**IUPUI**
**Academic Policies and Procedures Committee**
**Minutes**
**Friday 1/16/04**
**1:00—3:00**

**NOTE ROOM LOCATION-- UC 2110**

**Minutes**
- The 12/5/03 minutes were accepted.

**Announcements**
- Update on Admissions Document Workflow Project—*Mona Loft*
  - The implementation of the document imaging/document management (DI/DM) project is proceeding. The Office of Undergraduate Admissions is currently able to make admissions decisions within a paperless process. Office of International Admissions will implement the DI/DM process in February. Training of individuals in the academic units will occur so that the academic units will be able to access the electronic versions of the admissions documents. Implementation date is early March.

**Academic Affairs Committee Report** *Ken Rennels, Chair*
- The AAC has not met since the last APPC meeting. Ken Rennels is stepping down as AAC chair due to the change in his administrative responsibilities in E & T. No one has been identified to assume the AAC chair position.

**Items for Review, Discussion, or Action**
- Update on SIS
  - Phase 3 implementation was completed successfully.
  - The review process during the week on January 19 is designed to provide a status check on each of the modules to determine if they will be able to meet the critical implementation dates.
- Review of New degree proposal, Bachelor of Science in Environmental Science— *Donna Boland*
  - Proposal attached
  - APPC review questions attached
  - Report from review committee attached
  - Based on the recommendation of the review committee, the committee endorsed the adding the program at IUPUI.
- Proposal on review of transfer credit—*Mike Donahue*
  - Background document attached
  - Components for APPC discussion
    - Cease loading courses that do not transfer. This includes loading courses with C- or below grades. We would continue to load Purdue courses with grades below C-. This will eliminate an estimated 10% of the course loadings. The absence of non transferable courses will limit the advisor's knowledge of past performance; however, with imaging, advisors will now have access to transcripts.
    - For second degree applicants (bachelor degrees), we will load only. All 100, 200, and 300 level courses would be loaded and any 400 level courses taken

in the department relevant to the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added.

- For second degree applicants (associate degrees), we will load only 100 and 200 level courses and other courses taken in the department relevant to the new major.

  With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added. We estimate that this will eliminate another 10% of our course loadings.

- For all applicants with 90 hours or more of credit. We will load all 100, 200 and 300 level courses and any 400 level courses taken in the department relevant to the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added. We estimate that this will eliminate about 5% of our course loadings.

- Several academic units expressed concerns with aspects of the proposal.
  - The credit transfer report needs to indicate that not all work was evaluated to prompt the academic unit to look at the original transcripts if questions arise.
  - The revised procedures are appended at the end of the minutes.

- Admission of nondegree applicants who apply after the deadline—*Mike Donahue*
  - See information attached to the agenda
  - The academic units supported the procedures presented.
- Process for approving students to drop a course during the final drop period—*Gayle Williams*
  - During the final drop period, both the instructor's signature and the dean's signature is required for a student to drop a course
  - The consensus was that the dean of the student's academic unit was the appropriate individual to sign the form.
- Guaranteed admission program for Ivy Tech-Indianapolis degree completers—*Mike Donahue*
  - The academic units supported the pilot program.
  - Several units are interested in being included if the pilot program is successful.

**Future Agenda Items**
- Adult Learner Focused Institution Coalition (ALFI)—*Amanda Zimmerman*

**Meeting Dates and Locations**
2/6     UL 1126
**3/5     UC2110          Note ROOM CHANGE**
4/2     UL 1126
5/7     UL 1126

Proposal for a New Degree Program

# Bachelor of Science in Environmental Science,
## Indiana University-Purdue University at Indianapolis,

Submitted by the

Schools of Liberal Arts, Public and Environmental Affairs, and Science

and

The Center for Earth and Environmental Sciences

March 2003

# PROPOSAL SUMMARY

## I. Campus:

Indiana University-Purdue University at Indianapolis

## II. Proposed Degree:

Bachelor of Science in Environmental Science

## III. Proposed Date of Implementation:

September 2004

## IV: Major Objectives of the Proposed Program:

The program will provide students with an interdisciplinary education in the physical and natural sciences relevant to human interactions with the environment, and the development and implementation of public policies regarding these interactions. Graduates will be qualified for employment in industry, utilities and consulting firms that address complex environmental problems requiring interdisciplinary approaches, and in government agencies charged with implementing environmental policies at the federal, state, and local level.

## V. Need for the Program:

Demand for the program is supported by the results of a survey of current and potential employers of environmental professionals in Indiana. Respondents stressed the need for graduates with a strong foundation in the fundamental sciences, but a broader background in subjects relating to environmental studies than can be provided in a traditional natural science degree program.

## VI. The Student Population Served:

Students interested in this program are those wishing to receive a broad background in science, that will allow them to address the complex scientific and social issues faced by environmental professionals.

**VII. How does the Program Complement the campus or departmental mission?**

The proposed program is a collaborative effort of faculty in the Schools of Liberal Arts, Public and Environmental Affairs, and Science, collaborating within the Center for Earth and Environmental Science. These faculty members have recognized the need to prepare students with a broad background in environmental science, although traditional degree programs are designed to prepare graduates who can work in the more narrowly defined disciplines. Following the creation of the Center for Earth and Environmental Sciences, these faculty members have taken on an expanded mission, one that calls for new approaches to solving interdisciplinary environmental problems. The B.S. degree in Environmental Science is intended to train students to bring broad-based scientific backgrounds acquired from faculty in three schools to address these problems. Graduates will be prepared to fill the needs of employers in the central Indiana region.

**VIII. Relationships to existing programs within the IU system:**

The School of Arts and Sciences and the School of Public and Environmental Affairs on the Bloomington campus offer a B.S. degree in Environmental Science. No comparable program exists in Indianapolis. The Department of Geology and the School of Public and Environmental Affairs in Indianapolis have long attracted students who are not able to enroll in programs in Bloomington, so there is no duplication of effort involved in creating this degree.

**IX. Sources of Resources for the Program**:

No new faculty or staff resources are required for this program. All courses currently exist and are being taught on the Indianapolis campus, so no new faculty members are required to teach them. New funds (new-to-campus student fees) generated by any increase in campus enrollment will be balanced by faculty support and supply costs at the level of the participating departments.

**X. Innovative features of the Program:**

In addition to the broad-based environmental curriculum, the program contains focal areas that allow students to take a concentration in their senior years in areas such as Geology, Chemistry, Environmental Policy, or Geography. All students will thus qualify for a minor in one of the traditional discipline-based programs in Science, Liberal Arts, or Public and Environmental Affairs, and most will be within 6-10 credit hours of achieving a double major in their concentration area. This aspect of the program is expected to attract students with a wide range of interests.

# Table of Contents

# A. Abstract

Bachelor of Science in Environmental Science
to be offered by
Indiana University-Purdue University at Indianapolis,

The Bachelor of Environmental Science degree is designed to provide students with an interdisciplinary education in the environmental sciences relevant to human interactions with the environment, and the development and implementation of public policies regarding these interactions. The program is intended for students whose career goals include employment in federal, state, or local agencies, industry, consulting firms, and environmental organizations that address complex environmental problems that require interdisciplinary approaches.

The program consists of four components: a core set of courses incorporating the principles of general education, a sequence of courses covering mathematics and the basic sciences, an interdisciplinary environmental science sequence, and a selected specialization track.

Demand for a degree program in environmental science is supported by the results of a survey of current and potential employers of graduates of traditional science programs.

# B. Program Description

The Bachelor of Science in Environmental Science program proposed here addresses the need for broadly trained science graduates to deal with the environmental challenges associated with an increasingly technological society. Studies of interactions between natural-system components that occur at a variety of spatial and temporal scales, and of the feedback loops within natural systems, require scientific training that encompasses more than can be obtained in a traditional natural sciences degree program. The complexity of natural systems rules out approaching environmental problems with a standard scientific specialty: tomorrow's graduates need a multi-disciplinary educational background.

Students enrolled in degree programs that concentrate in one subject area do not have the flexibility needed to become knowledgeable in the three or four other areas that are needed to be competitive in today's job market. For example, no single traditional scientific discipline addresses more than one or two of the following issues, if any: resource management, site evaluation, hazard assessment, contaminant remediation, ecological reconstruction, and environmental auditing; yet all of these are sufficiently important that working professionals must be knowledgeable about them.

In addition to a background in the traditional sciences, students enrolled in the program described here will receive training in environmental geology, biogeography, ecology,

and toxicology. A focus area option chosen from options such as earth and water resources, watershed management, physical geography, or pollution control will increase the student's depth of understanding in a particular area of environmental science.

The degree program described here makes use of existing courses, faculty, and staff in the Schools of Liberal Arts, Public and Environmental Affairs, and Science. Any new funds generated by an increase in campus enrollment will be balanced by faculty support and supply costs at the level of the participating departments.

# 1. Student Recruitment

The State of Indiana has adopted a college preparation curriculum model, referred to as Core 40, which calls for stronger preparation in science for college-bound students. At the present time, the State Board of Education is drafting sets of science competencies in the various sciences, as well as for an advanced course in Environmental Science and for interdisciplinary science courses. In the future, college students in Indiana can be expected to be better prepared to major in science and should be interested in programs that require an interdisciplinary approach. It is anticipated that the program will attract more direct-admission students than do the existing degree programs that deal with the environment. But in addition to direct-admission as freshmen, students may enter this program by transferring from other science degree programs or from University College.

All of the courses in this program are currently being taught on the Indianapolis campus, and they are scheduled in such a way that part-time as well as full-time students can complete a degree program in a reasonable time period. For this reason, the degree program can attract either full-time or part-time students.

# 2. Admission Requirements

Admission requirements are those of IUPUI and the School of Science in Indianapolis. Prospective students will take placement exams in reading, writing, mathematics and chemistry. It is anticipated that some students interested in this degree program will not have the necessary background to be immediately successful in a science program, so counseling regarding remedial course work will be provided as necessary.

# 3. Curriculum

The program has four components and is designed to conform to the general education curriculum recently adopted by the Schools of Liberal Arts and Science.  All students in the program will therefore have a First Year Experience course, early training in writing, speaking, and computing, and a Capstone course. Students will complete a liberal education core (29-31 credits), a general science core (42 credits), and an environmental science core (24-27 credits) that provide broad background in fundamentals of the physical sciences. Upon completing these three core areas, students choose an area of environmental science specialization from among a number of possibilities; six model areas of specialization are illustrated below.  This last sequence of specialized courses consists of from 15 to 19 credits, for a total of 110 to 119 credits.  The remaining 3 to 12 credits are available for free electives.

## Liberal Education Core

| Courses | Credits |
|---|---|
| First Year Experience | 1 |
| Writing | 6 |
| Speaking | 3 |
| Computing | 3 |
| Humanities | 15 |
| Capstone | 1-3 |
| | |
| Total | 27-28 |

## General Science Core

| Courses | Credits |
|---|---|
| Mathematics (M221, M222) | 6 |
| Computing (CSCI N207) | 3 |
| Biology (K101, K103) | 9 |
| Chemistry (C105/125, C106/126) | 10 |
| Geology (G107, G110/120) | 7 |
| Physics (P201, 202) | 10 |
| Total | 45 |

# Environmental Science Core

| Courses | Credits |
|---|---|
| ENVIRONMENTAL SYSTEMS | |
| Mineralogy (G221) | 3 |
| Weather and Climate (Geog303) | 3 |
| Environmental Science (H316) | 3 |
| Ecology (K341) | 3 |
| DATA ANALYSIS | |
| Field Methods (H459 or G303 or Geog465) | 3-6 |
| Mathematical Methods (E326) | 3 |
| Statistics (K300 or Geog488) | 3 |
| GIS (Geog338 or V450) | 2-3 |
| | |
| Total | 23-27 |

# Environmental Science Concentrations

Students choose one of the following concentrations

| EARTH AND WATER RESOURCES | | ENVIRONMENTAL CHEMISTRY | |
|---|---|---|---|
| Courses | Credits | Courses | Credits |
| Sedimentation (G334) | 3 | Analytical Chemistry (C310/3111) | 4 |
| Geochemistry (G406) | 3 | Instrumental Analysis (C325) | 5 |
| Geomorphology (G415) | 4 | Organic Chemistry (C341/343) | 5 |
| Hydrology (G430) | 3 | Environmental Techniques (H460) | 3 |
| Hydrogeology (G451) | 3 | Environmental Toxicology (E410) | 3 |
| Total | 16 | Total | 20 |

## PHYSICAL GEOGRAPHY

| Courses | Credits |
| --- | --- |
| Biogeography (Geog307) | 3 |
| Remote Sensing (Geog336) | 3 |
| Soil Geography (Geog404) | 3 |
| Cultural Biogeography (Geog446) | 3 |
| Climate Change (Geog475) | 3 |
| Total | 15 |

## WATERSHED MANAGEMENT

| Courses | Credits |
| --- | --- |
| Aquatic Biology (E455) | 3 |
| Environmental Techniques (H460) | 3 |
| Soil Geography (Geog404) | 3 |
| Hydrology (G430) | 3 |
| Advanced GIS (Geog438) | 3 |
| Total | 15 |

## POLLUTION CONTROL

| Courses | Credits |
| --- | --- |
| Waste Water (E431) | 3 |
| Air Pollution (E451) | 3 |
| Waste Management (E452) | 3 |
| Health Policy (H416) | 3 |
| Industrial Hygiene (H433) | 3 |
| Environmental Techniques(H460) | 3 |
| Total | 18 |

## IMAGING AND SPATIAL ANALYSIS

| Courses | Credits |
| --- | --- |
| Remote Sensing (Geog336) | 3 |
| Advanced Remote Sensing (Geog436) | 3 |
| Advanced GIS (Geog438) | 3 |
| Visual Basic (N331) | 3 |
| Advanced Visual Basic (N335) | 3 |
| Total | 15 |

# Example of a Four-Year Program
## BES (Earth and Water Resources Option)

| | Fall Semester | | Spring Semester | |
|---|---|---|---|---|
| | **Course** | **Credits** | **Course** | **Credits** |
| | | | | |
| | Windows on Science | 1 | | |
| *Freshmen* | Writing (W131) | 3 | Writing (W132) | 3 |
| | Chemistry (C105/125) | 5 | Chemistry (C106/126) | 5 |
| | Computing (N207) | 3 | Mathematics (M221) | 3 |
| | Humanities | 3 | Geology (G110/120) | 4 |
| | | | | |
| | Total | 15 | Total | 15 |

| | Biology (K101) | 5 | Biology (K103) | 4 |
|---|---|---|---|---|
| | Mathematics (M222) | 3 | Weather and Climate (Geog303) | 3 |
| *Sophomore* | Mineralogy (G221) | 3 | Statistics (E300) | 3 |
| | Speaking (R110) | 3 | Physics (P201) | 5 |
| | Humanities | 3 | | |
| | | | | |
| | Total | 17 | Total | 15 |

| | Field Methods (G303) | 4 | Sedimentation (G334) | 3 |
|---|---|---|---|---|
| | Mathematical Methods (E326) | 3 | GIS (Geog338) | 3 |
| *Junior* | Environmental Science (H316) | 3 | Ecology (K341) | 3 |
| | Physics (P202) | 5 | Humanities | 3 |
| | | | Free Elective | 3 |
| | | | | |
| | Total | 15 | Total | 15 |

| | Biogeochemistry (G406) | 3 | Capstone | 1 |
|---|---|---|---|---|
| | Geomorphology (G415) | 4 | | |
| *Senior* | Hydrology (G430) | 3 | Hydrogeology (G415) | 3 |
| | Humanities | 3 | Humanities | 3 |
| | Free Elective | 3 | Free Electives | 7 |
| | | | | |
| | Total | 16 | Total | 14 |

# 4. Program Recognition

The form of recognition for completion of the program will be a Bachelor of Science degree awarded by Indiana University.

# 5. Program Faculty

Program faculty collaborating in this proposed program come from the Schools of Liberal Arts, Public and Environmental Affairs, and Science. All are full time faculty members in their respective schools.

## School of Liberal Arts

Timothy Brothers, Associate Professor and Chair of Geography
　　　Ph.D. University of California, Los Angeles (1985), Biogeography
Catherine Souch, Associate Professor of Geography
　　　Ph.D. University of British Columbia (1990), Geomorphology and hydrology of lakes and wetlands
Jeffrey Wilson, Assistant Professor of Geography
　　　Ph.D. Indiana State University (1997), Remote Sensing and Geographic Information Systems

## School of Public and Environmental Affairs

Greg H. Lindsey, Professor of Public and Environmental Affairs
　　　Ph.D. John Hopkins University (1992), Environmental and Water Resources Planning, Decision-making and Management
Ingrid Ritchie, Associate Professor of Public and Environmental Affairs
　　　Ph.D. University of Minnesota (1980), Indoor Air Quality, Environmental Management and Assessment
David Z. McSwane, Associate Professor of Public and Environmental Affairs
　　　H.S.D. Indiana University (1980), Environmental Health Policy, Public Health

## School of Science

Andrew P. Barth, Associate Professor of Geology
　　　Ph.D. University of Southern California (1989), Petrology
Gabriel M. Filippelli, Associate Professor of Geology
　　　Ph.D. University of California, Santa Cruz (1994), Environmental Geochemistry, Paleoceanography
Robert D. Hall, Professor of Geology
　　　Ph.D. Indiana University (1973), Geomorphology
Kathy J. Licht, Assistant Professor of Geology
　　　Ph.D. University of Colorado (1999), Geomorphology
R. Jeffrey Swope, Assistant Professor of Geology
　　　Ph.D. University of Colorado (1997), Mineralogy, Earth and Environmental Science Education


Lenore P. Tedesco, Associate Professor of Geology, Director-Center for Earth and

Environmental Science
Ph.D. University of Miami (1991), Coastal and Marine Geology

# C. Demand for the Program

There are approximately 100 potential employers for graduates in environmental science in Central Indiana. In order to gauge interests and needs of these employers, a survey was sent to 100 utilities, private firms and government agencies as part of the process of creating the Center for Earth and Environmental Science at IUPUI. We received 33 completed surveys. The results of those parts of the survey relevant to student training and employment potential in environmental science are included as Appendix I. The results demonstrate a continuing and growing need for graduates with multi-disciplinary environmental science backgrounds. Respondents to the survey want employees who speak and write clearly, have good computation and analytical skills, and have backgrounds in a variety of natural science areas. These employers also expect their employees to continue their education to develop broader backgrounds. The results of this survey were used to construct the curriculum presented here.

# D. Implementation Plan and
# Assessment of the Program

A joint committee with representative from the Schools of Liberal Arts, Public and Environmental Affairs, and Science will implement, administer, and approve all modifications of this proposed curriculum. Students will be admitted to the degree program through either the School of Public and Environmental Affairs or the School of Science, depending on their individual plan of study and proposed area of concentration. Point of entry advising of students and advising of all new majors in their first two years of study will be carried out through a coordinated advising system implemented by the School of Public and Environmental Affairs. The final two years of academic advising will be coordinated by faculty advisors in the department most closely related to the individual student's area of concentration.

Formative assessment of the program will include monitoring the academic success of the students, to provide information about the success of the interaction between the four core sequences. Comparison of the grades of students in the program with those in other degree programs (Geology, Geography, Public Health) will provide another measure of the success of the structure used in this program.

Summative assessment of the program will make use of the employment history of graduates. Feedback from the graduates and from their employers will provide information about the strengths and weaknesses of the program. Because of the strong relationship the Geology Department and the Center for Earth and Environmental

Sciences have with local employers (many of whom sit on advisory committees for the Department and the Center), this kind of feedback will be easy to obtain.

# Appendix 1
## Results of a Survey of the Educational Needs of the Environmental Industry in Central Indiana

<u>Question</u>                                          <u>Number of responses</u>

How would you best classify your company,
        division, or department?

| | | | |
|---|---|---|---|
| Environmental consulting | | | 12 |
| Manufacturing | | | 0 |
| Utility | | | 4 |
| Government | | | |
| | Federal | | 2 |
| | State | | 15 |
| | Local | | 0 |
| Engineering Consulting | | | 2 |
| Agriculture | | | 0 |
| Mining | | | 1 |
| Petroleum | | | 2 |
| Other | | | 2 |

How many environmental scientists do you
        currently employ?

| | | | |
|---|---|---|---|
| 1-3 | | | 4 |
| 3-5 | | | 1 |
| 5-10 | | | 11 |
| 10-15 | | | 7 |
| other | | | 7 |
| (please specify) | | | (16,25,30,31,35,50,500) |

In what areas are these environmental scientists
        currently employed?

| | | | |
|---|---|---|---|
| Project manager | | | 60 |
| Compliance manager | | | 105 |
| Field geologist | | | 12 |
| Bench chemist | | | 2 |
| Hydrologist | | | 48 |
| Policy | | | 4 |
| Business development | | | 14 |
| Branch manager | | | 5 |
| other | | | 40 |
| | | | |

Will your needs for environmental employees
change in the future?

| | | | |
|---|---|---|---|
| | | | |
| Yes | | | 25 |
| No | | | 6 |
| | | | |

If yes, how?

7 responses: "will add" or "2 or 3 more"
4 responses: " will need more due to" new contracts, regulations
4 responses: need more skills, more training

What type of environmental employee is most
valuable to you?

| | | | |
|---|---|---|---|
| | | | |
| Associate level environmental technician | | | 6 |
| Bachelors level traditional geologist | | | 3 |
| Bachelors level geologist with environmental focus | | | 19 |
| Bachelors level environmental scientist with interdisciplinary training | | | 17 |
| Bachelors level engineer | | | 11 |
| Master level traditional geologist | | | 5 |
| Masters level environmental scientist with interdisciplinary training | | | 15 |
| Masters level engineering geologist | | | 6 |
| Ph.D. environmental scientist with interdisciplinary training | | | 2 |
| | | | |

Do you feel there is a need for interdisciplinary
training in environmental science?

| | | | |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Yes | | | 21 |
| No | | | 3 |
| | | | |

What do you feel are the most important
      environmental science areas?
      (please rank in order of importance)

| | | | *#or responses in top 3 |
|---|---|---|---|
| Soil and water microbiology* | | | 4 |
| Environmental toxicology | | | 11 |
| Environmental geochemistry | | | 5 |
| Policy and decision making | | | 13 |
| Hydrogeology | | | 15 |
| Groundwater modeling | | | 8 |
| Organic chemistry | | | 9 |
| Geophysics | | | 1 |
| Wetland ecosystems | | | 5 |
| Soil mechanics | | | 6 |
| Engineering | | | 11 |
| Geotechnical | | | 7 |
| Other | | | 8 |
| | | | |

What skills do you feel recent graduates are lacking
      and that you prefer academic institutions train?

| | | | |
|---|---|---|---|
| Communication skills | | | 21 |
| Computer literacy | | | 9 |
| Geographic information systems | | | 3 |
| Quantitative analysis | | | 7 |
| Environmental compliance | | | 18 |
| Site assessment | | | 11 |
| Geochemistry | | | 5 |
| Other | | | 2 |
| | | | |

Are you interested in sending employees to service
      courses in environmental science?

| | | | |
|---|---|---|---|
| | | | |
| Yes | | | 23 |

| No | | | 9 |
|---|---|---|---|
| | | | |

If yes, what courses are most beneficial to you?
       (most common responses: hydrology/water, soils, modeling, regulations)

Please add additional comments.
       Evening and weekend classes necessary
       Less policy, more engineering
       More writing skills and public speaking
       More environmental science
       Industrial hygiene a must

C1748env.XLS

**Review of the Bachelor of Science in Environmental Sciences Program**

**Presented to APPC on January 16, 2004 for consideration**

The Guidelines for *Review of New Degree Proposals* serve as a structure in summarizing the outcome of the review process.

1. **Does the Program Description clearly describe the new degree?**
   a. It is not clear in the proposal which School would be awarding the degree and if the degree will be an Indiana University or Purdue University degree.
   b. As an interdisciplinary program and with the documented need for workers prepared at the masters level (page 15), it is unclear what graduate school options would be open to graduates of this proposed program.
2. **Does the statement of the program's goals and objectives clearly differentiate this degree from other degrees at IUPUI?**
   a. The goals of this program do not duplicate any other existing program on the IUPUI campus.
   b. The proposed degree program does exist on the IUB campus.
   c. Results of a needs survey was completed with clear indication that there is a need for this type of program in the Indianapolis area.
3. **Are the admission requirements and enrollments restrictions consistent with other IUPUI programs?**
   a. Students may be directly admitted to this degree program if they meet the IUPUI and School of Science admission requirements. There is some argument that high school students will be able to meet these requirements through the Core 40 mandated high school curriculum which provides a strong science base.
   b. Students may also transfer from University College after they have demonstrated the successful completion of foundational courses and met academic standards required by the School of Science.
4. **Are the degree requirements consistent with similar IUPUI degree programs?**
   a. It is not clear as to the minimum number of credit hours required for this degree. However it is assumed that students will graduate with 122 credits. There is some inconsistencies in the discussion of the curriculum and suggest that these be addressed.
   b. Credit hours are generated from:
      i. Liberal education core (27-28 credits) to include a first year learning community and a capstone experience
      ii. General science core (45 credits)
      iii. Environmental science core (23-27 credits)
      iv. Environmental science concentration in one of the following six areas (earth and water resources; environmental chemistry; physical geography; watershed management; pollution control;

imaging and spatial analysis). These areas of concentration vary from 15-20 credits. Although there is no explanation for these variances, it appears some credit hour difference may be attributed to science courses with a laboratory requirement.

v. Free electives appear to make up the difference in the credit variation for students.

5. **Is the sample curriculum consistent with similar IUPUI degree programs?**
   a. It appears that the curriculum requirements are consistent with the required liberal arts and science core. The curriculum does reflect an interdisciplinary effort.

6. **Does the curriculum have potential positive or negative impact on the enrollment in the courses or degrees in other academic units?**
   a. The curriculum has the potential to increase enrollments in some courses as courses already exist on campus. It is anticipated that this program will bring new students to campus due to the nature of the proposed program.
   b. There is some speculation that this program could impact enrollments in existing programs as students may wish to change majors.
   c. It is perceived that enrollments in the participating schools should not be negatively impacted over time.

7. **Will the faculty resources dedicated to the program have a positive or negative impact on other academic units?**
   a. The proposal does not indicate a need for new faculty as courses and faculty to teach these courses are already in place. There may be implications for additional faculty resources or a minimal negative effect on faculty in laboratory courses for the long term.

8. **Does the program rationale support the institutional need for the degree?**
   a. Included in the proposal was the results of a needs survey that concluded that there was a need for this type of program and that the need could be sustained. However it was not clear that the need would grow over time.
   b. Enrollment projections indicate a modest increase in headcount and credit hour. As this program will be designed for part time and full time students it appears that an increase in headcount reflects the projection of growth in part time students.

9. **Is it likely that this degree will compete with existing degree programs?**
   a. There is some sense that this program will complete for students and resources from within the School of Science and the School of Public and Environmental Affairs which will need to be addressed by these co-sponsoring schools if issues arise.

10. **Is the program evaluation plan consistent with the learning outcomes assessment strategies used by other IUPUI degree programs?**
    a. The program evaluation plan was weak. It is not clear what the expected outcomes for this degree will be and how they differ among concentrations.
    b. There was no obvious integration of IUPUI Principles of Undergraduate Education either in the curriculum or evaluation of this program.

c. A question was raised regarding the potential existence of national accreditation standards or industry standards that might add in the evaluation of program outcomes.

Analysis of SIS

Transfer Articulation
And
IUPUI Admissions Office
Processing and Staffing
Mike Donahue
December 2, 2003

Posting transfer credit takes significantly longer in SIS than in legacy. In legacy every course had to be hand entered and that required about 30 seconds. In SIS we have an automated version and a manual entry. The automated version requires about one minute and the manual version requires about three minutes. *For the manual version every course description must be read to determine the articulation. These time estimates do not include research on course articulation. Each transcript requires a minimum of 30 to 45 seconds to research each course.*

In addition the automated version has to be maintained and updated. Updating one course can take up to 3 minutes. Adding a course can take from five to ten minutes. The following time estimates are not reflecting maintenance.

The automated system includes all current freshman and sophomore courses for colleges in Indiana plus all courses at PUWL, PUNC, IPFW, and PUC. As you can imagine since course numbers change, new courses are added etc, this system will require significant maintenance.

We currently have 3 full time credit evaluators and one half time evaluator.

1. Transfer applications
    a. We admit approximately 5500 transfers in a calendar year. We estimate conservatively that the average transfer student brings in 20 courses. That means we are loading 110,000 courses. We also estimate that 40% of these courses will be on the automated system. The remaining will require manual entry. Total time estimate is 44,000 automated == 44,000 minutes or 733 hours. 66,000 courses manual entry =198,000 minutes or 3300 hours. Three staff members only loading credits will need 168 working days just to load credits. This does not count research time for manual entry, maintenance time for automated version updates and corrections. Our applications do not arrive in an equally distributive manner. They tend to arrive in larger volumes the closer the terms approach. For example 50 to 60% of our transfer applicants for the fall semester will not apply until April, May and June.
    b. We load transfer credit for the EDDP program, all credits for SCS external degree, some course work for SCS Indy, and all of Columbus transfer credit. Almost all of the SCS credit will be manual. About 60% of the Columbus credits can be loaded using the automated system.

(1) Last year we posted credits for 235 transfers to Columbus. This represents 4700 courses. 2820 on the automated process requiring 2820 minutes or 47 hours. 1880 courses on manual process requiring 5640 minutes or 94 hours

(2) We evaluated and loaded approximately 200 transfers for SCS external degree. Almost all are manual and will require 12,000 minutes or 200 hours

(3) We evaluated 200 students for EDDP (10 courses each). 90% will be automated. 2000 courses requiring 2000 minutes or 33 hours.

(4) We evaluated 100 transfers for SCS Indianapolis. Almost all are manual and will require 6,000 minutes or 100 hours

2. Stray transcripts- approximately 300 students each year send us transcripts to be added to their records. These may be returning students, intercampus transfers, or continuing students who have earned credits during the summer . The average number of courses posted is 10. About half of these can be posted using the automated system. Estimate 3000 courses with 1500 being automated and requiring 1500 minutes or 25 hours. 1500 manual loading requiring 4500 minutes or 75 hours.

3. Credit by exam—Each year more students are sending us AP scores, CLEP, or DANTES scores. Approximately 300 students will send us AP scores. AP scores are automated and will require 300 minutes or 5 hours. We receive about 75 CLEP scores and 75 DANTES scores. Each will require two minutes to enter. This requires 300 minutes or 5 hours.

4. Military training---About 300 military personnel send us DD214 or 275 forms. This process is automated for basic training credits. It is manual for other postings. Seventy-five percent will be automated. Estimate 600 minutes or 10 hours.

Given the receipt of transfer applications, it will not be possible to evaluate and load transfer credits in a timely fashion. Eighty percent (80%) of the spring transfer applications are reviewed in October, November, and early December. We admit 1500 transfers for the Spring term. Eighty percent (80%) of the fall transfer applications are reviewed in June, July, and early August. We admit 2500 transfer students for the Fall term. It will be impossible to have credit evaluations done for the majority of admitted students before the term begins. This has very serious implications for yield (enrollment) and for advising.

Here are some possible solutions.

1. Cease loading courses that do not transfer. This includes loading courses with C- or below grades. We would continue to load Purdue courses with grades below C-. This will eliminate an estimated 10% of the course loadings. The absence of non transferable courses will limit the advisor's knowledge of past performance; however, with imaging, advisors will now have access to transcripts.

2.  For second degree applicants (bachelor degrees), we will load only.  All 100, 200, and 300 level courses would be loaded and any 400 level courses taken in the department relevant to the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added. For second degree applicants (associate degrees), we will load only 100 and 200 level courses and other courses taken in the department relevant to the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added. We estimate that this will eliminate another 10% of our course loadings.

3.  For all applicants with 90 hours or more of credit.  We will load all 100, 200 and 300 level courses and any 400 level courses taken in the department relevant to the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added. We estimate that this will eliminate about 5% of our course loadings.

If items 1 through 3 are acceptable we propose hiring one additional credit evaluator.

4.  Hire 1.5 staff members.  During non peak times staff members will update automated process adding additional colleges and do maintenance on colleges in data base.
    Maintenance requires 4 minutes per course.  Adding a new college and courses requires 8 minutes per course.  We would attempt to build automated evaluations for 12 new colleges per year adding key 100 and 200 level courses

5. If items 1 through 3 are not acceptable, we will need to hire two new staff members and will likely only be able to do minimum maintenance on existing colleges in the automated system.

# MEMO

TO:  Members of APPC

FROM:  Mike Donahue, Director of Admissions

Date: January 13, 2004

## LATE APPLICANTS FOR NON DEGREE ADMISSION

### OFFICE POLICY-

The Office of Undergraduate Admissions admits all qualified non degree applicants (undergraduates) provided they apply on-time.  We close admissions at 5 p.m. on the last working day before the start of classes. (noon on Saturday if classes begin on Mondays)

After that date we will only process and admit an applicant under the following conditions:

1. They must apply in person and meet with an admissions counselor.
2. They must know the course(s), they wish to take.
3. The admitting counselor will verify that seats are available.
4. The course(s) has not met.
5. The student will register at a computer in our office.

If they do not meet each of these conditions, the Office will not process an application.

We have many students who insist it will not be a problem or a challenge to make up for missed classes.  Since we do not know individual instructors policies nor are we staffed to contact instructors, we have the above policy.

Analysis of SIS
Transfer Articulation
And
IUPUI Admissions Office
Processing
Mike Donahue
December 8, 2003
Revised January 22, 2004


Posting transfer credit takes significantly longer in SIS than in legacy. In legacy every course had to be hand entered and that required about 30 seconds.  In SIS we have an automated version and a manual entry.  The automated version requires about one minute and the manual version requires about three minutes.  *For the manual version every course description must be read to determine the articulation.  These time estimates do not include research on course articulation. Each transcript requires a minimum of 30 to 45 seconds to research each course.*

In addition the automated version has to be maintained and updated.  Updating one course can take up to 3 minutes.  Adding a course can take from five to ten minutes. The following time estimates are not reflecting maintenance.

The automated system includes all current freshman and sophomore courses for colleges in Indiana plus all courses at PUWL, PUNC, IPFW, and PUC.  As you can imagine since course numbers change, new courses are added etc,  this system will require significant maintenance.

We currently have 3 full time credit evaluators and one half time evaluator.

5.  Transfer applications
    a.  We admit approximately 5500 transfers in a calendar year.  We estimate conservatively that the average transfer student brings in 20 courses.  That means we are loading 110,000 courses.  We also estimate that 40% of these courses will be on the automated system. The remaining will require manual entry. Total time estimate is 44,000 automated == 44,000 minutes or 733 hours. 66,000 courses manual entry =198,000 minutes or 3300 hours.  Three staff members only loading credits will need 168 working days just to load credits. This does not count research time for manual entry, maintenance time for automated version updates and corrections.  Our applications do not arrive in an equally distributive manner.  They tend to arrive in larger volumes the closer the terms approach. For example 50 to 60% of our transfer applicants for the fall semester will not apply until April, May and June.
    b.  We load transfer credit for the EDDP program, all credits for SCS external degree, some course work for SCS Indy, and all of Columbus transfer

credit. Almost all of the SCS credit will be manual. About 60% of the Columbus credits can be loaded using the automated system.

> (1) Last year we posted credits for 235 transfers to Columbus. This represents 4700 courses. 2820 on the automated process requiring 2820 minutes or 47 hours. 1880 courses on manual process requiring 5640 minutes or 94 hours
> (2) We evaluated and loaded approximately 200 transfers for SCS external degree. Almost all are manual and will require 12,000 minutes or 200 hours
> (3) We evaluated 200 students for EDDP (10 courses each). 90% will be automated. 2000 courses requiring 2000 minutes or 33 hours.
> (4) We evaluated 100 transfers for SCS Indianapolis. Almost all are manual and will require 6,000 minutes or 100 hours

6. Stray transcripts- approximately 300 students each year send us transcripts to be added to their records. These may be returning students, intercampus transfers, or continuing students who have earned credits during the summer . The average number of courses posted is 10. About half of these can be posted using the automated system. Estimate 3000 courses with 1500 being automated and requiring 1500 minutes or 25 hours. 1500 manual loading requiring 4500 minutes or 75 hours.

7. Credit by exam—Each year more students are sending us AP scores, CLEP, or DANTES scores. Approximately 300 students will send us AP scores. AP scores are automated and will require 300 minutes or 5 hours. We receive about 75 CLEP scores and 75 DANTES scores. Each will require two minutes to enter. This requires 300 minutes or 5 hours.

8. Military training---About 300 military personnel send us DD214 or 275 forms. This process is automated for basic training credits. It is manual for other postings. Seventy-five percent will be automated. Estimate 600 minutes or 10 hours.

Given the receipt of transfer applications, it will not be possible to evaluate and load transfer credits in a timely fashion. Eighty percent (80%) of the spring transfer applications are reviewed in October, November, and early December. We admit 1500 transfers for the Spring term. Eighty percent (80%) of the fall transfer applications are reviewed in June, July, and early August. We admit 2500 transfer students for the Fall term. It will be impossible to have credit evaluations done for the majority of admitted students before the term begins. This has very serious implications for yield (enrollment) and for advising.

Here are recommended solutions. This will be a two year trial period and we will then revisit these business practices.

5. Cease loading courses that do not transfer. This includes loading courses with C- or below grades. For Purdue transfers seeking Purdue majors, we would continue to load all Purdue courses regardless of grade. (F grades should be loaded since the final transcript created by PUWL will include those F grades and IUPUI advisers need to be aware of these grades. For Purdue transfers seeking Indiana University majors we will load all courses where D grades or higher are earned. F grades will not be loaded since they do not transfer. For all other transfer students, only courses with C grades or higher will be loaded. (C- grades and below do not transfer. This will eliminate an estimated 10% of the course loadings. The absence of non transferable courses will limit the advisor's knowledge of past performance on a transfer credit report; *however*, with imaging, advisors will now have access to transcripts. Advisors will now have a complete picture of all academic performance including withdrawals, incompletes, and grades below C.

6. For second degree applicants (bachelor degrees), we will cease loading all credits. All 100, 200, and 300 level courses would be loaded and any 400 level courses taken in the IUPUI school offering the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added through an email or written memo.
   For second degree applicants (associate degrees), we will load only 100 and 200 level courses and other courses taken in the department relevant to the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added through an email or written memo.

   We estimate that this will eliminate another 10% of our course loadings.

7. For all applicants with 90 hours or more of credit. We will load all 100, 200 and 300 level courses and any 400 level courses taken IUPUI school offering the new major. With imaging, advisors will have access to the transcripts and they can request that additional designated courses be added through an email or written memo.

   We estimate that this will eliminate about 5% of our course loadings.

8. For groups 2 and 3, Admissions will flag those transcripts where not all credits are posted. We know we can place a yellow post it note on the electronic copy of the transcript.
9. Academic advisers may notify admissions by memo (paper or electronic) if they wish additional course(s) added.
10. We will follow these business practices for two years and assess the impact.