

**Project Summaries from the Program for Instructional Effectiveness Support (PIES)
2005-2006**

Dr. Denny Czejdo “Significant Modification of Computer Impact Course (COSC Z132) Based on UML Modeling”

There are new developments in computer science that can be used to enhance not only the courses for computer science majors but also for students of other disciplines. One of these developments is Unified Modeling Language (UML), which has become standard in computer science for visualizing, specifying, constructing, and documenting software systems. I propose a significant redesign of the Computer Impact course (COSC Z132) based on UML modeling. The key component of this redesign is to integrate the UML techniques with some well-established techniques in the humanities, especially English. I propose to work within two areas of improvement for the course: to teach the students a multi-phase transition process from natural language to UML, and to engage students in a controlled discovery process. In the modified course, students will write their essays in the special format and create the corresponding UML diagrams. The proposed modifications of the Computer Impact class will result in: 1) better understanding of current and future computers; and 2) improved general skills. The learning outcomes will be based on comparing an experimental section with a traditional section of the same course.

Drs. Michael Guill & Bill Walkenhorst “An Integrated Natural Sciences Common Curriculum Course: Fundamentals of Science II – Molecules to Ecosystems”

The Integrated Natural Sciences course proposed here, Fundamentals of Science II: Molecules to Ecosystems, is the second in a two-course sequence aimed at changing the way natural science is taught in the Common Curriculum. This course will be team-taught and interdisciplinary, involving two faculty from different natural science departments (Biology and Chemistry). This course is strongly linked to a first semester Integrated Natural Sciences course described in a separate PIES proposal involving two additional faculty, again from separate departments.

Specific objectives of the program include:

- Giving first year students in the Common Curriculum a thorough grounding in three major scientific disciplines;
- Imparting an understanding of the scientific method and the power of scientific inquiry;
- Equipping students with a basic knowledge of scientific concepts so that they can be scientifically literate citizens.

The first course in the sequence will involve a faculty member each from Physics and Chemistry and will lay the groundwork for both courses by introducing students to key concepts such as matter, energy, and atomic theory. The second semester course will build and expand on concepts introduced in the first course. Topics to be discussed include organic molecules, biopolymers, drugs and molecular recognition, energy flow in the cell, molecular evolution, and ecology of organisms.

Dr. Elizabeth Hammer & Mr. Robert Bell “The Emerging (Social) Self: Integrating the Common Curriculum and the Major for First Year Psychology Students”

To engage students in cross-disciplinary thinking and demonstrate the relevance of Common Curriculum courses, we propose linking a Social Psychology (PSYC A240) course and an Emerging Self (ENGL T125) course for second-semester freshmen. Both instructors will be working in collaboration (e.g., reading each other’s assignments, attending parts of the course) to ensure a full integration of content in these writing intensive courses. Also, peer assistants (WAC-Trained Psychology majors) will work individually with students. Students will work on writing assignments that complement each course and will submit a final integrative assignment common for both courses, but assessed for individual course content. In both courses, we will focus on *self* in social context. As a result of taking the linked courses, students should show an increased recognition of the connections between their major courses and common curriculum courses, a greater mastery and engagement of individual course content, and superior writing skills to those of students in non-linked sections.

Dr. Armin Kargol “Continuation of ‘Interdisciplinary Research Experience for First Year Students’”

This proposal is a continuation of the PIES project entitled, “Interdisciplinary Research Experience for First Year Students” initiated in 2003-04. This program addresses two trends in science education: 1) the emergence of interdisciplinary approaches as tools for solving complex problems in science and technology; and 2) the importance of laboratory courses as examples of active learning. In this project a small group of first-year students will undergo basic training in laboratory techniques in my research lab. As a result the students will gain their first hands-on experience in experimental design, will appreciate the importance of interdisciplinary approaches to modern science, and will learn a number of topics in different areas. The goal is to prepare and encourage students to participate in undergraduate research in my lab or other labs at Loyola. I also plan this pilot project to be a testing ground for a systematic method of mentoring freshmen and integrating them into a research group I am organizing in my research lab.

Drs. Armin Kargol & Thom Spence “An Integrated Natural Sciences Common Curriculum Course: Fundamentals of Science I – Atoms and Energy”

The Integrated Natural Sciences course proposed here, Fundamentals of Science I: Atoms and Energy, is part of a two-course sequence aimed at changing the way natural science is taught in the Common Curriculum. This course will be team-taught and interdisciplinary, involving two faculty from different natural science departments (Physics and Chemistry). This course is strongly linked to a second advanced Integrated Natural Sciences course described in a separate PIES proposal involving two additional faculty, Drs. Michael Guill and William Walkenhorst, again from separate departments (Biological Sciences and Chemistry).

Specific objectives of the program are the same as indicated in the Guill and Walkenhorst proposal summarized above. The first introductory course in the sequence will lay the groundwork by seamlessly developing the major themes of structure and energy with discussions extrapolating basic concepts to problems currently facing energy policymakers. The second semester course will be taught by faculty members from Biological Sciences and Chemistry and will continue these themes through discussions of biochemistry and organismal biology.

Dr. Marcus Kondkar “Social Problems-First Year Seminar”

The purpose of this project is to transform one section of an advanced common curriculum course, SOCI X132 (Social Problems) into a first-year seminar to be offered in spring 2006. The goal is to redesign the existing course as a writing-intensive learning community that emphasizes student-centered learning and the development of sound critical thinking skills. While the primary objective of this proposal is the creation of an outstanding learning experience for first-year students by incorporating innovative teaching practices identified in the literature as pedagogical “best practices,” an additional goal is to improve my own teaching skills and effectiveness as a professor in and out of the classroom. Through the various faculty seminar sessions in June 2005, I hope to learn more about incorporating the most effective pedagogical practices within the context of a first-year seminar, and I anticipate that the experience will allow me to improve the other courses I teach at Loyola as well. This proposal seeks not so much to change the subject matter of the existing course as it seeks to re-evaluate and redesign the ways in which students learn and develop their own skills.

Dr. Lawrence Lewis “Education, Person and Community”

“Education, Person and Community” is a proposed first-year seminar that seeks to engage students in thinking about what educational, personal, and social values they bring to the start of their university careers. The seminar will provide students with opportunities to further explore and develop their initial goals and values and evaluate the ways in which their educational, personal, and social values are interrelated. The overall goals of the project will be to confront each student with the challenge of becoming a reflective, questioning person who holds reasoned beliefs, to stimulate students’ interest in cultivating educational, personal, and social values, and to introduce students to various perspectives on education, personal development, and community commitments especially from the social-behavioral

sciences. The principal product of the seminar will be a personal mission statement that will include educational, career, personal, and community goals. The statement will a) provide students with the opportunity to examine their goals, thoughts, and values; b) help them separate their ideas from those of others (parents, peers, etc.); c) assist them in directing their values into long-term goals and commitments. The statement will be written in three drafts with feedback from the instructor designed to help students improve their writing skills.