and resource policies related to natural resource/land management. Focus on allocation of resources, carrying capacity, resource protection, and environmental impacts of uses on natural resources.

R372 Interpretation and Tour Guiding (3 cr.) (Basman)
Course is designed to introduce students to personal-heritage interpretation and tour guiding. Students will explore the tenets and principles from various fields of study that encompass the body of knowledge utilized in the interpretation/tour guiding profession.

**R385 Wilderness in the American Mind (3 cr.)**
The philosophical turmoil of formal wilderness creation in the United States will be presented in this course. Discussion and debate of the European influences on wilderness thinking in the United States as well as examination of wilderness experiences of early European settlers to America will be addressed. The course traces the history of influential leaders in wilderness designations and the political climate of wilderness debates.

**R429 Ecotourism: Administration & Management (3 cr.) (Basman)**
This course will integrate and examine the theoretical foundations, practical applications and best management practices in ecotourism. Since the planning, conceptualization and practice of tourism is unreasonably broad and cumbersome for a single course to cover, the focus of this course will primarily be on alternative tourism, specifically ecotourism.

**R545 Advanced Ecosystem Management in Outdoor Recreation (3 cr.) (Knapp)**
Exploration of the principles, theories, concepts, and practical realities of ecosystem management. Enables students to design, initiate, and coordinate to completion complex projects of an ecological nature.

**R585 Wilderness in the American Mind (3 cr.)**
Examines the philosophical turmoil of formal wilderness creation in the United States. Discussion and debate of the European influences on wilderness thinking in the United States as well as examination of wilderness experiences of early European settlers to America. History of influential leaders in wilderness designations and the political climate of wilderness debates is traced.

**HISTORY AND PHILOSOPHY OF SCIENCE**

**X210 Technology and Culture (Allen)**
Technology and Culture Although human technology predates science, technology and science have become so intertwined that it is impossible to understand one without understanding the other. As technology has developed from the production of individually-crafted stone axes to the products of a massive scientific enterprise which has given us everything from supercomputers to weapons of mass destruction, so too has our conception of technology changed. We have gone from viewing technology as the controllable product of deliberate human artifice to viewing it as possessing its own evolutionary dynamics which put it beyond effective human control. As our relationships to technology have changed, so too have human attitudes to it diversified, ranging from techno-utopianism, through passive acceptance, to a level of technophobia that sometimes even leads to terrorist acts. This course begins with a survey of the philosophy of technology during which we will consider questions such as the following: Is technology a uniquely human trait? Is modern technology the product of a particular human culture? What do science and technology have to do with each other? Is technology gendered? Is technological change inevitable or desirable? During the second part of the course will focus developments in autonomous software and robotics that lead to interesting questions about the limits of technology and the possibility and desirability of scientific and technological approaches to ethical decision making.
JOURNALISM

J460 Science Writing (3 cr.)
Science writing, a new journalism elective for undergrads, will help you to write engagingly and responsibly about all the sciences, including (but not limited to) those related to medicine and the environment.

J554 Science Writing (3 cr.)
Exploration of the challenges and opportunities associated with writing about science for nonscientists.

LEADERSHIP, ETHICS AND SOCIAL ACTION

L105 Beyond the Sample Gates (Libby)
L105 is a service-learning course that develops social responsibility, active citizenship and community engagement by combining academic inquiry with service that meets genuine community needs. Twenty hours of service over the course of the semester (2 hours per week over 10 weeks) in a community organization is required. This experience offers you an in-depth understanding of the community agency, the population the agency serves and the issues it attempts to address. The key feature of this course that distinguishes your involvement in the community from volunteering is that we will frame our practical experience in an academic context; specific topics we will consider in this context include social justice, charity, service, advocacy, social entrepreneurship, political democracy, education, and ideology.

LABOR STUDIES

L290 International Trade, Labor and the Environment (1 cr.) (Tatyana)
This course explores the links between labor and the environment from an international perspective. We discuss how actors—organized labor, environmentalists, transnational corporations, and consumers—manage labor and environmental issues in a context of increased economic and trade liberalization, population pressures and resource scarcities. Key questions we consider include: What are the environmental implications of international trade and labor? Why is it hard to bridge the rich-poor and urban-rural gaps? How can we improve the North-South dialogue on trade and the environment? How can we promote greater social and gender equity, and commitment to environmental justice?

L290 Labor and the Environment (3 cr.)
For years polluting industries and politicians have tried to make people believe that they only choice they have is between goods jobs or a clean environment. But the long history of labor and the environmental movement working together shows that in fact the opposite is true - without good jobs you can't have a clean environment, and without a clean environment, you can't attract new higher paying jobs. Only dirty industries want to set up shop in dirty places! In this course we will look at the history of the environmental movement, the history of labor and the environment, how environmental justice and jobs are linked, and how environmentalists and labor advocates around the world are working together to fight the negative effects of globalization, the impacts of global warming, and for a healthy future for everyone's
For years polluting industries and politicians have tried to make people believe that they only choice they have is between goods jobs or a clean environment. But the long history of labor and the environmental movement working together shows that in fact the opposite is true - without good jobs you can't have a clean environment, and without a clean environment, you can't attract new higher paying jobs. Only dirty industries want to set up shop in dirty places! In this course we will look at the history of the environmental movement, the history of labor and the environment, how environmental justice and jobs are linked, and how environmentalists and labor advocates around the world are working together to fight the negative effects of globalization, the impacts of global warming, and for a healthy future for everyone's children.

Globalization is the driving force in the world economy, but it is also provoking tremendous resistance. In November 1999 50,000 demonstrators protested the World Trade Organization meeting in Seattle and engaged in mass non-violent civil disobedience to shut down the WTO conference. At every subsequent meeting of the WTO, the World Bank, or the International Monetary Fund, opponents across the globe have protested in large numbers. On over 200 U.S. college campuses students are mobilizing against sweatshops. The U.S. labor movement is mobilizing against an expansion of the North American Free Trade Agreement (NAFTA) to all of Latin America with the Bush Administration’s proposed Free Trade Agreement of the Americas. The course will analyze and debate the many aspects of globalization, through the prism of workers and unions. Course topics include: NAFTA; the World Bank; the IMF; structural adjustment programs; export processing zones; sweatshops; exporting white collar jobs; Mexico and China; plant closings; protectionism; and the movement strategy and alternative program of the U.S. labor movement and the global justice movement.

**PHYSICS**

**P110 Energy (3 cr.) (Baxter)**
A scientific approach is used to examine various aspects of energy consumption, including demand, fuel supplies, environmental impact, and alternative fuel sources.

**P120 Energy and Technology (3 cr.) (Baxter)**
Provides physical basis for understanding interaction of technology and society, and for the solution of problems, such as energy use and the direction of technological change.

**P310 Environmental Physics (3 cr.) (Brabson)**
For biological and physical science majors. Relationship of physics to current environmental problems. Energy production, comparison of sources and byproducts; nature of and possible solutions to problems of noise, particulate matter in atmosphere.

**P510 Environmental Physics (3 cr.) (Brabson)**
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POLITICAL SCIENCE

Y313 Environmental Policy (3 cr.) (Hershey)
This course is intended to survey the political activity, conflicts, and choices related to American environmental problems. To learn how environmental policy develops, we will examine the political and institutional framework within which environmental problems are addressed (or not addressed) in the U.S. Second, we'll focus on the politics of several especially important environmental problems such as energy and automobiles. Finally, we will take a critical look at the political, economic, and ecological feasibility of alternative solutions to environmental problems.

RELIGIOUS STUDIES

R170 Religion, Ethics, and Public Life (3 cr.) (Sideris)
This is an introductory course in religion and ethics, focusing on social responsibility and moral reasoning. We begin by examining basic methods and tools in ethics, after which we will examine six topics: abortion; war and peace; death and dying in medicine; economic justice; discrimination; and environmental ethics. The chief goal of the course is to explore the complexity of these topics and to understand how religious thought, belief, and practice inform moral discussion in American public life today. Along the way, we will ask whether individuals or groups have a responsibility to protect the interests of vulnerable, or “at-risk” populations: fetuses, political communities under attack, women in the economic and cultural marketplace, sick and dying patients, the poor, racial minorities, and nonhuman lives. These groups, and the issues that surround their needs, stand at the center of debates in public culture today. With each topic we will examine different arguments and points of view. We will close the semester by studying some religious themes that inform most of the readings, focusing on creation and covenant. Sources draw from Judaism, Christianity, and contemporary social thought.

R300 Studies in Religion: Religion, Ethics, Global Environment (3 cr.) (Sideris)
This course focuses on three global environmental issues and religious/ethical responses to them: climate change, destruction of ocean environments (e.g., pollution, fisheries collapse, ocean warming), and global food issues (e.g., food security, seed patenting, and genetically modified crops). The course adopts a global perspective in two related senses: first, the course deals with environmental issues that are global in scale and/or linked to the global economy. Second, the course examinee the impacts of, and responses to, these problems from the perspective of particular communities throughout the world. The primary geographical locations to be considered as case studies (in addition to, and in comparison with, the U.S.) include parts of the UK, regions of the Black Sea, and India. However, given the nature of these problems, particularly climate change, we will inevitably touch upon a variety of other regions around the world. Because climate change is the primary global environmental problem that confronts us, and because it affects a multitude of other environmental issues, the ethics of climate change will take center stage in this course. Al Gore has characterized climate change as a problem that “challenges the moral imagination.” We will examine what lies behind this claim, both in terms of the practical challenges of fostering international cooperation, as well as the unique moral and ethical dimensions of this problem, such as concepts of intergenerational justice/obligations to future generations. We will also consider “interfaith” responses to climate change that incorporate perspectives from the major world traditions. The section of the course on ocean ethics explores the question of how humans can
develop an ethic toward marine environments which (unlike terrestrial environments) remain largely alien and uninhabitable to us. Our ethical responses must reckon with the extreme otherness of ocean environments and life forms, many of which we never encounter directly. Developing an ethic toward oceans presents challenges to the moral imagination nearly as complex as those posed by climate change, though for different reasons. This section examines how religious mythology and symbolism often portrays the sea as inexhaustible and "unfathomable." We then consider some religiously motivated responses to seas in crisis. The third section of the course focuses on questions of ecological justice surrounding seed patenting and genetic modification of crops. Ethical issues here center on the corporate ownership of regenerative natural processes—symbolized by seed patenting—and the implications for traditional farming cultures and food security in places like India and throughout the globe. A final section of the course considers local and individual initiatives for responding to global environmental problems, with particular emphasis on the movement known as bioregionalism, as well as virtue ethics.

SPEA

E162 Environment and the People (3 cr.) (Wadzinski, Shaw, Lame, Jagger, Clark, Craft, Arnold)
An interdisciplinary examination of the problems of population, pollution, and natural resources and their implications for society.

E272 Introduction to Environmental Science (3 cr.) (Edwards, Haitjema)
Application of principles from life and physical sciences to the understanding and management of the environment. Emphasis will be placed on (1) the physical and biological restraints on resource availability and use, and (2) the technological and scientific options to solving environmental problems.

E363 Environmental Management (3 cr.) (Lame)
Introductory course in environmental management. Subjects covered include current issues and trends, total quality environment management, managing scientific and technical personnel, managing contracts and grants, nontraditional approaches to regulation, environmental conflict resolution, working with the media, risk communication, and working with communities.

E400 Conservation and Global Climate Change (Meretsky/Randolph)
Background: Fish and Wildlife Service regional offices are directed to organize a climate forum. In order to keep the carbon footprint of such a forum small, the Region 3 forum will occur in partnership with IU-Bloomington as a distance-based opportunity for both students and FWS personnel. Local guest speakers will attend the class at IU-Bloomington. Guest speakers who are not in the local area will join the class through audio/PowerPoint with video hookups wherever possible. Class participants from Fish and Wildlife Service will join the class remotely, as may IUPUI students.

E440 Wetlands: Biology & Regulation (3 cr.) (Brittian)
This course focuses on structural and functional characteristics of wetlands, their importance as a natural resource and value to society. Topics include characteristics used to identify and classify wetlands, adaptations for living in wetlands, community structure and ecosystem processes, functions and values. Management of wetlands includes jurisdictional delineation and hydrogeomorphic assessment.

E451 Air Pollution and Control (3 cr.) (Stevens)
A survey course covering the chemistry, transport, and fate of air pollutants related to current issues of air quality, such as photochemical smog, ozone depletion, particulate matter, and indoor air quality. Topics include the types, sources, health and environmental effects, measurement, evaluation, control, regulation, and modeling of air pollution concentrations.

E455 Limnology (4 cr.) (Royer)
Limnology is the ecology of inland lakes and streams, combining the principles of biology, chemistry, geology, and physics to understand how they function. The effects of human perturbation on aquatic systems will be highlighted in both lectures and laboratory work to aid student understanding of the concepts involved.

E460 Fisheries & Wildlife Management (3 cr.) (Bennett)
This course first reviews taxonomy, vertebrate biology, and population ecology, then introduces the student to a variety of conflicts concerning fisheries and wildlife. Cases examine endangered species, over harvesting, maximum sustained yield, habitat evaluation, and recreational use.

E476 Environmental Law and Regulation (3 cr.) (Cox)
Introductory course in environmental law and regulation. Subjects covered include command and control regulation, air quality, water quality, toxics, waste management, energy, natural resources, international environmental law, and alternative dispute resolution.

E528 Forest Ecology and Management (3 cr.) (Wayson)
Field and laboratory exercises in quantitative analysis of forest ecosystems. Sampling and data collection methodologies. Data analysis and interpretation. Concepts in forest ecology and forest management.

E536 Environmental Chemistry (3 cr.) (Hites)
Gas law calculations, stoichiometry, steady and nonsteady state box models, stratospheric ozone, chemical kinetics, photochemical smog, greenhouse effect, CO2 equilibria, chemodynamics, pesticides, and toxic metals.

E555 Conservation and Global Climate Change (Meretsky/Randolph)
Background: Fish and Wildlife Service regional offices are directed to organize a climate forum. In order to keep the carbon footprint of such a forum small, the Region 3 forum will occur in partnership with IU-Bloomington as a distance-based opportunity for both students and FWS personnel. Local guest speakers will attend the class at IU-Bloomington. Guest speakers who are not in the local area will join the class through audio/PowerPoint with video hookups wherever possible. Class participants from Fish and Wildlife Service will join the class remotely, as may IUPUI students.

E710 Conservation and Global Climate Change (Meretsky/Randolph)
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H316 Environmental Health Science (3 cr.) (Crouch)
A study of human interaction with the environment and potential impacts of environmental agents on health and safety. Hazards from natural sources and human activities that contaminate our air, land, water, food, homes, neighborhoods, and workplaces are examined. Environmental control activities, including pollution control technology and policy, are also examined.

**V550 Conservation and Global Climate Change (Meretsky/Randolph)**

Background: Fish and Wildlife Service regional offices are directed to organize a climate forum. In order to keep the carbon footprint of such a forum small, the Region 3 forum will occur in partnership with IU-Bloomington as a distance-based opportunity for both students and FWS personnel. Local guest speakers will attend the class at IU-Bloomington. Guest speakers who are not in the local area will join the class through audio/PowerPoint with video hookups wherever possible. Class participants from Fish and Wildlife Service will join the class remotely, as may IUPUI students.

**V596 Sustainable Development (3 cr.) (Reuveny)**

Focuses on theories and policies of sustainable development. Course employs an interdisciplinary approach by combining approaches and models with neoclassical economics, ecological economics, political science, and ecology to study dynamical interrelationships between the macro-economy at the national and international levels of analyses, markets, political institutions, and the ecosystem.

**V643 Natural Resources Management & Policy (3 cr.)**

This course evaluates a broad range of contemporary resource policies, cases, and controversies, using bioeconomic resource management models as an intuitive aid, wherever possible. Topics include fishery management, forestry policy, tropical deforestation, water management policy, nature preservation/endangered species, sustainable development, and national income accounting.