

New Curriculum: BA in Environmental Studies

University faculty meeting: 29 Mar 04
Educational Policy Committee Meeting: 17 Mar 04

Introduction

Environmental issues, problems, and opportunities, in all their importance and complexity, are of widespread interest to people at all levels of the educational spectrum. Lehigh has a special opportunity and a responsibility to educate the next generation of environmentally literate citizens, whether they become professional scientists, engineers, policy analysts, or poets. Failure to grasp this opportunity risks losing such environmentally inclined students to competing institutions of higher learning.

Lehigh has long excelled at preparing both undergraduate and graduate level earth and environmental scientists and civil engineers. These programs have strong national reputations. However, Lehigh students currently miss the opportunity to pursue less technical environmental studies. To provide such an opportunity, a new BA program in Environmental Studies is proposed as part of the 2020 Environmental Initiative (EI).

In keeping with the liberal arts tradition, the proposed Environmental Studies degree will provide broad exposure to the range of issues confronting the human condition, cultural and historical perspectives on how society has evolved to its present state, and insight into the range of possible corresponding methodological approaches and solutions to the global questions humanity confronts.

This new degree will complement existing BA and BS programs in Earth and Environmental Sciences as well as the new BS program in Environmental Engineering. The Environmental Initiative also plans to develop a MA in Environmental Policy plus a MEd in Environmental Education. With environmental programs in all four colleges, ranging from BA to BS to MA to MEd to Ph.D., Lehigh students will have available the most comprehensive array of programs possible.

Program Description:

The new BA is interdisciplinary in nature, involving courses in four colleges and 10 different departments. It has a strong background in a number of the social science disciplines but also includes humanities, education, science, mathematics and engineering. It is designed so students will develop a wide-ranging knowledge about social environmental concerns, along with a basic familiarity with environmental science, statistics and research methods. As a consequence, the BA has 44 hours of required, core and elective courses in a variety of fields and 19-20 hours of collateral requirements in mathematics, science and social science research methods.

The Environmental Studies major will need eight new courses for its required and core courses that are being or will be developed as new faculty are hired within the Environmental Initiative. Five will be developed for 2004-05, while three others will be phased in over two or three years. In the meantime, several currently existing courses will be substituted for these three. Two core courses are already regularly offered. A large number of already offered environmental social science and humanities courses will serve as electives for the program, allowing a variety of choices for students. All of the collateral courses are currently being offered.

The BA Program

The BA program is intended for students who are interested in environmental affairs from the perspectives of the social sciences and humanities. This degree will prepare students for a variety of career options, ranging from positions in corporate management or policy agencies at the federal, state and local government levels to jobs in non-profit

organizations, environmental journalism or environmental law. It is well suited to prepare students for graduate studies in a number of environmental policy and social science fields.

The BA is specifically designed to be broadly inclusive yet flexible enough to allow for double majors and minors in other fields. A minor in EES, for example, could easily be accomplished by adding the EES collateral options to the required introductory environmental science course, ES (EES) 2. Double majors or minors in social science fields such as anthropology, history, international relations, political science, psychology, science and environmental or general journalism, or sociology could easily be attained.

College Requirements not met in the Proposed Program (18 credits)

Arts 1 Choices and Decision	(1)
Freshman Seminar	(3)
English Composition	(6)
Humanities Distribution Requirement	(8)

Environmental Studies Core Courses (28 credits)

Required Courses:

ES1	Introduction to Environmental Studies (4) SS
ES (EES) 2	Environmental Science: Systems and Solutions (4) NS
ES 381	Senior Seminar: Issues in Environmental Studies (4) SS
Core Courses: At Least 4 of the 7 following courses:	
ES 101	Environmental Policy and Planning (4) SS
ES 102	Environmental Values and Ethics (4) HU
ES 111 (Eco. 111)	Introduction to Environmental Economics (4) SS Prerequisite of Eco. 1
ES 115 (Jour 115)	Communicating about the Environment (4) SS Writing Intensive
ES 121 (Anth. 121)	Environment and Culture (4) SS
ES 171 (ChE/CEE 171)	Fundamentals of Environmental Technology (4) (ND) Prerequisite: One course designated NS
ES 315 (Hist 315)	American Environmental History (4) SS

Major Electives (16 credits including two courses at the 200 level or above):

Already Existing and Immediately Proposed Courses

Anth. 305	Anthropology of Fishing (4)
Arts 196	Sustainable Development: The Costa Rican Experience (1)
CEE 272	Environment, Risk Regulation and Policy (2)
Eco. 311	Environmental Economics (Advanced course with two prerequisites) (3)
Engl. 201-11	The Environmental Imagination (4)
EES 109	Geographical Analysis of our Changing World (4)
ES10	Environment and the Consumer Society (4)
ES (Jour) 116	Risky Business (4)
ES 131	Internship (1-2)
ES 181	Independent Study (1-4)
ES 371	Special Topics (4)
ES 391	Honors Thesis (4)
IR 344	Politics of Oil (4)
Jour. 125	Environment, the Public and the Mass Media (4)
Jour (STS) 323	Controversies (4)
PolS 111	Politics of the Environment (4)
PolS 328	U.S. Politics and the Environment (4)
Pols 375	Seminar: Green Polity (4)
Rel 6	Religion and the Ecological Crisis (4)

Rel 254	Buddhism and Ecology (4)
TBTE 394	Special Topics in Education - Environmental Education
<i>Elective Courses Eventually Anticipated as Part of the Environmental Initiative (Major does not depend on their availability)</i>	
ES 1xx	Energy and Society (4)
ES 1xx	Environment and Sustainable Development (4)
ES 3xx	Environmental Risk Perception and Communication (4)
ES 3xx	Environmental Ethics (4)
ES 3xx	Environmental Planning and Green Design (4)
ES 3xx	International Politics and the Environment (4)

Collateral Requirements (18-20 credits)

Required (8 credits)

Math 12	Basic Statistics (4) <i>A calculus course may be substituted with permission of the program director. Fulfills College Math requirement.</i>
SR 111	Research Methods and Data Analysis (4)

Electives: At least one EES and two other science courses from these seven courses (10-12 credits): *More advanced science or environmental engineering courses may be substituted with the permission of the program director. Fulfills College Science requirement.*

Chem 5	Chemistry and National Issues (3)
Chem 21	Introductory Chemical Principles (4)
EES 3	Global Environmental Change (4)
EES 11	Environmental Geology (3)
EES 21	Introduction to Planet Earth (4)
EES 31	Introduction to Environmental Biology (4)
Physics 5	Concepts in Physics (4)

Collateral Minor:

Minor programs in various social sciences and selected humanities will be highly recommended to students to get depth in a field, but are not required.

Honors:

To graduate with honors, a major in Environmental Studies must maintain a 3.2 overall average, attain a 3.5 average in the courses constituting the major program, and complete an honors thesis in the senior year.

Total Credits Required for the BA program:

Total Credits for the Major including Electives: 44 credits

Total Credits for the Major including Collateral Requirements: 62-64

BA Program Explanations

1. Departmental Crosslistings:

- **To emphasize the interdisciplinary nature of the BA program, all ES core courses will be crosslisted with disciplinary departments where Environmental Initiative faculty will be jointly appointed. It is hoped that these crosslistings will ensure that ES courses are considered an integral part of a department's offerings and that students in a discipline will be encouraged to take these courses even if they do not major or minor in the BA program.**
- **All departments who are crosslisted have given their permission to do so. Departments are not named for ES 101 and 102 because a particular department has not yet been identified as the disciplinary home for these courses. That home will depend on the discipline of the faculty member hired to teach these courses.**
- **No departmental crosslists are anticipated for ES 1, 10, 131, 181, 371, 381 or 391.**

2. New Courses in the Required and Core Courses

There are eight new courses proposed in the required and core areas: ES 1, 2 101, 102, 111, 115, 171 and 381.

Required Courses.

- It is anticipated that ES1 will be taught in 2004-05. A search is currently under way for a new EI faculty member in Environmental Policy and Politics and s(he) is expected to teach ES 1. A fallback for ES 1 would be to substitute E&S 1, Environment and the Consumer Society, temporarily. E&S 1 is taught every spring semester as the introductory course for the Environment and Society minor. As part of this proposal, it will undergo a program designation and number change to ES 10.
- ES (EES) 2 will be taught spring 2003 as EES 96 and will be taught yearly thereafter.
- ES 381 will be offered in 2004-05 by one or several current social science faculty who teach environmental courses.

Core Courses.

- ES 101, ES (Anth) 121, ES (ChE/CEE) 171 and ES (Hist) 315 will be offered next year. The new faculty hire in Environmental Policy and Politics will teach ES 101.
- For those core classes not yet available, substitutes are available.
- Rel. 6, Religion and the Ecological Crisis, would be substituted for ES 102.
- Jour. 125, Environment, the Public and the Mass Media, would be substituted for ES (Jour) 115. Jour. 125 is a writing intensive course and could fulfill that need until ES (Jour) 115 is available.
- Eco 311 would be accepted in place of ES (Eco) 111. Although it requires one more prerequisite than ES (Eco) 111, many students take that prerequisite.
- If needed, other courses from the Electives category could be substituted if students needed additional courses to have the four core courses required for the BA.

It is anticipated that within a few years, new hires and faculty reallocations for the Environmental Initiative will allow offering all of the required and core courses. While several of the core courses are not currently available, it was considered important to present the entity of the BA program as anticipated for approval to show the integrated, widely interdisciplinary nature of the program.

3. New Designations for Courses in the Electives

- ES 181 and 371 (Independent Study and Special Topics) are courses already offered under the Environment and Society program and are being transferred to the ES program. ES 131 (Internship) and 391 (Honors Thesis) are new elective courses. These courses have been or will be taught on an hours-arranged basis during 2004-05 and as needed thereafter, staffed by one or several current faculty who teach environmental social science courses.
- ES elective courses that are anticipated are only included in this proposal as an indicator of possible future courses to be added to the BA as faculty are added to the EI. These are not included for approval with this request.
- ES (Jour) 116 is a summer course that has already been taught as E&S (Jour) 197 and is being added to the regular curriculum with this request and that from the Journalism and Communication Department.

Minor in Environmental Studies

A minor is proposed in Environmental Studies that will consist of four 4-credit courses, for a total of 16 credits. These should include ES 1, one course from the core set for the major, and two courses from either the core or elective courses for the major. One of the two courses must be at the 300-level course. The current minor in Environment and Society will be discontinued in favor of this minor.

Sample Model Course Schedule BA Major in Environmental Studies

Fall

Year 1

Eng. 1 Composition and Literature (3)
XX 90 First year course (3)
ES1 Intro. To Environmental Studies (4)

Elective (4)
A&S 1 (1)

YEAR 2

1st science course (3-4)
ES 1xx (Core elec. #1) (4)
Humanities Elec./Eco. 1 (4)
ES 1xx (Core elec. #2) (4)

YEAR 3

ES 1xx (Core elec. #4) (4)
SR 111 Research Methods (4)
Humanities Elec. (4)
3rd science course (4)

YEAR 4

ES 381 Senior Seminar (4)
ES 2/3xx (Major elec. #3) (4)
Elective (4)
Elective (4)

Spring

Eng. 2 Comp. and Lit. II (3)
Math 12 Basic Statistics (4)
ES (EES) 2 Environmental Science:
Systems and Solutions (4)
Humanities Elec./Eco. 1 (4)

2nd science course (3-4)
ES 1xx (Core elec. #3) (4)
Eco. 1xx (4)
Elec. (4)

ES 2/3xx (Major elec. #1) (4)
ES 1xx (Major elec. #2) (4)
Elective (4)
Elective (4)

ES 391 Honors/Elective (4)
ES 1xx (Major Elec. #4) (4)
Elective (4)
Elective (4)

Academic Impact Statements

1. Crosslisting:

- This program is highly interdisciplinary involving 10 departments and 4 colleges.
- Crosslisted courses include ES (EES) 2, ES (Eco) 111, ES (Jour) 115, ES (Jour) 116, ES (Anth) 121, ES (ChE/CEE) 171 and ES (Hist) 315.

2. Effects on other Programs

- This program will merge with the Environment and Society program and minor and all E&S courses will be converted to Environmental Studies courses. The ES minor will take the place of the E&S minor.
- No effects on other programs are anticipated.

3. People Consulted

- The Civil and Environmental Engineering, Earth and Environmental Sciences, Economics, History, Journalism and Communication, and Sociology and Anthropology Departments have all agreed to crosslist their respective courses in the required and core segments of the program.
- The Mathematics and Sociology and Anthropology Departments have both agreed to allow their respective courses in the required collateral requirements. The instructor for Religion 6 has agreed to let the course be used until the time that ES 102 is developed.

- The Earth and Environmental Sciences, Physics and Chemistry Departments have agreed to allow their courses in the science electives section of the program.
- All E&S faculty were consulted and agreed to merge the E&S program and minor into the ES program and minor.

4. Impact on Diversity

- Not known, but potential new hires might help the university's diversity efforts.

Resource Impact Statements

1. Library Impact

- A separate Library Impact statement prepared by library personnel for the entire EI is attached to this proposal.
- It was considered counterproductive to separate out only the BA element since the library impact of the whole EI will be considerably greater than that of the BA program.

2. Computer Impacts—none are anticipated.

3. Classroom Impacts—none are anticipated except the need for regular classrooms for the courses.

4. Faculty Impacts

- To implement this new BA program in Environmental Studies and a proposed MA program in Environmental Policy, as well as expand Lehigh's existing environmental research strengths, the Environmental Initiative expects to coordinate the hiring of 11 new faculty and a director over a four-year timeframe. The 11 new faculty will teach courses in the new degree programs and enhance curricula in existing environmental science and engineering programs.
- For the BA program, probably five new faculty will eventually be needed and a search for one is currently under way. As noted above, there are enough social science faculty who currently teach environmental courses that can be substituted for the new courses until additional faculty are hired. However, these substitutions are only offered as a courtesy to get this program under way. All departments allowing these substitutions have indicated that new faculty must eventually take over the BA core and required courses because the departments are already stretching to teach them and have other commitments.
- The 2020 EI program calls for the assignment of a number of teaching assistants to help support both the undergraduate and graduate degree programs. Specific TA numbers are not yet available.

5. Facility Impacts

- None are anticipated, although some temporary office housing will be needed for the early new hires for the EI until the new environmental building is built.
- Laboratory Impacts—there may be a minor impact in lab sections of EES 21 and 31. However, since majors will fulfill their college science requirements with two of the three required science courses, their presence should not be any great addition beyond the normal number of students accommodated in these labs. In addition, students in the BA program can choose among seven science courses, five of which do not have labs.

6. Financial Responsibility

- Budgetary plans for the new hires and faculty reallocations needed for the BA program are part of the 2020 EI proposal.
- It is expected that support will come from the offices of the Dean of the College of Arts and Sciences and the Provost.

BA in Environmental Studies—New Courses

1. Proposed new course numbers and course descriptions (as it will appear in course catalogue):

ES 1 Introduction to Environmental Studies (4)

Gateway to the field of Environmental Studies, the course surveys central issues and themes confronting humanity in the natural world on a national and global basis. Topics include humankind's role in environmental change; society's response to the dynamism of nature; cultural evaluations of nature; population dynamics; resource availability and pollution sinks; land use patterns; sustainability and consumerism; environmental justice and ethics; policy and planning. (SS)

ES (EES) 2 Environmental Science: Systems and Solutions (4)

An overview of environmental issues, problems, and solutions from an Earth systems perspective. A review of how natural systems create the environment and how society is a part of these systems rather than distinct from them. Includes consideration of issues like resource management, natural and induced hazards, land use, habitat degradation, and environmental impact. Course intended for non-science majors with an interest in the environment, how it works, and what's important to sustain a habitable planet. Environmental issues on local, national, and global scales are considered and compared. Fulfills science distribution requirement. Lecture and recitation, class discussions, debates, and case studies. Meltzer (NS)

ES 101 Environmental Policy and Planning (4)

Analysis of the framework that has been established to protect the environment and promote sustainable growth. Focus on the roles of the different branches of the U.S. government and the relative responsibilities of state and local governments within this framework as well as key international accords. Consideration of the political nature of environmental issues and the social forces influencing environmental protection. (SS)

ES 102 Environmental Values and Ethics (4)

A broad survey of the role of values and ethics in environmental issues. How have humans perceived their relation to nature across vast spans of time and culture? Do premodern ecological views still have lessons to teach contemporary citizens? Contemporary developments such as environmental justice, deep ecology, ecofeminism, bioregionalism, campus ecology, ecopsychology and issues of ecological identity will be explored. (HU)

ES 111 (Eco 111) Introduction to Environmental Economics (4)

An examination of the interactions between our economic systems and the environment. Pollution as a consequence of human activity within a framework for analyzing the relationships between environmental quality, scarcity of resources and economic growth. How to develop appropriate public policies to deal with these issues. Prerequisite: Eco. 1. (SS)

ES115 (Jour 115) Communicating about the Environment (4)

Introduction to the need for and ways to communicate about environmental issues to laypersons, government officials, journalists, members of the judiciary and technical experts. Explores case studies of good and bad communication about environmental issues. Internet communication, including the efficacy of placing governmental reports and databases on the Web for public consumption, will be evaluated. (SS)

ES (Jour) 116 Risky Business (4)

This course explores the risks and effects of environmental contamination on human health and behavior as well as the role of the mass media in alerting citizens to potential environmental health risks. Environmental topics vary but usually include air and water pollution, endocrine disrupters and radioactive waste. S. Friedman (SS)

ES 131 Internship (1-2)

Practical experience in the application of environmental studies for both on- and off-campus organizations. Course is designed to provide credit for supervised experiential learning experiences. May be repeated for credit up to four credits. Prerequisite: consent of the program director. (ND)

ES 171 (ChE/CEE 171) Fundamentals of Environmental Technology (4)

Pollution control technologies and how they work for water, air and solid wastes. Assessment and management of risk as applied to remediation of contaminated wastes. Role of life cycle analysis of products in risk reduction. Emphasis on technologies leading to sustainable environment. Government policies and regulations, including litigation and Best Engineering Practices. Prerequisite: A course designated NS. Not available to students in RCEAS. (ND)

ES 381 Senior Seminar: Issues in Environmental Studies (4)

Advanced seminar focusing on discussion and research on specialized subjects in Environmental Studies. Subject matter varies from semester to semester. Intended for Environmental Studies majors and minors but open to others. Prerequisite: ES 1, 2 or another EES course, and one core course or consent of the program director. **(SS)**

ES 391 Honors Thesis (4)

Directed undergraduate research thesis required of students who apply and qualify for graduation with program honors. Prerequisite: consent of the program director. **(HU or SS)**

2. Instructional mode (i.e., lecture, recitation, laboratory, seminar, independent study, or other) and number of contact hours per week:

- This is hard to anticipate but it is expected that ES 1, 101, 111, 115, and 171 will be lecture/discussion courses and not require laboratories.
- ES (EES) 2 will be a lecture and recitation.
- ES 131 will be hours arranged.
- ES (Jour) 116 is a discussion class twice a week during the summer.
- ES 381 will be a seminar.

3. Rationale for proposed new courses:

- ES 1, 2, 101, 102, 111, 115, 171 and 381 are integral parts of the required and core set of courses needed for the new BA in Environmental Sciences.
- ES (Jour) 116 is an elective for the new BA and was taught in summer school as E&S (Jour) 197. It now needs to become a regular summer offering for ES and Journalism. Since the E&S program is merging with the Environmental Studies program, a new designation and number are needed for this course.
- ES 131 and 391 are electives for the new BA and are needed to provide internship and honors opportunities for students who major in the program.

4. Academic impact on programs affected by new courses:

a. Are these proposed new courses crosslisted?

- ES 2, 111, 115, 116 and 171 are crosslisted so that they also have a departmental home. All departments involved have agreed to crosslist them.
- ES 101 and 102 will eventually be crosslisted with as yet unspecified departments as new hires are added to teach these courses.

b. If there are known effects, individuals in charge of the affected programs must be consulted about the changes and the following information provided.

- **Known impacts on other programs.** The Environment and Society minor will be merged with the ES major and minor. No other program is affected.
- **Who was consulted?** The program director and all members of the Environment and Society faculty were consulted and agreed to the change. All chairs of departments with crosslisted courses were consulted and agreed to the crosslistings.
- **Will any changes be required in the affected programs? If so, describe.** Just the crosslisting of courses by the cooperating department courses.

c. Identify any known effects of the proposed new courses on the University's commitment to diversity.

- New hires who will eventually teach several of these courses might positively affect the university's commitment to diversity.

5. Resource Impact Statement:

- Library impact statement—**see the EI Library Impact Statement attached.**
- Computer impact statement—**none**
- Faculty impact statement—**see the BA proposal for further information**
- Facilities impact statement—**see the BA proposal for further information**

a. Provide a statement indicating who will assume financial responsibility for any new resources required:

- Will be assumed by funding for the 2020 Environmental Initiative through the offices of the Dean of the College of Arts and Sciences and the Provost.

Environment Initiative: Library Impact Statement

Prepared by Brian Simboli and other personnel from Information Resources

The Environment Initiative, described at <http://www.leo.lehigh.edu/announce> , may require significant enhancements to the collection of library resources.

What follows is an analysis of the needs for various aspects of the program, including instruction and research.

CONTENTS

- **BOOKS**
- **ONLINE LIBRARY DATABASES**
- **GOVERNMENT DOCUMENTS**
- ***SOFTWARE AND DATA SETS***
- **LIBRARIAN SERVICES**
- **JOURNALS**
- **CONCLUDING NOTES**

BOOKS

There will need to be some increased spending on books and reference works covering environmental policy, recycling, and environmental management.

After the EI director and as new faculty are hired, we would like to review the collection management statement to see whether any particular categories need coverage in our approval book plan. We should be able to accommodate the overall needs of the EI within our existing book budget, but will require notification of new courses and faculty hires as they occur.

GIS is an area in which there has not been systematic book collecting. This will be needed as the technology evolves and as specific needs emerge. If GIS becomes a significant part of EI, we will want to buy more systematically in this area. We can assume that currency of materials is important, so we could primarily buy materials on a “path forward” basis rather than worry about retrospective coverage. The same holds for hydrology and hydrogeology. A small initial outlay, to buy a block of current books, might be appropriate and could be handled by the current book budget.

ONLINE LIBRARY DATABASES

Many of Lehigh’s databases already provide coverage of environmental issues.

We currently have Ecology Abstracts, a description of which can be found at:
<http://www.csa.com/csa/factsheets/ecology.shtml>

As the description suggests, this is an interdisciplinary resource and addresses and at least some of the needs of the Environmental Initiative.

In general, major bibliographic databases typically provide interdisciplinary coverage, and so the databases we have will cover environmental themes to the extent that the latter overlap with their primary thrust.

Other useful library databases for environmental research we receive include, but are not limited to:

- ABI Inform
- Applied Science and Technology Index
- Engineering Index (Compendex)
- Factiva
- GeoRef.
- Infotrac
- PAIS
- Periodicals Abstracts
- SciFinder Scholar (Chemical Abstracts)
- National Bureau of Economic Research Reports Database
- The Web of Science

A word about the Web of Science, which the library will be acquiring very shortly. It provides access to three major databases: Science Citation Index (SCI), Social Sciences Citation Index (SSCI), and Arts and Humanities Citation Index (AHCI). These databases enable one to track cited/citing relationships between citations. Lehigh currently has access to all these databases through CD for SCI and SSCI and web access to AHCI. Having SCI and SSCI on the web would likely greatly increase their use on campus. Also, it will address the interdisciplinary needs of the EI. The high expense of this resource has been a barrier to its purchase in the past.

Possible future acquisitions of databases are these.

- **BNA Environment Reporter.** –Electronic subscription cost, up to 2 users @ 1 location: \$1609 per year, also offers 2 to 5 users at any location: \$1785 per year. This multi-part environmental resource offers coverage of legislative, regulatory, legal, and policy news, plus authoritative documentation of federal laws, rules, cases, and mining regulation. See: <http://www.bna.com/products/ens/ercr.htm>
- Ecology Abstracts, which we have, is one part of a suite of databases, collectively titled “**Environmental Sciences & Pollution Management Database**”, offered by Cambridge Scientific Abstracts. (See <http://www.csa.com/csa/ids/databases-collections.shtml>) Should the need arise, the library can explore purchase of other databases in this suite, which collectively includes: Agricultural & Environmental Biotechnology Abstracts; ASFA 3: Aquatic Pollution & Environmental Quality; Ecology Abstracts; EIS: Digests of Environmental Impact Statements; Environmental Engineering Abstracts; Health & Safety Science Abstracts; Industrial and Applied Microbiology: Microbiology Abstracts Section A; Bacteriology: Microbiology Abstracts Section B; Pollution Abstracts; Risk Abstracts; Toxicology Abstracts; Water Resources Abstracts.
- **Columbia Earthscape** is a database that we may want to consider buying after the environmental initiative evolves further. According to the vendor, “columbia earthscape is an integrated, interdisciplinary resource that connects the Earth and environmental sciences with their social, political, and economic dimensions. Although it primarily serves undergraduates, it also functions as an online

reference for graduate students, investigators, and professionals, as well as a core text and enrichment for high schools and continuing education.“ This is an evolving resource that will have over 100 new resources in the next update. We are currently giving it a trial. If it we do not purchase it now, it is worth considering purchase after the EI evolves further.

- **GEOBASE** Information about this database, which includes coverage of environment, hydrology, and cartography, is available at: <http://www.elsevier.com/inca/publications/store/4/2/2/5/9/7/index.ht>” GEOBASE is a unique multidisciplinary database supplying bibliographic information and abstracts for development studies, the Earth sciences, ecology, geomechanics, human geography, and oceanography. The database provides current coverage of over 1,800 journals and archive coverage of several thousand additional titles. The material covered includes refereed scientific papers; trade journal and magazine articles; product reviews, directories and any other relevant material. GEOBASE contains over 1 million records from 1980, with 76,000 records added annually. The database is available electronically either online (which includes the World Wide Web), or CD-ROM. “ Also, see <http://www.oclc.org/firstsearch/databases/index.htm>

GOVERNMENT DOCUMENTS

Government documents are a resource not peculiar to the discipline, but nonetheless of obvious importance. The library's online catalog indexes all new Federal government websites, whether or not we own whatever paper counterparts are available. Major portions of the printed collection are also indexed in our online catalog. The physical collection is comprised of materials published by a full range of U.S. and Pennsylvania government agencies and is particularly strong in materials from the United States Geological Survey, the Environmental Protection Agency and the Department of Energy. The collection also maintains physical copies of the hearings and committee prints from Congressional committees which address public environmental policy and governmental regulation of the environment. Also available are commercially published materials that facilitate research in government information. There are over 185,330 print, 451,689 microfiche publications and over 1,964 CD-ROMS in the Government Documents Collection. The government documents area of the library (2nd floor south, FM) houses a workstation for use of government supplied CD/ROM databases and access to the many government information sources available on the Internet. The CD/Rom materials also circulate and remote access is naturally available to the Government internet resources.

While the U.S. government resources will be readily obtained or cataloged as part of our federal depository collection, more effort will be needed to collect those of local, foreign and international organizations.

If an interest in agricultural matters emerges, we will need to collect more items from the Agriculture Department. If the latter materials are electronically available, the cost will be negligible. If we need to get materials in print there will be some slight staff time costs as well as the cost of housing the materials.

SOFTWARE AND DATA SETS

LTS currently makes available 50 PC seats of ArcView. If additional GIS software support is required, this can be discussed with LTS's software committee. We can further investigate, for example, whether to obtain an ArcGIS site license.

Requests for datasets may also be proposed to the LTS software committee. Whether requests be for software or datasets, LTS requires the software or dataset will be used for instructional purposes.

In addition, librarians at Lehigh gave LEO a document containing recommendations about making the GIS-related materials at the LEO website “user-friendly”. The librarians are available to provide similar recommendations about other GIS materials that might emerge as EI evolves.

LIBRARIAN SERVICES

Lehigh Library’s subject specialists are available to support EI as library-related needs arise, whether in relation to courses or faculty research. This support can take the form of:

- *searching literature*
- *recommending books, journals and other materials to purchase*
- *providing classroom instruction about use of library resources*
- *creating web-based research guides for classes and research.*

JOURNALS

Lehigh does not hold a significant number of journals that may be eventually prove of interest to EI. The question arises how to fund any large demand for new journals that would arise with EI, whether they be the journals identified above or other journals that should prove useful. Currently the library’s ability to support journal purchases derives from the budgets it has to support journals for the involved departments. With the upwardly spiraling costs of our journal subscriptions, the library’s ability to buy new journals in any given year may be limited. What follows is an accounting of possible future needs from various perspectives. In light of the burgeoning costs of journals, the library is willing to cooperate in any initiatives to use money from outside its budgets to develop library resources for EI, e.g., grant money brought in by new hires in the EI program.

1. One perspective on Lehigh’s coverage of environmentally related journals is provided by looking at journal impact factor data produced by ISI. Individual titles in these lists may be more or less related to the goals of the EI. The first lists the top 20 journals, ranked by impact factor, that appear under the category “Environmental Sciences” in the “2001 JCR: Journal Citation Reports Science Edition”. Whether or not we have a current subscription is indicated.

JCR describes impact factors as “the average number of times recent articles in a specific journal were cited in the JCR cover year. For JCR impact factors recent articles are those published in the two years preceding the JCR cover year“. Users of impact factors should be aware of caveats about them; e.g., see the Nature article at:

[http://www.nature.com/cgitaf/DynaPage.taf?
file=/nature/journal/v415/n6873/full/415726a_fs.html](http://www.nature.com/cgitaf/DynaPage.taf?file=/nature/journal/v415/n6873/full/415726a_fs.html)

1. **Journal of Toxicology and Environmental Health-Part B-Critical Reviews** Not currently received
2. **Global Change Biology** Have currently
3. **Global Biogeochemical Cycles** Have currently
4. **Environmental Health Perspectives** Have currently
5. **Journal of Atmospheric Chemistry** Not currently received

6. **Conservation Biology** Have currently
7. **Environmental Science & Technology** Have currently
8. **Biogeochemistry** Have currently
9. **Atmospheric Environment** Not currently received
10. **Environmental and Molecular Mutagenesis** Not currently received
11. **Applied Catalysis A-General** Have currently
12. **Critical Reviews in Environmental Science and Technology** Have currently
13. **SAR and QSAR in Environmental Research** Not currently received
14. **Environmental Toxicology and Chemistry** Not currently received
14. **Reviews of Environmental Contamination and Toxicology** Not currently received
16. **Climatic Change** Have currently
17. **Radiation and Environmental Biophysics** Not currently received
18. **Water Resources Research** Have currently
19. **Geomicrobiology Journal** Not currently received
20. **Remote Sensing of Environment** Not currently received

The second list is from the Social Sciences edition of JCR, 2001 version, category “Environmental Studies” .

1. **European Urban and Regional Studies** Not currently received
2. **Harvard Environmental Law Review** Not currently received
3. **Energy Journal** Not currently received
4. **Environment and Planning D-Society & Space** Not currently received
5. **Regional Studies** Have currently
6. **Journal of Environmental Economics and Management** Have currently
7. **Environment and Planning A** Not currently received
8. **Ecology Law Quarterly** Not currently received
9. **Ecosystem Health** Not currently received
10. **Urban Studies** Not currently received
11. **Society and Natural Resources** Have currently
12. **Environmental Values** Not currently received
13. **Land Economics** Have currently
14. **Transportation Research Part D-Transport and Environment** Not currently received
15. **Health Physics** Not currently received
16. **International Regional Science Review** Not currently received
17. **Regional Science and Urban Economics** Have currently
18. **Habitat International** Not currently received
19. **Human Ecology** Not currently received
20. **Environment and Planning C-Government and Policy** Not currently received

2. Our collection of academic journals in the area of environmental policy and environmental management will need to be enhanced. (These comments apply to the MA in Environmental Policy, but can extend to research efforts as well.) As mentioned elsewhere in this document, journals on the application and use of GIS will be needed. Among the policy journals that might be acquired are:

Environmental Policy and Law - \$399 per year

(Indexed in the following indexes to which we have access : Engineering Index, PAIS International)

Environmental Politics - \$285 per year

(Indexed in the following indexes to which we have access : Expanded Academic ASAP and Proquest)

International Journal of Environmental Studies - \$1307 per year

(Indexed in the following indexes to which we have access :ABI Inform, Agricola, Biosis, GeoRef, PAIS, Proquest)

Environment and Development Economics - \$199 per year print and electronic

(Indexed in the following indexes to which we have access: Econ Lit and PAIS)

Journal of Environmental Economics and Management \$805 per year (Indexed in ABI Inform or Factiva)

3. We receive requests for new journals each year, but there are still outstanding requests not yet funded. What follows are outstanding requests (prices are from Ulrich's Periodicals Directory):

- Aquatic Botany Windham \$1154
- Earth Surface Processes and Landforms Williamson \$2290
- Forest Science Windham \$230
- International journal of plant sciences Windham \$560
- New phytologist Windham \$1246 combined print and online
- Vegetatio Windham [Plant Ecology was formerly Vegetatio (Netherlands); Plant Ecology is \$2618 for print or online]

4. An area of interest that might arise in the Environmental Initiative is green accounting. Our understanding is that:

- there is currently no premier journal that covers this field specifically
- accounting journals that the library provides may occasionally cover topics related to this field
- the issues surrounding green accounting are many-faceted, e.g., metrics for evaluation, how the government measures and defines pollution

Our business databases are a resource to identify literature coverage in this area.

5. BioOne

From <http://www.bioone.org/bioone/?request=get-help-faq#WIB>

“BioOne brings to the Web a uniquely valuable aggregation of the full-texts of high-impact bioscience research journals. Most of BioOne’s titles are published by small societies and non-commercial publishers, and, until now, have been available only in printed form. BioOne provides integrated, cost-effective access to a thoroughly linked information resource of interrelated journals focused on the biological, ecological and environmental sciences.”

This aggregated website of electronic journals is worth monitoring for its potential relevance to the aims of the Environment Initiative. A list of the journals available through BioOne is at:

<http://www.bioone.org/bioone/?request=get-static&name=Titles-Publishers>

6. The following is a supplemental list of journals, not currently received by Lehigh, related to the interests of the environmental initiative. Some are more directly relevant than others, but the latter are included for completeness. No effort is made to rank their relevance to EI, since this will depend on faculty input and the needs of the initiative as it develops. The list provides a list of possible candidates for journal additions.

GIS-related journals are included in the list below, since GIS plays a role in the EI proposal and is an area that needs addressing. We are already receiving "Proceedings of the ... ACM Symposium on Advances in Geographic Information Systems", but a greater depth of journal coverage in this area may be needed.

On request, we can generate lists of other journals available in other specialized fields.

Some of the items below may be monographic series, a set of books that have a common serial title. If any monographic series proves relevant to the program, then we can determine whether to order them on our book budget lines.

The results were derived by using searches in Ulrich's Periodicals Directory (available off the library homepage), with a focus on environmental studies and GIS.

Journals resulting from these searches:

- Alternatives Journal: environmental thought, policy and action
- Ambio: a journal of the human environment
- Annals of Forest Science
- Applied Geography \$547
- Atmospheric Environment \$5040
- The Cartographic Journal \$198
- Cartographica \$130
- Cartography and Geographic Information Science
- Chemosphere: chemistry, biology and toxicology as related to environmental problems \$3960
- Chinese Environmental Science
- Computers, Environment and Urban Systems \$1070
- Cultural Geographies: a journal of cultural geographies \$388
- Earth Interactions "Free with any AGU journals"
- Ecography \$213 for combined sub per year; print and online editions
- Ecological Restoration \$125
- Ecology Law Quarterly \$54
- E H P Supplements
- Energy \$1969
- Environment: where science and policy meet \$96
- Environments: a journal of interdisciplinary studies – revue d'études interdisciplinaires
- Environment and Ecology
- Environment and Urbanization \$100
- Environment International: a journal of environmental science, risk and health \$1232
- Environmental Awareness
- Environmental Health Review
- Environmental Policy and Law \$399
- Environmental Science and Pollution Research: international
- Environmental Toxicology: an international journal
- Environmental Values \$165
- Environmetrics \$1165
- European Water Management
- Field Studies

- Geoforum: the international multi-disciplinary journal for the rapid publication of research results and critical review articles in the physical, human and regional geosciences \$877
- Geoinformatica: an international journal on advances of computer science for geographic information
- Geospatial Solutions: applications of GIS and related spatial information technologies
- Indian Journal of Ecology
- Indigenous Knowledge and Development Monitor
- Industry and Environment
- International Journal of Applied Earth Observation & Geoinformation \$301
- International Journal of Ecology and Environmental Sciences
- International Journal of Geographical Information Science \$901
- International Journal of Remote Sensing \$3983
- International Planning Studies \$371
- Journal for Nature Conservation
- Journal of Contaminant Hydrology \$2133
- Journal of Environmental Biology: an international research journal of environmental sciences & toxicology
- The Journal of Environmental Education \$98
- Journal of Environmental Health \$90
- Journal of Environmental Law \$212
- Journal of Environmental Planning and Management \$967
- Journal of Environmental Quality
- Journal of Freshwater Ecology
- Journal of Geographical Systems: geographical information, analysis, theory and decision
- Journal of Great Lakes Research: Devoted to research on large lakes of the world \$100
- Journal of Human Ecology: international, interdisciplinary journal of man-environment relationship \$60
- Journal of Industrial Pollution Control
- Land Contamination & Reclamation
- Landscape and Urban Planning \$1444
- Marine Geodesy: an international journal of ocean surveys, mapping and sensing \$367
- Mountain Research and Development \$150
- Natural Areas Journal \$125
- Natural Resources Management
- Ozone: Science and Engineering
- Political Geography \$931
- Pollution Atmospherique
- Population Ecology
- Progress in Physical Geography: an international review of geographical work in the natural and environmental sciences \$403
- Race, Poverty and the Environment \$40
- Resources, Conservation and Recycling \$1453
- Rivers Research and Applications: an international journal devoted to river research and management \$1195
- South African Geographical Journal \$100
- Surveying and Land Information Science

- Surveying and Land Information Science: an official journal of ACSM devoted to the science of surveying and mapping, land information, and related fields
- Techniques – Sciences – Methodes. Genie Urbain Rural
- Trita-GEOFOTO
- U R I S A Journal \$295
- Waste Management: industrial-radioactive-hazardous \$120
- Water \$21
- World Resource Review \$143

CONCLUDING NOTES

Three aspects of the EI will not require significant enhancements to the program.

First, given that the certification programs will draw on already extant courses, no new materials over and above those already supporting the EI will be needed.

Second, given the brief duration of the short courses plus the fact that they are tied to subjects already covered in the environmental initiative, plus build on faculty strengths, special library materials over and above those already provided (or to be provided) for EI will not be needed.

Third, our environmental engineering collection is strong and we are in a good start-up position with respect to materials for this area.

Proposed Course Changes for BA in Environmental Studies

1. Current course number and course description (from course catalogue):

E&S 181 Independent Study (1-4)

No course description

E&S 371 Special Topics (1-4)

No course description

2. Proposed course number and course description (as it will appear in course catalogue):

ES 181 Independent Study (1-4)

Directed readings or research on an Environmental Studies topic. May be repeated for credit up to four credits. Prerequisite: consent of the program director. (HU or SS)

ES 371 Special Topics (1-4)

Intensive, research-oriented study of a subject or issue in Environmental Studies not covered in other courses. For students of demonstrated ability and adequate preparation. May be repeated for credit up to four credits. Prerequisite: consent of the program director. (HU or SS)

3. Description of proposed change(s):

Change in program designation and course description.

4. Rationale for proposed change(s):

As the Environment and Society (E&S) program is merging with the Environmental Studies program, these courses need to change program designation. Course descriptions are added to be more explicit about course topics and requirements.

5. Resource Impact Statement: None

1. Current course number and course description (from course catalogue):

E&S 1, Environment and the Consumer Society (4)

Is there such a thing as sustainable consumption, or will life on Earth become increasingly imbalanced? Will our grandchildren accuse us of “devouring” their future? This multidisciplinary course investigates these issues, both locally and globally from the perspectives of anthropology, history, communication and politics. Topics include cultural causes of and responses to past environmental disasters; biological and cultural limits to growth; over-fishing the commons; resources and land use issues; communication in a consumer culture; and politics and governmental regulations. Team projects researching the environmental impacts of campus consumption will be included. (SS)

2. Proposed course number and course description (as it will appear in course catalogue):

ES 10, Environment and the Consumer Society (4).

Is there such a thing as sustainable consumption, or will life on Earth become increasingly imbalanced? Will our grandchildren accuse us of “devouring” their future? This multidisciplinary course investigates these issues, both locally and globally from the perspectives of anthropology, history, communication and politics. Topics include cultural causes of and responses to past environmental disasters; biological and cultural limits to growth; over-fishing the commons; resources and land use

issues; communication in a consumer culture; and politics and governmental regulations. Team projects researching the environmental impacts of campus consumption will be included. (SS)

3. Description of proposed change(s):

Change in program designation and number. No change in course description.

4. Rationale for proposed change(s):

As the E&S program is merging with the Environmental Studies program, a new designation and number are needed for this course.

5. Resource Impact Statement—None

1. Current course number and course description (from course catalogue):

Anth 121, Environment and Culture (4)

Hist 315, American Environmental History (4)

2. Proposed course number and course description (as it will appear in course catalogue

ES (Anth) 121, Environment and Culture (4)

ES (Hist) 315, American Environmental History (4)

3. Description of proposed change(s):

Crosslisting these two courses.

Rationale for proposed change(s):

These two courses are part of the core offerings for the BA degree in Environmental Studies and should carry ES as well as their home department designations.

Resource Impact Statement--None