LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		02-102a	App-4/22/03	App-4/29/03

Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee

Contact Person Thomas W. Simmons	Email Address tsimmons@iup.edu
Proposing Department/Unit Department of Biology	Phone (724) 357-4898

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

1. Course Proposals (check all that apply)

_____New Course _____Course Prefix Change _____Course Deletion

_____Course Revision _____Course Number and/or Title Change _____Catalog Description Change

***Current* Course prefix, number and full title**	***Proposed* course prefix, number and full title, if changing**

2. Additional Course Designations: check if appropriate

_____ This course is also proposed as a Liberal Studies Course.

_____ This course is also proposed as an Honors College Course.

_____ Other: (e.g., Women's Studies, Pan-African)

3. Program Proposals

__X__Catalog Description Change __X__Program Revision

_____New Degree Program __X__Program Title Change _____Other

_____New Minor Program _____New Track

Environmental Health Program ***Current* program name**	Environmental Health Science Program ***Proposed* program name, if changing**

4. Approvals		**Date**
Department Curriculum Committee Chair(s)		3-24-03
Department Chair(s)		3/24/03
College Curriculum Committee Chair		3/24/03
College Dean		3/24/03
Director of Liberal Studies *		
Director of Honors College *		
Provost *		
Additional signatures as appropriate:		
(include title)		
UWUCC Co-Chairs		4/22/03

* where applicable

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PART II - DESCRIPTION OF CURRICULUM CHANGES

1. CATALOG DESCRIPTION

Environmental Health Science Program

The environmental health science degree program provides a strong foundation in the natural sciences and mathematics, on which an understanding of environmental health issues is built. The program focuses on environmental factors that can adversely impact human health. Such factors include ambient and indoor air pollutants, food and water contaminants, solid and hazardous wastes, vector-borne and communicable diseases, housing and shelter hazards, and ecological and global stressors. The curriculum stresses analytical and problem solving skills to identify, evaluate and manage these environmental factors. Graduates are prepared for employment as environmental health specialists and practitioners in industry, government and academia, and for entry into graduate school programs in environmental and public health.

Bachelor of Science - Environmental Health Science

Liberal Studies: As outlined in Liberal Studies section **53**
with the following specifications:
Mathematics: MATH 121
Natural Science: CHEM 111-112
Social Science: ECON 101; PSYC 101 or SOC 151
Liberal Studies Electives: BTED/COSC/IFMG 101, MATH 216 (7 cr)

Major: **29**
Required Courses:

BIOL 111	Principles of Biology I	4 sh
BIOL 112	Principles of Biology II	4 sh
BIOL 241	General Microbiology	3 sh
BIOL 480	Biology Seminar	1 sh
BIOL 493	Biology Internship (1)	5 sh
ENVH 221	Environmental Health & Protection I	3 sh
ENVH 222	Environmental Health & Protection II	3 sh
ENVH 323	Introduction to Toxicology and Risk Assessment	3 sh
ENVH 490	Fundamentals of Environmental Epidemiology	3 sh

Other Requirements: **38**
Required Courses:

CHEM 231	Organic Chemistry I	4 sh
PHYS 111	Physics I Lecture	3 sh
PHYS 121	Physics I Lab	1 sh
PLSC 250	Public Policy	3 sh
PLSC 370	Intro. Public Admin. or MGMT 310 Principles of Management	3 sh
SAFE 101	Introduction to Occupational Safety & Health	3 sh
SAFE 210	Environmental Safety and Health Regulations	3 sh

Controlled Electives: 18 sh
Six courses from list: BIOL 220, CHEM 323, ENVH 281, 310, 481, 482, GEOS 121, 122, 331, PHYS 112, 122, RGPL 213, 316, 350, SAFE 301, 402, 461, 462.

Free Electives: **0**

Total Degree Requirements: **120**

(1) Eligibility for a summer internship requires an overall GPA of at least 2.50, and a grade of C or better in all BIOL and ENVH courses.

2. PROPOSED CHANGES IN ENVIRONMENTAL HEALTH CURRICULUM

A. TABLE COMPARING OLD AND NEW PROGRAMS

CURRENT PROGRAM:

Bachelor of Science in Environmental Health		**56**
Liberal Studies: As outlined in Liberal Studies section with the following specifications:		
Mathematics: MATH 121		
Natural Science: CHEM 111-112		
Social Science: ECON 101		
Liberal Studies Electives: BTED/COSC/IFMG 101, MATH 216, PHYS 111		
Major:		
Required Courses:		**30**
BIOL 111	Principles of Biology I	4 sh
BIOL 112	Principles of Biology II	4 sh
BIOL 210	Botany	3 sh
BIOL 220	General Zoology	3 sh
BIOL 241	General Microbiology	3 sh
BIOL 310	Applied Entomology and Zoonoses	3 sh
BIOL 321	Environmental Protection I	3 sh
BIOL 322	Environmental Protection II	3 sh
BIOL 480	Biology Seminar	1 sh
Controlled Electives:		3 sh (1)
Biology electives: (major courses only)		
Other Requirements:		
Required Courses:		**31**
CHEM 231	Organic Chemistry I	4 sh
CHEM 323	Analytical Methods	4 sh
PHYS 121	Physics I Lab	1 sh
PHYS 112	Physics II Lecture	3 sh
PHYS 122	Physics II Lab	1 sh
PLSC 250	Public Policy	3 sh
SAFE 101	Intro to Occupational Safety and Health	3 sh
SAFE 301	Health Hazard Identification	3 sh
Controlled Electives:		
BIOL 493	Biology Internship (1) or controlled electives (2)	9 sh
Foreign Language Intermediate Level (3)		0-6 sh
Free Electives:		7
Total Degree Requirements:		**124**

(1) No more than 6sh total from Independent Study, Special Topics, or Internship applies to major, excess applied as free electives. At least one writing-intensive course within the major (e.g., BIOL 362 or SAFE 462) must be taken to fulfill Liberal Studies requirements.

(2) The following courses count as controlled electives: BIOL 362, 463, 476, CHEM 232, GEOS 121, 122, 331, SAFE 402, 461, 462.

(3) See Foreign Language Requirement. Foreign Language courses are counted as free electives.

PROPOSED PROGRAM:

Bachelor of Science in Environmental Health Science		**53**
Liberal Studies: As outlined in Liberal Studies section with the following specifications:		
Mathematics: MATH 121		
Natural Science: CHEM 111-112		
Social Science: ECON 101; PSYC 101 or SOC 151		
Liberal Studies Electives: BTED/COSC/IFMG 101; MATH 216		
Major:		
Required Courses:		**29**
BIOL 111	Principles of Biology I	4 sh
BIOL 112	Principles of Biology II	4 sh
BIOL 241	General Microbiology	3 sh
BIOL 480	Biology Seminar	1 sh
BIOL 493	Biology Internship (1)	5 sh
ENVH 221	Environmental Health & Protection I	3 sh
ENVH 222	Environmental Health & Protection II	3 sh
ENVH 323	Intro. to Toxicology and Risk Assessment	3 sh
ENVH 490	Fundamentals of Environ. Epidemiology	3 sh
Other Requirements:		
Required Courses:		**38**
CHEM 231	Organic Chemistry I	4 sh
PHYS 111	Physics I Lecture	3 sh
PHYS 121	Physics I Lab	1 sh
PLSC 250	Public Policy	3 sh
PLSC 370	Intro. Public Admin. or MGMT 310 Principles of Management	3 sh
SAFE 101	Introduction to Occupational Safety & Health	3 sh
SAFE 210	Environmental Safety and Health Regulations	3 sh
Controlled Electives: (2)		18 sh
Free Electives:		0
Total Degree Requirements:		**120**

(1) Eligibility for a summer internship requires a minimum GPA of 2.50 and a grade of C or better in all BIOL and ENVH courses.

(2) The following courses count as controlled electives: BIOL 220, CHEM 323, ENVH 310, 481, 482, GEOS 121, 122, 331, PHYS 112, 122, RGPL 213, 316, 350, SAFE 301, 402, 461, 462.

Appendix I shows the recommended course sequence and liberal studies checklist for the B.S. degree in Environmental Health Science at IUP.

B. COURSE CHANGES

(See Part IV for complete course proposals)

Revised Courses

ORIGINAL

BIOL 321 Environmental Protection I (2c-3l-3sh)
Prerequisites: BIOL111-112, CHEM112, Environmental Health major only or permission
Considers the impact of important components of the physical environment on health and deals with principles and methods for identification, evaluation, and control of such health hazards. Major attention to principles and methods of epidemiological investigation. Major credit only for environmental health majors.

PROPOSED

ENVH 221 Environmental Health and Protection I (2c-3l-3sh)
Prerequisites: BIOL 104 or BIOL 112, CHEM 102 or CHEM 112
A survey of environmental disease hazards as they relate mostly to the outdoor environment. Environmental health and safety concerns are addressed from the standpoint of their source and nature, human and ecological effects, measurement, and control.

ORIGINAL

BIOL 322 Environmental Protection II (2c-3l-3sh)
Prerequisites: BIOL111-112, CHEM112, Environmental Health major only or permission
Subjects receiving attention include water and food supplies, domestic and industrial sewage and wastes, housing, accidents, community air pollution, domestic and industrial poisons, ionizing radiation, occupational health hazards. Major credit only for environmental health majors.

PROPOSED

ENVH 222 Environmental Health and Protection II (2c-3l-3sh)
Prerequisites: BIOL 104 or BIOL 112, CHEM 102 or CHEM 112
A survey of environmental disease hazards as they relate mostly to the indoor environment. Environmental health and safety concerns are addressed from the standpoint of their source and nature, human health effects, measurement, and control.

ORIGINAL

BIOL 310 Applied Entomology and Zoonoses (2c-3l-3sh)

PROPOSED

BIOL 310 / ENVH 310 Applied Entomology and Zoonoses (2c-3l-3sh)

ORIGINAL

BIOL 323 Introduction to Toxicology and Risk Assessment (3c-01-3sh)

PROPOSED

BIOL 323 / ENVH 323 Introduction to Toxicology and Risk Assessment (3c-01-3sh)

Revised Courses (Continued)

ORIGINAL

BIOL 490 Fundamentals of Environmental Epidemiology (3c-01-3sh)

PROPOSED

BIOL 490 / ENVH 490 Fundamentals of Environmental Epidemiology (3c-01-3sh)

Deleted Courses

BIOL 321 Environmental Protection I (2c-3l-3sh)

BIOL 322 Environmental Protection II (2c-3l-3sh)

New Courses

ENVH 281 Special Topics (var-1-3sh)
Prerequisite: As appropriate to course content
Special topics are offered on an experimental or temporary basis to explore topics that are not included in the established curriculum. A given topic may be offered under any special topic identity no more than three times. Special topics numbered 281 are offered primarily for lower-level undergraduate students.

ENVH 481 Special Topics (var-1-3sh)
Prerequisite: As appropriate to course content
Special topics are offered on an experimental or temporary basis to explore topics that are not included in the established curriculum. A given topic may be offered under any special topic identity no more than three times. Special topics numbered 481 are offered primarily for upper-level undergraduate students.

ENVH 482 Independent Study (var-1-3sh)
Prerequisites: Prior approval through advisor, faculty member, department chairperson, dean, and Provost's Office.
Students with interest in independent study of a topic not offered in the curriculum may propose a plan of study in conjunction with a faculty member. Approval is based on academic appropriateness and availability of resources. Work is supervised by a faculty member but does not involve regular class or laboratory hours.

3. RATIONALE FOR THE PROPOSED CURRICULUM REVISION

Goal and Objectives

The impetus behind the revised curriculum in Environmental Health Science is to better serve our environmental health majors. The revision is designed to: 1) Maintain a strong foundation in the natural sciences and math; 2) maintain a broad liberal studies education; 3) reduce the total degree credits required from 124 to 120; 4) provide an introduction to all areas of environmental health while allowing specialization in several areas; 5) better prepare students for the workforce by giving them practical knowledge and skills, and on-the-job training; and 6) better prepare students for graduate school in environmental or public health. The revisions are also designed to produce a curriculum acceptable for accreditation by the Environmental Health Science and Protection Accreditation Council (EHAC). Accreditation will improve student recruitment, internship and funding opportunities, and job placement of graduates.

Definition of Environmental Health

In order to understand the origin of the Bachelor of Science Degree in Environmental Health at IUP and the need for this proposed revision, it is important to recognize that; environmental health and protection is the art and science of protecting against environmental factors that may adversely impact human health or the ecological balances essential to long-term human health and environmental quality (from Educating Environmental Health Science and Protection Professionals, 1991, Association of Schools of Public Health).

History of Environmental Health Program

The Bachelor of Science Degree in Environmental Health was proposed in 1976 and implemented in 1978. The major was designed to prepare students for jobs as "environmental health specialists" in "federal, state and local government, and in industry, medical and health care institutions, and educational institutions for instructional purposes." The intended occupations, "concerned with the relationship between health and the environment," included "accident prevention, air pollution control, food sanitation, radiological determinants, and as yet unforeseen environmental problems." Since its inception, the environmental health curriculum was revised twice, once in 1982 and again in 1996. In both cases, the main reason for the revision was to respond to changes in the biology department core courses, not to modify environmental health

offerings. In the second revision, some attempt was made to improve environmental health training by adding courses in analytical methods, basic economics, and public policy. Obviously, since 1976 the environmental health field has changed. For example, environmental health specialists must now deal with toxic chemicals, in addition to communicable and vector borne diseases and more conventional pollutants. Also, the proliferation of environmental consulting firms has created new employment opportunities, in addition to government agencies (e.g., health departments) and commercial industries (e.g., manufacturing). A significant revision of IUP's environmental health program is long overdue to keep up with these changes over the last 25 years.

The Bachelor of Science Degree in Environmental Health was comprehensively evaluated twice since its implementation in 1978. In 1982-1983 a departmental committee conducted an "in-house" evaluation (Appendix III); and in 1988-1989 another departmental committee conducted an evaluation, departmental representatives visited an EHAC-accredited program at Bowling Green University, and an external reviewer from an accredited program at Eastern Kentucky University was invited to IUP (Appendix IV). The first evaluation noted that the combination of biology and safety science courses was valuable, and that the internship program was strong. However, a noted weakness was the lack of an epidemiology course. In addition to recommending correction of this weakness, a course in business management was suggested. The second evaluation noted that, "As it now stands, it is not a bad program, but there is real room for strengthening it." In general, the review indicated that the treatment of environmental health subjects was unbalanced, with too much reliance on only BIOL 321 (Environmental Protection I) and BIOL 322 (Environmental Protection II), and too much bias towards safety science courses. The specific recommendations by the external reviewer for improving the program included: 1) Increasing the number of credits required in environmental health subjects from the 9sh offered in BIOL 310 (Applied Entomology and Zoonoses), BIOL 321 (Environmental Protection I) and BIOL 322 (Environmental Protection II) to between 25 and 30 sh; 2) develop subject areas in environmental toxicology, environmental epidemiology and risk assessment, and environmental health program administration and law; 2) add courses in drinking water supplies and waste water disposal, food hygiene, solid & hazardous waste science, disease vectors and control, and housing and institutional hygiene; 3) consider SAFE 301 (Health Hazard Identification), SAFE 303 (Control of Health Hazards) (now replaced by SAFE 402), SAFE 461 (Air Pollution), and SAFE 462 (Radiological Health) as environmental health electives; 4) Drop the foreign language requirement and require PSYC 101 (General Psychology); SOC 151 (Principles of Sociology); PLSC 370 (Public Administration), and ENGL 310 (Public Speaking); and 5) Limit the strictly biology courses to BIOL 105 (Cell Biology) (now replaced with BIOL 111 and BIOL 112), either BIOL 110 (Plant Biology) or BIOL 120 (Animal Biology) (now replaced by BIOL 210 and 220), and a microbiology course with a laboratory.

In 1999 an external advisory committee was formed to help assist in developing the Environmental Health Science program (Appendix V). The committee was comprised of environmental health specialists from industry, academia and the private sector, at the regional, state and national levels. A draft of the proposed curriculum revision was circulated to them along with an evaluation tool for their feedback. There was some disagreement on the value of several proposed changes depending on the background of the reviewer. However, the revision was well received overall with strong support for the proposed Core Environmental Health Courses and Professional Health-related Electives (some of which have been dropped due to limited resources at this time). There was also strong support for the internship requirement, with some concern that mandatory internships may be difficult to insure due to unavailability of sites.

In 2000 a draft of the proposed Environmental Health Science curriculum revision was presented to the EHAC at their annual business meeting (Appendix VII). The proposal was well received and based upon the council's preliminary review and comments, is appropriate for accreditation. Some of the professional electives presented to the EHAC had to be dropped due to limited resources, but minimum requirements for accreditation will still be met.

Overview of New Curriculum

Although a great deal of time and energy was spent reviewing the environmental health program in the past, and good recommendations for improving the curriculum resulted from these reviews, changes in the environmental health offerings never occurred in part due to lack of faculty complement. The Department of Biology now has three faculty regularly involved with the environmental health program and the expertise to develop needed subject areas, thus providing the personnel to update the curriculum and support this proposed revision.

The cornerstone of the new curriculum is a core offered by the Department of Biology consisting of BIOL 111 Principles of Biology I and BIOL 112 Principles of Biology II, ENVH 221 Environmental Health and Protection I and ENVH 222 Environmental Health and Protection II, BIOL 241 General Microbiology, ENVH 323 Introduction to Toxicology and Risk Assessment, and ENVH 490 Fundamentals of Environmental Epidemiology. These courses provide a stronger background for understanding human health issues related to the environment. Occupational health issues are covered by requiring, SAFE 101 Introduction to Occupational Safety and Health. The biology core is complemented by, CHEM 111 General Chemistry I and CHEM 112 General Chemistry II , PHYS 111/121 Physics I, CHEM 231 Organic Chemistry I, MATH 121

Calculus I, and MATH 216 Probability and Statistics for Natural Sciences. These other natural science and math courses provide a broad base of knowledge, technical "know-how," and analytical skills needed to specialize in the controlled electives. The controlled electives offer specialization in some fundamental subject areas of the environmental health field; by including ENVH 310 Applied Entomology and Zoonoses, GEOS 331 Hydrogeology, RGPL 350 Introduction to Planning, SAFE 402 Health Hazard Evaluation (i.e., industrial hygiene), SAFE 461 Air Pollution, and SAFE 462 Radiological Health. The controlled electives also allow students to gain important practical skills in analytical chemistry and geographic information systems, by including CHEM 323 Analytical Methods and RGPL 316 Introduction to Geographic Information Systems. Because BIOL 220 Zoology, GEOS 121/122 Physical Geology, PHYS 112/122 Physics II, RGPL 213 Cartography, and SAFE 301 Health Hazard Identification are prerequisites for some of these courses, they are also included as controlled electives. As resources permit, additional future controlled electives will focus on food protection and safety, water and wastewater science, and hazardous materials and waste science. In addition to these technical areas, environmental health science majors need to be competent in communication, management and administration. The required coursework to support these competencies are ENGL 101 College Writing, ENGL 202 Research Writing, two liberal studies writing intensive courses (at least one of which is either a Required Course or a Controlled Elective for Environmental Health Science majors), BTED/COSC/IFMG 101 Microbased Computer Literacy, BIOL 480 Biology Seminar, ECON 101 Basic Economics, and PLSC 370 Introduction to Public Administration or MGMT 310 Principles of Management (depending on a career in government or private sector). The course in PSYC 101 General Psychology or SOC 151 Principles of Sociology has been added as a required liberal studies elective to provide basic behavioral or socio-cultural knowledge useful to managerial and administrative decision-makers. Environmental Health Science majors also need to understand regulatory and policy issues as they relate to their field. The required coursework to support these understandings is SAFE 210 Environmental Safety and Health Regulations, and PLSC 250 Public Policy.

Another significant improvement to the curriculum is a mandatory 5-credit (i.e., 200 hour) summer internship. The applied nature of the environmental health major necessitates practical on-the-job training. This experience is not only important from the standpoint of students applying the knowledge and skills they obtained at IUP in the "real world," but also from the standpoint of helping them explore career options and making them more employable. In the past, internship was optional and only recommended as a controlled elective.

The title of the program is changed from Environmental Health Program to Environmental Health Science Program, to better reflect its strong science component. In addition, environmental health Required Courses and Controlled Electives offered by

the Department of Biology and designed for environmental health majors will now carry an ENVH prefix, for better "packaging" to benefit prospective and current students.

BIOL 220 Botany and a foreign language requirement were dropped from the curriculum to accommodate these changes and limit the total degree credits to 120. In addition, Free Electives were reduced from 7 to 0 credits. See justification "h."

Justification of Changes

The proposed revision is based on: The Environmental Health Program's history, especially past internal and external evaluations (Appendices III & IV); a number of government publications on educating environmental health professionals (Appendix IX); a review of public health graduate school prerequisites (Appendix XI); eligibility requirements and content of Pennsylvania Department of Environmental Protection and Allegheny County Health Department civil service examinations (Appendix XII); participation in an Environmental Health Science Faculty Forum (Appendix X); Guidelines for Accreditation of Environmental Health Science and Protection Baccalaureate Programs (VI & XIII); review of curricula from 22 environmental health programs (Appendix VIII); evaluation of syllabi for all IUP courses relevant to the proposed Environmental Health Science curriculum; deliberations by an IUP Environmental Health Planning Committee composed of biology and safety science faculty with expertise in environmental health; review by an external advisory committee made up of environmental health professionals in academia, government and industry (Appendix V); and feedback from the Environmental Health Science and Protection Accreditation Council (Appendix VII).

The specific reasons for this revision are as follows:

a. The new curriculum provides a stronger environmental health core by requiring BIOL 111 Principles of Biology I and BIOL 112 Principles of Biology II, followed by ENVH 221 Environmental Health & Protection I and ENVH 222 Environmental Health & Protection II, and then by BIOL 241 General Microbiology, ENVH 323 Introduction to Toxicology and Risk Assessment, and ENVH 490 Fundamentals of Environmental Epidemiology. The Principles of Biology sequence offers a survey of biology, that when combined with CHEM 111 General Chemistry I, CHEM 112 General Chemistry II, CHEM 231 Organic Chemistry I, MATH 121 Calculus 121, MATH 216 Probability and Statistics for Natural Sciences, and PHYS 111/121 Physics I establishes a strong scientific base for ENVH 221 Environmental Health & Protection I, ENVH 222 Environmental Health & Protection II, and controlled electives. The EHAC requires

one-year of chemistry including general and organic, a course in pre-calculus (calculus recommended), a course in statistics, and one-half year of physics. Environmental Health & Protection I & II introduce students to a broad range of indoor and outdoor health hazards. Although the possibility of replacing Environmental Health & Protection I & II with a series of more narrowly focused courses was discussed, the Environmental Health Planning Committee felt the need to retain a two-course sequence covering all technical areas of environmental health. This strategy is used in other science majors such as biology and physics. This approach ensures that all environmental health majors are exposed to the entire environmental health field as required by the EHAC. The need for two survey courses reflects the breadth of the environmental health field. ENVH 323 Introduction to Toxicology and Risk Assessment, and ENVH 490 Fundamentals of Environmental Epidemiology are added to the core because they provide fundamental knowledge and tools necessary for today's practicing environmental health specialist. All EHAC-accredited environmental health programs are required to offer separate courses in toxicology and epidemiology. Unfortunately, BIOL 210 Botany and BIOL 220 General Zoology could no longer be required as a Majors Course in order to make room for the new additions to the core. Only 6 of the 22 environmental health programs reviewed required animal biology (or zoology), and only 1 required botany. Students can use their Controlled Electives to take BIOL 220 General Zoology as a prerequisite for ENVH 310 Applied Entomology and Zoonoses.

b. In the new curriculum students take ENVH 221 Environmental Health and Protection I and ENVH 222 Environmental Health and Protection II, and SAFE 101 Introduction to Occupational Health and Safety during their second year, giving them an early opportunity to identify areas of environmental health that are of interest. They can then pursue an in-depth study of these areas during their junior and senior years via Controlled Electives. The EHAC requires a minimum in-depth treatment of four areas of environmental health. The Controlled Electives recognized by the EHAC as technical areas are ENVH 310 Applied Entomology and Zoonoses, GEOS 331 Hydrogeology, RGPL 350 Introduction to Planning, SAFE 402 Health Hazard Evaluation (i.e., industrial hygiene), SAFE 461 Air Pollution, and SAFE 462 Radiological Health; offered by the Departments of Biology, Geography and Regional Planning, Geosciences, and Safety Sciences. Although not identified as Technical Areas by the EHAC, CHEM 323 Analytical Methods and RGPL 316 Introduction to Geographic Information Systems are included as Controlled Electives because they provide technical skills that are of value in the environmental health field. BIOL 220 General Zoology, RGPL 213 Cartography I, GEOS Physical Geology 121/122, PHYS 112/121 Physics II, and SAFE 301 Health Hazard Identification are included as Controlled Electives because they are prerequisites for other controlled elective courses.

c. The names, catalog descriptions and/or content of ten courses have been revised. The names and course listings of BIOL 321 Environmental Protection I and BIOL 322 Environmental Protection II have been changed to ENVH 221 Environmental Health and Protection I and ENVH 222 Environmental Health and Protection II, respectively. These changes reflect that the courses are for environmental health major credit only, should be taken during the sophomore year, and have a significant health component. Although there is no significant change in content, the coverage of subjects in BIOL 321 Environmental Protection I and BIOL 322 Environmental Protection II has been redistributed in ENVH 221 Environmental Health and Protection I and ENVH 222 Environmental Health and Protection II. According to the present catalog description, physical hazards and epidemiological concepts are covered in BIOL 321 Environmental Protection I, while all other topics including occupational health are covered in BIOL 322 Environmental Protection II. Because of the new ENVH 490 Fundamentals in Environmental Epidemiology course, a detailed coverage of epidemiology in ENVH 221 Environmental Health and Protection I is no longer necessary. Similarly, occupational health is covered in SAFE 101 Introduction to Occupational Safety, and its treatment in ENVH 221 Environmental Health and Protection I can therefore be reduced. As a result, the other topics covered in ENVH 221 Environmental Health and Protection I and ENVH 222 Environmental Health and Protection II can be expanded. These topics have been divided so that ENVH 221 Environmental Health and Protection I deals mostly with the outdoor environment, whereas ENVH 222 Environmental Health and Protection II deals mostly with the indoor environment. This division not only helps define the two courses more clearly, but also makes ENVH 221 Environmental Health and Protection I more suitable to Environmental Geoscience majors as a controlled elective. BIOL 310 Applied Entomology and Zoonoses, BIOL 323 Introduction to Toxicology and Risk Assessment, and BIOL 490 Fundamentals of Environmental Epidemiology will be cross-listed as ENVH courses, indicating that they are appropriate for both biology and environmental health majors. ENVH 281 Special Topics, ENVH 481 Special Topics, and ENVH 482 Independent Study, will be created to complement their respective BIOL equivalents (i.e., BIOL 281, BIOL 481, BIOL 482).

d. The name of the program and degree has been changed from Environmental Health to Environmental Health Science. This revision more accurately describes the major that has a substantial natural science component, and lets prospective students and employers know that much of the course work has a scientific basis and stresses scientific methodology and inquiry important to environmental health practice.

e. Since many environmental health specialists are in management and administrative positions, the IUP Environmental Health Planning Committee, the external reviewer (Appendix IV), and the external advisory committee (Appendix V)

felt that some schooling in these areas would be very beneficial. This lack of organizational training in the present curriculum has been corrected by adding a course requirement of either PLSC 370 Introduction to Public Administration or MGMT 310 Principles of Management. In addition, a choice of either PSYC 101 General Psychology or SOC 151 Principles of Sociology has been added as a requirement to provide a foundation in human behavior to complement the organizational courses, as recommended by the external reviewer and supported by the external advisory committee.

f. There is a need to introduce students to regulatory issues as they relate to environmental health. Consequently, SAFE 210 Environmental Safety & Health Regulations is being added as a required course.

g. Students are required to get practical experience through a 5-credit summer internship (i.e., 200 work hours), which requires a minimum QPA of 2.50, and no less than a grade of C in all BIOL and EVNH courses. Because environmental health is an applied field, "on the job" experience is crucial to an environmental health major's education. The importance of the internship is reflected in a 1998 survey of 35 environmental health programs (13 non-accredited and 22 accredited) conducted by the National Environmental Health Science and Protection Accreditation Council. Eighty-nine percent of the programs surveyed required an internship, and the average load was 6 credit hours. The EHAC requires a field experience of at least 180-clock hours total. The minimum academic standards (i.e., an overall QPA of at least 2.50, and at least a C in all BIOL and ENVH courses) as a prerequisite for an internship will ensure that only well qualified students represent IUP in the workplace, and are in positions responsible for protecting human health.

h. The foreign language requirement (0-6sh) as well as Free Electives (7sh) in the existing Environmental Health Curriculum had to be dropped to accommodate the changes needed for accreditation. Removal of the language requirement makes the proposed Environmental Health Science Curriculum more similar to Biology Education, another accredited degree program in the College of Natural Sciences and Mathematics that does not require a foreign language. Furthermore, only 1 of 22 environmental health programs reviewed requires a foreign language. In the existing Environmental Health Curriculum, foreign language courses were counted as free electives. Consequently, in the proposed Environmental Health Science Curriculum students are actually not loosing free electives since most environmental health majors took two foreign language courses (i.e., 6-8 sh) to fulfill the foreign language requirement. Although, a foreign language (especially Spanish) is arguably important for an environmental health professional in today's society; the credit hours were needed for other purposes. For example, the Controlled Electives are being increased from 9 to 18 credit hours. This is the number of controlled elective credit hours needed so that students can

take courses for in depth study of four technical areas (the minimum number required for accreditation) along with the necessary prerequisites. The prerequisites also help to fulfill the Basic Science Electives requirement for accreditation (See Appendix XIII).

i. The new curriculum allows students to meet requirements for entrance into graduate schools of public and environmental health. Review of graduate catalogs from public health programs accredited by the Council on Education for Public Health shows that one year of biology, physics and chemistry, math through calculus, and in some cases organic chemistry, microbiology as well as other basic biology courses are required for admission. This is particularly true for graduate environmental/occupational health programs (Appendix XI).

j. The new curriculum allows environmental health science majors to pursue a Minor in Safety Science, a popular option in the past. Environmental health science majors can fulfill the requirements for a minor (with approval of the Department of Safety Sciences) by taking environmental health Required Courses (i.e., SAFE 101 and SAFE 210) and three of four SAFE Controlled Electives (i.e., SAFE 301, SAFE 402, SAFE 461, or SAFE 462), as well as SAFE 111 (which does not fulfill an environmental health science requirement).

k. The new curriculum prepares students for civil service examinations for positions with the Pennsylvania Department of Environmental Protection (PADEP) and county health departments (Appendix XII). The PADEP Environmental Trainee examination requires a broad background in the biological, chemical and physical sciences as they relate to environmental protection. The Allegheny County Health Department's Environmental Specialist I examination requires an understanding of the basic principles of chemistry, bacteriology, biology, physics, and epidemiology and a broad understanding of environmental health issues. Environmental Health graduates would also be well prepared for employment as an Environmental Health Specialist with the Pennsylvania Department of Health (PADOH). Unfortunately, there is no examination for this position, and applicants must have 3 years of technical experience, or a masters degree plus 2 years experience. However, one route for acquiring this experience is to work as an Environmental Trainee for the Pennsylvania Department of Environmental Protection.

l. The total number of credits required is decreased from 124 to 120 to meet new Pennsylvania State System of Higher Education requirements.

m. The new curriculum will meet the requirements for accreditation by the Environmental Health Science and Protection Accreditation Council (EHAC), an independent corporation associated with National Environmental Health Association (Appendices VI & XIII). There are currently 24 accredited undergraduate environmental health programs in the United States. None of these programs is located in Pennsylvania and only one school in the Northeast is accredited (Stockton State College in New Jersey). Guidelines for accreditation of environmental health science and protection baccalaureate programs require: A basic knowledge of the natural sciences; an introduction to a broad range of environmental health areas and in depth study of at least four of these areas; separate courses in epidemiology, statistical methods, and toxicology; an introduction to risk assessment and communication; an understanding of environmental management, economics and policy; and a field practicum. The new curriculum meets these requirements and also maintains a broad liberal studies and strong science education. The advantages of accreditation include: 1) Improved student recruitment (e.g., the average total undergraduates in non-accredited and accredited programs is 56 and 85, respectively); 2) more internship opportunities (e.g., the Commission Officer Student Extern Training Program of the U.S. Public Health Service only accepts interns from accredited programs); 3) better placement of graduates; and 3) increased funding opportunities. Appendix XIII compares the new Environmental Health Science curriculum with EHAC guidelines.

PART III - IMPLEMENTATION

It is anticipated that the new curriculum will be implemented in Fall 2004. This assumes that the curriculum revision proposal will be approved by the Department of Biology in Fall 2002, by the College of Natural Sciences and Mathematics in Spring 2003, and by the University in Fall 2003.

1. EFFECT ON EXISTING STUDENTS IN PROGRAM

Students in the existing program will be positively affected by the proposed changes. They will be able to take ENVH 221 Environmental Health and Protection I and ENVH 222 Environmental Health and Protection II in lieu of BIOL 321 Environmental Protection I and BIOL 322 Environmental Protection II giving them a more comprehensive, current and relevant education. Existing students will further benefit from new courses such as ENVH 323 Introduction to Toxicology and Risk Assessment and ENVH 490 Fundamentals of Environmental Epidemiology.

2. FACULTY TEACHING LOADS

The new Environmental Health curriculum will not significantly affect faculty-teaching loads in the Department of Biology. Addition of new required environmental health courses is offset by removal of biology courses. Addition of either PLCS 370 Introduction to Public Administration or MGMT 310 Principles of Management as a required course should not significantly affect teaching loads in the Departments of Political Science and Management, respectively. The Departments of Psychology and Sociology will not be significantly affected by the new requirement of either PLCS 101 General Psychology or SOC 151 Principles of Sociology as a social science elective, because many environmental health majors already elect to take one of these courses in partial fulfillment of their university liberal studies requirements. The Department of Safety Sciences will not be significantly affected because the only new course being added to the Environmental Health Science curriculum is SAFE 210 Environmental Safety and Health Regulations, and most environmental health majors are already taking this course. The Department of Geography and Regional Planning is already offering special sections of GEOG/RGPL 316 for non-majors, and this course is popular with biology majors. Addition of RGPL 213, 316, 350 to the controlled electives for environmental health majors should make GEOG/RGPL 316 (and the other RGPL courses) even more popular.

3. RESOURCES

The Department of Biology has dedicated a teaching laboratory to the Environmental Health Program, and this room should be able to accommodate the new environmental health courses. In addition, the Department has an instructional technology room to support computer applications needed in some of the environmental health courses (e.g., Introduction to Toxicology and Risk Assessment, and Fundamentals of Environmental Epidemiology). Presently, other resources such as course budgets, instrument supply money, and library holdings are marginal. If enrollment increases, the department will need to allocate additional support for ENVH 221Environmental Health and Protection I and ENVH 222 Environmental Health and Protection II. Future development of professional ENVH electives (e.g., Food Safety and Protection, and Water and Wastewater Science) will be contingent upon increased support for the Environmental Health Science Program. Accreditation of the Environmental Health Science program by EHAC should require a budget for supporting activities to maintain accreditation. For example, membership in the Association of Environmental Health Academic Programs (AEHAP), membership in EHAC, travel to the annual AEHAP and EHAC business meetings held in conjunction with the National Environmental Health Association's annual conference, and travel to the annual Pennsylvania Environmental Health Association's annual conference.

4. STUDENT ENROLLMENT

It is anticipated that enrollment in the Environmental Health Science Program will grow based on the attractiveness of EHAC accreditation and the lack of competing programs in this region.

PART III – PERIODIC ASSESSMENT

1. Evaluation Plan

The Environmental Health Science Program will be reviewed annually. Information on current student enrollment, number of graduates during the year, and significant curriculum, program, or budget changes and all faculty changes will be reported to the EHAC as a requirement of accreditation. In addition, at the time of re-accreditation at least every five years, all program graduates and employers will be surveyed via the EHAC's outcome assessment tool (Appendix IXX). All graduates since the last assessment will be in the pool of those surveyed. The completed tools will be gathered and forwarded to the Executive Director of EHAC six months prior to the annual meeting of the EHAC. The EHAC will supply a summary of the information gathered to all accredited programs on an annual basis.

PART IV - COURSE PROPOSALS

BIOL 310 / ENVH 310 Applied Entomology and Zoonoses (Revision)

BIOL 321 Environmental Protection I (Deletion)

BIOL 322 Environmental Protection II (Deletion)'

BIOL 323 / ENVH 323 Introduction to Toxicology and Risk Assessment (Revision)

BIOL 490 / ENVH 490 Fundamentals of Environmental Epidemiology (Revision)

ENVH 221 Environmental Health & Protection I (Revision)

ENVH 222 Environmental Health & Protection II (Revision)

ENVH 281 Special Topics (New)

ENVH 481 Special Topics (Revision)

ENVH 482 Independent Study (Revision)

PART V - LETTERS OF SUPPORT OR ACKNOWLEDGEMENT

Department of Chemistry

Department of Geography and Regional Planning

Department of Geoscience

Department of Management

Department of Physics

Department of Political Science

Department of Psychology

Department of Safety Sciences

Department of Sociology

Department of Spanish and Classical Languages / Department of French and German

Narrative

All departments that might be affected by this Environmental Health Curriculum Revision Proposal were contacted in writing. A cover letter and copy of the proposal were hand delivered to the Departments of Chemistry, Geography and Regional Planning, Geoscience, Management, Physics, Political Science, Psychology, Safety Sciences and Sociology (copy of letters included in this section). Letters explaining the proposed changes relevant to the Departments of French and German, and Spanish and Classical Language were sent via IUP Interoffice Mail (copy of letters included in this section). Letters of support or comment received are included in this section.

Date: 21 January 2003
To: Ruiess Ramsey, Department of Chemistry Chairperson
From: Tom Simmons, Director, Environmental Health Program, Department of Biology
Re: Proposed Curriculum Changes

Attached is a copy of a draft proposal to revise the B.S. in Environmental Health Degree Program.

The major impetus behind this revision is to reduce the total credits required from 124 to 120 sh; and to have a curriculum which meets the accreditation requirements of the Environmental Health Science and Protection Accreditation Council.

In order to meet these objectives, CHEM 323 Analytical Methods would be changed from a Required Course to a Controlled Elective.

If your department would like to comment on this proposed change, please do so before Friday, January 31st. At that time, I plan to submit the proposal to our College-wide Curriculum Committee.

Thank you.

a

To: Tom Simmons, Biology

From: Bob Sechrist, Geography

Subject: Curricular Revision of Env Health

Date: February 18, 2003

The department of geography & regional planning is pleased to support the attached proposition.

We have long realized that there will be increased demand for our techniques courses and are prepared to accommodate that need. As you know, we have offered special sections of RGPL 316 for natural sciences major that waived the 213 pre-requisite. RGPL 350 will be a valuable addition to the Environmental Health Program providing students with exposure to legal and organizational requirements of their future jobs.

The department of Geography & Regional Planning guarantees there will be adequate seating to support the needs of the Environmental Health program.

b

Date: Mon, 17 Dec 2001 13:00:28 -0500
From: Darlene Richardson <drchrdsn@iup.edu>
Subject: Revision in Environmental Health
To: Tsimmons@iup.edu
Cc: Darlene Richardson <Drchrdsn@iup.edu>
X-MIMEOLE: Produced By Microsoft MimeOLE V5.00.2615.200
X-Mailer: Microsoft Outlook Express 5.00.2615.200
X-MSMail-priority: Normal
X-IUP-Tag1: emfe1.cc.iup.edu
X-IUP-Tag1: embe1.cc.iup.edu
X-Autogenerated: Mirror
X-Mirrored-by: <drchrdsn@iup.edu>
Original-recipient: rfc822;tsimmons@grove.iup.edu

Hi, Tom. The Geoscience Department discussed the proposed changes in Environmental Health at its meeting on Dec. 7, 2001. I apologize for not getting back to you sooner.

We concur that the proposed changes in BIOL 321 Environmental Protection I will better suit our environmental geoscience students. We also understand your rationale for removing GEOS 121, 122, and 331 from your list of controlled electives in that your program wishes to have a much more limited number of controlled electives. We agree that very few students in your program have elected these GEOS courses in the past.

Darlene Richardson, chair, Geoscience Department

C

Indiana University of Pennsylvania

Department of Management
The Eberly College of Business and Information Technology
664 Pratt Drive, Room 304
Indiana, Pennsylvania 15705-1071

724-357-2535
Fax: 724-357-5743
Internet: *http://www.eberly.iup.edu/mg/*

November 8, 2001

Tom Simmons, Ph.D.
Director, Environmental Health Program
Biology Department, WEY
Indiana University of Pennsylvania

Dear Dr. Simmons:

I have read your proposal to revise the Environmental Health Curriculum and want you to know that I wholeheartedly support your efforts. I see no problem in having the Department of Management's Principles of Management (MGMT 310) as part of the requirements for this revision in your program. I agree that this course is relevant to these areas of interest.

I wish you much success in your endeavors to enhance the curriculum in the Environmental and Health Program.

Sincerely,

Prashanth B. N.

Prashanth B. Nagendra, Ph.D.
Chairperson, Department of Management

PBN/cd

d

Date: 21 January 2003
To: Kenneth Hershman, Department of Physics Chairperson
From: Tom Simmons, Director, Environmental Health Program, Department of Biology
Re: Proposed Curriculum Changes

Attached is a copy of a draft proposal to revise the B.S. in Environmental Health Degree Program.

The major impetus behind this revision is to reduce the total credits required from 124 to 120 sh; and to have a curriculum which meets the accreditation requirements of the Environmental Health Science and Protection Accreditation Council.

In order to meet these objectives, PHYS 112/122 would be changed from a Required Course to a Controlled Elective.

If your department would like to comment on this proposed change, please do so before Friday, January 31st. At that time, I plan to submit the proposal to our College-wide Curriculum Committee.

Thank you.

e

IUP

Indiana, Pennsylvania 15705

Date: 31 October 2001
To: Dr. David Chambers
Chairperson, Department of Political Science
From: Dr. Tom Simmons TWS
Director, Environmental Health Program
Re: Environmental Health Curriculum Revision Proposal
Cc: Dr. Art Hulse
Chairperson, Department of Biology, SAC

I am revising the environmental health curriculum that focuses on the adverse affects of environmental factors on human health and ecological balances essential to human well being. The program has not been significantly revised since its initial offering in 1979. Enclosed is a copy of my Environmental Health Curriculum Revision Proposal. The revised curriculum maintains a strong background in the natural sciences, a broad liberal studies education, and solid training in the environmental health field. The curriculum will meet the requirements for accreditation by National Environmental Health Science and Protection Accreditation Council. Accreditation will improve recruitment of students and placement of graduates. The proposal has received very positive reviews from the Department of Biology's Student Affairs Committee (i.e., Curriculum Committee).

I am asking for a letter of support from the Department of Political Science by Friday, December 7th. I plan to present the complete proposal with letters of support at my department's faculty meeting on Friday, December 7th. The curriculum will then be delivered to my college's curriculum committee by Friday, December 14th for consideration at their first meeting in the spring semester.

The area of interests to the Department of Political Science are:

- PLSC 370 (or MGMT 310) will be required (Pages 3, 10, 13 & 17, Appendix I);
- PLSC 250 will not longer be required (Pages 13).

I have posted and highlighted the proposal text relevant to these areas of interest.

An introductory course in public administration has been recommended by both internal and external committees, which have reviewed the environmental health curriculum in the past. I feel that PLSC 370 would be a good requirement for environmental health majors interested in working the public sector (e.g., health departments). This requirement should not strain your resources since environmental health majors would also have the option of taking MGMT (Introduction to Management) in lieu of PLSC 370 if they are interested in working the private sector (e.g., industry). Also, PLSC 250 will be replaced by PHIL 400 (Ethics and Public Policy). It is important that my environmental health majors are introduced to ethics as well as public policy. However, a separate course in each will not fit in the revised curriculum, and PHIL 400 will fulfill a liberal studies elective for my majors.

I have not enclosed a copy of the Appendices II - XII that are referred to in this proposal and are quite extensive. If your department would like to view these appendices, please let me know.

Thank you for your consideration.

f

Date: Fri, 09 Nov 2001 12:52:40 -0500
From: Mary Lou Zanich <mlzanich@iup.edu>
Subject: Environmental Health Curriculum Revisions
To: TSIMMONS@iup.edu
X-MIMEOLE: Produced By Microsoft MimeOLE V5.50.4807.1700
X-Mailer: Microsoft Outlook Express 5.50.4807.1700
X-MSMail-priority: Normal
Original-recipient: rfc822;TSIMMONS@iup.edu

Dr. Simmons,

I have reviewed your proposal for revisions to the Environmental Health Curriculum. I am writing to inform you that the Psychology Department supports the inclusion of PSYC 101: General Psychology as one of two required Social Science Electives. A majority of students at IUP are required to complete PSYC 101 by their major departments; a significant number of the students who are not required to take General Psychology do so anyway. The change that you propose should not significantly impact enrollment in PSYC 101 and thus does not present any substantial resource issues.

I appreciate the effort you have put into the curriculum revision - it looks like an excellent program. I wish you luck with accreditation.

Please let me know if there is anything else you need from me.

****
Mary Lou Zanich, Ph.D.
Chair and Professor of Psychology
101 Uhler Hall - IUP
Indiana, PA 15705
PHONE: (724) 357-4528
FAX: (724) 357-2214

Date: Fri, 21 Dec 2001 11:19:15 -0500
From: Lon Ferguson <ferguson@iup.edu>
Subject: Revision in Environmental Health
To: tsimmons@iup.edu
Cc: ferguson@grove.iup.edu
X-MIMEOLE: Produced By Microsoft MimeOLE V6.00.2600.0000
X-Mailer: Microsoft Outlook Express 6.00.2600.0000
X-MSMail-priority: Normal
X-IUP-Tag1: emfe1.cc.iup.edu
X-IUP-Tag1: embe1.cc.iup.edu
X-Autogenerated: Mirror
X-Mirrored-by: <ferguson@iup.edu>
Original-recipient: rfc822;tsimmons@grove.iup.edu

Hi Tom:

I provided a copy of the proposal outlining the revisions to the Environmental Health program as well as the new minor in Environmental Health you are proposing to the Safety Sciences Curriculum Committee. This committee reviewed these proposals and support both the revisions to the BS program as well as the new minor you are proposing.

One minor suggestion that was discussed was the prerequisites required for the minor. The 18 credits for the minor are reasonable and we would encourage our students to pursue this minor. However, the prerequisites you require for some of the minor courses (biology courses) will make it very difficult for our majors to pursue this without making some significant changes to their sciences courses or going well beyond the 18 credits. Suggestion: consider waiving some of these prerequisite biology courses as the Safety Sciences Department does for Environmental Health majors taking the safety sciences minor.

Have a great Holiday!

Dr. Lon H. Ferguson, CSP
Chairperson, Safety Sciences Department
(724) 357-3019

h

IUP

Indiana, Pennsylvania 15705

Date: 31 October 2001
To: Dr. Harvey Holtz
Chairperson, Department of Sociology
From: Dr. Tom Simmons TWS
Director, Environmental Health Program
Re: Environmental Health Curriculum Revision Proposal
Cc: Dr. Art Hulse
Chairperson, Department of Biology, SAC

I am revising the environmental health curriculum that focuses on the adverse affects of environmental factors on human health and ecological balances essential to human well being. The program has not been significantly revised since its initial offering in 1979. Enclosed is a copy of my Environmental Health Curriculum Revision Proposal. The revised curriculum maintains a strong background in the natural sciences, a broad liberal studies education, and solid training in the environmental health field. The curriculum will meet the requirements for accreditation by National Environmental Health Science and Protection Accreditation Council. Accreditation will improve recruitment of students and placement of graduates. The proposal has received very positive reviews from the Department of Biology's Student Affairs Committee (i.e., Curriculum Committee).

I am asking for a letter of support from the Department of Sociology by Friday, December 7th. I plan to present the complete proposal with letters of support at my department's faculty meeting on Friday, December 7th. The curriculum will then be delivered to my college's curriculum committee by Friday, December 14th for consideration at their first meeting in the spring semester.

The area of interest to the Department of Sociology is:

- PSYC 101 (General Psychology) or SOC 151 (Introduction to Sociology) required as a social science elective (Pages 3, 8, 10 & 17, Appendix I).

I have posted and highlighted the proposal text relevant to these areas of interest.

An introductory course in psychology or sociology has been recommended by both internal and external committees, which have reviewed the environmental health curriculum in the past. I feel that PSYC 101 or SOC 151 would be a good requirement for environmental health majors, to provide a basis for interpersonal skills and communication. This requirement would not impact your department because many environmental health majors already take one of these courses to fulfill their liberal studies social science elective requirements.

I have not enclosed a copy of the Appendices II - XII that are referred to in this proposal and are quite extensive. If your department would like to view these appendices, please let me know.

Thank you for your consideration.

i

Indiana University of Pennsylvania

Department of Spanish and Classical Languages
Sutton Hall, Room 455
1011 South Drive
Indiana, Pennsylvania 15705-1087

724-357-2325
Fax: 724-357-4039
Internet: *http://www.iup.edu*

December 6, 2001

TO: Dr. Thomas W. Simmons
Environmental Health Science
Department of Biology

FROM: Dr. R. Roger Smith, Chair RRS
Department of Spanish & Classical Languages

Dr. Charles R. McCreary, Chair CRM
Department of French & German

RE: Proposed curriculum revisions
B.S. in Environmental Health Science

The Departments of Spanish and Classical Languages and of French and German regret to learn that the proposal has been made to drop the foreign language component as a required free elective of the B.S. in the Environmental Health Science curriculum. We are aware that the demands of having an accredited program put a stress on the number of credits that must be required of students. The particular courses that must be required are clearly outside the area of expertise of the members of our departments.

However, we are concerned about and do not agree with the decision that the foreign language component is the most expendable of the current requirements of your program. Foreign language study is a core component in the intellectual formation of an educated person. In a world environment where contacts between nations are increasingly unavoidable and frequent, in a national environment in which the percentage of foreign-born residents is rapidly increasing, in short, in a world in which clear communication and cross-cultural understanding are absolutely essential to the betterment of the human condition, it is shocking to have a proposal for a university program that eliminates the encouragement that has been given in the past to students to develop their skills in the area of foreign languages. Surely, in the wealth of courses proposed as central and/or collateral to your program there is something that could be eliminated that is less critical to the students' ability to participate in and contribute to an ever more globalized environment.

Copy: Ms. Aleksandra Kaniasty
College Curriculum Committee
College of Natural Sciences and Mathematics

j

APPENDIX I

Suggested Course Sequence for B.S. in Environmental Health Science

Suggested Course Sequence for B.S. in Environmental Health Science

First Semester				**Second Semester**			
BIOL	111	Principles of Biology I	4	BIOL	112	Principles of Biology II	4
CHEM	111	General Chemistry I	4	CHEM	112	General Chemistry II	4
HPED	143/FN 143	Health & Wellness[1]	3				
Two courses each semester from the following (depending on assignment):							
ENGL	101	College Writing or	4	Choice of only one from:			
____	___	Social Science Elective[2] or	3	ART	101	Intro. to Art or	3
HIST	195	The Modern Era	3	MUSC	101	Intro. to Music or	
				THTR	101	Intro. to Theater or	
				THTR	102	Intro. to Dance	
Total Credits Freshman Year - 32							
Third Semester				**Fourth Semester**			
ENVH	221	Env. Health & Protection I	3	ENVH	222	Env. Health & Protection II	3
CHEM	231	Organic Chemistry I	4	BIOL	241	General Microbiology	3
MATH	121	Calc. I (Nat. & Soc. Sci.)[3]	4	MATH	216	Prob. & Stat. Nat. Sci.	4
ENGL	202	Research Writing	3	SAFE	101	Intro. Occ. Safety. & Health	3
			14				13
Fifth Semester				**Sixth Semester**			
____	___	Contolled Elective[4]	3-4	____	___	Controlled Elective[4]	3-4
____	___	Controlled Elective[4]	3-4	COSC	101	Microbased Computer Lit.	3
PHYS	111	Physics I	3	____	___	Hum: Literature	3
PHYS	121	Physics I Lab	1	BIOL	480	Biology Seminar	1
PLSC	250	Public Policy	3	PLSC	370	Public Administration or	
			___	MGMT	310	Principles of Management	3
			13-15				13-14

BIOL 493 – Biology Internship, 5 cr[6]

Seventh Semester				**Eighth Semester**			
ENVH	323	Intro. Toxicol. & Risk Assess.	3	ENVH	490	Fund. Environ. Epidemiology	3
____	___	Controlled Elective[4]	3	____	___	Controlled Elective[4]	3
SAFE	210	Env. Safety & Health Regs.	3	____	___	Controlled Elective[4]	3
____	___	Hum: Phil/Rel. St.	3	LBST	499	Synthesis	3
____	___	Social Science Elective[2]	3	____	___	Social Sciences Elective[2]	3
			15				15

[1] MS 101 and 102 (World and Amer. Mil. Hist.) can be substituted for the Health & Wellness course.

[2] ECON 101 (Basic Economics) and PSYC 101 (General Psychology) or SOC 151 (Principles of Sociology) required. One social science elective should be a non-western culture course.

[3] Your summer testing program will determine whether or not you should take MATH 100 (Intermediate Algebra) prior to Calculus I. MATH 100 can come from free elective hours.

[4] Choose six of the following controlled electives: BIOL 220 (Zoology) as a prerequisite for ENVH 310 (Applied Entomology and Zoonoses); ENVH 481 (Special Topics); ENVH 482 (Independent Study); CHEM 323 Analytical Methods; GEOS 121 (Physical Geology) and GEOS 122 (Physical Geology Laboratory) as a prerequisites for GEOS 331 (Hydrogeology); RGPL 213 (Cartography I) as a prerequisite for RGPL 316 (Introduction to Geographic Information Systems); RGPL 350 (Introduction to Planning); PHYS 112/122 (Physics II) and SAFE 301 (Health Hazard Identification) as a prerequisite for SAFE 402 (Health Hazard Evaluation), SAFE 461 (Air Pollution), or SAFE 462 (Radiological Health).

[6] Eligibility for a summer internship requires a minimum GPA of 2.50 and a grade of C or better in all BIOL and ENVH courses.

Note: One writing intensive course must be in your major.

Liberal Studies Checklist for B.S. in Environmental Health Science

LEARNING SKILLS

____ English Composition (4sh) ENGL 101 College Writing*
____ English Composition (3sh) ENGL 202 Research Writing
____ Math course (4sh) MATH 121 Calculus I

KNOWLEDGE AREAS

____ Humanities: History (3sh) HIST 195 History: Modern Era*
____ Humanities: Philos/Rel (3sh) _____
____ Humanities: Literature (3sh) _____

____ Fine Arts (3sh) Intro to Art AH 101, Music MH 101, Theater TH 101, or Dance TH 102*

____ Health & Wellness (3sh) **or** **or** ____ Mil Sci (2sh) MS 101
____ Nutrition & Wellness _____ ____ Mil Sci (2sh) MS 102

____ Social Science (3sh) ECON 101 Basic Economics
____ Social Science (3sh) PSYC 101 General Psychology or SOC 151 Principles of Sociology*
____ Social Science (3sh) (Select a non-western culture course)
[Restriction: You may not use any course prefix more than once among your social science.]

____ Lab Sci sequence I (4sh) CHEM 111General Chemistry I
____ Lab Sci sequence I (4sh) CHEM 112 General Chemistry II

____ LS Elective (3sh) COSC/BTED/IFMG 101 Microbased Computer Literacy
____ LS Elective (3sh) MATH 216 Probability and Statistics for Natural Sciences
____ LS Elective (3sh) PHYS 111 Physics I

Restrictions on use of LS Electives:
(a) At least one of your LS Electives must be numbered 200 or higher;
(b) you may not count any course with your major prefix as a LS Elective;
(c) you may not use any course prefix more than once among your LS Electives.

SYNTHESIS

____ Synthesis course (3sh) _____

LIBERAL STUDIES REQUIREMENTS which may be fulfilled by courses anywhere in your total credits for graduation (Liberal Studies, major, or free electives)

____ Non-Western culture course (3sh) (Same social science course selected above)

____ Two "writing intensive" courses (Select a course in your major)
_____

* All freshmen should complete these 4 courses during their first year.

APPENDIX XIII

Comparison of new Environmental Health Science Curriculum with the National Environmental Health Science and Protection Accreditation Council guidelines

EHAC Guidelines	IUP Environmental Health Science Curriculum

A. CORE AREAS:

Every baccalaureate student must complete separate courses in the following core areas.

1. CORE AREAS

Epidemiology	ENVH 490 Fundamentals of Environmental Epidemiology
Statistical Methods	MATH 216 Probability and Statistics for Natural Sciences
Toxicology	ENVH 323 Introduction to Toxicology and Risk Assessment

Basic understanding must be obtained in the following areas. Specific units are not prescribed for these areas.

2. RELATED AREAS

Environmental Economics	ECON 101 Basic Economics BIOL 480 Biology Seminar
Environmental Health Management	MGMT 310 Principles of Management (or PLSC 370 Public Administration) ENVH 221 Environmental Health & Protection I ENVH 221 Environmental Health & Protection II
Environmental Law and Public Policy Development	SAFE 210 Environmental Safety & Health Regulations PLSC 250 Public Policy BIOL 480 Biology Seminar
Risk Assessment	ENVH 323 Introduction to Toxicology and Risk Assessment
Risk Communication	ENVH 323 Introduction to Toxicology and Risk Assessment

B. TECHNICAL AREAS:

Every student must complete in depth study in at least four of the following technical areas and be exposed to a majority of the following topics:

In depth study of four technical areas:

Vector Control	ENVH Applied Entomology & Zoonoses (BIOL 220 Zoology prerequisite) (Controlled Electives)
Hydrogeology	GEOS 331 Hydrogeology (GEOS 121/122 Physical Geology prerequisite) (Controlled Electives)
Occupational Health & Safety	SAFE 101 Introduction to Occupational Health and Safety (Required)
Industrial Hygiene	SAFE 402 Health Hazard Evaluation (PHYS 112/122 Physics II & SAFE 301 Health Hazard Identification prerequisite) (Controlled Electives)
Air Quality Control	SAFE 461 Air Pollution (SAFE 301 Health Hazard Identification prerequisite) (Controlled Electives)
Radiation Health	SAFE 462 Radiological Health (SAFE 301 Health Hazard Identification prerequisite) (Controlled Electives)

Overview of majority of other topics:

Environmental Chemistry, Environmental Epidemiology, Environmental Health Planning, Environmental Microbiology, Food Protection, Global Environmental Health, Housing, Hazardous Materials, Injury Prevention, Institutional Health, Noise Control, Recreational Environmental Health, Soils, Solid Waste Management, Wastewater, Water Quality, Water Supply	CHEM 323 Analytical Methods (Controlled Electives) ENVH 321 Environmental Health & Protection I (Required) ENVH 322 Environmental Health & Protection II (Required) RGPL 350 Introduction to Planning (Controlled Electives) RGPL 316 Introduction to Geographic Information Systems (RGPL 213 Cartography I prerequisite) (Controlled Electives)

C. FIELD EXPERIENCE AND PROBLEM BASED LEARNING

Field practicum or equivalent experience should encompass a minimum of 180-clock hours total.	BIOL 493 Biology Internship (5 sh) (i.e., 200-clock hours)

D. BACKGROUND AREAS

1. BASIC SCIENCES:

These courses must be the same as those offered to basic science majors.

Biological Sciences with laboratories (to include microbiology) – one year or equivalent.	BIOL 111 Principles of Biology I BIOL 241 General Microbiology
Chemistry with laboratories (general and organic) – one year or equivalent	CHEM 111 General Chemistry I CHEM 231 Organic Chemistry I
Physics – one-half year or equivalent	PHYS 111/121 Physics I
Basic Science Electives – one and one-half years of equivalent	BIOL 112 Principles of Biology II CHEM 112 General Chemistry II ZOOL 220 Zoology, PHYS 112/122 (Physics II), or GEOS 121/122 (Physical Geology) [Controlled elective prerequisites]

2. COMMUNICATION:

One year or equivalent minimum selected from the following courses: Computer Skills, Public Speaking, Written Composition (Technical Writing and courses emphasizing interpersonal skills are strongly recommended)	ENGL 101 College Writing ENGL 202 Research Writing BIOL 480 Biology Seminar COSC 101, BTED 101, or IFMG 101 Microbased Computer Literacy

3. MATHEMATICS:

Pre-calculus (calculus recommended)	MATH 121 Calculus I for Business, Natural, and Social Sciences

4. GENERAL EDUCATION: (Humanities & Social Sciences)

Must be satisfied per each university's general education requirement.	Liberal Studies Requirements 56 sh