UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

EP.09.75

Office of the Provost and Vice Chancellor
for Academic Affairs

Swanlund Administration Building
601 East John Street
Champaign, IL 61820

April 1, 2009

Abbas Aminmansour, Chair
Senate Committee on Educational Policy
Office of the Senate
228 English Building, MC-461

Dear Professor Aminmansour:

Enclosed is a copy of a proposal from the Graduate College and the Illinois Informatics Institute (I3) to establish an Informatics Ph.D. Program.

This proposal has been approved by the Graduate College Executive Committee. It now requires Senate review.

Sincerely,

Jason Kosovski
Assistant to the Provost
for Communication

JRK/dkk

Enclosures

c: D. Dutta
C. Livingstone
B. Schatz
J. Unsworth

telephone (217) 333-6677 • *fax* (217) 244-5639

UNIVERSITY OF ILLINOIS
AT URBANA - CHAMPAIGN

Kelly A. Tappenden, Ph.D., R.D.
Associate Dean

Graduate College
202 Coble Hall, MC-322
801 South Wright Street
Champaign, IL 61820-6210
www.grad.uiuc.edu

March 25, 2009

Kristi Kuntz
Assistant Provost
Office of the Provost
207 Swanlund, MC-304

Dear Kristi:

Enclosed is the 'Proposal for a Informatics PhD Program (IPP), a graduate degree program administered by the Illinois Informatics Institute (I3), in collaboration with a sponsorship by the Graduate College'. The Graduate College Executive Committee voted unanimously to approve it.

I send it to you now for further review.

Yours truly,

Kelly Tappenden, Ph.D., R.D.
Associate Dean, Graduate College
Professor of Nutrition and
Gastrointestinal Physiology

Enclosure

c: B. Schatz
J. Unsworth
D. Dutta

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Proposal to the Senate Educational Policy Committee

PROPOSAL TITLE: Establish a new Informatics PhD Program (IPP), administered by the Illinois Informatics Institute (I^3), in collaboration with and sponsorship by the Graduate College

SPONSOR: John Unsworth, Illinois Informatics Institute, unsworth@illinois.edu, (217) 333-3281, and Debasish Dutta, Dean , Graduate College, ddutta@illinois.edu, (217) 333-0035

COLLEGE CONTACT: Guy Garnett, Illinois Informatics Institute, garnett@illinois.edu, (217) 898-3396, Deanna Raineri, Associate Dean, College of Liberal Arts and Sciences; Associate Director, Illinois Informatics Institute, raineri@illinois.edu, (217) 333-2025

BRIEF DESCRIPTION:

A campus committee was formed in December 2007 to establish a new PhD program in Informatics under the aegis of the Illinois Informatics Institute (I^3). The PhD Development Committee spanned the campus and was representative of the broad interest for a new degree program. The committee met during the Spring 2008 semester and submitted its Recommendations in May 2008. These are reproduced in Appendix I below.

I^3 was established in September 2007 in response to the University of Illinois at Urbana-Champaign Strategic Plan recommendation for enhancing our national prominence in information and computation by leveraging informatics to enhance the campus overall. The mission of I^3 is to "invent the information environments of the future and educate those who would build and use them." I^3 was established at the University of Illinois to foster multi-disciplinary collaboration, offer courses and academic programs, and sponsor interdisciplinary research in informatics and its applications.

Informatics, generally, is the study and the application of information technology in any field, including the consideration of the impact of technology on individuals, organizations, and society. Informatics applications use computation

as a universal tool to solve problems, to communicate, and to express ideas. The term "informatics," as we use it here, includes the study of the structure and behavior of natural and artificial systems that generate, process, store, use, and communicate information. It also includes the development and application of such systems to solve problems in any research domain including the sciences, humanities, or arts. Research and education in informatics has a strong interdisciplinary flavor as it involves experts in the information and computation foundations together with experts in the application areas. The PhD program presented here serves to provide better support for such interdisciplinary research, to allow great flexibility in creating new fields of research enabled by the development and application of new technologies, and to position Illinois to be an international leader in this field with a strong capability to shape it.

The proposed Informatics PhD Program (IPP) will be a new degree program at Illinois structured similar to existing campus interdisciplinary programs, such as Neuroscience or Biophysics. IPP will bring together on an equal footing faculty working in various application areas, faculty working in information and computation foundations, and interdisciplinary faculty conjoining the two. IPP will support its own admissions processes by way of an interdisciplinary admissions committee, with graduate students admitted directly to the IPP program. Our goal is to build an international reputation in Informatics, shaped by existing faculty expertise, and ramping up over several years to 50+ enrolled students.

I^3 will administer the graduate degree program in Informatics but will not host faculty lines. Participating faculty will be formally associated with I^3, but their faculty lines will reside in other campus units. An initial list of participating faculty, drawn from across campus, is listed below in Appendix II under the heading: "Initial List of Informatics Areas with Committed Faculty and Courses." Similarly, most of the courses for the IPP will be drawn from courses already offered by existing campus units. In anticipation of the new program, the Provost's Office has created a Dissertation course, INFO 599. Students in the Informatics PhD will register for dissertation supervision under INFO 599. I^3 currently hosts its own courses through the INFO rubric (mostly in support of the Informatics minor), and, as the IPP becomes self-supporting, graduate INFO courses may be developed to support it. The Graduate College will serve as the academic home for the proposed PhD degree.

The *Signature* of the Informatics PhD Program is that students must be capable of professional quality research at the intersection of Applications and Foundations. That is, they must be peers of the best students at their applications (the 'X' in X-informatics) and peers of the best students at their foundations (computational methodologies and practices). Achieving this level of dual expertise is one of the goals of graduate study.

The *Quality* of the Program is managed by requiring the students to take 500-level graduate courses including at least two in their applications area and two in their

foundations area, and by a suitably broad composition of their advisory committee. The IPP Governing Committee must approve the Advisory Committee (first half of studies) and the Dissertation Committee (second half of studies) for each student.

We expect that each student will craft his or her own program of study, with custom application and foundations appropriate for this application. Existing initial applications areas (Areas) are listed in the Appendix II, along with initial supporting faculty and existing courses. These lists demonstrate that sufficient critical mass already exists at Illinois to begin a PhD program immediately.

The administrative structure of the Informatics PhD Program is proposed as follows. There will be an IPP Governing Committee, which makes strategic and programmatic decisions, and an Academic Professional Coordinator who manages the Program on a daily basis. The Governing Committee will have a Chair appointed by the Director of I^3. The members of the Governing Committee will be nominated by participating Colleges and Units at the request of the Director of I^3. The Governing Committee handles curriculum requirements, coordinates admissions and aid among the Areas, and approves the student's Advisory and Dissertation Committees. The Governing Committee will span the campus, including a representative from each Area of Informatics and a representative from the Graduate College. The IPP administration will make use of the infrastructure of the Illinois Informatics Institute, including the Academic Professional Education Coordinator, space, and other administrative staff and resources.

JUSTIFICATION:

The economic and social importance of information technology spurred the formation of the Illinois Informatics Institute. According to the Bureau of Labor Statistics, 1 of every 4 jobs between now and 2012 will be IT-related. Informatics PhD graduates will be in great demand in Schools of Information Science and in Schools of Informatics, in academic departments that embrace varieties of "X-Informatics" research, and for industrial R&D companies in the computing, media, and communications industries among others[1].

The new program will meet the needs of the Illinois Board of Higher Education's Public Agenda by contributing to making the Illinois populace among the best educated in the world especially with respect to new technologies. Graduates of the Informatics PhD Program will lead the way in the modern information economy and will develop the new leading edge.

Graduates of the various Areas in the Informatics PhD Program will become leaders in their fields. For example, as discussed in more detail in Appendix III[2], the Art and Culture Informatics Area "will attract top-quality students because it is breaking new ground in the United States while contributing to the rise of a

[1] See support letters in Appendix IV from NASA, ADM.

[2] See Appendix III, "Competitiveness Statement for Informatics Ph.D. Arts and Culture Area."

global arts research community. Just fifteen 'arts and technology' doctoral programs are offered currently in the United States."

Schools of Information and Information Science include programs like the Graduate School of Library and Information Science here at Illinois, part of a group called the Ischools, which represents more than 20 such schools in North America and abroad, including programs at Michigan, Berkeley, Toronto, Carnegie-Mellon, Texas at Austin, Penn State, and others (the entire list is at www.ischools.org). These schools describe themselves as being "interested in the relationship between information, people and technology," and they regularly employ faculty (and research scientists) in informatics.

Schools of Informatics are common in Asia and Europe, such as the School of Informatics at Kyoto University in Japan that split off Computer Science and other more applied departments from the College of Engineering to become the model for informatics across Asia.

The School of Informatics at Indiana University (a member of the Ischools consortium) was the first so named in this country; it absorbed the Department of Computer Science, in addition to supporting interdisciplinary research around campus. This School hosts a PhD program with separate tracks for different informatics applications. Arizona State University has recently also started a School of Informatics within the College of Engineering. The first Department was Computer Science, and the University has also committed to a new Department of Biomedical Informatics that is rapidly filling 15 new faculty lines. Several other universities have Departments of Informatics or Applied Computing within a School of Computing, e.g. University of California at Irvine, Georgia Institute of Technology, Carnegie-Mellon University.

Most of the Ischools and all the Schools and Departments of Informatics are hosting interdisciplinary PhD programs in Informatics. Our proposed program is more flexible than most in being able to draw on the expertise, teaching, and mentoring of faculty members and courses across the entire campus, rather than solely within the unit, thus leveraging the strengths in informatics that are already widely distributed on our campus. Our proposed program is also more flexible in allowing the formation of new applied informatics areas that can grow out of one or more existing campus units and be nurtured within the IPP. This nurturing process is important: I^3's nurturing has already led to the formation of seven initial areas, described in Appendix II. Within these initial areas, the flexibility of the new IPP is also a huge plus. For example, the Art and Culture Area offers this comparison to existing related programs:

> Although two other colleges within Illinois offer doctoral degrees in "arts and technology," the one from a sister institution (University of Illinois-Chicago, via the Electronic Visualization Laboratory) focuses on computer science research rather than arts research (which is this proposed degree's emphasis) and the other (Illinois Tech) is focused on design rather than fine arts. Both programs emphasize practice-based research, which is a component of the proposed degree, but neither incorporates a

critical studies dissertation, drawing upon a humanistic analysis of arts practice and its cultural dynamics.[3]

Locally, campus degrees such as the PhD from the Neuroscience Program at Illinois have been helpful as a model for our proposal. Such degrees also permit each student to craft a custom program of study, with faculty and courses across campus. Other well-regarded programs within existing UIUC departments also have similarly flexible requirements (no specific course requirements) both for north campus (e.g. Electrical and Computer Engineering) and for south campus (e.g. Communication).

The initial Areas of Informatics will be Bioinformatics, Medical Informatics, Spatial Informatics, Art and Cultural Informatics, Design and Societal Informatics, Data Analytics and Information Visualization, Cognitive Science and Language Processing. These Areas were determined by the committee to meet existing and unmet student demand, to require strong interaction across existing units, and to be supportable by existing groups of faculty and existing courses. We excluded some of the interdisciplinary areas that are covered by programs in other universities either because we lack a critical mass of interested faculty, or because IPP would not significantly enhance existing alternatives. For example, since there is an existing PhD program within the Center for Biophysics and Computational Biology, we would not create a parallel Informatics area. On the other hand, the committee felt that Biological Informatics (Bioinformatics) was not sufficiently represented in existing programs, so this application would have an Area. We have also included areas like Human-Computer Interaction, which is part of Data Analytics and Information Visualization Area, where there is existing faculty and student interest (in Computer Science and in GSLIS) but where an Informatics Ph.D. could help to coalesce this interest across units. As the program evolves, we expect that the Areas will be adjusted to reflect student interests, faculty skills, and campus needs.

BUDGETARY AND STAFF IMPLICATIONS:

See Appendix A for more details.

a. Additional staff and dollars needed

The Illinois Informatics Institute will provide administrative staffing, student aid, space, and other resources to support this program, as detailed in the Appendix and in the letters of support.

b. Internal reallocations (e.g., change in class size, teaching loads, student-faculty ratio, etc.)

[3] See p. 3 of the Appendix, "Competitiveness Statement for Informatics Ph.D. Arts and Culture Area."

None.

c. Effect on course enrollment in other units and explanations of discussions with representatives of those departments

The program will be very small and spread over a large number of campus units. No one unit will be burdened by it.

d. Impact on the University Library

See attached letter from the University Librarian. Because the applications areas already exist on campus, we do not expect any new Library resources are needed.

e. Impact on computer use, laboratory use, equipment, etc.

Since students will be working directly with supporting faculty for any labs or other resources, we do not anticipate any particular impact.

DESIRED EFFECTIVE DATE: Fall 2010

STATEMENT FOR PROGRAMS OF STUDY CATALOG:
Department Name: Illinois Informatics Institute, http://www.informatics.uiuc.edu
Head of Department: John Unsworth, Director
Degrees offered: Undergraduate Minor, BioInformatics Masters, Ph.D.
Contact: Judy Tolliver, tolliver@illinois.edu, (217) 333-2322

Graduate Degree Programs

The Illinois Informatics Institute (I^3) offers a PhD in Informatics. Informatics is the study and the application of information technology in any field, including the consideration of the impact of technology on individuals, organizations, and society. Informatics applications use computation as a universal tool to solve problems, to communicate, and to express ideas. The term "informatics," as we use it here, includes the study of the structure and behavior of natural and artificial systems that generate, process, store, and communicate information. It also includes the development and application of such systems to solve problems in any research domain including the sciences, humanities, or arts. Research and education in informatics has a strong interdisciplinary flavor as it involves experts in the information and computation foundations, together with experts in the application areas. The Informatics PhD Program allows great flexibility in creating new fields of research enabled by the development and application of new technologies, and positions its graduates to be leaders in their field.

Since Informatics is highly interdisciplinary, courses are offered through departments and academic units throughout the University depending on the student's individual area of study.

The Signature of the Informatics PhD Program (IPP) is that students must do professional quality research at the intersection of Applications and Foundations. That is, they must be peers of the best students at their applications (X-informatics) and peers of the best students at their foundations (computational methodologies and practices). For admissions purposes, this typically means students would have a Bachelors degree in one area and a Masters degree in the other relevant area. It is expected that incoming students will be prepared, through academic studies or the equivalent in experience, for graduate level work in both their applications and in their foundations areas.

Admission Process

The Informatics PhD Program will admit graduate students who are approved by the Governing committee in conjunction with representatives of the Areas. With the approval of the appropriate committees, students may be admitted to the program with only a Bachelor's degree. They will work with their Advisory Committee to define appropriate courses to fulfill the 32 hours of Masters-level work. If they wish to receive a Masters degree, they will need to apply to a relevant department and meet the departments existing Masters degree requirements. If they already hold a Masters degree approved by the IPP Governing Committee, they will receive graduate credit for 32 hours.

The Governing Committee of the Informatics PhD Program spans the campus, including a representative from each Area of Informatics. The admissions process will consist of a formal application, specifying experiences, courses, interests, and letters of recommendation. Details are available at:
https://www.informatics.uiuc.edu/display/infophd/Home.

All applicants whose native language is not English must submit a minimum TOEFL score of 100 (IBT), 250 (CBT), or 600 (PBT); or minimum International English Language Testing System (IELTS) academic exam scores of 6.5 overall and 6.0 in all subsections. For those taking the TOEFL or IELTS, full admission status is granted for scores greater than 102 (TOEFL iBT), 253 (TOEFL CBT), 610 (TOEFL PBT), or 6.5 (IELTS). Limited status is granted for lesser scores and requires enrollment in English as a Second Language (ESL) courses based on an ESL Placement Test (EPT) taken upon arrival to campus.

Doctor of Philosophy

The Chair of the Governing Committee will appoint the supervising committee to approve each student's program of study, which will be called the Advisory Committee (first half of studies) and then the Dissertation Committee (second half of studies). The membership of these committees should remain constant for each half of the student's studies, except in unusual circumstances, but may typically change when it is constituted for the dissertation. In any case, changes to the supervising committees must be approved by the IPP Governing Committee. The student is apprised of progress after each year. This Committee must contain faculty with expertise in both the Applications area and the Foundations area chosen by the student, including at least four faculty members of the Informatics Program.

Requirements

	Required Hours – Entering with approved M.S. degree	**Required Hours – Entering with approved B.S. degree***
Required Courses:		
Orientation Seminar	1	1
Research Practicum (4 hrs., two semesters)	8	8
Applications Courses (2 courses at the 500 level from approved list)	8	8
Foundations Courses (2 courses at the 500 level from approved list)	8	8
Thesis Hours Required (min/max applied toward degree):	32 min	32 min
Electives	7	7
Masters Degree	0	32 hours[4]
Total Hours	64	96
Qualifying Exam Required	Yes	Yes

[4] Students entering without a Masters degree approved by their Advisory Committee, will be required to take 32 additional credit hours in 400 and 500 level courses approved by their Committee.

Preliminary Exam Required	Yes	Yes
Final Exam/Dissertation Defense Required	Yes	Yes
Dissertation Deposit Required	Yes	Yes

In Year 1, students must take the Orientation Seminar, which is a sampler of faculty research with speakers from each Area. This seminar course carries 1-hour credit, but does not count towards degree requirements. Since our students will be spread across campus, this seminar guarantees that they will interact with all of their entering classmates and gain exposure to a broad range of informatics research areas. This reinforces the highly interdisciplinary nature of the program.

All students are expected to meet professional informatics levels of knowledge in programming/databases and in mathematics/statistics, or other technical field, as relevant to their area. The level is judged by their Advisory Committee, and will vary depending on the Area chosen. Some students may already be at an adequate level, while others may require remediation. Their committee will develop a plan for achieving an adequate level, including research experiences and additional coursework, and will monitor students' progress within the remediation plan.

Students must take 4 courses, determined by their advisory committee, 2 in Applications and 2 in Foundations. These 4 courses will form the heart of their studies and are intended to provide the basic discipline knowledge and must be at the 500 level. Typically, these would be taken as soon as possible but at least by the end of the second year, with any pre-requisite 400 level courses taken in Year 1. The timing depends on prior preparation. The Signature for interdisciplinary informatics is to require courses in *both* Applications and Foundations. Applications are the subject matter courses for a particular Area, while Foundations are the particular information technology methods, such as programming, databases, etc., that are appropriate for that Area. Courses below the 500 level cannot be used to fulfill these basic requirements, although they can be counted as part of the total course load required.

As soon as they have sufficient preparation, students must take 2 Research Practicums. These are intended to be research supervised by faculty members in their area or related areas, and will be designed to have a definite output, such as a paper or demonstration project, and will be relevant to the thesis work or preparatory work to support the thesis. A full semester practicum usually will be taken under 2 different Informatics faculty, but with the concurrence of their advising committee may be both taken under a single faculty member.

Each student can choose the standard applications and foundations of an established Area, or, with the approval of their advisory committee, choose custom applications and foundations across Areas. Since we expect that many students will establish new areas of research, courses outside those listed are also permitted, with the approval of the student's committee.

The required courses will usually be taken by the end of Year 2, but may be taken later if the student needs further preparatory work before being ready for 500 level courses. After completing the required courses, a student must take an Area Qualifier to demonstrate breadth of knowledge in their chosen area, whether standard or custom. Such a Qualifier will consist of written questions and an oral examination prepared by the student's Advisory Committee.

After passing their Area Qualifier, students must form a Dissertation Committee. The membership may overlap with the Advisory Committee. The Committee must contain 4 members of the Graduate faculty, who are also Informatics faculty. At least 2 must be tenured, and the 4 must cover all aspects of the dissertation, including Applications and Foundations. Due to the applied nature of informatics, a fifth member external to the University is highly encouraged, such as an industrial researcher.

The second half of the program is devoted to the Dissertation research, which students typically carry out during Years 3 and 4. When ready, they must pass the Preliminary Examination, which is the dissertation proposal approved by their committee. When finished, students must present an acceptable Dissertation then pass the Final Examination, which is the dissertation defense, to graduate from the Program. A well prepared student would thus pass the Prelims in Year 3 and the Finals in Year 4, to earn a PhD within 4 years of entering the Program.

Financial Aid

Fellowships, research assistantships, and teaching assistantships (all of which include tuition and partial fee waivers) are awarded on a competitive basis. All applicants, regardless of U.S. citizenship, whose native language is not English and who wish to be considered for teaching assistantships must demonstrate spoken English language proficiency by achieving a minimum score of 50 on the Test of Spoken English (TSE), 24 on the speaking subsection of the TOEFL iBT, or 8 on the speaking subsection of the IELTS. For students who are unable to take the TSE, iBT, or IELTS, a minimum score of 50 is required on the SPEAK test, offered on campus. All new teaching assistants are required to participate in the Graduate Academy for College Teaching conducted prior to the start of the semester.

CLEARANCES:

Signatures:

Bruce Schatz

Sponsor (Bruce Schatz, Director of Graduate Programs, Illinois Informatics Institute)

John Unsworth, Director, Illinois Informatics Institute — Date: 3/30/09
College Representative

Deba Dutta, Dean, Graduate College — Date: 3/30/09
Graduate College Representative

Provost Representative: — Date:

Educational Policy Committee Representative: — Date:

Appendix A:
(Notes on Budgetary and Staff Implications)

We propose to begin the program with existing courses to cover requirements. Informatics graduate students will each choose, with the guidance and approval of their committees, their own custom program of study:

- Student applicants must be evaluated with the available courses in mind. The IPP Governing Committee must ensure that appropriate courses are available for those students who are admitted. This will entail coordination with the offering departments. Such coordination should be relatively easy since participating faculty typically will be drawn from the offering departments.
- Since students will be admitted in a wide variety of subject areas, no one graduate course should be unduly burdened by the new students: Students from different disciplinary areas taking widely distributed courses will ease any burden on a particular course. Thus the increased enrollment in courses taken by Informatics students should prove to be minimal. The IPP Governing Committee will monitor and ensure balance among different areas so that no course or group of courses become over subscribed.
- As the program matures and resources are obtained, the IPP curricular requirements may help guide the hiring of new faculty under campus strategic initiatives, as resources become available.

To be a competitive program nationally, IPP is committed to ensuring that its graduate students receive adequate financial support for at least four years. With other interdisciplinary PhD programs such as Biophysics or Neuroscience, students are supported outside of the program itself. Some are supported with research assistantships through external grants to a faculty or research center, while others are supported with teaching assistantships through internal monies from a department. IPP will rely on the same sources of funding for student support, and our staff will work to match student skills and interests with campus needs and resources. Each Area of Informatics will need to show sufficient support for the students it wishes to admit. We anticipate that this will be most problematic in areas that are traditionally under resourced. However, the enthusiasm for the new program is such that Colleges and units are stepping forward with commitments of critical resources for the program. For example, the Art and Cultural Informatics Area has received the commitments listed below[5] from the College of FAA, the eDREAM Institute, and I^3.

- Recurring commitment to support one student per year from the College of Fine and Applied Arts (See letter from Dean Graves).
- Ongoing commitment from the Illinois Informatics Institute for the life of the institute to support one student for two years, with the understanding that the

[5] See the support letters section, Appendix IV.

Governing Committee and the student's Advisory Committee will have identified and secured new funding for the student after the second year. (See Director John Unsworth's letter of support.)

- Ongoing commitment from eDream (Emerging Digital Research and Education in Arts Media Institute) for the life of the institute to support a minimum of one student each year (with five years of funding initially available). (See Director Donna Cox's letter of support.)
  (See Appendix[6] for a more complete statement on this program's competitiveness.)

To achieve its mission of enabling informatics across the entire campus, I^3 will also support some students through assistantships in its centers. This is particularly important for Area where external funds are not commonly available. Besides the specific commitment above of one Fellowship to support the Art and Cultural Informatics Area, I^3 will provide two research assistantships, for two years each, in the centers it administers such as CHASS (Computing in Humanities, Arts, and Social Sciences) and CII (Community Informatics Initiative). After this initial period, the individual center would need to cover the student's costs, or other sources would need to be identified such as TA-ships in related departments. In addition, I^3 will support teaching assistantships where possible to help with the various Informatics courses taught under the INFO rubric. For specific details of I^3's commitment, see the letter from Director Unsworth in Appendix IV.

I^3 will provide administrative support for IPP. Current staff includes an Education Coordinator, a Communications Coordinator, and an administrative assistant. As the PhD program grows, we may hire a part-time or full-time PhD Coordinator to manage the program, depending on the income of the program and the demand for its services. This staffing will be critical to our recruitment of the finest students. Together they will oversee the creation and distribution of recruitment materials, ensure widespread publicity, and generally assist the faculty in attracting new students.

We expect each of the 7 initial Areas to each recruit 1 or 2 students initially. As we develop more sources of funding, this may grow.

The program will be fairly small, distributed widely across campus, and the library resources are mostly electronic, as befits an informatics program. The applications areas for informatics already exist on campus, so the required electronic databases are already subscribed to on campus. Thus, we expect the increased burden on the University Library to be minimal.

In the past, many of the proposals for revised curricula and programs submitted to the Senate Educational Policy Committee have carried the claim, "Budgetary and Staff Implications: None." Yet some of these proposals have called for increases in required courses or hours of

[6] See "Competitiveness Statement for Informatics Ph.D. Arts and Culture Area" in Appendix III. This document was prepared by Kelly Searsmith, Associate Director of eDREAM.

faculty-supervised experience; some have projected that more students would enroll in the program when the proposed change was put into effect; some programs even increased the total number of hours or courses required for a degree. Presumably, the words "Budgetary and Staff Implications: None" meant that the unit proposing the change was not requesting new dollars or faculty lines to implement the change. However, it is difficult to see how there can be increases in the number of required courses or students served without entailing budgeting implications. If new dollars are not allocated to meet these increases, the increases may be covered by offering current classes less frequently, by increasing class size, or by increasing faculty workloads.

The Committee is concerned that in many cases the faculty of a unit may agree to accept increased class size or larger workloads because they perceive that changes requiring additional dollars will be difficult or impossible to achieve. While such a decision may indeed be defensible, a pattern of such decisions represents an erosion in faculty compensation and may, if class size is increased, lead to an erosion in educational quality. Less frequent scheduling of present courses may also have broad educational policy implications.

When courses outside the sponsoring unit are required, the units offering those courses may say routinely that yes, they can accommodate the additional students, when in fact the sections presently offered may already be full or even be overenrolled. If this is the case, the new or revised program obviously has budgetary implications for the campus even if the sponsoring department requests no additional funds. EPC requires written concurrence from the executive officer of any unit offering courses outside the unit sponsoring the proposal.
Finally, new or revised programs may well require additional library acquisitions, allocations of computer time, access to laboratories, or other support services, all of which have budgetary implications.

Providing information about internal reallocations, the effect of the change on enrollments in other departments, and the impact in auxiliary units will help the Educational Policy Committee make better decisions and help the college and campus incorporate the budgetary implications of new and revised programs in a more timely and deliberative manner.

Appendix I: Informatics PhD Development Committee and Recommendations

Informatics PhD Development Committee (Spring 2008)

Professional Schools
Bruce Schatz (Chair), Medical Information Science (Head)
Michael Twidale, Library & Information Science
Lanny Arvan, Business (CIO and Associate Dean)
College of Engineering
ChengXiang Zhai, Computer Science (former Director, Bioinformatics MS Program)
Michael Loui, Electrical & Computer Engineering (former Associate Dean Graduate College)
College of Agricultural, Consumer, and Environmental Sciences (ACES)
Gustavo Caetano-Anolles, Crop Sciences (Bioinformatics MS Program)
Sandra Rodriguez-Zas, Animal Sciences (Director, Bioinformatics MS Program)
Matthew Hudson, Crop Sciences
College of Liberal Arts & Sciences (LAS)
Biological, Physical, & Quantitative Sciences
Jim Slauch, Microbiology (Director, Medical Scholars Program)
Martin Gruebele, Chemistry (Director, Biophysics PhD Program)
Richard Braatz, Chemical & Biomolecular Engineering
Douglas Simpson, Statistics (Head)
Social & Behavioral Sciences
Charles Roseman, Anthropology
Shaowen Wang, Geography
John Hummel, Psychology
Humanities & Arts
Richard Sproat, Linguistics
Christian Sandvig, Speech Communication
College of Fine and Applied Arts
Guy Garnett, Music
Ex-Officio
Marc Snir, Director I^3 at time of Committee meetings (former Head, Computer Science)

Deanna Raineri, Associate Director I^3 (CIO and Associate Dean, LAS)
Judy Tolliver, Coordinator I^3 Education Programs
Kelly Tappenden, Associate Dean Graduate College (Nutritional Sciences PhD Program)
Mary Lowry, Graduate College representative

Summary of Recommendations by Informatics PhD Development Committee (May 1, 2008)

The *Signature* of the Program is that students must do professional quality research at the intersection of Applications and Foundations. That is, they must be peers of the best students at their applications (X-informatics) and peers of the best students at their foundations (methodologies). Achieving this level is the goal of the Informatics PhD Program.

The *Quality* of the Program is managed by requiring the students to take 500 level graduate courses in both Applications and Foundations, and by suitably broad composition of their committee. The Informatics Program must approve the Advisory Committee (first half of studies) and the Dissertation Committee (second half of studies) for each student.

We were encouraged that the well-ranked Neuroscience Program at Illinois uses essentially this structure. Also that well-ranked departmental programs at Illinois also had only flexible requirements (no specific course requirements) both for north campus (e.g. Electrical and Computer Engineering) and for south campus (e.g. Speech Communication). So this plan will enable us to insure both Signature flexibility and Quality control.

A graduate program at Illinois is 96 hours. Typically this is 3 parts: 32 for MS courses (400 level), 32 for PhD courses (500 level), 32 for dissertation credits. Students entering with a suitable MS can skip the first part and graduate in 4 years, with the first half being courses and the second half being dissertation. Students entering without a suitable MS will take 5 years.

For the PhD courses, the Informatics Program requires 2 Research Practicums (lab rotations), 2 Applications courses (at 500 level), 2 Foundations courses (at 500 level) all for some coherent plan of X-informatics. This will supply 24 of the 32 PhD course hours. Normally, the student will also take at least 2 specialty courses for the remaining PhD courses (8 courses times 4 hours is 32 hours). We encourage informatics courses to include projects to be worth 4 hours of credit.

The initial Areas are: Bioinformatics, Health Informatics, Spatial Informatics, Art and Cultural Informatics, Design and Societal Informatics, Data Analytics and Information Visualization, Cognitive Science and Language Processing. The Governing Committee for the Informatics PhD Program will consider changes to this list, as critical mass in new Areas is achieved. Each provides a list of suitable faculty for advisors and a list of suitable courses, both required fundamentals (applications and foundations) and specialty. This is the default shopping list for students to consider. The Areas used to be called Tracks, the name change indicates that they are suggestive rather than prescriptive, students are welcome to custom their courses to fit their interests.

In Year 1, students must take the Orientation Seminar, which is a sampler of faculty research. This is 1 hour credit, with speakers from each Area. Since our students will be spread across campus, this is the only time that they will see all of the entering classmates. Each student is assigned a Studies Advisor, who also helps form the Advisory Committee for the first half of the studies. The student is apprised of their progress after each year of study.

All students are expected to meet professional informatics levels of knowledge in programming/databases and in mathematics/statistics. The level is judged by their Advisory Committee and can be achieved through research experiences or through additional coursework.

In Years 1 and 2, students must take 2 Research Practicums. These are intended to be research supervised by a faculty with a definite output. The effort is perhaps equivalent to an independent study or half of a research assistantship. A full semester practicum must be taken under 2 different Informatics faculty. A typical progression might be Seminar in Semester 1, Practicums in Semesters 2 and 3 after seeing the range of faculty available as advisors and choosing an area of study.

In Years 1 and 2, students must take 4 approved Courses, 2 in Applications and 2 in Foundations. These are intended to provide the basic discipline knowledge and must be at the 500 level. The Program Signature for interdisciplinary informatics is to take courses in *both* Applications and Foundations. Applications are the particular Subjects for a particular Area. Foundations are the particular Methods for a particular Area. Students must be professionals, at least at the graduate course 500 level, in Applications and in Foundations.

Each student can choose the standard applications and foundations of an established area, or choose a custom applications and foundations across areas. Such choice must be approved by the Studies Advisor, in consultation with the Advisory Committee and the Informatics Program Director. These Advisors will also determine what is appropriate for Applications and for Foundations for the particular studies of the particular student. Courses not listed in any area currently are also permitted, with the approval of the suitable committee. We expect that many students may choose their own way, and help establish new areas of research.

The Informatics Program will maintain the master list of approved courses for each Area. As discussed, each student also has the option of petitioning for a custom choice. The Applications courses are typically where the X-informatics courses will be taken. For example, there is an applied course as Animal Science 542 Applied Bioinformatics joint with Crop Sciences and a pure course as Chemical Engineering 571 Bioinformatics Algorithms joint with Computer Science. Depending on specialty in Bioinformatics, a student might also take Molecular Biology 502 Advanced Molecular Genetics or might take Integrative Biology 552 Concepts in Ecology.

The other 2 required courses must be Foundations appropriate for the particular Area. These represent the Methods or the Technologies necessary to support Applications. To insure *quality*, these courses must be chosen from the Master List from the Informatics Program. Otherwise, there will be an issue of whether the Areas are producing students of differing quality on technical knowledge. Any Area may recommend a methods course for the master list. Such recommendations will be judged by their general applicability across Areas and by their suitable level of technical depth.

There are already existing Foundations courses suitable for some Areas and some students. For example, computing methods include Computer Science 511 Database Systems and Computer Science 512 Data Mining, while statistics methods include Statistics 571 Multivariate Analysis (pure) and Psychology 594 Multivariate Analysis (applied) joint with Educational Psychology. Medical Informatics students, for example, should take these courses to differentiate their PhD Degree in an Informatics Program

from a PhD in a Department of Medical Informatics in a School of Medicine. Following the signature of advanced technologies common to multiple applications, a bioinformatics student and a medical informatics student might take the same Foundations courses (e.g. databases and statistics), but different Applications courses (e.g. metabolomics versus epidemiology).

Other informatics methods courses need to be developed and then staffed with more applied faculty. Method courses discussed by the committee as existing holes included Informatics Programming, Information Visualization, and Data Analytics. These would be 500 level courses equally technical but more applied than the current ones offered in Computer Science. For example, Informatics Programming might be generalized from the existing Crop Science course and recommended by the Bioinformatics Area, while Information Visualization might be generalized from the existing Fine Arts course and recommended by the Art Informatics Area.

The required four courses will usually be taken by the end of Year 2, but may be taken later if the student needs to make up background before being ready for 500 level courses. After completing the required courses, a student must take an Area Qualifier to demonstrate breadth of knowledge in their chosen area, whether standard or custom. Such Qualifier will consist of written questions and oral examination prepared by the student's Advisory Committee, which contains 4 members of the Informatics Program faculty. This Committee must contain experts in both the Applications and the Foundations chosen by the student.

After passing their Area Qualifier, students must form a Dissertation Committee. The membership may overlap with the Advisory Committee. The Committee must contain 4 members of the Informatics faculty, at least 2 of whom are tenured, and cover all aspects of the dissertation, including Applications and Foundations.

The second half of the program is devoted to the Dissertation research, which students typically carry out during Years 3 and 4. When ready, they must pass the Preliminary Examination, which is the dissertation proposal approved by their committee. When finished, students must present an acceptable Dissertation then pass the Final Examination, which is the dissertation defense, to graduate from the Program. A well prepared student would thus pass the Prelims in Year 3 and the Finals in Year 4, to earn a PhD within 4 years of entering the Program.

Appendix II: Initial Faculty, Areas, and Courses

Initial List of Informatics Area with Committed Faculty and Courses

- **Bioinformatics**
  leads: Gustavo Caetano-Anolles (Crop Sciences) and
  Sandra Rodriguez-Zas (Animal Sciences)
- **Medical Informatics**
  lead: Bruce Schatz (Medical Information Science)
- **Spatial Informatics**
  lead: Shaowen Wang (Geography)
- **Art and Cultural Informatics**
  lead: Guy Garnett (Music)
- **Design, Technology, and Society**
  lead: Christian Sandvig (Communication)
- **Data Analytics and Information Visualization**
  lead: Doug Simpson (Statistics)
- **Cognitive Science and Language Processing**
  lead: John Hummel (Psychology)

Bioinformatics

The vast molecular biology information resulting from high throughput genomic, proteomic and other 'omic' projects challenges the understanding of the role of genes, proteins and other molecules and the use of this knowledge in applications related to health, well-being, agriculture, society, and environment. The field of bioinformatics encompasses a wide range of research efforts that aim at gaining insights into biological processes through the development and implementation of repositories and tools, and the computational and statistical analysis of biological information. Computational, informatics, statistical, and mathematical resources and technologies are integrated to organize, analyze, and visualize biological data at multiple levels of organization, from molecules and phenotypes to populations and ecosystems. The Bioinformatics Area of the Ph.D. in Informatics will foster the academic, research, and intellectual development of students on bioinformatics theory and applications important for our understanding biological patterns and processes in the living world, including human, model and agricultural species, and microbes of economic or medical importance. This Area incorporates coursework in multiple disciplines related to bioinformatics including 'omic' themes (i.e. genomics, proteomics, metabolomics, comparative omics), phylogenetics, molecular evolution, evolutionary genomics, statistical genetics, statistical genomics, systems and network biology, quantitative genetics, structural biology, biotext mining, and e-science.

Tentative List of Participating Faculty

College of Agricultural, Consumer, and Environmental Sciences (ACES):
Animal Sciences: Harris Lewin, Larry Schook, Jon Beever, Sandra Rodriguez-Zas, Rex Gaskin, Brian White, Isaac Cann, Roger Shanks, Alfred Roca
Crop Sciences: Gustavo Caetano-Anolles, Matthew Hudson, German Bollero, Donald Bullock, Martin Bohn, Hans Bohnert, Brian Diers, Steven Clough, Frederic Kolb, Lila Vodkin, Stephen Long, Stephen Moose, A. Lane Rayburn
Natural Resources and Environmental Sciences: Schuyler Korban
College of Engineering:
Computer Science: Saurabh Sinha, Stephen Bond, ChengXiang Zhai, Jiawei Han, Dan Roth, Julia Hockenmaier
Bioengineering: Sheng Zhong
College of Liberal Arts & Sciences (LAS):
Statistics: Wenxuan Zhong, Xuming He, Annie Qu, Ping Ma
Molecular & Integrative Physiology: Eric Jakobsson, Philip Best, Kurt Kwast
Chemical & Biomolecular Engineering: Richard Braatz, Nathan Price, Chris Rao, Huimin Zhao
Chemistry: Jonathan Sweedler, Neil Kelleher
Microbiology: Gary Olsen, Brenda Wilson
Cell and Developmental Biology: Lisa Stubbs
Entomology: Gene Robinson, Hugh Robertson, Charles Whitfield
Anthropology: Charles Roseman
College of Medicine Medical Information Science: Bruce Schatz

College of Veterinary Medicine Pathobiology: Ron Weigel
Graduate School of Library and Information Science (GSLIS)
Linda Smith, Carole Palmer, Bryan Heidorn, W. John MacMullen, Bertram Bruce, Vetle Torvik

Tentative List of Required Courses:

Application Courses:

ANSC 542/CPSC 569/IB 506 Applied Bioinformatics
ANSC 545/CPSC 545/IB 507 Statistical Genomics
CHBE 571/MCB 571/STAT 530 Bioinformatics
CPSC 567 Bioinformatics & Systems Biology
CPSC 558 Quantitative Plant Breeding
CPSC 565 Perl & UNIX for Bioinformatics
CHEM 574 Genomics, Proteomics, Bioinformatics
EPSY 589 Categorical Data in Ed/Psyc
LIS 590BDI Biodiversity Informatics

Foundation Courses:

CS 511 Advanced Database Systems
CS 512 Data Mining Principles
CS 545 Systems Modeling & Simulation
CS 558 Topics in Numerical Analysis

CS 573 Topics in Algorithms
CS 578 Information Theory
CPSC 540 Applied Statistical Methods II
CPSC 541 Regression Analysis
MATH 580/CS 571 Combinatorial Mathematics

STAT 510 Mathematical Statistics I
STAT 525 Computational Statistics
STAT 542 Statistical Learning
STAT 563 Information Theory
STAT 571 Multivariate Analysis
STAT 587 Hierarchical Linear Models
PSYC 594 Multivar Analysis in Psych and Ed
EPSY 582 Advanced Statistical Methods
EPSY 580 Statistical Inference in Educ
EPSY 587 Hierarchical Linear Models
EPSY 588 Covar Struct and Factor Models

Medical Informatics

Medical informatics is concerned with all aspects of understanding and promoting the effective organization, analysis, management, and use of information in health care. The emphasis in the informatics program is on health information technology. Medical Informatics has traditionally supported acute care in hospitals via development and deployment of electronic medical records. Health Informatics is a newer term including information management for chronic care in homes, particularly development and deployment of personal health records. This Area will support students in areas related to healthcare infrastructure, particularly population management of everyday chronic conditions. It includes national healthcare infrastructure, such as development of portable health records. We will also support students who wish to investigate public health, such as population management of infectious disease epidemiology.

Tentative List of Participating Faculty

College of Engineering:
Computer Science: ChengXiang Zhai, Jiawei Han, Dan Roth, Karrie Karahalios, Roy Campbell
Bioengineering: Sheng Zhong
College of Agricultural, Consumer, and Environmental Sciences (ACES):
Animal Sciences: Larry Schook, Harris Lewin, Sandra Rodriguez-Zas
College of Liberal Arts & Sciences (LAS):
Statistics: Jeff Douglas, Annie Qu, Ping Ma
Molecular & Integrative Physiology: Eric Jakobsson
College of Applied Health Sciences
Community Health: Karin Rosenblatt, Weimo Zhu, Catlainn Sionean, Kenneth Watkins
College of Medicine:
Medical Information Science: Bruce Schatz, Richard Berlin, Cheryl Schraeder, Janet Reis
College of Veterinary Medicine:
Pathobiology: Ron Weigel, Tony Goldberg
Graduate School of Library & Information Science (GSLIS)
Linda Smith, Carole Palmer, Caroline Haythornthwaite, W. John MacMullen, Vetle Torvik
NCSA (research scientists): Peter Bajcsy, Ian Brooks

Tentative List of Required Courses:

Applications Courses:

Nutritional Sciences 511	Regulation of Metabolism
Kinesiology 557	Stress Immunology
Pathobiology 516	Epidemiology of Infectious Disease
Pathobiology 517	Principles of Epidemiology
Pathobiology 560	Spatial Epidemiology
Community Health 527	Statistics in Epidemiology
Computer Science 598HI / Library&Info Sci 590HI	Healthcare Infrastructure

Foundations Courses:

Computer Science 511	Design of Database Systems
Computer Science 512	Data Mining
Statistics 525	Computational Statistics
Statistics 571	Multivariate Analysis (pure)
Psychology 509	Multidimensional Scaling
Psychology 594	Multivariate Analysis (applied)

Spatial Informatics

Spatial Informatics represents an overarching umbrella for studying theories, methods, and applications of spatial analysis/modeling; and spatial data handling, management, and visualization. Spatial informatics research and education are becoming increasingly important as data-intensive, large-scale, and/or multi-scale problems that involve the use and development of GIS (Geographic Information Systems) and spatial analysis/modeling are becoming ubiquitous in scientific discovery and decision-making in many fields. Examples of research themes include development of new theories, methods and software in GIScience (Geographic Information Science), policy and user issues of GIS, geospatial data accessibility, spatial decision support systems, geospatial problem solving environments, and novel applications of GIS such as in Business, Earth sciences, Environmental Science and Engineering, Epidemiology, Geography and Regional Science, Natural Resource Management, and Urban and Regional Planning.

Tentative List of Participating Faculty

College of Engineering:
Computer Science: Jiawei Han, Sariel Har-Peled, Marc Snir
Civil and Environmental Engineering: Praveen Kumar
College of Liberal Arts & Sciences (LAS):
Statistics: Ping Ma, Xiaofeng Shao
Geography: Bruce M. Hannon, Geoffrey Hewings, Sara McLafferty, Shaowen Wang
College of Fine and Applied Arts:
Urban and Regional Planning: Zorica Nedovic-Budic, Tschango John Kim
College of Veterinary Medicine:
Pathobiology: Marilyn O'Hara Ruiz
Graduate School of Library & Information Science: Jon Gant
NCSA (research scientist): Yong Liu, James D. Myers
ISWS (research scientist): Yu-Feng Lin

Tentative List of Required Courses:

Applications Courses are:

Landscape Architecture 542	Landscape Modeling
Pathobiology 560	Spatial Epidemiology
Urban and Regional Planning 519	Advanced Applications of GIS
Urban and Regional Planning 556	Regional Science Methods

Foundations Courses are:

Geography 569	Spatial Ecosystem Modeling
Computer Science 512	Data Mining
Statistics 525	Computational Statistics

Art and Cultural Informatics

Art and Cultural Informatics is an area of informatics dealing with information as medium and content for art production, experience, and dissemination. The Informatics PhD, with an Art and Cultural Informatics Area, addresses these needs explicitly in its design: it makes technological knowledge (theoretical and practical) an intrinsic part of the curriculum; it draws on a wide base of disciplinary courses to establish interdisciplinary breadth; it emphasizes innovative interdisciplinary, collaborative research aimed specifically at meeting the challenges of creating art in collaborative, interdisciplinary, technologically enabled settings.

Cultural Informatics is a broad term encompassing all areas in which the application of new information technologies will and might impact human culture: we see it playing an increasingly central role in culture production, experience, dissemination, and comprehension. It is inherently boundary breaking, fundamentally inter- multi- and trans-disciplinary. Informatics, broadly speaking, is impacting all branches of knowledge, all human exploration, experience, and understandings of the world. "Cultural Informatics" is that part of informatics that emphasizes understanding of the human world, that which is made or influenced by humanity: from history, social science, cultural studies, to written, visual, sonic, and kinetic communication, technology is transforming all aspects of human endeavor, all culture, all societies and communities.

The Arts are an important part of Cultural Informatics. New technology and associated new modes of creative cultural expression and communication will radically transform the arts of the 21st Century. The impact of new technologies will be felt in four key areas: it will change the practice, the experience, and the dissemination of the arts, and through these it will change the role of the arts in culture and society.

Tentative List of Participating Faculty

College of Engineering:
Computer Science: Roy Campbell, Karrie Karahalios
College of Fine and Applied Arts (FAA):
Architecture: John Stallmeyer
Art and Design: Donna Cox, Nan Goggin, Kevin Hamilton, Joseph Squier
Dance: John Toenjes
Music: Guy Garnett, Heinrich Taube, Stephen Taylor, Sever Tipei
Graduate School of Library & Information Science (GSLIS)
Stephen Downie, Lori Kendall, Allen Renear, Michael Twidale, John Unsworth, ,
Bertram Bruce
NCSA (research scientists): Robert McGrath

Tentative List of Required Courses:

Applications Courses:

ARCH 423	Soc/Beh Factors for Design
ARTD 423	Computer Applications I
ARTD 426	Computer Applications II
ARTD 501 (I-VI)	Industrial Design
ARTS 443	Time Arts II
ARTS 444	Interactivity II
ARTS 449	Senior Seminar in New Media
ARTS 450	Advanced Studio I (new media)
ARTS 451	Advanced Studio II (new media)
ARTS 591	Graduate Studio
ARTS 595	Graduate Laboratory
DANC 532	Digital Media for Dancers
DANC 550	Advanced Research in Dance
MUS 407	Electronic Music Techniques I
MUS 409	Electronic Music Techniques II
MUS 448	Computer Music
MUS 506	Composition
MUS 507	Seminar in Music Composition and Theory
THEA 419	CAD Drafting for the Stage
THEA 430	Technical Direction
THEA 437	Software for Lighting Design
THEA 453	Theater Sound Technology
THEA 454	Sound Design I
THEA 455	Audio Production
THEA 550	Colloquium Design & Theater Technology

Foundations Courses:

CS 414	Multimedia Systems
CS 418	Interactive Computer Graphics
CS 419	Production Computer Graphics
CS 427	Software Engineering I
CS 438	Communication Networks
CS 440	Artificial Intelligence
CS 446	Machine Learning
CS 465	User Interface Design
CS 519	Scientific Visualization (CSE 527)
CS 511	Design of Database Systems
CS 512	Data Mining
CS 565	Human-Computer Interaction
ECE 410	Digital Signal Processing I

ECE 417	Multimedia Signal Processing
ECE 418	Imagine & Video Processing
ECE 420	Digital Signal Processing Lab
ECE 437	Sensors and Instrumentation
ECE 439	Wireless Networks
ECE 442	Electronic Circuits
ECE 453	Wireless Communication Systems
ECE 470	Introduction to Robotics
ECE 473	Fundamentals of Engineering Acoustics
ECE 511	Computer Architecture
ECE 512	Computer Microarchitecture
ECE 513	Vector Space Signal Processing
ECE 517	Nonlinear and Adaptive Control
ECE 537	Speech Processing Fundamentals
ECE 538	Speech and Hearing Acoustics
ECE 544	Topics in Signal Processing
ECE 547	Topics in Image Processing
ECE 549	Computer Vision
ECE 550	Advanced Robotic Planning
ECE 551	Digital Signal Processing II
ECE 558	Digital Imaging
ENG 491	Interdisciplinary Design Project
GE 522	Robot Control Theory
PYSC 429	Human Computer Interaction Lab
PSYC 509	Psychological Scaling Multidimensional Methodology
PSYC 594	Multivariate Analysis in Psychology and Education

Tentative List of Elective Courses

ANTH 460	Heritage Management
ANTH 462	Museum Theory and Practice
ANTH 470	Mind, Culture and Society
ANTH 499	Topics in Anthropology (topics vary)
ANTH 523	Dynamic Embodiment
ANTH 555	The Archaeology of Complexity
ANTH 557	Social Construction of Space
ANTH 563	Ritual, Power and Social Life
ARTH 446	Art Since 1940
ARTH 546	Seminar in Contemporary Art
ARTS 492	Contemporary Issues in Art
CWL 450	Topics in Bodies and Genders
ENG 565	Technology Innovation & Strategy
EPSY 530	Social Development
EPSY 556	Analysis of Advanced Instructional Technologies

GWS 478	Sex, Power and Politics (PS 413)
HCD 529	Youth, Culture and Society
LA 594	Cultural Heritage
MDIA 575	Cultural Studies and Critical Interpretation
MDIA 577	Philosophy of Technology
MDIA 580	Advanced Interpretive Methods (SOC 580)
PHIL 420	Space, Time, and Matter (PHYS 420)
PHIL 423	Philosophy of Art
PHIL 425	Philosophy of Mind
PHIL 525	Seminar Philosophy of Mind
PSYC 456	Human Performance and Engineering Psychology (AVI 456, IE 445)
PSYC 460	Modern Viewpoints in Psychology
PSYC 477	Philosophy of Psychology (PHIL 477)
SOC 596	Recent Developments in Sociology (topics vary)
SOCW 554	Social Entrepreneurship in Diverse Society
SPCM 428	Media and the Human Body
SPCM 474	Intro to Research Methods
THEA 467	Contemporary Theatrical Forms
THEA 564	Studies in 20th Century Theater History

Design, Technology, and Society

Students in the Design, Technology, and Society Area investigate the interrelationship between information technology and social, political, and cultural processes and values. This includes both the analysis of the larger consequences of informatics systems and the criticism, design, and re-design of systems to address public needs and problems. Research may involve design processes, human communication and interaction, the larger contexts of these systems (such as the legal, economic, cultural, educational, or other contexts) and the repercussions of any of these topics. This Area of will support students interested in pursuing informatics research from the intellectual traditions and methods of either the social sciences or the humanities, as well as the domains of community informatics and social informatics.

Tentative List of Participating Faculty

College of Engineering:
Computer Science: Karrie Karahalios, Marc Snir
Electrical and Computer Engineering: Nikita Borisov, Michael Loui
Industrial and Enterprise Systems Engineering: David Goldberg
College of Fine and Applied Arts (FAA):
Art & Design: Kevin Hamilton, Ryan Griffis
College of Liberal Arts and Sciences (LAS):
Asian American Studies: Lisa Nakamura
Communication: Sally Jackson, Robert McChesney, M. Scott Poole, Christian Sandvig, Michelle Shumate, David Tewksbury
English: Spencer Schaffner
History: Rayvon Fouche
Political Science: Scott Althaus
College of Media:
Advertising: Patrick Vargas
Institute for Communications Research: Anita Chan, Fernando Elichirigoity, James Hay
College of Business: Lanny Arvan
College of Law: Jay Kesan
Graduate School of Library and Information Science (GSLIS)
Ann Bishop, Bertram Bruce, Caroline Haythornthwaite, Lori Kendall, Michael Twidale, Kate
Williams, Abdul Alkalimat

Tentative List of Required Courses

Applications Courses:
Communication 529SP: Theory and Research on Collaboration Technologies
Communication 529CS: Communication Technologies
Institute for Communications Research 590: New Media Theory
Law 546: Cyberspace Law
Library & Information Science 549: The Economics of Information
Library & Information Science 590SD: Digital Social Sciences
Library & Information Science 590DH: Digital Humanities
Library & Information Science 590C1/C2: Community Informatics Research and Theory
Library & Information Science 590CMC Computer Mediated Communication
Library & Information Science 590CWC Computer Supported Cooperative Work
Library & Information Science 590DK Distributed Knowledge
Library & Information Science 590EL E-Learning: Social and Technical Issues in E-learning

Foundations Courses:
Communication 529MS: Social Network Analysis
Communication 529CS: Unorthodox Research Methods
Computer Science 598KGK: Social Computing
Library and Information Science 590MD: Metadata in Theory and Practice
Library and Information Science 590IML: Information Modeling
Library and Information Science 590DEL: Design of Digitally Mediated Information Services
Library and Information Science 590IN Information Networks
Library and Information Science 590IS Information in Society
Library and Information Science 590OI Organizations, Information & Technology
Library and Information Science 590SN Social Networks and Information
Political Science 519SA: Content Analysis

Data Analytics and Information Visualization

Analytics and Visualization encompass data management, information retrieval, knowledge analysis, and conceptual understanding in the context of large-scale organizational systems. This Area will support technology-driven applications-oriented students in data mining, information retrieval, machine learning, information visualization, human-computer interaction, intelligent discovery environments, intelligent analysis systems, computational statistics, business analytics, and social and behavioral analytics.

Tentative List of Participating Faculty

College of Engineering:
Computer Science: Brian Bailey, Kevin Chang, David Forsyth, Karrie Karahalios, Jiawei Han, Julia Hockenmaier, Dan Roth, Yizhou Yu , ChengXiang Zhai
Electrical and Computer Engineering: Minh Do, Yi Ma, Pierre Moulin
College of Liberal Arts & Sciences (LAS):
Political Science: Wendy Cho
Psychology: Fritz Drasgow, Larry Hubert
Sociology: Tim Liao
Statistics: Yuguo Chen, Jeff Douglas, Xuming He, Feng Liang, Ping Ma, Douglas Simpson
College of Business:
Business Administration: Michael Shaw, Ramanath Subramanyam, Mu Xia
College of Education:
Educational Psychology: Carolyn Anderson, Hua-Hua Chang
College of Medicine Medical Information Science: Bruce Schatz
Graduate School of Library & Information Science
David Dubin, Michael Twidale, Vetle Torvik
NCSA (research scientists): Peter Bajcsy, Michael Welge

Tentative List of Required Courses:

Applications Courses:

CS 548	Models of Cognitive Processes
EPSY 587	Hierarchical Linear Models
ECE 537	Speech Processing Fundamentals
IE 510	Applied Nonlinear Programming
IE 511	Integer Programming
IE 512	Network Analysis of Systems
LIS 526	Searching Online Information Systems
PS 531-532	Quantitative Political Analysis I & II
PSYC 509	Psychological Scaling Multidimensional Methods

Foundations Courses:

CS 511	Advanced Database Systems
CS 512	Data Mining Principles
CS 519	Scientific Visualization
CS 546	Machine Learning in NLP
CS 565	Human-Computer Interaction
ECE 513	Vector Space Signal Processing
ECE 549	Computer Vision
ECE 558	Digital Imaging
ECE 580	Optimization by Vector Space Methods
PSYC 588	Covariant Structures and Factor Models
STAT 510	Mathematical Statistics I
STAT 525	Computational Statistics
STAT 542	Statistical Learning
STAT 571	Multivariate Analysis
STAT 578	Topics in Statistics

Cognitive Science and Language Processing

Cognitive Science and Language Processing is a multidisciplinary program for students with an interest in computational approaches to intelligence. Cognitive science is the study of mind and intelligence, embracing philosophy, psychology, artificial intelligence, neuroscience, and linguistics. The central hypothesis of cognitive science assumes that the mind has mental representations analogous to computer data structures, and computational procedures similar to computer algorithms. Cognitive theorists have proposed that the mind contains such mental representations as logical propositions, rules, concepts, images, and analogies, and that it uses mental procedures such as deduction, search, matching, rotating, and retrieval. Our program also includes the inverse direction, using human cognition to improve computer processing within speech and language understanding systems.

Tentative List of Participating Faculty

College of Engineering:
Electrical & Computer Engineering: Jon Allen, Mark Hasegawa-Johnson, Stephen Levinson
Computer Science: ChengXiang Zhai, Dan Roth, Julia Hockenmaier, David Forsyth
College of Liberal Arts & Sciences (LAS):
Linguistics: Richard Sproat, Jennifer Cole, Roxana Girju, Chilin Shih
Psychology: Aaron Benjamin, Kay Bock, Bill Brewer, Gary Dell, Cindy Fisher, John Hummel, Art Kramer, Brian Ross, Daniel Simons, Duane Watson
Graduate School of Library & Information Science: Les Gasser, Bryan Heidorn, Allen Renear

Tentative List of Required Courses:

Applications Courses:
LING501 Syntax I
LING502 Phonology I
LING506 Topics in Computational Linguistics
LING507 Formal Semantics I
LING520 Acoustic Phonetics
LING591 Natural Language Semantics
LIS 590 Self Organizing Information Systems
ECE598AL The Speech Chain
ECE598NA Pattern Recognition

Foundations Courses:
CS546 Machine Learning in NLP
ECE537 Fundamentals of Speech Processing and Recognition
ECE593 Information Theory
ECE594 Mathematical Models of Language
LIS556 Implementation of Information Storage and Retrieval
LIS590IRR Information Retrieval and Natural Language Processing
LIS590RC Research Methods for Text Corpora
PSYC514 Cognitive Science
PSYC593 Connectionist Models in Psychology
PSYC593 Models of Language Production and Speech Errors

Appendix III: Art and Culture Area, Competitiveness

Competitiveness Statement for Informatics Ph.D. Art and Culture Area

The Ph.D. in Informatics in Arts and Culture at the University of Illinois at Urbana-Champaign will be administered by the Illinois Informatics Institute (I3), awarded by the Graduate College, and coordinated intellectually and championed fiscally by the Emerging Digital Research and Education in Arts Media Institute (eDream). eDream's Director, Dr. Donna Cox, Michael Aiken Professor of Art and Design, and Associate Director, Dr. Guy Garnett, will lead efforts to recruit doctoral candidates and arrange their access to faculty mentors and interdepartmental programs, equipment and studio-lab facilities, and funding.

The Informatics Ph.D. in Art and Culture defines the arts broadly, emphasizing the experimental aesthetics of fine arts within the visual and performing arts, and embraces informatics in the form of emergent computing technologies—hardware or software—that are used to transform aesthetic practices or that are transformed by them. The doctorate will culminate in a capstone project that combines a demonstration of practice-based research in digital arts media with a dissertation that critiques the original creative production within the context of arts practices and cultural theories.

The practice-based, studio-art Ph.D., which is relatively new to the United States, serves as the organizing inspiration for the Ph.D. in Informatics in Arts and Culture. The program envisioned here is distinct from most existing practice-based doctorates in the arts that now exist in the United States, which tend to be offered within discrete disciplines (such the Doctor of Music Arts); incorporate digital media in a more conventional way to support creativity rather than constitute emergent creative practices (such as through architecture's use of CAD/CAM technologies); and require a less sustained and critically-informed written component.

Mentoring

The Ph.D. in Informatics in Arts and Culture will be a very selective, highly competitive program with a special strength in faculty of outstanding reputation in "arts and technology" research and practice. The program will accept a limited number of candidates, just one or two per year, who are chosen for their creative vision and special combination of existing skills and knowledge (which may be rooted in backgrounds ranging from engineering to social sciences to humanities to arts). They will join a program that springs from the University of Illinois' special legacy of culturally transformative, hybrid "arts and technology" innovation, which most recently took the form of the Seedbed Initiative for Transdomain Human Creativity--now institutionalized as eDream. A number of faculty members (including Donna Cox, Guy Garnett, John Toenjes, Stephen Taylor, Nan Goggin, Jerry Guthrie, George Frances, Dianne Harris, Deana McDonagh, Michael Twidale, Karrie Karahalios, Kathleen Harleman, Roy Campbell, Sever Tipei, and John Hart) are currently engaged in this area, with more likely to become involved as the program grows.

In addition to working with "arts and technology" faculty, doctoral candidates will work with other area faculty from the College of Fine and Applied Arts (FAA), which is committed to exploring synergies with technology across arts practice (http://www.faa.illinois.edu/node/181). This commitment is evident in FAA's fifty-year history of leadership and excellence in electroacoustic music, its School of Art and Design's recent offering of an MFA in New Media, and its expressed mission of "exploring the intersection of art and technology and its impact on our culture...Through interdisciplinary collaborations and individual work, students and faculty in the College's units not only promote proficiency in working with technology, they also deepen the understanding of the meaning and role of technology within the larger context of the arts." FAA is a recognized national leader in graduate arts education, currently offering doctoral degrees in the fields of Art Education, Art History, Architecture, Landscape Architecture, Music Education, Music Arts, Musicology, Theater History, and Regional Planning.

Doctoral candidates will also have the opportunity to study under and collaborate with world-class faculty from across campus, especially from the Colleges of Engineering, Media, and Liberal Arts and Sciences. To deepen research opportunities for students and collaborating faculty, eDream leadership has already established a strong connection to the National Center for Supercomputing Applications's (NCSA) Institute for Advanced Computing Applications and Technologies (IACAT) Creativity and Computing research theme, and is working to establish relationships with a number of related campus centers and initiatives, including the Illinois Program for Research in the Humanities (IPRH) and the Institute for Computing in the Humanities Arts and Social Sciences (ICHASS).

Doctoral candidates will also engage with visiting "arts and technology" theorists and practitioners from around the world. They will be invited to learn from and collaborate with the many leading scholars and artists who are invited to the University of Illinois each year to give lectures and workshops and participate in residencies--particularly those sponsored by eDream, IACAT, KCPA, and related campus initiatives and institutions (such as Krannert Museum of Art and Spurlock Museum). These activities are already underway, only requiring advanced students to enrich them and be enriched by them.

Program

The program will attract top-quality students because it is breaking new ground in the United States while contributing to the rise of a global arts research community. Just fifteen "arts and technology" doctoral programs are offered currently in the United States.

Since the M.F.A. degree has long been accepted as an adequate terminal degree for university instructors in the United States who teach in the fine arts, advanced studies in the visual arts have lagged behind when compared with Europe and other nations influenced by the European model. Gradually, this is beginning to change. Timothy Emlyn Jones reports that in 2003 resistance in the U.S. to a fine-arts doctorate was widespread within higher education in the arts. By 2006, the mood was more accepting:

"some universities had already accredited PhDs in studio art and media, and many more, including some of America's most prestigious independent art schools, were deeply engaged in developing them." Meanwhile, the practice-based studio-art doctorate has "now become commonplace" in the "rest of the English-speaking world [which did not have an M.F.A. tradition]...the introduction of studio-art doctorates in many countries in

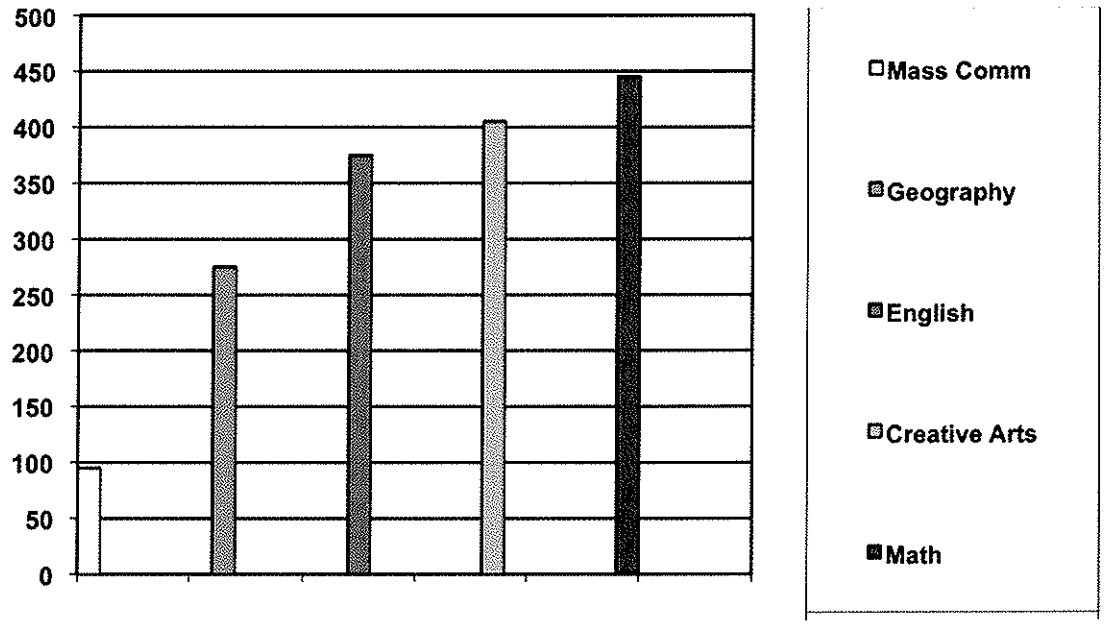

Figure 1: UK Doctorates Awarded in Selected Fields, 2007-08 (UK doctorates tend to emphasize end research accomplishment and publication record; source HESA)

Europe, as well as in Australia, New Zealand, and China, ha[s] brought fine-art education to its coming of age, on par with and different from other university-level disciplines" (**see Figure 1, above**). "It is...of considerable interest how the American doctorate might differ from and surpass its U.K. counterpart" (*Art Journal* 65.2, Summer 2006: 124-127). Doctoral degree completions in the UK and US have steadily risen since the 1970s, a trend that indicates student interest in continuing arts studies (**see Figures 2 and 3, below**).

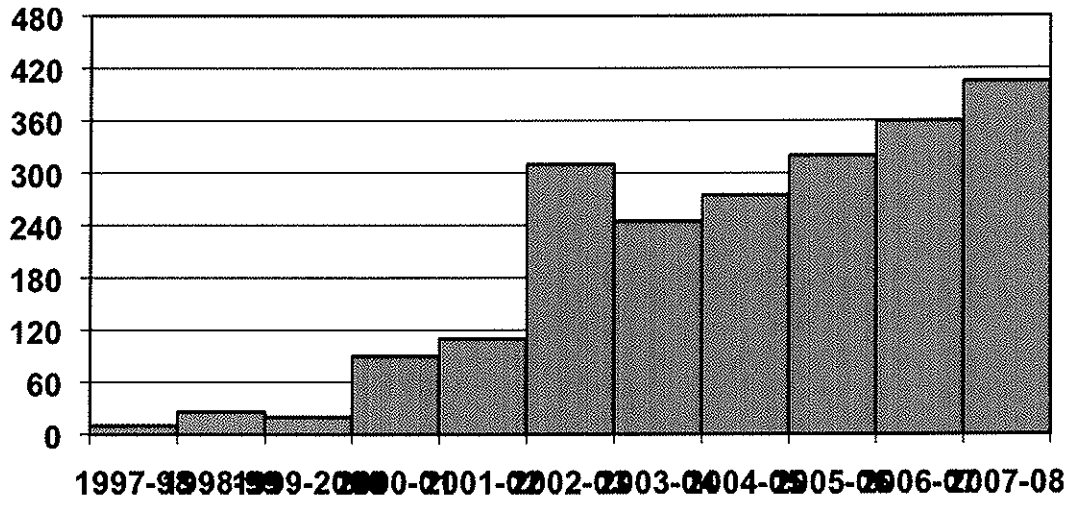

Figure 2: UK Creative Arts and Design Doctorates Awarded (source HESA)

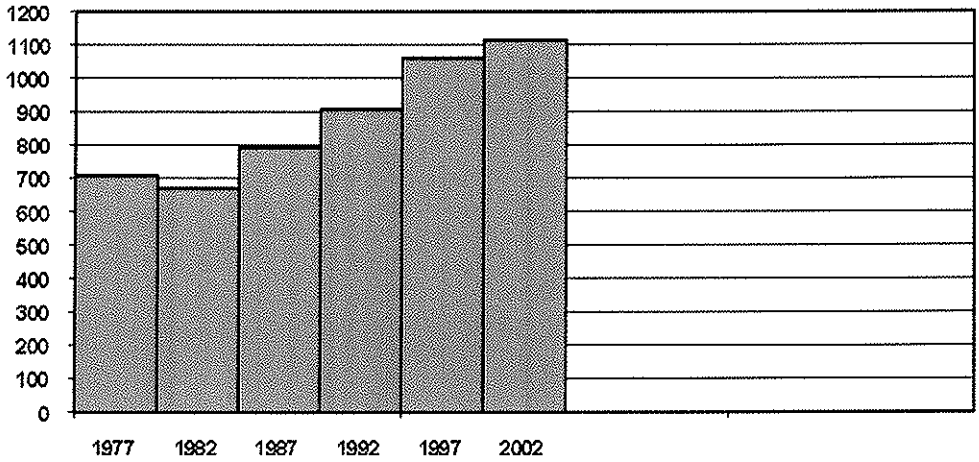

Figure 3: US Creative Arts and Design Doctorates Awarded (source IES / NCES)

The program at University of Illinois will help to grow advanced research within U.S. and world visual arts practice, but it will also stand out through offering an interdisciplinary arts focus. Competing "arts and technology" programs are not always interdisciplinary; some continue to focus on primary or discrete areas of arts practice. Additionally, the University of Illinois' program will stand out through offering particular areas of emphasis that do not exist elsewhere, such as digital cultural heritage as an artistic expression and cinematic scientific visualization for public engagement.

The doctoral program will also attract advanced students through the University's unique combination of assets. The University of Illinois ranks as one of most technologically advanced universities in the world (most wired US college [Wired 2008]), with an internationally recognized strength in engineering and commitment to information science (e.g., number-one ranked Graduate School of Library and Information Science, cross-campus Illinois Informatics Institute). The University is also home to the National Center for Supercomputing Applications and the Krannert Center for the Performing Arts (KCPA), with which the program is already closely associated. NCSA and KCPA are world-class institutions that offer students the opportunity to work with faculty and professionals across a range of expertise and to showcase their work before already established audiences. The two institutions will soon be networked for real-time artistic collaborations between Krannert's stages and NCSA's Creativity Space studio-lab. The Creativity Space (NCSA Rm. 2103) will be available for student research; it provides capabilities such as high-speed networking; access to research networks; motion tracking arrays; and a three-screen, high-definition theater.

Although two other colleges within Illinois offer doctoral degrees in "arts and technology," the one from a sister institution (University of Illinois-Chicago, via the Electronic Visualization Laboratory) focuses on computer science research rather than arts research (which is this proposed degree's emphasis) and the other (Illinois Tech) is focused on design rather than fine arts. Both programs emphasize practice-based

research, which is a component of the proposed degree, but neither incorporates a critical studies dissertation, drawing upon a humanistic analysis of arts practice and its cultural dynamics.

Funding

A key to attracting top students is providing research support. To support their work, doctoral candidates in Arts and Culture Informatics will receive funding from the following sources:

- Recurring commitment to support one student per year from the College of Fine and Applied Arts. (See Dean Robert Graves's letter of support.)

- Ongoing commitment from the Illinois Informatics Institute for the life of the institute to support one incoming student each year, with the understanding that eDream would identify new funding for the student after the first year. (See Director John Unsworth's letter of support for the Ph.D. in Informatics, covering all areas of specialization.)

- Ongoing commitment from eDream (Emerging Digital Research and Education in Arts Media Institute) for the life of the institute to support a minimum of one student each year (with five years of funding initially available). (See Director Donna Cox's letter of support.)

In addition to offering these funding sources, eDream is working actively to develop more. For example, in cooperation with Chancellor Richard Herman, Dr. Cox is negotiating with the Cyprus Institute to secure funding for a minimum of one student per year working in the area of digital cultural heritage. Dr. Cox is also pursuing funded internships for students working in the area of scientific visualization with NASA Goddard Space Flight Center, with which her NCSA research group, the Advanced Visualization Laboratory, has a successful collaboration of long standing. To leverage these and create other funding opportunities, Dr. Cox is in the process of hiring an academic professional with experience in academic program management and fund raising.

Appendix IV: Support Letters

University Libraries, Kauffman

I^3, Unsworth

Computer Science Department, Heath

College of Fine and Applied Arts, Graves

eDREAM Institute, Cox

ADM, Binder and Matlock

NASA, Sisler

Center for Biophysics and Computational Biol

From: John Unsworth, Director, Illinois Informatics Institute
RE: Illinois Informatics Institute support for the Informatics PhD Program
Date: August 24, 2009

The proposed Informatics PhD Program represents a significant opportunity for our campus and is enthusiastically supported by the Illinois Informatics Institute (I^3). To help realize this opportunity, I^3 is committed to supporting the Informatics PhD Program with fellowships, assistantships, staffing and other resources for as long as the Program and I^3 exist. The specifics of that commitment are outlined below.

I^3 will provide fellowships or research assistantships for up to three doctoral students to be supported for up to two years each. Two of these will be available to the centers administered by I^3, such as I-CHASS (the Institute for Computing in Humanities, Arts, and Social Sciences) and CII (the Community Informatics Initiative) and one will be available to support students in the Arts and Culture Area of the Informatics PhD Program. After the two year period, the individual Center or Area would need to cover the student's support, or other sources would need to be identified. Those might include Informatics TA-ships described below, or teaching in other departments.

I^3 may also support teaching assistantships where possible to help with the various Informatics courses taught under the INFO rubric; normally, I3 would support at least one teaching assistant for the core INFO courses.

I^3 will also provide administrative support for the Program. This includes support from an Education Coordinator, a Communications Coordinator, and an administrative assistant, all of whom are current I^3 staff. As the PhD program grows, it may hire a part-time or full-time PhD Coordinator to manage the program, depending on the income of the program and the demand for its services.

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

University Library
Office of University Librarian
and Dean of Libraries
230 Main Library, MC-522
1408 West Gregory Drive
Urbana, IL 61801

February 9, 2008

Dr. Bruce Schatz
Director of Graduate Programs, Illinois Informatics Institute
Institute for Genomic Biology
1206 W. Gregory
Urbana, Illinois 61801

Dear ~~Dr. Schatz~~ Bruce:

Thank you for giving the University Library the opportunity to review the Illinois Informatics Institute's proposal to begin an Informatics PhD Program (IPP). Based upon the proposal we reviewed and the input received from members of the Library's faculty, it is our understanding that this degree will build upon existing course offerings. While it is difficult to predict the actual impact of a program as broad as this, we were gratified to read proposal's assertion that the Library is already subscribing to the majority of the resources that you anticipate being necessary to support this program. While we believe that there are certainly some backfiles and e-book series that would benefit the students, we feel fairly comfortable about our ability to meet most needs for journal literature assuming that we are able to meet the regular inflationary increases.

The two areas that require more significant thought within the Library are the proposal's components dealing with Medical Informatics and Digital Humanities. Recently, the University Library began a tentative examination of some of our traditional humanities-related acquisitions with an eye toward better serving the broad scope of interest and need on campus, especially as it pertains to the acquisition and curation of digital content. As for Medical Informatics, the University Library recently expanded its support for health sciences resources in recent years, and we feel as though we will be able to provide the majority of resources necessary to meet the program's early needs between the resources provided by this campus and the UIC Health Sciences Library located in Urbana.

Upon review of the proposal materials that you provided to the University Library, we do not believe that there will be an immediate impact on its operations beyond many that we are already considering. However, if additional services or materials are required as the program develops, we will be happy to discuss securing the requisite resources with the program sponsors.

Sincerely,

Paula

Paula Kaufman
University Librarian and
Dean of Libraries

c: Thomas Teper
Bill Mischo
Sue Searing
Scott Walter

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

February 9, 2009

Prof. Bruce Schatz
1206 W. Gregory, M/C 195
Urbana, IL 61801

Dear Bruce,

As Interim Head of the Department of Computer Science, I am writing in support of the proposed PhD program in Informatics. Although there are substantial overlaps in technical areas between the proposed PhD program and that of my department, we expect that this new program will draw students primarily from rather different, more diverse backgrounds, and thus will largely complement our existing PhD program in Computer Science. Moreover, the new program seems likely to promote increased engagement by Computer Science faculty with students and faculty from other fields, such as the arts, humanities, and social sciences.

Sincerely,

Michael Heath
Professor, Fulton Watson Copp Chair,
and Interim Department Head

DEPARTMENT OF COMPUTER SCIENCE
MC-258 • 201 NORTH GOODWIN STREET • URBANA, IL • 61801
PHONE: 217 333 3373 • FAX: 217 333 3501• EMAIL: heath@illinois.edu

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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Dr. Robert M. Clegg,
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Affiliate Professor of Biochemistry
Institute for Genomic Biology
Director Center of Biophysics and Computational Biology
Telephone/Fax (Sekt): (217) 244-5620/7187
E-mail: rclegg@.uiuc.edu

To: Bruce Schatz, Friday, October 31, 2008

Dear Bruce,

I am writing to indicate the strong support of the Center for Biophysics and Computational Biology (CBCB) for the Informatics PhD program. It is critical for this campus to fill the demand for a program of study in fundamental informatics as well as applications by providing a program that coherently covers the field.

As was earlier discussed, CBCB trains students with an interest in computational biology, an area that includes some applied bioinformatics as well as physical modeling such as molecular dynamics simulations, bio-statistical mechanics, and other computational themes. Our emphasis is on students who unite different approaches with emphasis on informatics at the molecular level. Thus, while we have students in the program who use informatics as a molecular tool, such as sequence and phylogenetic analysis, our goal is not to train students with an interest centered on informatics per se. Such students will be much better served by a separate informatics program. We receive only a few such applications each year, and we will redirect such applications to the Informatics PhD program.

With a coherent, separate informatics program in place, this campus will be in a position to attract more students directly interested in informatics in the future. Also, with such a program, we expect vibrant collaborations will develop between faculty and students emphasizing biophysics and computational biology, with those in informatics, as there are clear areas of mutual interest.

Yours sincerely,

Robert Clegg

National Aeronautics and
Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771

Reply to Attn of: 130

Professor Donna Cox
Director Advanced Visualization Laboratory
National Center for Supercomputing Applications
1205 W. Clark Street, Room 2034
Urbana, IL 61801

Professor Cox:

It is my pleasure to write a letter of enthusiastic support for the eDream PhD program proposed by professor Donna Cox, PhD, MFA.

As Executive Producer for Television and Media activities at NASA's Goddard Space Flight Center, I've been fortunate to work with Donna and members of the NSCA Visualization Laboratory on several projects, including state of the art simulations depicting the science objectives of the new James Webb Space Telescope and the world's first planetarium show devoted to Earth system science.

We are excited by eDream as it proposes to explore the convergence of culture, digital media arts and science. We feel interdisciplinary work in informatics is the key to producing the breakthroughs needed to fully engage audiences in the future.

NASA Goddard has greatly benefited from similar partnerships such as the MFA Science and Natural History Filmmaking program at Montana State University (MSU). The MSU program provides students the chance to work on some of NASA's most exciting science stories in astrophysics, Earth Science, planetary science, and heliophysics. It has the added benefit of providing NASA with a steady stream of world class science storytellers.

We would be delighted to explore similar fellowships or postdoctoral studies with UIUC and the eDream program.

Sincerely,

Wade Sisler
Executive Television Producer

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

College of Fine and Applied Arts
Office of the Dean
100 Architecture Building
608 East Lorado Taft Drive
Champaign, Illinois 61820
217.333.1660

28 July 2009

TO: Donna Cox, Director, eDream
NCSA
1205 West Clark Street, MC-257

FROM: Robert Graves, Dean
College of Fine & Applied Arts

SUBJECT: Informatics PhD in Art and Culture

This is to indicate that the College of Fine and Applied Arts (FAA) supports the plans of the Emerging Digital Research and Education in Arts Media Institute (eDream) to establish an Informatics PhD in Art and Culture. The College believes that this program will be attractive to a wide range of entrepreneurial and innovative students interested in studying the impact of digital media on arts and culture.

Once the program is established, FAA will commit to funding one quarter-time graduate-student assistantship annually to the proposed program in Informatics PhD in Art and Culture. In the event that the normal FAA assistantship level is raised to one-third time, the College will provide that amount. Further, the College will explore ways that funding a second assistantship might be possible in the future.

We believe that College faculty members in various disciplines will be interested in offering courses that can be taken by students in this program and will be able to serve on dissertation, special-field, and final-examination committees for this degree.

If you have any questions about this commitment, please do not hesitate to contact me.

c: M. Anderson