

Graduate Affairs Committee
May 28, 2002
3:30 p.m. - 5:00 p.m.
UL 1126

AGENDA

1. Approval of the minutes for April 23, 2002 Queener
2. Vice Chancellor's Report.....Brenner
3. Associate Dean's Report..... Queener
4. Purdue Dean's ReportStory
5. Graduate Office Report..... Andrew-Mohr
6. GSO Report.....Wagner and Roberts
7. Committee Business
Fellowship Subcommittee Report Andrew-Mohr
Curriculum Subcommittee Report O'Palka
8. Program Review..... Queener
Ph.D. minor in Bioinformatics
M.A. in Philosophy
2001-2002 Proposal Summary
9. Discussion Queener
NCA Data Request- Update
Graduate Department Survey- Update
Graduate Council Elections
10. New Business.....
11. Next Meeting (August 27th) and adjournment

COURSE SUMMARY

May 21st, 2002

COURSE CHANGE REQUEST

Allied Health

AHLT

Z526

Workshop: Selected Topics in Health Sciences Education

3 Credits

Change credit hours to: variable from 1 to 3

Justification: Provision of greater flexibility in course offerings.

School of Informatics

NEWM

N502

Digital Media Motion and Simulation Methods 3 Credits

Change description to:

Applications in animation/simulation design using computer desktop tools. Examines the fundamentals of three-dimensional animation through the pipeline of storyboards, modeling, texturing, lighting, rendering, and composite techniques. Topics will include nurbs design development, texture mapping for realism and stylistic output, keyframe and path animation, and cinematography lighting techniques.

Justification: Curriculum Revision

School of Education

EDUC

C595

Legal Aspects in Philanthropy

3 Credits

Change course number to: P535

Change Academic Subject Code to: PHST

Change course title to: Law of Nonprofit Organizations

Change description to: Aspects of the legal regulation of nonprofit organizations are covered. Topics include the formation, operation, and governance of nonprofit organizations, the liability of officers, charitable solicitations, tax-exempt status for nonprofit organizations, charitable contributions, political activities, private foundations, and the special problems of membership organizations, charitable choice and religious organizations.

Justification: Requirement in the MA in Philanthropic Studies program.

School of Medicine

GRAD

G823

Methods in Cellular Metabolism

3 Credits

Change title to: Methods in Cell Biology

Change description to:

This course involves discussions and laboratory exercises in modern methods used in cell biology including: cellular imaging, differentiation and proliferation assays; establishment of primary eukaryotic cell cultures, clonogenic assays, transfections, electroporation, drug cytotoxicity measurements, metabolic labeling, protein interactions and localizations, FACS, and mechanisms of drug action.

Justification: Broader heading to reflect course content.

NEW COURSE REQUESTS

School of Liberal Arts

MSTD A518 Museum and Audiences 3 Credits

This course examines the ways museums seek to better understand their audiences, serve them more effectively, and strive to reach new audiences. The course looks at a broad range of visitor studies and the ways in which museums and audiences interact.

Justification: Course for new graduate certificate in Museum Studies.

School of Medicine

ANAT D888 Developmental and Molecular Neurobiology 3 Credits

This in-depth course in neurobiology is designed to help students understand the molecular and cellular mechanisms that underlie the development and normal and abnormal functions of the nervous system. Special emphasis will be placed on experimental and theoretical approaches that led current knowledge of the nervous system. Pre-requisite: D527 or D505, or permission of the instructor.

Justification: This subject represents the forefront of Neuroscience which has not been offered at IUMS.

PBHL P612 Patient-Centered Outcomes Research 3 Credits

The course is focused on patient-centered outcomes research in the health care field. The different types of patient-centered outcomes assessment tools and their application in determining patient health status, change in health status, and the effectiveness of health care interventions will be discussed. Pre-requisite: graduate level course in research methodology and in statistics or biostatistics.

Justification: To continue to develop MPH curriculum.

<u>Title</u>	<u>School or department</u>	<u>Received</u>	<u>Dates</u> <u>GAC action</u>	<u>Forwarded</u>	<u>GC approval</u>
CERTIFICATES					
Community Building & Urban Education	School of Education	10/2001	11/2001	11/2001	Tabled / Schoo
Professional & Technical Editing	School of Liberal Arts	12/2001	1/2002	4/2002	
MASTER'S DEGREES					
M.S. in Clinical Research	School of Medicine	10/2001	10/2001	10/2001	11/2002
Philosophy	School of Liberal Arts	4/2002	5/2002		
DOCTORAL DEGREES					
Philanthropic Studies	School of Liberal Arts	2/2002	3/2002	4/2002	Tabled until Fa
PhD MINORS					
Nonprofit Management	School of Public & Environmental Affairs	11/2001	12/2001	12/2001	
Bioinformatics	School of Informatics	4/2002	5/2002		
PROGRAM CHANGES					
M.A. English - internship requirement change	School of Liberal Arts	2/2002	2/2002	3/2002	

I Certificate

II '02

COVER PAGE

INSTITUTION: Indiana University-Purdue University Indianapolis
COLLEGE: School of Liberal Arts
DEPARTMENT: Philosophy
DEGREE PROGRAM TITLE: Master of Arts (M.A.) in Philosophy
FORM OF RECOGNITION TO BE
AWARDED/DEGREE CODE: Master of Arts (M.A.)

SUGGESTED CIP CODE: 380101
LOCATION OF PROGRAM/CAMPUS CODE: Indianapolis
PROJECTED DATE OF IMPLEMENTATION: Fall 2003
DATE PROPOSAL WAS APPROVED BY
INSTITUTIONAL BOARD OF TRUSTEES: _____

SIGNATURE OF AUTHORIZING
INSTITUTIONAL OFFICER

DATE

DATE RECEIVED BY COMMISSION
FOR HIGHER EDUCATION

COMMISSION ACTION (DATE)

ABSTRACT

Master's Degree in Philosophy
to be offered on campus by
Indiana University-Purdue University Indianapolis

I. Objectives

The proposed M.A. in philosophy, with tracks in bioethics and American philosophy, addresses two growing needs. The first is in the healthcare professions, where bioethics is now recognized, both in this country and abroad, as indispensable to the training and development of physicians and other healthcare professionals. The second derives from the international interest in American philosophy, especially in American pragmatism, which has grown dramatically since the end of the Cold War. Because of the presence at IUPUI of the Indiana University Medical Center, the Indiana University Center for Bioethics, and internationally acclaimed critical editions of the works of Charles S. Peirce and George Santayana, the Department of Philosophy at IUPUI is uniquely situated to respond to these two educational needs. By limiting itself to tracks in bioethics and American philosophy, the master's program promises to deliver first-rate graduate education without adversely affecting the undergraduate program.

II. Clientele to be served

The clientele for the program will consist mainly of residents of the Indianapolis area who seek graduate education in philosophy, with a concentration either in bioethics or in American philosophy. The concentration in bioethics, which is available nowhere else in the state, will attract mid-career health professionals (including those working at the six hospitals located on campus) and legal and policy-oriented professionals (including those working downtown for the state and city governments), as well as current and prospective students in other IUPUI graduate programs (including those in the Schools of Medicine, Nursing, Dentistry, and Public and Environmental Affairs). The M.A. in philosophy with a concentration in American philosophy, which will be unique to IUPUI, will attract some of its students from across the country and around the world, both because of its uniqueness and because of the stature and visibility of the Peirce and Santayana editions.

III. Curriculum

An M.A. in philosophy will require a minimum of thirty (30) credits. Whether a student concentrates in bioethics or in American philosophy, the student will take six (6) credits of courses in core areas of philosophy, such as metaphysics and ethical theory, eighteen (18) credits of concentration specific courses, and six (6) credits of a thesis or research project.

IV. Employment Possibilities

Those who choose the concentration in American philosophy are generally expected to continue either with a professional degree program in law or communication or with a Ph.D. program in philosophy, linguistics, American studies, comparative literature, or intellectual history.

Some who choose the concentration in bioethics will go on to an M.D. program, to a Ph.D. program in philosophy, or to a Ph.D. program in science, nursing, or the health sciences. Others will be professionals already employed in health-related fields. A master's degree with this concentration will be useful to those responsible, or seeking responsibility, for policy analysis and development (e.g., on ethics committees), compliance (e.g., in risk management or institutional review board positions), or teaching and education (e.g., in continuing education programs). This concentration will also be useful to professionals working in legislative or other policy positions.

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B. Program Description

1. THE PROPOSED PROGRAM AND ITS OBJECTIVES

The aim of the program is to offer an M.A. in philosophy, with concentrations in two areas in which there is special expertise on the IUPUI campus. Those areas are bioethics and American philosophy.

Bioethics is a rapidly growing field that requires educated and trained theorists and practitioners. IUPUI is well placed to play a leading role in the academic training of such individuals. IUPUI is home to one of the nation's largest health profession complexes, one that boasts not only the nation's second largest school of medicine and its largest multi-purpose school of nursing, but sizable programs in dentistry and allied health sciences. The IU School of Medicine is the only medical school in the nation's thirteenth largest state, and is home to the state's only residency programs in a variety of medical specialties. Moreover, health care is the largest employer in the state. The existence of a graduate program with a focus in bioethics would help meet the need for ethically informed healthcare providers and patients. Such providers and patients are essential, given that the medical profession confronts such complex issues as genetic engineering, stem cell research, and the allocation of healthcare resources. Unlike many other medical schools, which either are unaffiliated with large universities or are distant from them, the close geographic association between the healthcare complex and the university will foster interdisciplinary collaboration in teaching, research, and patient care.

Since the end of the Cold War there has been an international surge of interest in American philosophy, especially in pragmatism. For two decades there has been a growing awareness that IUPUI is an important center for research in American thought. This is chiefly the result of the material resources and personnel associated with the Peirce Edition Project. With the addition of the Frederick Douglass and George Santayana scholarly editions, the significance of IUPUI's resources has sharply increased. A master's program with a concentration in American philosophy would make use of IUPUI's established faculty in American philosophy and would command immediate respect in this field.

Surprisingly, perhaps, there are connections between the apparently disparate fields of bioethics and American philosophy. Increasingly, philosophers working from the pragmatist perspective of William James, John Dewey, and Jane Addams are shedding valuable light on such issues as the determination of death, resource allocation, and health-policy decision making.

By offering more graduate courses in philosophy and by offering them more regularly, the proposed program would strengthen the existing Ph.D. minor and create opportunities for graduate students in other departments to take graduate philosophy courses as part of their degree program.

2. ADMISSION REQUIREMENTS, STUDENT CLIENTELE, AND FINANCIAL SUPPORT

a. Admission Requirements

Applicants are expected to have a bachelor's degree from an accredited university or its equivalent, with a grade point average of at least 3.0 overall (on a scale of 4) and at least 3.0 in the student's major. There is no specific major requirement, but applicants must show a record of coursework demonstrating that they are sufficiently prepared to do graduate work in philosophy. Applicants must also show an appropriate level of achievement on the Graduate Record Examination (GRE) General Test.

Foreign applicants are required to take the Test of English as a Foreign language (TOEFL). They must also take the IUPUI English (ESL) examination prior to their first semester of coursework and may be required to take additional classes in English as a second language.

Reasonable flexibility in the condition of admission is intended to accommodate full-time students (traditional as well as returning students) as well as part-time students who are employed as professionals. In exceptional cases, students who do not fulfill all admission requirements can be admitted to the program with special or provisional status. "Special status" signifies that certain deficiencies exist and that they must be remedied. "Provisional status" signifies that after a fixed period of time the student's performance will be reviewed and a decision will be made as to whether the student may continue in the program.

b. Student Clientele

The healthcare and other graduate professional schools at IUPUI will provide a natural clientele for the bioethics concentration. These schools include the second largest medical school and the largest nursing school in the country. They also include the state's largest graduate school of social work and one of the country's largest biomedical research facilities. In addition, the law school at IUPUI has one of the country's top five law and health programs, some of whose students will seek to expand their professional horizons through pursuit of a graduate degree. A second group of students for the bioethics – as indicated by our own surveys and by the experience of similar programs around the country – is composed of mid-career health professionals wishing to expand their expertise in bioethics. A third group of students is likely to come from the research community. These students will be aiming to deepen their knowledge of ethical issues in biomedical and behavioral research. This clientele includes graduate students in the biomedical sciences working toward a Ph.D., and established researchers working in the pharmaceutical and biotechnology industries. It also includes researchers, employed by policy or regulatory agencies, who have responsibilities for the protection of human subjects. Finally, we expect to attract graduate students whose career plans call for doing graduate work in bioethics immediately after the completion of their undergraduate degrees.

These expectations are based on empirical data obtained from the most comprehensive survey of graduate programs in bioethics and humanities ever conducted in North America. The survey, conducted by the American Society for Bioethics and Humanities, which is the sole national bioethics and humanities society in the United States, was completed in October 2001. Among the survey's findings regarding M.A. programs was that all respondents, with one exception,

identified “persons with professional or advanced degrees” and “persons with undergraduate bioethics/medical humanities majors” as the main sources of students for graduate programs in bioethics.

The concentration in American philosophy is expected to attract students interested in American pragmatism, one of the most influential schools of thought in modern culture, as a prelude to pursuing doctoral degrees in philosophy or professional degrees and careers outside of philosophy (e.g., in the publishing industry, in communications, or in law.)

American philosophy is a rapidly growing area in philosophy. Since its inception thirty years ago, the Society for the Advancement of American Philosophy has grown into a major professional organization with over thirteen hundred members. Louis Menand’s Pulitzer Prize winning bestseller *The Metaphysical Club*, reviewed in several magazines and in the *New York Times Book Review*, further underscores the growing national and international interest in American philosophy. So too does the recent founding of the William James Society, an international organization devoted to the study of William James and related American philosophers. Undergraduate courses in American philosophy have become increasingly common, resulting in a growing demand among undergraduate philosophy majors worldwide. Currently there are no master’s programs specializing in American philosophy. We anticipate that Ph.D. programs at IU- Bloomington, Vanderbilt, Penn State, Oregon, and Southern Illinois University at Carbondale will use our master’s program as a feeder for their Ph.D. programs. These Ph.D. programs attract students interested in Peirce, in Santayana, and in pragmatism from the analytic perspective.

Web-based searches have revealed a growing and widespread use of *The Essential Peirce I & II* (textbooks developed at IUPUI) in undergraduate and graduate courses. Moreover, the Peirce Edition Project’s web site has become one of the major web resources in Peirce scholarship. Both of these developments make the new program a visible option for undergraduate students seeking a graduate degree.

Another clientele will be international students. Through the work of the Peirce Edition Project IUPUI has developed a reputation as a center for the study of Charles S. Peirce. The Peirce Edition Project has been attracting visitors, including graduate students, for more than twenty years. As a result, the project is widely recognized, both nationally and worldwide, for its scholarship in American philosophy and for the valuable resources it makes available to visiting scholars.

Recent international visitors include:

1. Faculty and postdocs: Ivan Mladenov (University of Salzburg, Austria); Paul Forster (Ottawa, Ontario); Giovanni Maddalena (University of Rome, Italy); Susanna Marietti (U. di Milano); Elisabeth Walther-Bense (Stuttgart, Germany); François Latraverse (UQUEM Montreal); Nicholas Griffin (McMaster, Ontario); Christopher Hookway (Sheffield, UK); Helmut Pape (Hannover, Germany); Maria de Lourdes Bacha (Sao Paulo, Brazil); Kurysztow Skowrowski (Warsaw University of Technology, Poland); Martha Carrer Cruz

Gabriel (Sao Paulo, Brazil); Howard Callaway (Univ. of Mainz, Germany); Christine Wertheim (London, UK); Naomi Cumming (University of Melbourne, Australia).

2. *Graduate students:* Justus Lentsch (Hannover, Germany); Priscila Farias (Sao Paulo, Brazil); Joao Queiroz (Sao Paulo, Brazil); Mercedes Defourny (Paris, France); Marc Guastavino (UQUEM Montreal); Benoit Favreault (UQUEM Montreal); Mathias Girel (Paris, France); Jacqueline Mitaui (Sao Paulo, Brazil); Johannes Hoeltz (Frankfurt, Germany); Antonin Vincente Garnica (UNESP, Brazil).

Philosophy, like the other humanities, attracts many people whose sole educational aim is to broaden their intellectual and cultural horizons. Given that IUPUI is in a large metropolitan area, we expect that the program will attract some local students who have no plans either to pursue a Ph.D. or to use the master's degree in their professional careers. We expect this partly because no graduate programs in philosophy presently exist anywhere in the Indianapolis area.

c. Student Financial Support

First-year graduate students may be nominated for a limited number of IUPUI's University Fellowships. These competitive ten-month awards currently provide a stipend of \$12,000 and a small travel allowance, as well as a waiver of most fees. Also, there is the possibility of research assistantships in IUPUI's other health-related programs, in the Center for Bioethics, in regional organizations, and in the Indianapolis scholarly editions (the Peirce Edition Project and the Santayana Edition). Long-term loans and Federal financial aid are available through the Office of Student Financial Aid. And as indicated in the accompanying budgetary documents (section E, Table 2B), the program proposal includes additional support for student financial aid.

3. PROPOSED CURRICULUM

a. Requirements

Total Hours Required

Students must complete a minimum of thirty (30) credit hours, of which at least twenty (20) must be in philosophy.

6 cr. hrs.	General required courses
18 cr. hrs.	Concentration specific courses
6 cr. hrs.	Master's thesis or a research project

Grade Requirements

No course with a grade lower than a B will count toward this degree.

Residency Requirement

Students must attend and complete the courses at IUPUI, excepting those courses accepted for transfer. At least fifteen (15) credit hours must be taken at IUPUI.

Transfer Credits

Candidates may transfer up to eight (8) hours of graduate credit for courses taken at other accredited institutions, providing the grades received were B or higher and the courses were completed within the time limit prescribed by the Graduate School. The transfer is not automatic and must be approved in writing by the Director of Graduate Studies and the Dean of the Graduate School. For time restrictions on transfer credits, see the section on time limits below. In addition to these eight (8) hours, graduate courses taken at other Indiana University campuses may be counted toward the M.A. if pre-approved in writing by the director.

Time Limits For Completion of Degree

The normal course load each semester for full-time students is a minimum of nine (9) credit hours. Part-time students take only one or two courses per semester. The minimum full-time equivalency for students holding an assistantship or internship is six (6) credit hours per semester. International students must take at least eight (8) credit hours each fall and spring semester to meet visa requirements. Students who carry a full academic load can complete the program in two calendar years.

The requirements for the degree must be completed within five consecutive years. Transfer credits also fall within this five-year limit. Any courses that have been completed more than five (5) years before the degree is completed must be revalidated if they are to count toward the M.A.

Program Structure

The proposed master's program in philosophy has two concentrations: one in American philosophy and one in bioethics. Students are required to take a minimum of thirty (30) credit hours, including a six (6) credit-hour thesis written under the guidance of an appropriate faculty committee. (Students who elect the bioethics concentration may substitute for the thesis a six (6) credit-hour research project, completed under the guidance of an appropriate faculty committee. Examples of admissible research projects: research that leads to a paper of sufficient length and quality to be considered for publication in a peer-reviewed journal; a comprehensive briefing paper for a legislative hearing; an analysis of a hospital, institutional, or research policy.) All required courses will be offered at IUPUI.

The program is divided into three modules. Students must complete six (6) credit hours in core areas of philosophy (module 1), eighteen (18) credit hours in concentration specific courses (module 2), and six (6) credit hours toward a thesis or research project (module 3).

New courses are marked with an asterisk.

Courses to be adopted or renumbered are marked with a dagger.

Module 1: Philosophy Core (6 cr. required)

PHIL P525 Topics in the History of Philosophy (3 cr.)*

PHIL P540 Contemporary Ethical Theories (3 cr.)

PHIL P543 Contemporary Social and Political Philosophy (3 cr.)

PHIL P553 Philosophy of Science (3 cr.)†

PHIL P560 Metaphysics (3 cr.)

PHIL P562 Theory of Knowledge (3 cr.)

Module 2: Concentration specific courses (18 cr. required)

a. Concentration in Bioethics

1. Required foundational course (3 cr.)

PHIL P547 Foundations of Bioethics (3 cr.)†

2. Concentration specific electives (15 cr. required)

a. Areas of central importance (6 cr. required)

PHIL P548 Clinical Ethics Practicum (3 cr.)*

LAW D838 Bioethics and Law (3 cr.)

MHHS M504 Introduction to Research Ethics (3 cr.)

b. Specialized electives (9 cr. required)

ANTH E445 Medical Anthropology (3 cr.)

COMM G510 Health Provider-Consumer Communication (3 cr.)

HIST H546 History of Medicine (3 cr.)

NURS N534 Ethical and Legal Perspectives in Advanced Nursing Practice (2cr)

PHIL P549 Bioethics and American Philosophy (3 cr.)*

PHIL P696 Topics In Biomedical Ethics (3 cr.)

SOC R515 Sociology of Health and Illness (3 cr.)

SOC R527 Sociology of Death and Dying (3 cr.)

[Courses currently under development that are likely to be added to 2b include:

Religious Ethics (3 cr.), Humanities and Healthcare (3 cr.), Medicine and Literature (3 cr.), and Ethical Issues in International Research (3 cr.).]

b. Concentration in American Philosophy

1. Required foundational course (3 cr.):

PHIL P558 American Philosophy (3 cr.)*

2. Concentration specific electives (9 cr. required)

PHIL P503 The Semiotics of C. S. Peirce (3 cr.)†

PHIL P507 American Philosophy and the Analytic Tradition (3 cr.)*

PHIL P514 Pragmatism (3 cr.)*

PHIL P549 Bioethics and American Philosophy (3 cr.)*

PHIL P590 Intensive Reading (1-4 cr.) Only with track specific content.

PHIL P600 Topics in Philosophy (3 cr.) (when topic is track specific)*

PHIL P650 Topics in Semiotic Philosophy (3 cr.)*

PHIL P701 Peirce Seminar (3 cr.)*

PHIL P730 Seminar in Contemporary Philosophy (3 cr.) (when topic is track specific)

PHIL P748 Seminar in American Philosophy (3 cr.)

3. Open electives (6 cr. required)

These include all of the courses above, as well as all other graduate courses offered in the IUPUI Department of Philosophy. The latter include:

PHIL P500 Philosophy Pro-Seminar (3 cr.)

PHIL P520 Philosophy of Language (3 cr.)

PHIL P542 The Ethics and Values of Philanthropy (3 cr.)

Module 3: Thesis or Research Project (6 cr. required)

PHIL P803 Master's Thesis in Philosophy†

b. Sample Curriculum

1. American Philosophy

Example of program for a student with a concentration in American philosophy (30 cr.)

First semester:

PHIL P558 American Philosophy (3 cr.)

PHIL P650 Topics in Semiotic Philosophy (3 cr.)

PHIL P562 Theory of Knowledge (3 cr.)

Second Semester:

PHIL P560 Metaphysics (3 cr.)

PHIL P503 The Semiotics of C. S. Peirce (3 cr.)

PHIL P507 American Philosophy and the Analytic Tradition (3 cr.)

Third Semester:

PHIL P514 Pragmatism (3 cr.)

PHIL P701 Peirce Seminar (3 cr.)

Fourth Semester:

PHIL P803 Thesis (6 cr.)

2. Bioethics

Example of program for a student with a concentration in bioethics (30 cr.)

First semester:

PHIL P547 Foundations of Bioethics (3 cr.)

PHIL P540 Contemporary Ethical Theories (3 cr.)

PHIL P553 Philosophy of Science (3 cr.)

Second Semester:

PHIL P548 Clinical Ethics Practicum (3 cr.)

MHHS M504 Introduction to Research Ethics (3 cr.)

LAW D838 Bioethics and Law (3 cr.)

Third Semester:

HIST H546 History of Medicine (3 cr.)

PHIL P549 Bioethics and American Philosophy (3 cr.)

Fourth Semester:

PHIL P803 Thesis (6 cr.)

Note: During their second year, students with research-associate or teaching-associate status will meet full-time requirements with a six-hour load.

c. Existing Courses

ANTH E445 *Medical Anthropology* (3 cr.): A cross-cultural examination of a biocultural systems model of human adaptation in health and disease, including: the interaction of biology, ecology, and culture in health; ethnomedical systems in the cross-cultural conception, presentation, diagnosis, and treatment of disease; and sociocultural change and health. This course has been approved for graduate credit.

SOC R515 *Sociology of Health and Illness* (3 cr.) Surveys important areas of medical sociology, focussing on social factors influencing the distribution of disease, help-seeking and health care. Topics covered include social epidemiology, the healthcare professions, socialization of providers and issues of cost and cost containment.

SOC R527 *Sociology of Death and Dying* (3 cr.) This course explores the human confrontation with mortality from a social, historical, and moral perspective. Topics to be discussed include Western attitudes towards death, medicalization of dying, human implications of high-tech dying, the right-to-die movement, funeral rituals, the death of children, and the violent death of suicide and genocide.

COMM G510 *Health Provider-Consumer Communication* (3 cr.) This course is designed to teach communication skills and practices related to health care talk, by examining transactional communication within health care contexts. Topics covered in this course focus directly upon interpersonal dialogue between health care providers and patients.

HIST H546 *History of Medicine* (3 cr.) History of medicine and public health in Europe and America, including ancient and medieval background, with focus on the development of modern health sciences since 1800.

MHHS M504 *Introduction to Research Ethics* (3 cr.) Ethical issues in designing, conducting, analyzing and presenting research; includes historical and theoretical background as well as case studies of such issues as scientific misconduct, data management and reporting, publication practices, intellectual property, funding of research and conflict of interest, human subject research and institutional review boards, and public perceptions of science.

NURS N534 *Ethical and Legal Perspectives in Advanced Nursing Practice* (2cr) This course discusses and analyzes major ethical and legal terms and the principles underlying legal and ethical health care practices. Students analyze selected theories/concepts/ principles of ethics and law within a framework of ethical decision making in advanced nursing practice.

LAW D838 *Bioethics and Law* (3 cr.) Biological, ethical, and legal aspects of medical genetics, euthanasia, procreational technologies, abortion, organ transplants, “Baby Doe” cases, or other topics of current interest.

PHIL P540 *Contemporary Ethical Theories* (3 cr.) Fundamental problems of ethics in contemporary analytic philosophy from G. E. Moore’s *Principia Ethica* to the present.

PHIL P543 *Contemporary Social and Political Philosophy* (3 cr.). [To the knowledge of the philosophy department at IUB, which originated this course, there is no official description of it. However, its content is sufficiently evident from its title.]

PHIL P560 *Metaphysics* (3 cr.) In-depth discussion of representative contemporary theories.

PHIL P562 *Theory of Knowledge* (3 cr.) Advanced study of selected topics.

PHIL P590 *Intensive Reading* (1-4 cr.) A tutorial course involving in-depth consideration of a specific philosophical area or problem or author. Only with track specific content. May be repeated for credit.

PHIL P696 *Topics In Biomedical Ethics* (3 cr.) Selected topics in bioethics, such as international research ethics; ethical issues in pediatrics; ethical issues in genetics.

PHIL P730 *Seminar in Contemporary Philosophy* (3 cr.) Selected topics on the works of twentieth-century philosophers. Only with track specific content. May be repeated for credit.

PHIL P748 *Seminar in American Philosophy* (3 cr.) Different topics course which students can take repeatedly for credit. Sample topics include American Phenomenology (De Tienne), American Realism (De Waal), Emerson (Hanson), James (Nagy), Royce (De Tienne), Dewey (Nagy), and Mead (De Waal).

d. Existing Courses to be Modified or Adopted

PHIL P503 *The Semiotics of C. S. Peirce* (3 cr.) Semiotics of the philosopher C. S. Peirce. Course to be adopted from Bloomington.

PHIL P547 *Foundations of Bioethics* (3 cr.) To be renamed and renumbered from the existing P694, *Biomedical Ethics*. A rigorous examination of bioethical theory and practice. Stress is placed on moral and conceptual issues embedded in biomedical research, clinical practice, and social policy relating to the organization and delivery of health care.

PHIL P553 *Philosophy of Science* (3 cr.) A study of theories with regard to the nature, purpose, and limitations of science. Attention will be given to the cognitive significance of theories, the scientific method (hypothesis formation, theory construction, and testing), research paradigms, reductivism, and social epistemology.

PHIL P803 *Master's Thesis in Philosophy* (cr. arr.)

e. New Courses

PHIL P507 *American Philosophy and the Analytic Tradition* (3 cr.) An overview of the development of American philosophy with a special focus on its contribution to and influence on the American analytic tradition. This course will discuss the views of such philosophers as C.I. Lewis, Rudolph Carnap, W.V.O. Quine, Donald Davidson, Hillary Putnam, and Susan Haack.

PHIL P514 *Pragmatism* (3 cr.) This course will examine what pragmatism stood for in its formative years and what it has become; then after studying some conflicting views of well-known pragmatists we will consider what pragmatism might become. Part of the

course is devoted to the contributions of pragmatism to different areas within philosophy.

PHIL P525 *Topics in the History of Philosophy* (3 cr.) An advanced study of important themes or major figures in the history of philosophy. May be repeated for credit if topics vary.

PHIL P548 *Clinical Ethics Practicum* (3 cr.) Application of the methods of philosophical analysis to current ethical issues arising in IU-affiliated hospitals and clinics. The practicum gives students first hand experience of clinical ethics problems in “real time,” showing them both the need for conceptual frameworks and the difficulties associated with them.

PHIL P549 *Bioethics and American Philosophy* (3 cr.) A survey of recent contributions of American philosophy to bioethics. The course will have a strong focus on a growing group of philosophers and ethicists who seek their inspiration in Dewey, James, Peirce, Royce, and Mead, while dealing with contemporary issues in medical ethics.

PHIL P558 *American Philosophy* (3 cr.) General introduction into American philosophy. This course will be cross listed with the existing team-taught course P358, and made into a team-taught modular course. This course should be offered once a year in the Fall semester. Team members will include Saatkamp, Nagy, Houser, Hanson, De Tienne, and De Waal.

PHIL P650 *Topics in Semiotic Philosophy* (3 cr.) An examination of various historical and theoretical issues arising from the philosophical study of semiosis--the general phenomenon of representation, objectification, signification, and interpretation--through the work of mostly American philosophers from the late nineteenth century to the present, with an emphasis on the impact of Peirce’s semiotic philosophy.

PHIL P600 *Topics in Philosophy* (3 cr.) This course addresses some particular topic within philosophy. May be repeated for credit.

PHIL P701 *Peirce Seminar* (3 cr.) This course is designed to give students a firm and broad understanding of the philosophy of Charles S. Peirce. (Houser, De Tienne, De Waal)

f. Required Courses Not Offered at IUPUI

All required courses will be offered at the Indianapolis campus.

4. FORM OF RECOGNITION

a. Type of Degree Awarded

Master of Arts in Philosophy.

b. Institution's Suggested CIP Code

380101

c. Diploma

Master of Arts in philosophy from Indiana University Indianapolis, awarded by the School of Liberal Arts, to be conferred at an IUPUI graduation ceremony.

The registrar will be requested to include in the student's transcript the notation "Concentration in Bioethics" or "Concentration in American Philosophy," whichever is appropriate.

5. PROGRAM FACULTY AND ADMINISTRATORS

a. Existing Graduate Faculty

Michael Burke (Ph.D., University of Wisconsin—Madison, 1976)

Professor and Chair, Department of Philosophy

Areas of Specialization: Metaphysics, Informal Logic.

André De Tienne (Ph.D. Catholic Univ. Louvain-la-Neuve, 1991)

Assistant Professor, Department of Philosophy; Associate Editor, Peirce Edition Project

Areas of Specialization: Peirce, American Pragmatism, Pragmatistic Textual Theory.

Cornelis de Waal (Ph.D. University of Miami, 1997)

Assistant Editor, Peirce Edition Project; Adjunct Assistant Professor, Department of Philosophy

Areas of Specialization: Peirce, Metaphysics, American Realism, Pragmatism and American Philosophy.

Richard Gunderman (Ph.D., Univ. of Chicago, 1989; M.D. Univ. of Chicago, 1992)

Assistant Professor, Department of Philosophy; Vice Chairman, Radiology; Director, Pediatric Radiology.

Areas of Specialization: Ethics, Medical Ethics, Philosophy of Medicine.

Nathan Houser (Ph.D. University of Waterloo, 1986)

Professor, Department of Philosophy; General Editor/Director, Peirce Edition Project

Areas of Specialization: Peirce, Semiotics, Philosophy of Mind.

Laurence Lampert (Ph.D. Northwestern University, 1971)
Professor, Department of Philosophy
Areas of Specialization: Nietzsche, History of Philosophy.

Eric Meslin (Ph.D. Georgetown University, 1989)
Professor of Medicine, Medical and Molecular Genetics, and Philosophy; Director, IU Center for Bioethics; Assistant Dean for Bioethics, IU School of Medicine.
Areas of Specialization: Bioethics, Ethical Theory, Public and Health Policy

Paul Nagy (Ph.D. Fordham University, 1968)
Professor Emeritus, Department of Philosophy
Areas of Specialization: John Dewey, William James, Michael Polanyi, Pragmatism and American Culture.

Ursula Niklas (Ph.D. Warsaw University, 1977)
Associate Professor, Department of Philosophy
Areas of Specialization: History of Philosophy, Philosophy and Literature.

David Orentlicher (M.D., Harvard, 1981; J.D. Harvard, 1986)
Samuel R. Rosen Professor of Law, Co-director of the Center for law and Health
Areas of Specialization: Health Law, Public Policy, Bioethics

Kimberly A. Quaid (Ph.D. Johns Hopkins University, 1986)
Associate Professor of Clinical Medical and Molecular Genetics and Psychiatry
Areas of Specialization: Genetics, Bioethics, Public Policy

Herman Saatkamp (Ph.D. Vanderbilt University, 1972)
Professor, Department of Philosophy; Professor of Medical and Molecular Genetics and of Medical Humanities, School of Medicine; General Editor/Director, The Santayana Edition; Dean, School of Liberal Arts.
Areas of Specialization: Medical Ethics, American Philosophy, Ethics.

John Tilley (Ph.D. University of Wisconsin, 1988)
Associate Professor, Department of Philosophy
Areas of Specialization: Ethical Theory, Practical Reason.

b. New Faculty

The following new faculty, whose positions have already been approved, will participate in the program:

- an epistemologist/philosopher of science (Timothy Lyons), who will join the Department of Philosophy in Fall 2002
- an endowed chair in pediatric bioethics by the IU Center for Bioethics and the Department of Pediatrics/IU School of Medicine (search to begin in May 2002);
- a clinical ethicist (most likely an M.D. with a Ph.D. in philosophy/bioethics) through the IU

Center for Bioethics and the Fairbanks Center for Medical Ethics at Methodist Hospital (search now underway);

The following new faculty will play essential roles in the program. Their positions have been approved tentatively by the dean of the School of Liberal Arts.

- either a bioethicist or a social/political philosopher with bioethics as an area of competence (to join the philosophy department in Fall 2003, filling a vacancy created by the recent retirement of a member of the department);
- a 25% appointment in the department for a member of the Peirce Edition Project, who will teach courses in American philosophy and serve as co-director of the program

c. Administration of the Program

Once the program is approved, two co-directors of graduate studies will be appointed to chair the Graduate Program Committee. The latter will consist of (i) the co-directors (a member of the Peirce Edition Project and the specialist in bioethics soon to be hired by the philosophy department); (ii) the chair of the philosophy department; and (iii) at least one other faculty member who participates in the program. This committee will be responsible for administering the program, admitting students to the program, monitoring student progress, assisting students in the selection of thesis committees, and assisting with job placement.

6. LEARNING RESOURCES

a. Existing Learning Resources

The following resources will be immediately available for students who choose the concentration in bioethics:

- – The University Medical Library
- – The Medical Library at Methodist Hospital and other hospital libraries
- – The IU School of Law (Indianapolis) Library, and the library of the Center on Law and Health
- – The IU Center for Bioethics library
- – The library at the Poynter Center (Bloomington)
- – The Main Research Library (Bloomington)

In addition, students will have access to several seminars, visiting lecturers, study groups, listserv discussion groups, and collaborative research opportunities facilitated by the IU Center for Bioethics.

Extensive resources are available for students who opt for the concentration in American philosophy. Even today a steady stream of researchers from around the globe come to Indianapolis to access material held at the Peirce Edition Project and the Santayana Edition. A full electronic inventory of these resources is currently underway under a 2001 IU Arts and Humanities Research Grant.

Max Fisch Library: This library is currently part of the Peirce Edition Project on the fifth floor of Cavanaugh Hall on the IUPUI campus. Over one hundred scholars from nineteen countries have visited the Max H. Fisch Library since 1993. At present, the Max H. Fisch Library has approximately two thousand linear feet of books (roughly twenty thousand books), and well over three hundred linear feet of filing cabinet drawers filled with papers and items from the collections acquired by the Peirce Edition Project. The archives include correspondence, lectures, notes, articles, manuscripts, photographs, newspaper clippings, book reviews, grant applications, vinyl recordings, and other items. The major collections are the Peirce Collection, the Max H. Fisch Collection, the Carolyn Eisele Collection, and the Charles W. Morris Collection.

- The *Peirce Collection* contains eighty linear feet of files. The collection includes photocopies of all known Peirce papers archived in libraries around the country, representing well over one hundred thousand manuscript pages. There are approximately twenty books with Peirce's annotations in them, several artifacts from the Coast Survey, and other personal items.
- The *Max H. Fisch Collection* contains over one hundred and ten linear feet of files and papers. The latter include correspondence, lectures, notes, published articles, pamphlets, conference programs, newspaper clippings, and other items connected with his research. Fisch spent nearly forty years collecting research to write Peirce's biography, a project he never finished. The collection includes a comprehensive reference catalog related to the life and work of Peirce, divided by subject, chronological year, and manuscript number in accordance with the Robin Catalog.
- The *Carolyn Eisele Collection* contains over one hundred linear feet of papers. Carolyn Eisele (1902-2000) was a renowned mathematician, a historian of late nineteenth and early twentieth-century mathematics and science, and an expert on the life and work of Charles S. Peirce.
- The *Charles W. Morris Collection* contains seventeen linear feet of papers. Charles Morris (1903-1979) was a student of George Herbert Mead. He edited much of Mead's work, was involved in the Unity of Science Movement, and developed an original form of pragmatism. The collection includes, among other things, personal and professional correspondence, lecture notes of courses taken with Mead, unpublished papers, pamphlets, Morris's Ph.D. dissertation, and copies of Peirce papers with Morris's annotations.
- Smaller collections include the David Savan papers and the Arthur W. Burks collection.

Santayana Edition Library: The Santayana Collection serves as a centralized library for students and scholars researching the life and works of George Santayana. The Collection includes photocopies of original Santayana manuscripts and papers held by libraries around the country. In addition to the photocopies of Santayana's manuscripts and papers, the Santayana Collection includes books published by Santayana, books published about Santayana, and translations of Santayana's works. The Santayana Collection maintains an electronic database that includes

scanned copies of Santayana's books, articles, and letters. The database can be searched by topic or by keyword.

- John O. McCormick Collection: John Owen McCormick (1918-) is a comparative literature/Santayana scholar and author of *George Santayana: A Bibliography* (Paragon House, 1987). The McCormick Papers include copies of the marginalia from Santayana's books with McCormick's annotations, correspondence, notes, articles about Santayana, criticisms of Santayana, and receipts from McCormick's Spain research trip. McCormick's papers have been organized both by theme and by year in Santayana's life.

University Library: The presence of the Peirce Edition Project since 1975 has contributed to a strong collection of books related to American philosophy.

b. New Learning Resources Needed

The program requires the new faculty already approved tentatively (see B 5(b), "New Faculty"), an administrative support position, additional funds for supplies and expenses, and funds for additional financial assistance. Eventually it will require additional appointments, totaling half of a full-time position, most likely for faculty whose primary appointments are in the Peirce Edition Project and the Indiana University Center for Bioethics. Please see section E, table 2B for details.

7. PROGRAM STRENGTHS

a. Distinctive Features

The two concentrations in the program capitalize on important resources available at IUPUI and in Central Indiana.

Several resources available to the bioethics concentration will distinguish it from other M.A. programs in bioethics. These resources derive from the presence of the IU Center for Bioethics (IUCB) and the Fairbanks Center for Medical Ethics (the clinical ethics unit of the IUCB). They also derive from the location of the program. The program is in the state capital; so it has convenient access both to policy makers and to numerous and sizable high-tech industries, health professions complexes, and allied health programs. It also is close to the IUPUI Medical Humanities Program, the Center on Philanthropy, and the nationally ranked Center on Law and Health.

A notable feature of the program is its practicum in clinical ethics. Modeled after some of the best programs in the country, this practicum will combine both didactic classroom study and clinical experiences with physicians, nurses, genetic counselors, and other healthcare professionals.

IUPUI is the location of two significant, nationally recognized scholarly editing projects in American philosophy:

1. *The Writings of Charles S. Peirce: A Chronological Edition*. This edition is being prepared by a team of eight persons. Work on the edition progresses steadily but slowly, for it is complicated by the fact that much of Peirce's work exists only in manuscript form, and these manuscripts, most of which have been stored at Harvard since 1915, are in great disarray. The Project's work requires a massive reorganization and dating effort prior to text selection and editing. Six volumes (of a projected thirty) have been published by Indiana University Press. Plans are underway for an on-line electronic edition that will not only contain everything in the printed volumes but supplement those volumes in various ways, principally by including digitized images of manuscripts.
2. *The Works of George Santayana* is a critical edition of George Santayana's published and unpublished writings.

Plans are underway to consolidate the editions in a Center for American Thought. The learning resources available through the editions, the specialized faculty, the visiting researchers, and the continued work on the editions, provide students with a unique, specialized environment for the study of American philosophy.

b. Collaborative Arrangements

There are many possible collaborative arrangements that promise to support the bioethics concentration. These include arrangements between the Department of Philosophy and the Center for Bioethics and arrangements among the Schools of Law, Nursing, and Science. One example of such an arrangement is the development of a new program in pharmacogenomics, ethics, and public policy being jointly carried out by the Center for Bioethics and the Division of Clinical Pharmacology in the IU School of Medicine. Further examples include prospective dual degrees involving the Schools of Law, Nursing, Medicine, and SPEA. Collaborative relationships have been developed with the Poynter Center in Bloomington to carry out interdisciplinary research in bioethics. Similar relationships are envisioned with the Center on Philanthropy.

The Peirce Edition Project has entered into an agreement with Université du Québec à Montréal, outsourcing part of the work of volume 7 of the *Writings* (Peirce's contributions to the *Century Dictionary*). A similar agreement with Helmut Pape in Germany is being worked out for volume 23 of the *Writings*, which will contain Peirce's 1903 Lowell Lectures. A "Protocol of General and Special Agreement of Friendship and Cooperation" was signed by President Myles Brand and Rector Denis Roch of the Université du Québec à Montréal in which both universities agree to establish ties for the purpose of promoting mutual understanding and academic, cultural, and personnel exchange. Both universities have agreed, specifically, to facilitate and intensify those exchanges between the partners that fall within the areas of semiotics and philosophy, with a particular emphasis on the Peirce Edition Project and the Department of Philosophy at IUPUI, and the Ph.D. program in Semiotics and the Department of Philosophy at UQAM. Collaboration includes, among other things, joint research projects, exchange of professors, exchange of students, seminars and colloquia, and joint publications. These projects have already produced an increase of students visiting IUPUI from Canada and Germany.

C. Program Rationale

1. INSTITUTIONAL FACTORS

a. Compatibility with Institutional Mission

The proposed master's program comports with the missions of the IUPUI campus, the School of Liberal Arts, and the Department of Philosophy.

It comports with the campus mission in three ways: first, by meeting needs of the business constituents of Indiana; second, by promoting interdisciplinary collaboration between the liberal arts and the health professions programs; and third, by adding to the variety of master's programs available in the community. (For some information relevant to these points see www.hoosiers.iupui.edu/evcdof/grad.htm.)

The program harmonizes with the SLA mission by contributing to at least four SLA goals. One of those goals is to build several excellent graduate programs; another is to add to the base of knowledge in the liberal arts disciplines. A third goal is to build general academic programs to serve the professional schools and the wider community. The fourth goal is that of enhancing the undergraduate program by attracting highly qualified faculty to teach not only graduate but undergraduate courses.

Finally, the program dovetails with the mission of the Department of Philosophy in several ways. It promises to enrich intellectual discourse, to produce tuition revenue, to increase the prestige of the department, and to attract and retain excellent graduate and undergraduate students. It also promises to increase the ability of the faculty to obtain extramural funding for research.

b. Description of Planning Process

The current proposal is the outgrowth of a "New Graduate Program Planners Meeting" that occurred on September 17, 1999. This meeting was part of an initiative to increase the number of graduate programs at IUPUI in an effort to reposition the IUPUI campus after the inception of a community college system in Indiana. This led in October of 1999 to an initial proposal by the chair of the philosophy department for a master's program in philosophy—in particular, for a master's program designed to capitalize on the department's existing strengths in American philosophy and on the local strengths in the health care sciences. This subsequently initiated the development of an M.A. proposal with two concentrations: bioethics and American philosophy.

As for the concentration in American philosophy, discussions have taken place at IUPUI with the Peirce Edition Project, The Santayana Edition, and the Planning Committee for the Center for American Thought. The matter has also been discussed with the philosophy department in Bloomington. At the twenty-ninth annual meeting of the Society for the Advancement of American Philosophy, the American philosophy component of the master's program was discussed with representatives of Penn State, the University of Southern Illinois at Carbondale, and Vanderbilt University. These universities have Ph.D. programs with strong emphases in American philosophy; however, not one of them offers a master's as a terminal degree. Aspects of the M.A. program have also been discussed with the Center for Dewey Studies in Carbondale.

With respect to the bioethics concentration, several steps were taken to survey and elicit information and to gather opinions from a broad range of sources. Those steps included:

- the presentation of a draft proposal for discussion at a February 28, 2002 retreat of the Center for Bioethics (attended by representatives of all health-related professional schools and by representatives from Bloomington);
- site visits to two of the top bioethics/medical humanities programs in the country (the University of Pennsylvania and the University of Virginia) for consultation about their graduate programs, the organization of their centers, and the relations they have with other schools in their respective universities;
- meetings with representatives from graduate programs in SPEA, Nursing, Law, and Medicine at IUPUI; also with representatives of the Department of Religious Studies and Bloomington's Poynter Center;
- a survey of attendees at the annual meeting of the Indiana Health Ethics Network, a statewide bioethics organization consisting of members of ethics committees and other professionals (the survey instrument was also distributed to attendees of the Medical Ethics and Humanities Seminar, and hence to over three hundred people from the campus and central Indiana region);
- a review of the study carried out by the American Society for Bioethics and Humanities: _North American Graduate Bioethics and Medical Humanities Training_ (October 2001).

c. Impact on the Institution

The new M.A. in philosophy will have a positive impact on the department, the school, and the campus.

The department's undergraduate program will be enriched by the addition of a master's program. The presence of graduate students will create intellectual excitement and thus enhance the learning environment for undergraduates. The new hire in bioethics will have teaching responsibilities at the undergraduate as well as the graduate level, thus bolstering the undergraduate curriculum. Some graduate courses will be available (with modified expectations and requirements) for undergraduate credit. The new research made possible by graduate student assistants working for individual faculty and research centers will likely create opportunities for research and internships for advanced undergraduates. (The Peirce Project has already demonstrated this.) Finally, the added prestige and recognition brought to the department because of the master's program will benefit the department's majors, especially those intending to pursue further academic or professional education.

The philosophy department will require additional secretarial support to administer the graduate program. Funding for this purpose will come from the expected tuition income, and some secretarial assistance will be provided by the centers working with the new degree program (Peirce, Santayana, and Bioethics).

Other School of Liberal Arts programs will also benefit from the new master's in philosophy. The bioethics concentration will complement the existing graduate program in sociology, which has a medical sociology concentration, as well as the new master's in communication studies that was recently approved by the Indiana University trustees. The philosophy master's will also complement the medical humanities undergraduate minor. Indeed, it will make available additional electives for all programs. Also, the new degree will add to the overall visibility, at the local, regional and national level, of the health-related programs of the School of Liberal Arts. This will help attract top quality graduate students to all of the school's programs, and also strengthen applications for external grants.

An important contribution at the campus level will be to expand the opportunities for dual degrees. Such degrees are already planned for law, nursing and medicine, with others possible in social work, health administration, and public health. A master's in philosophy with a concentration in bioethics will be an attractive option for some students pursuing degrees in such areas. And any student training to be a health professional could benefit from individual courses, such as clinical or research ethics.

Finally, the availability of a master's degree will help attract faculty to the new Center for Bioethics. It will provide opportunities for them to teach and to work with graduate students on research projects. Thus the graduate program will help make the new Center a national center of excellence. When added to the other facets of IUPUI's health complex, it will provide a further reason for IUPUI to be recognized as a national leader in the health field.

The program in American philosophy will offer electives to students in other graduate programs. And because it is expected to attract students from around the world, especially from Europe, the program in American philosophy will enhance the diversity of the student body in the School of Liberal Arts.

d. Utilization of Existing Resources

The general required courses will be cross-listed with existing upper-level undergraduate courses.

2. Student Demand (See Table 1: Enrollment and Completion Data)

a. Enrollment Projections

Approximately five thousand students are currently enrolled in post-baccalaureate degree programs at IUPUI. Another twenty-three hundred students are enrolled as graduate continuing

non-degree students (a combination of students who are taking courses prior to admission to degree programs and students who want specific courses without completing a degree).

Interest in graduate-level study in bioethics has been demonstrated not only through periodic inquiries coming from in and out of state to the Medical Humanities and School of Medicine ethics programs, but also through a survey of individuals living in the central Indiana region. Questionnaires were distributed among persons who are on the e-mailing list for Seminars in Medical Ethics and Humanities, and to the attendees of the 2002 Indiana Healthcare Ethics Network (IHEN) conference on March 22, 2002. Thirty-eight completed questionnaires were returned within a week.

Two-thirds ($n = 25$) of the respondents expressed a positive interest in taking bioethics courses. Approximately one third ($n = 9$) of those responding positively were interested in completing a 30-credit hour master's degree in philosophy with a concentration in bioethics. Another third of them expressed an interest in a 15-credit hour graduate certificate. Most interested in a degree or a certificate already have a master's or higher degree, and work in the health care arena as chaplains, social workers, psychotherapists, nurses or researchers. Several serve on ethics committees or confer with patients and their families about decisions raising ethical questions. The final third of the positive responders expressed an interest in taking individual courses, but not in pursuing a degree or a certificate; they included both healthcare professionals and those whose careers lie outside of health care, but who have an interest in bioethics nevertheless.

One third ($n = 13$) of the respondents indicated no interest in taking graduate bioethics courses. They generally cited either lack of time or distance from the IUPUI campus.

Enrollment in the program in American philosophy will benefit not only from the surge of interest in American philosophy and the international stature and visibility of the Peirce Edition Project and the Santayana Edition, but from the fact that there is as yet no other institution anywhere that offers a master's with a concentration in American philosophy. Also expected to contribute to enrollments is the understanding reached with the Department of Philosophy at Indiana University Bloomington (IUB). That department will encourage prospective students interested in American philosophy to consider taking a master's at IUPUI before pursuing a Ph.D. at IUB.

The Peirce Edition Project is known internationally as the principal center for the study of Charles S. Peirce. Even without a graduate program, the project has attracted graduate students for over 20 years. They come to the project to work on theses they are writing for other universities. In the last 10 years alone, there have been 40 such students. Ten of the most recent are listed in section B 2(b).

Based on the above considerations we expect, conservatively, to admit into the bioethics and American philosophy programs a total of about nine (9) full-time students and four (4) part-time students per year. At program maturity, there will be about twenty (20) full-time equivalent students in the program. These students will represent additions to the campus enrollment. Details are displayed in section E, table 1.

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b. Projection of Credit Hours Generated

See Section E, Table I.

3. Transferability

All required and elective courses should be transferable elsewhere, although the core courses of this program may count only as electives elsewhere. Similarly, it is to be expected that comparable courses taken elsewhere at accredited institutions will be acceptable here in place of courses in all three modules, although such decisions will always be made on a case by case basis. Approval for this program's courses has been (and will be) secured through the normal procedures of the curriculum committee of the IU Graduate School.

4. Access to Graduate and Professional Programs

Care has been taken in the design of this program to ensure that the master's degree meets the admissions requirements of premier Ph.D. programs, so that graduating students will have optimal flexibility if they seek to pursue a more advanced graduate degree. To this end, a survey was made among several graduate schools in the country, examining both the requirements for comparable M.A.'s and the entry requirements for M.A. students who apply for Ph.D. programs.

As noted above in section C 2(a), the department has reached an understanding with the Department of Philosophy at Indiana University Bloomington (IUB), whereby that department will encourage prospective students interested in American philosophy to consider completing work for a master's at IUPUI before pursuing a Ph.D. at IUB.

5. Demand and Employment Factors

The M.A. in philosophy is not intended to prepare students directly for any form of employment.

Both the concentration in bioethics and the concentration in American philosophy are suitable for those intending subsequently to pursue doctoral or professional degrees. (Details are provided in

section B
2(b).) The
concentration
in bioethics is
suitable also
for mid-career
professionals
with
responsibility,
or aspirations
to
responsibility,
for policy
analysis and
development
(e.g., on ethics
committees),
compliance
(e.g., in risk
management
or institutional
review board
positions), or
teaching and
education
(e.g., in
continuing
education
programs).
This
concentration
will also be
useful to
professionals
already
working in
legislative or
other policy
positions.

6. Regional, State, and National Factors

a. Comparable Programs Already Existing

There are no existing M.A. programs with a concentration in American philosophy, but the program would be compatible with a number of existing Ph.D. programs. Pennsylvania State

University, Vanderbilt University, and Southern Illinois University at Carbondale (SIU) have faculty and graduate students with an especially strong interest in American philosophy. However, they do not offer an official concentration in American philosophy, and they cater almost exclusively to doctoral students. The strong presence of American philosophy at SIU, which has the largest concentration of *students* interested in American philosophy, is due largely to the presence on its campus of the Center for

Dewey Studies, which is engaged in the publication of a 38-volume scholarly edition of Dewey's works. With the Santayana Edition and the Peirce Edition Project located in IUPUI's School of Liberal Arts, IUPUI is well-positioned to become a leading center for graduate study in American philosophy.

There are no existing graduate programs in bioethics in the state of Indiana. Although there are several graduate programs in bioethics outside the state, those programs will have little impact on enrollments in the program at IUPUI. As explained in section B 2(b), the bulk of the demand for the bioethics program at IUPUI will come from those living, studying, or working in the Indianapolis area.

b. External Agencies

The master's program will be accredited through the North Central Accreditation Association, the regular accrediting process for IUPUI.

D. Program Implementation and Evaluation

Implementation

The program is to be implemented in Fall 2003. All of the essential resources are either in place already or will be in place by that time. Once the program is approved, the Graduate Program Committee (described in B 5(c)) will organize, advertise, and administer the program. The committee will admit students to the program, monitor student progress, appoint thesis committees, and assist graduates seeking employment or further study. The co-directors of the program will be responsible for the daily administration of the program, as well as recruitment and advising. Initially, at least, the co-directors will accept these responsibilities as the main part of their service load within the department.

Evaluation

The Graduate Program Committee will monitor each student's performance, progress, and timely completion of requirements, and monitor each student's transition to further graduate education or to a professional career. The program will be evaluated in its sixth year. The evaluation will be supervised by the Office of Planning and Institutional Improvement, which has responsibility for program reviews on the IUPUI campus. Following an internal self-study, an external review team will study the program and submit a report to the SLA faculty, the IUPUI Graduate Affairs Committee, the IU Graduate School, and the IUPUI campus administrators. This team will be

made up of faculty members from the IUPUI and IUB philosophy departments and graduate faculty from graduate departments in the School of Liberal Arts. Moreover, the IU Graduate School monitors all of its programs and periodically holds extensive program reviews in cooperation with the Office of Planning and Institutional Improvement.

E. Tabular Information (included, following this page, in hard copies of this document)

Table 1: Enrollment and Completion Data

Table 2A: Total Direct Costs and Sources of Program Revenues

Table 2B: Detail on Incremental Direct Program Costs

Table 3: New Academic Degree Program Proposal Summary

Appendices

Appendix A. Supporting Letters

This appendix contains letters of endorsement from:

(1) Eric Meslin, Ph.D., Director, Indiana Center for Bioethics, Professor of Medicine, Professor of Medical and Molecular Genetics, Professor of Philosophy, Assistant Dean for Bioethics, Indiana University School of Medicine

(2) Angela Barron McBride, Ph.D, RN, FAAN, Distinguished Professor, Dean of the School of Nursing

(3) Steven S. Ivy, M.Div., Ph.D., Vice-President, Values, Ethics, Social Responsibility, and Pastoral Services, Clarian Health, Methodist-IU-Riley

(4) Eleanor D. Kinney, JD, MPH and David Orentlicher, MD, JD, Samuel R. Rosen Professors of Law & Co-Directors of The Center for Law and Health, Indiana University School of Law – Indianapolis

(5) Karen Hanson, Ph.D., Professor and Chair, Department of Philosophy, Indiana

University Bloomington [forthcoming]

Appendix B. Faculty Accomplishments

This appendix contains the *curriculum vitae* of those members of the graduate faculty who will participate in the proposed M.A. program.

TABLE 3:
NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY
30 April 2002

I. Prepared by Institution

Institution/Location: Indiana University-Purdue University Indianapolis
 Program: Master of Arts in Philosophy
 Proposed CIP Code: 380101
 Base Budget Year: 2001-02

	Year 1 2003-04	Year 2 2004-05	Year 3 2005-06	Year 4 2006-07	Year 5 2007-08
Enrollment Projections (Headcount)	13	26	30	30	30
Enrollment Projections (FTE)	11	18	20	20	20
Degree Completion Projection	0	9	13	13	13
New State Funds Requested (Actual)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
New State Funds Requested (Increases)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0

II. Prepared by Commission for Higher Education

New State Funds to be Considered for Recommendation (Actual)	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____
New State Funds to be Considered for Recommendation (Increases)	\$ _____	\$ _____	\$ _____	\$ _____	\$ _____

CHE Code: _____
 Campus Code: _____
 County Code: _____
 Degree Level: _____
 CIP Code: _____

Comment: _____

Campus: Indiana University-Purdue University Indianapolis
Program: Master of Arts in Philosophy
Date: 30 April 2002

TABLE 1: PROGRAM ENROLLMENTS AND COMPLETIONS
Annual Totals by Fiscal Year (Use SIS Definitions)

	Year 1 2003-04	Year 2 2004-05	Year 3 2005-06	Year 4 2006-07	Year 5 2007-08
A. Program Credit Hours Generated					
1. Existing Courses	198	315	351	351	351
2. New Courses	66	105	117	117	117
Total	264	420	468	468	468
B. Full-time Equivalents (FTEs)					
1. Generated by Full-time Students	9	14	14	14	14
2. Generated by Part-time Students	2	4	6	6	6
Total	11	18	20	20	20
3. On-Campus Transfers	0	0	0	0	0
4. New-to-Campus	11	18	20	20	20
C. Program Majors (Headcounts)					
1. Full-time Students	9	18	18	18	18
2. Part-time Students	4	8	12	12	12
Total	13	26	30	30	30
3. On-Campus Transfers	0	0	0	0	0
4. New-to-Campus	13	26	30	30	30
5. In-State	9	18	21	21	21
6. Out-of-State	4	8	9	9	9
D. Program Completions					
		9	13	13	13

Campus: Indiana University-Purdue University Indianapolis
Program: Master of Arts in Philosophy
Date: 30 April 2002

TABLE 2A:
TOTAL DIRECT PROGRAM COSTS AND SOURCES OF PROGRAM REVENUE

	Year 1		Year 2		Year 3		Year 4		Year 5	
	FTE	2003-04	FTE	2004-05	FTE	2005-06	FTE	2006-07	FTE	2007-08
A. Total Direct Program Costs										
1. Existing Departmental Faculty Resources	0.0 \$	0	0.0 \$	0	0.0 \$	0	0.0 \$	0	0.0 \$	0
2. Other Existing Resources		0		0		0		0		0
3. Incremental Resources (Table 2B)		105,100		166,900		185,300		185,300		185,300
TOTAL	\$	105,100	\$	166,900	\$	185,300	\$	185,300	\$	185,300
B. Sources of Program Revenue										
1. Reallocation	\$	0	\$	0	\$	0	\$	0	\$	0
2. New-to-Campus Student Fees		78,800		124,900		138,000		138,000		138,000
3. Other (Non-State)										
4. New State Appropriations										
a. Enrollment Change Funding		26,300		42,000		47,300		47,300		47,300
b. Other State Funds		0		0		0		0		0
TOTAL	\$	105,100	\$	166,900	\$	185,300	\$	185,300	\$	185,300

Campus: Indiana University-Purdue University Indianapolis
Program: Master of Arts in Philosophy
Date: 30 April 2002

TABLE 2B:
DETAIL ON INCREMENTAL OR
OUT-OF-POCKET DIRECT PROGRAM COSTS

	Year 1		Year 2		Year 3		Year 4		Year 5	
	FTE	2003-04	FTE	2004-05	FTE	2005-06	FTE	2006-07	FTE	2007-08
1. Personnel Services										
a. Faculty	0.5	42,500	1.0	85,000	1.0	85,000	1.0	85,000	1.0	85,000
b. Support Staff	1.0	30,000	1.0	30,000	1.0	30,000	1.0	30,000	1.0	30,000
c. Graduate Teaching Assistants	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Total Personnel Services		72,500		115,000		115,000		115,000		115,000
2. Supplies and Expense										
a. General Supplies and Expense		8,000		8,000		8,000		8,000		8,000
b. Recruiting		2,600		2,600		2,600		2,600		2,600
c. Travel		0		1,000		1,000		1,000		1,000
d. Library Acquisitions		0		0		0		0		0
Total Supplies and Expense		10,600		11,600		11,600		11,600		11,600
3. Equipment										
a. New Equipment Necessary for Program		2,000		2,000		2,000				
b. Routine Replacement								2,000		2,000
Total Equipment		2,000		2,000		2,000		2,000		2,000
4. Facilities		0		0		0		0		0
5. Student Assistance										
a. Graduate Fee Scholarships		20,000		38,300		56,700		56,700		56,700
b. Fellowships		0		0		0		0		0
Total Student Assistance		20,000		38,300		56,700		56,700		56,700
Total Incremental Direct Costs	\$	105,100	\$	166,900	\$	185,300	\$	185,300	\$	185,300

**Review of Proposal
for a new
Master's Degree in Philosophy**

Documents reviewed:

Formal application submitted by the School of Liberal Arts, dated 5/6/2002. Application adheres to the requirements of the Indiana Commission for Higher Education for new degree proposals.

Summary:

The Department of Philosophy at IUPUI proposes to offer a master's degree in philosophy. The program, leading to an M.A. in philosophy, would have two concentration tracks, in bioethics and American philosophy. The former concentration addresses a need for graduate study in bioethics in Indiana; the latter would capitalize on existing resources at IUPUI to create the only master's level program in American philosophy in the country.

Clientele for the bioethics concentration would primarily be professionals involved in research, health care, law, and policy. The American philosophy concentration would attract philosophy graduate students from around the country, based on the reputation of the Pierce Edition Project, among other IUPUI resources, and the uniqueness of this program (the only master's program in American philosophy in the country).

The curriculum is structured around these two concentrations. It would consist of a set of core courses in philosophy, with additional, related courses in either bioethics or American philosophy, and capped with related thesis or project work. Thirty graduate credit hours would be required for the degree. Distribution requirements differ for each concentration. Essentially, all students would have to take two core courses (6 cr.), 18 credits in concentration-specific courses, and 6 credits in a thesis or project.

Comments and Questions:

The proposal is, of course, clear and well-written. The strengths of the proposed program are many, and stand on their own. I turn to a few concerns:

Page 2 (Abstract):

"Some who choose the concentration in bioethics will go on to an M.D. program, to a Ph.D. program in philosophy, or to a Ph.D. program in science, nursing, or the health sciences." Realistically, with the Ph.D. program in philosophy excepted, no. Just the opposite is more likely: scientists and health care professionals, because of their professional experiences, could be interested in pursuing a "postdoc" master's (as already commonly occurs for MD's who later seek an MPH).

Page 3 (Table of Contents):

Needs formatting. (Forgive this and other trivialities below; they might as well get mentioned.)

Page 7 (Admission Requirements):

“...applicants must show a record of coursework demonstrating that they are sufficiently prepared to do graduate work in philosophy.” Examples of what kind of coursework would be helpful.

Page 19 (Diploma):

“Master of Arts in philosophy from Indiana University Indianapolis, awarded by the School of Liberal Arts, to be conferred at an IUPUI graduation ceremony.” Where does University Graduate School fit into this? In general, professional (“tagged”) degrees (e.g., Master of Physical Therapy) are controlled by the individual school; academic, untagged degrees (e.g., M.A. in _____) are controlled by University Graduate School. This may not be universally enforced (or even necessarily desirable), but sooner or later, someone will raise the question.

Page 21 (Administration of the Program)

“Once the program is approved, two co-directors of graduate studies will be appointed to chair the Graduate Program Committee.” No director, and instead, two co-directors of a committee? In conjunction with the next statement below, which says that the GPC will run the program, this plan is questionable (see next comment). This peculiar administrative arrangement should be explained and justified. Who will champion the program and fight the good fight? Certainly not a committee with two heads.

“The [Graduate Program Committee] will be responsible for administering the program, admitting students to the program, monitoring student progress, assisting students in the selection of thesis committees, and assisting with job placement.” The GPC could act as an admissions committee, but these other responsibilities are time-intensive, high-contact, and long term. No committee would really be good at them. These responsibilities should be taken on by individuals with a central stake in the program; foremost, the program director and thesis advisor. In admission to admissions, the GPC could allocate student support and advise on program policies.

Page 25 (Compatibility with Institutional Mission)

“[The program] comports with the campus mission in three ways: first, by meeting needs of the business constituents of Indiana...” I think ICHE would jump all over this one. What businesses, and how? Better not to even bring this up.

Page 26-7

Inconsistent fonts.

Page 28 (Enrollment projections)

“One third (n=13) of the respondents indicated no interest in taking graduate bioethics courses. They generally cited either lack of time or distance from the IUPUI campus.” Sounds like a perfect opportunity to develop online courses.

“[The Department of Philosophy at Indiana University Bloomington] will encourage prospective students interested in American philosophy to consider taking a master’s at IUPUI before pursuing a Ph.D. at IUB.” Now, really: would any department turn away a prospective graduate student in this manner, and for this reason? Frankly, I

don't believe it would ever happen, no matter what's been said. A letter from Karen Hanson, Chair of the IUB Philosophy Department, is "forthcoming;" it would be very interesting to read it.

Page 29-32

Needs formatting.

Summary:

This is a good proposal that makes a very strong case for implementing a new master's program in philosophy at IUPUI. Given the local concentration of professionals in health care, biomedical research, health policy and law, there is clearly a strong need for formal training in bioethics. Less pressing, perhaps, is the need for master's level preparation in American philosophy, although the proposal presents convincing evidence that the particular resources at IUPUI, which already attract a large number of scholars in this field, would make this program viable.

Recommendation:

Accept with some revisions

Review for Masters of Arts in Philosophy proposal
5/21/2002

Overall take: Excellent proposal for degree program. Relies on existing strengths here at IUPUI that make this a very attractive degree.

Comments and criticisms (in order of appearance in the text):

Abstract, paragraph 1: Why would a graduate program adversely affect the undergraduate program? This came out of left field for me.

p. 5, paragraph 3: The Frederick Douglass edition is mentioned here, and nowhere else. Purpose?

p. 6, Student Clientele: Suggests that law students are not graduate students, that the law degree is not a graduate degree.

p. 8, bottom: Kudos for accepting only outstanding grades in this program! Demonstrates attitude of excellence.

p. 10, Core: This is perhaps my most serious concern about the present proposal. Why is the list of “core” courses so large? Surely you know better in these specific areas of philosophy what is required for a core curriculum.

For example, Dr. Meslin mentions in his letter that “students completing this MA will have taken courses in ethical theory, epistemology or metaphysics, and philosophy of science.” In reality, it would be possible for a student with the present curriculum to avoid all of these topics.

Can you imagine a Bioethics specialist who has not had a good grounding in epistemology or philosophy of science? With the core courses as described, a student could easily avoid these topics. I don’t know about American Philosophy, but it seems to me that the courses in epistemology and philosophy of science are essential to the role a bioethicist will be asked to play in our culture.

p. 26: The supporting letter from Bloomington (forthcoming) is important for this degree.

Summary: This is a strong proposal on all fronts. The environment and faculty are obvious strengths, and it seems likely that students will be drawn from both the medical school and law school into the Bioethics track, and from all over the country for the American Philosophy track.

Review of Proposal for Master of Arts (M.A.) in Philosophy

Documents Reviewed:

Proposal in ICHE Format, with Appendices

Summary:

The proposal posits a Master of Arts (M.A.) in Philosophy, offered by the School of Liberal Arts, Department of Philosophy, IUPUI, with two tracks, or concentrations. Students would select one of the two. One concentration is Bioethics; the other is American Philosophy. Although the proposal mentions (but does not elaborate) “connections” between these “apparently disparate fields,” (p. 5), the concentrations are substantively unrelated. The Bioethics concentration is well-conceived and well-supported, although discussion of clientele should be clarified. Justification for the American Philosophy concentration appears to be based on legitimate claims of uniqueness and existing strengths in faculty and other resources, but the demand for this track seems speculative. The proposal, including the tabular data, does not identify the number of students projected for each of the two concentrations; only total numbers are given. According to the tabular data, modest new state appropriations would be needed.

Recommendation:

Accept with discussed revisions

Discussion:

Discussion of the Bioethics concentration, although comprehensive and persuasive (and supplemented with five letters of strong endorsement from relevant sources) should be clarified. Who, exactly, is this concentration designed to serve, or from what sources will students be drawn? This concentration is variously described as serving the “healthcare professions” (Abstract, I.); “mid-career health professionals . . . and legal and policy-oriented professionals . . . [and] current and prospective students in other IUPUI graduate programs,” (Abstract, II.). Somewhat broader possibilities are suggested by employment projections (Abstract, IV.). In the Program Description, additional sources of students are discussed, some of which are mentioned for the first time (p. 6). The “empirical data” then reported describe prospective students in yet

another ways—by categories which seem both inclusive and exclusive of previous identifications (pp. 6-7). A clearer, more coherent and more consistent description of who will be served by this concentration would strengthen this aspect of the proposal and would bring better focus, in general, to discussion of this track.

The demand for the American Philosophy track is not well-documented. This concentration is said to derive “from the international interest in American philosophy, especially in American pragmatism” (Abstract, I.) but “will consist mainly of residents of the Indianapolis,” although it will “attract some of its students from across the country and around the world” (Abstract, II.). “Those who choose the concentration . . . are generally expected to continue either with a professional degree program in law or communication or with a PH.D. program in philosophy, linguistics, American studies, comparative literature, or intellectual history” (Abstract, III.). There are references to several Ph.D. programs for which this track would be a “feeder” (pp. 7, 24 and to “international students” (p.7), as well as to “people whose sole educational aim is to broaden their . . . horizons” (p. 8). As with the Bioethics concentration, this discussion lacks clear focus. In addition, however, it seems largely speculative. Of course, because this program would be unique, forecasts based on data derived from other programs are unavailable. In the end, the justification for this concentration seems to be the interest in exploiting existing strengths in faculty and other resources. Is this justification sufficient? Perhaps the following theme could be developed: “Because this concentration would be unique, clientele projections cannot be carefully documented, and a substantial cohort of students in the early-going cannot be guaranteed. However, once established, the very uniqueness of this concentration, built upon formidable existing strengths, is likely to attract students overtime.”

Should some effort be made to break out from totals of projected students the number expected to enroll in each of the two concentrations?

Similarly, should the proposal seek to allocate total costs and revenues between the two concentrations?

**Indiana University
School of Informatics
Proposal for a
PhD MINOR IN BIOINFORMATICS
April 2, 2002**

The curriculum for a PhD minor in bioinformatics complies with the guidelines established by Indiana University. Twelve (12) credit hours are required for a minor in bioinformatics. The core curriculum consists of graduate level courses in both Informatics and Biology/Computer and Information Science. Electives may be chosen based on personal interests from a broad list of courses in Computer Science, Biology, Chemistry, Medical and Molecular Genetics, and Information Science.

Objectives for PhD Students

- Gain proficiency in the methods and applications of informatics in general and bioinformatics in particular.
- Benefit from the interdisciplinary nature of bioinformatics through coursework in biology, computer science, chemistry, library and information science, and other areas.

Unique Features and Strengths

- A master's program in Bioinformatics is already available, with faculty and curriculum at both the IUB and IUPUI campuses.
- The Center for Genomics and Bioinformatics at IUB, the Center for Medical Genomics at the IU School of Medicine, the Indiana Proteomics Consortium, and the Indiana Genomics Initiative (INGEN) efforts at IUPUI and IUB will stimulate student interest and involvement in bioinformatics.
- Strong units in Biology, Biochemistry and Molecular Biology, Medicine, Medical Genetics, Chemistry, Computer Science, Informatics, and related areas will encourage explorations into various aspects of this interdisciplinary field.

Curriculum for a 12-credit hour PhD Minor

Core Courses

Required Graduate Courses at both IUB and IUPUI Campuses:

INFO I500 Fundamentals of Informatics (3 cr.) An introduction to fundamental principles of computer concepts for Informatics study, including an overview of computer architecture, computer algorithms, fundamentals of operating systems, data structure, file organization and database concepts.

INFO I501 Introduction to Informatics (3 cr.) Basic information representation and processing; searching and organization; evaluation and analysis of information. Internet-based information access tools; ethics and economics of information sharing.

INFO I502 Information Management (3 cr.) Survey of information organization in medical, health, chemical, and biology related areas; basic techniques of the physical database structures and models, data access strategies, management, and indexing of massively large files; analysis and representation of structured and semi-structured medical /clinical/ chemical/ biological data sets.

Required Graduate Course at the IUB Campus:

BIOL L519 Bioinformatics: Theory and Application (3 cr.) (P: INFO I501 and I502; Biology courses covering genetics, molecular biology and evolution; Computer science courses covering programming and data structures.) Overview of theory and applications in bioinformatics, based on fundamentals of molecular biology and information sciences. Topics range from biosequence analysis and phylogenetics through Internet bio-information processing. This course will introduce students to the scope and content of the field of bioinformatics, including core concepts in biological and information sciences, and their fusion for biology information processing. Common problems, data and tools in the field will be outlined.

With approval of the instructor, advanced students could be allowed to substitute L529 for L519.

BIOL L529 Bioinformatics in Molecular Biology and Genetics: Practical Applications (4 cr) (P: L519) The goal of this course is to provide practical experience in a range of data analysis and software engineering methods applied to molecular biology data. Following on an introduction to theory and application in bioinformatics (L519), this course provides the student with intensive training in relevant methods, working with real-world problems in bioinformatics to achieve practical solutions that are needed by biologist researchers.

Required Graduate Course at IUPUI Campus:

CSCI 548 Introduction to Bioinformatics (3 cr) Analysis of biological data employing various computational methods to obtain useful information in bioinformatics. Topics include: structures, functions and evolution of proteins and nucleic acids, retrieval and interpretation of bioinformation from the Internet, learning principles, algorithms and software.

Electives

A student's committee, working in conjunction with an Informatics committee designated to oversee the minor, would decide what elective courses are appropriate for a given student.

The graduate bioinformatics courses in the School of Informatics assume a minimal knowledge of both computer science and biology. That level of understanding could be gained with six undergraduate credit hours of coursework in biology, covering areas of molecular biology, genetics, or evolution and approximately six undergraduate credit hours of computer science or informatics coursework, covering areas of programming, discrete structures and data structures.

For the minor, I500 is expected to impart the required level of competency in computer science. Students with insufficient preparation in computer science must take the I500 course that covers relevant IT topics (operating systems, networks, databases, etc.).

Students who have an excellent background in computer science, but are lacking the necessary biology courses may substitute an appropriate course for I500.

Clientele to be Served

Students in relevant PhD programs such as Biochemistry and Molecular Biology, Medical and Molecular Genetics, School of Medicine, Chemistry, Biology, or Computer Science are the target audience for the PhD minor in Bioinformatics.

Student Financial Support Available

Financial support for a PhD minor in bioinformatics must come from the individual departments/schools where the students are pursuing their PhD degrees. The School of Informatics will not provide financial benefits or rewards to the students enrolled for a PhD minor in bioinformatics.

Evidence of Student Demand

A number of faculty from the IU School of Medicine have indicated a strong desire for their students to have the option of a minor in Bioinformatics. On the Bloomington campus, there have been frequent inquiries about a possible minor from students in the Molecular Biology and Biochemistry PhD programs. Supporting letters from chairs of various departments at both Bloomington and Indianapolis are included in the appendices.

Employment Possibilities for Graduates

- Bioinformatics skills are valuable assets to a growing variety of businesses in the healthcare, pharmaceutical, and laboratory instrumentation industries.

- Demand in the biotechnology industries for people with bioinformatics skills remains quite high.
- Though less rewarding financially, numerous employment possibilities for bioinformatics professionals are also available in academia.

The articles listed below speak to the demand for graduates who have bioinformatics skills.

Attwood, Teresa K. "Genomics: The Babel of Bioinformatics." *Science*. 2000 October 27; 290: 471-473.

Brent, Roger. "Genomic Biology." *Cell*. 2000 January 7; 100: 169-183.

Henry, Celia M. "The Hottest Job in Town." *Chemical & Engineering News*. 2001 January 1; 79(1): 47-55.

Henry, Celia M. "Careers in Bioinformatics." *Chemical & Engineering News*. 2002 January 7; 80(1): 47-48, 53.

Kreeger, Karen Young. "A Look at What's in Demand Within Life Sciences." *The Scientist*. 2000 May 1; 14(9): 29.

Roos, David S. "Computational Biology: Bioinformatics—Trying to Swim in a Sea of Data." *Science*. 2001 February 16; 291: 1260-1261.

Stone, Brad. "Wanted: Hot Industry Seeks Supergeeks." *Newsweek*. 2001 April 30; 54-56.

Relevant Faculty Expertise

The minor program will build on existing graduate programs in bioinformatics at the Indianapolis and Bloomington campuses. A Master of Science in Bioinformatics is offered in the School of Informatics at both campuses, and there are plans to expand the program as soon as possible to a PhD program.

Bioinformatics gathers knowledge and information from various fields such as Informatics, Chemistry, Computer Science, Medicine, and Biology. The bioinformatics teaching team in the School of Informatics consists of experienced faculty from all of the above disciplines. In addition, other faculty members in these and related fields are fully capable of teaching certain aspects of bioinformatics. It is anticipated that School of Medicine faculty will contribute their expertise to relevant segments of the curriculum, as their involvement in bioinformatics grows. In addition, scientists from Eli Lilly have offered to participate as guest lecturers in the courses.

The following are the core bioinformatics faculty who are associated with the School of Informatics. Copies of their CVs are included in the appendices to this proposal.

- Dr. Sun Kim (IUB)
- Dr. Jeffrey Huang (IUPUI)
- Dr. Narayan Perumal (IUB)
- Dr. Donald Gilbert (IUB)
- Dr. Snehasis Mukhopadhyay (IUPUI)
- Ms. Sue A. Olson (IUB)

Resources Required

Much of the required software and hardware is already in place at Indiana University. Bioinformatics greatly benefits from the availability of a significant amount of public domain software and databases. IU is fortunate in having on site one of the foremost experts in accessing the massive amounts of free information. Don Gilbert's IUBio Archive, an archive of biology data and software, including GenBank and related biosequence data searching and Bionet network news, is maintained at IUB (<http://iubio.bio.indiana.edu/>).

Supplementing the public domain sources is a significant amount of software and hardware maintained by UITs. For example, UITs's INGEN Information Technology Core has expanded IU's IBM RS/6000 SP to provide supercomputing facilities for INGEN-related activities. The IBM's architectural flexibility allows a portion of the system to be dedicated to INGEN most of the time, while the remainder is available for other uses, presumably including teaching functions. Licensed commercial software packages include the Wisconsin GCG and SeqWeb packages for the analysis of molecular sequences. They run on IU's Sun E10000 supercomputer. Increased demand may eventually require the purchase of additional licenses for commercial software and/or equipment, but at the present time, the existing resources seem adequate.

Impact on Undergraduate and Other Graduate Programs

By bringing together students from diverse disciplines, we expect to see cross-fertilization of ideas and deeper understanding of the potential application of bioinformatics techniques to a wide range of research areas. Graduate enrollments may even be increased by the addition of a minor in this important emerging field.

Compatibility with University and Campus Missions

This will be the first PhD minor offered by the School of Informatics at Indiana University. It will be funded and supported by the Department of Biology, School of Informatics, the School of Medicine and other interested units because it provides training in tools and techniques that significantly assist research in those fields.

Appendices

- I. Supporting Statements
 - A. Robert A. Harris, Chairman of Biochemistry and Molecular Biology, School of Medicine
 - B. Gail H. Vance, Interim Chairperson, Department of Medical and Molecular Genetics
 - C. Jeffrey Palmer, Chair, and Elizabeth Raff, Director of Graduate Studies, Department of Biology, IUB

- II. Curriculum Vitae
 - A. Donald G. Gilbert
 - B. Jeffrey Huang
 - C. Sun Kim
 - D. Snehasis Mukhopadhyay
 - E. Sue A. Olson
 - F. Narayan B. Perumal

Review of Proposal for
PhD Minor in Bioinformatics

Documents Reviewed:

The full hard copy proposal

Summary:

This is a proposal for a 12 credit hour minor in Bioinformatics which will be offered on both the IUB and IUPUI campuses. There are Master=s programs in Bioinformatics on both campuses already.

The proposal lists four 3-credit, required core courses for IUPUI: I500, I1501, I1502 and CSCI 548.

Recommendation:

Accept with discussed revisions.

Discussion:

The need for this minor is clear for students in Ph.D. programs such as Biochemistry and Molecular Biology, Medical and Molecular Genetics, Chemistry, and Biology, and letters to support the minor from several of these department chairs were enclosed with the application.

Since there is a Masters program in place, there are graduate courses and faculty and I imagine that the courses listed for the minor are a part of the masters program.

My concerns are

1. A need for information:

A list of courses required and for electives for the masters would be informative.

It would be nice to see who is going to teach each of the required courses for the minor- some can be gleaned from the CV=s attached but not all.

2. The required courses use up the full 12 hours. I see how these would be appropriate but it is more usual to allow some flexibility in a minor...Will this discourage students from the minor?

3. When flexibility is introduced (p 3, electives) it is somewhat confusing. Apparently I500 is equivalent to 6 hrs of undergraduate credits in computer science; is this true? From the perspective of a person with an excellent background in computer science and doing a PhD in computer science or chemistry and who lacks the biology/ molecular biology background, it is suggested that an appropriate biology course may be substituted for I 500. It seems unlikely that one biology course (which??) would make up for this lack of background.

4. It might be appropriate to include evidence (a letter?) that there will be time on the IBM RS/6000 SP for teaching functions.

May 25, 2002

Outline for Reviewers Comments

Proposal for PhD Minor in Bioinformatics by IU School of Informatics

Documents reviewed: IU School of Informatics Proposal for a PhD Minor in Bioinformatics

Summary: A twelve-credit PhD minor is proposed by the IU School of Informatics, which is designed for students in Biochemistry and Molecular Biology, Medical and Molecular Genetics, School of Medicine, Chemistry, Biology, or Computer Science.

Recommendation: Accept with discussed revisions.

Discussion:

The proposed PhD minor is a feasible program which should be of interest to students from medicine, biology, and chemistry.

The courses proposed are appropriate, the faculty involved are qualified – even though too few to form a critical mass.

The following points should be considered before approval:

1. Since the backgrounds of the students taking the required courses in the program may vary, it would be a good idea to indicate the prerequisites of all the required courses listed – at least in terms of topics. Only the IUB biology courses show prerequisites, while INFO I500, INFO I501, INFO I502, and CSCI 548 do not show any prerequisites.
2. Even though the required course I500 seems to provide the background needed for computer science module of the degree, there does not seem to be an equivalent course, which covers the biology prerequisites. A course should be identified for the needed background.
3. It would be better to indicate the primary department and school appointments of the faculty listed in the program. This may be added to the list on page 5 of the proposal. It is not clear who are the major coordinators of the required courses.

As a caveat, it appears – from the backgrounds and appointments of the faculty – that there is no strong integration between biology and computer science disciplines, especially at IUPUI, where all involved faculty (only two) are in computer and information science, with no participation from biology. More effort should be given for integration of these disciplines if bioinformatics is to be a viable program.