School of Informatics Graduate Program

Bloomington and Indianapolis Campuses

2000/02 Bulletin

INDIANA UNIVERSITY

informatics.indiana.edu informatics.iupui.edu
newmedia.iupui.edu

INDIANA UNIVERSITY

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2002 Bulletin

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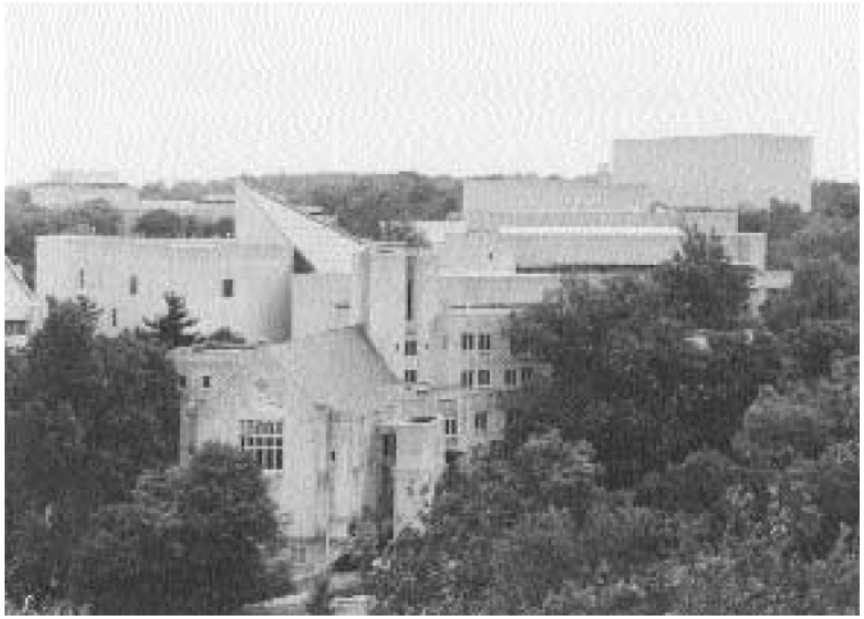

Indiana University Bloomington

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Information Technology in Today's Learning

When Indiana University was founded in 1820, only Greek and Latin were taught. The curriculum has obviously changed over time, in response to both intellectual and practical needs. The most recent school to be established at Indiana University, the School of Informatics responds to the world's changing needs, and offers five master's programs: Health Informatics, Bioinformatics, Chemical Informatics, Human Computer Interaction, and Media Arts and Science.

One might say that programming languages and software tools are the Greek and Latin of our times, and no person can be called truly educated without mastery of these "languages." It is not intended to suggest that the classical languages, or any natural languages, have been supplanted by C++ and Java. Indeed, making available the classical corpus in searchable digital form was one of the first applications of computing to the humanities. The point is to suggest the pervasiveness of information technology in all of civilized life. Much as Greek and Latin opened doors to the scholarship of the nineteenth century, so does information technology open doors to the art and science of the twenty-first century.

The development of networks and distributed systems over the past several decades has changed forever the notion of a computer as something that merely "computes." The computer now is an "information processor." Also gone is the idea of a computer as a stand-alone system. Instead it is a "communication node." Arthur C. Clarke once said that "a sufficiently advanced technology is indistinguishable from magic." Unfortunately many people see computers and the Internet as magical. The mission of the School of Informatics is to educate citizens that advanced information technology is indistinguishable, or at least inseparable, from science and the arts.

The School of Informatics

Moore's Law says that computing power doubles every 18 months. Regardless of whether that law is literally correct, it illustrates the rapid changes in information technology that will continue throughout the foreseeable future. The School of Informatics prepares students to meet the increasing demand for information technology professionals. The proverb says that if you give people fish, you've fed them for a day, but if you teach them how to fish, you've fed them for a lifetime. Like the proverb, informatics teaches students how to adapt to technological changes while preparing them for lifelong learning in their careers and in their lives.

The curriculum is designed in two axes. One axis is the technical dimension, running from the logical and mathematical foundations of information technology to the issues of distributed information and knowledge systems. The other axis represents the human dimension, from the individual working with a computer and the area of human computer interaction to groups interacting via computers with each other and the areas of social and organizational informatics. Where these two axes cross, we have the intersection of the human and the technical, of art and science. Also at the intersection we have "new media"—the use of computers and the Internet as multimodal communication devices that allow the expression of the human spirit through the visual arts, music, voice, and text. Thus we have the five areas of the informatics curriculum: mathematical foundations, distributed information, human computer interaction, social/organizational informatics, and new media.

The master's programs build on a student's undergraduate education and provide a core of courses on information management as well as more specialized courses relating to the particular emphases of the various master's degrees. Their common aim is to educate a student in the application of information technology to human problems. A graduate with a Master of Science in Informatics degree will have solid technical skills linked to real-world applications, and will have a knowledge of professional practice, including an ethical perspective and awareness of policy issues. The graduate will have strong analytical abilities and problem solving skills and an ability to communicate and work in teams. The graduate will be prepared for the life-long learning which is an essential ingredient of the information economy.

The Development of the School of Informatics

The School of Informatics has grown out of years of planning and discussion, both at Indiana University Bloomington (IUB) and Indiana University–Purdue University Indianapolis (IUPUI). In the fall of 1997, a Taskforce on Informatics, chaired by Richard Shiffrin (Director of the Cognitive Science Program, IUB), was formed to study ways in which the university could capitalize on its strengths in information technology and to make a recommendation for further development. The membership of that taskforce came from both the IUB and IUPUI campuses and represented a wide range of disciplines involved in information technology. This taskforce report recommended that IU establish the School of Informatics.

In the summer of 1998, President Myles Brand created an Informatics Planning Committee chaired by Dennis Gannon (Chair of Computer Science, IUB). The committee was charged with developing a detailed implementation plan for this metaschool. The committee document outlined how an undergraduate degree in informatics could fruitfully require a substantial number of courses in an area outside of the core informatics courses. It also called for the creation of a research institute and for a small core faculty. The Informatics Planning Committee gave the following motivation for the new school:

> *The movement of society into the information age involves developments in information science and technology, distributed information processing, computer and cognitive science, social aspects of dealing with distributed information, knowledge retrieval, distributed teaching and learning, information dissemination, and many related themes. All academic and research programs at IU are (or shortly will be) affected by these developments. This task force recommends that a new school, tentatively titled "School of Informatics," be formed to promote teaching, training, and research in these areas, and thereby play a catalyzing role in this ongoing evolutionary process.*

On January 1, 1999, President Brand appointed an interim dean, J. Michael Dunn (Computer Science and Philosophy, IUB) and an interim associate dean, Darrell Bailey (Music and New Media, IUPUI). With the guidance of a multidisciplinary faculty advisory committee of more than 50 members, the school began to take shape. The Indiana Commission for Higher Education formally approved the school in November, authorizing IU to admit its first informatics majors in the fall of 2000.

One School, Two Campuses

The School of Informatics spans the IUB and IUPUI campuses. By combining the strengths of these two campuses, the School of Informatics is able to create a unique environment that enables students to earn degrees with strong information technology components in arts, humanities, science, and the professions. The expert faculty and excellent technological resources foster a synthesis of academic disciplines and cultures. Faculty from varied departments share developments in the fast-moving information technology areas through the School of Informatics and its degree programs. The school is actively forging cooperative arrangements with employers in the state and region and creating internships, cooperative education programs, and opportunities for learning through service.

The Bloomington Campus

IUB is a residential campus that offers undergraduate, professional, and graduate degrees in more than 70 fields of study. In the fall semester of 1999, the campus had a total enrollment of 36,201, including 27,461 undergraduates and 7,269 students in graduate and professional programs. More than 30 schools and departments at IUB are ranked among the top 10 nationally, with more than 100 ranked in the top 20 in their respective fields.

University Libraries at IUB

The University Libraries at IUB rank third in collection size among the Big Ten universities, fourth in the Committee on Institutional Cooperation (CIC), and thirteenth in the nation among major research libraries. The libraries' collections include 6 million bound volumes, 4 million microforms, and more than 40,000 current serials. The Main Library houses the undergraduate library and extensive graduate research collections as well as reference services, technical services, government publications, and other essential library services. The Main Library also is home to four student computing centers that provide access to more than 200 computer workstations. These facilities are complemented by the 13 campus libraries serving diverse disciplines, such as music, life sciences, optometry, chemistry, geology, education, business, journalism, and other areas.

University Information Technology Services (UITS) at IUB

University Information Technology Services at IUB supports the application, use, and development of information technology for research, teaching, and learning. UITS makes available more than 1,200 computer workstations located in 43 Student Technology Centers for both scheduled instruction and individual study and more than 200 "InfoStations" and other limited-use workstations in locations across campus for access to e-mail and the Web. The Assistive Technology Lab, located in the Main Library, offers programs and specialized information technology services for students with disabilities. Research computing facilities on campus include the CAVE virtual reality lab, two high-performance supercomputers (a 47-processor IBM SP and a 64-processor SGI/Cray Origin2000), a multiterabyte massive data storage system, and a state-of-the-art campus backbone network. Another strength UITS brings is the Network Operations Centers for both Abilene (Internet 2) and TransPAC. These (more fully described in the next section) are housed on the IUPUI campus, but scholars and students in Bloomington also benefit from these high-speed communication links.

In its annual list of America's 100 most wired colleges, *Yahoo! Internet Life* has ranked IUB the ninth most "wired" campus in the country, and for the third year in a row has ranked it second among public institutions of higher education. This ranking considers the categories of computer availability and type, undergraduate personal computer use, e-mail use and access, Web space use and access, networking, degree and distance learning, and educational and administrative uses.

The IUPUI Campus

IUPUI is an urban campus that combines IU and Purdue programs. In the fall semester of 1999, its schools had a total enrollment of 27,587, including 20,416 undergraduates and 7,171 students in graduate and professional programs. IUPUI currently ranks among the 10 largest campuses in the nation that offer graduate professional degrees.

IUPUI Library

The IUPUI library is a technology learning center that symbolizes the university's real and virtual information resources. It supports teaching and learning in classrooms, in faculty offices, at the hundreds of workstations in the library, in the 18 centrally supported campus learning centers, and in the home workstations and offices of students. Current holdings within the IUPUI University Library include more than 1,338,889 volumes, more than 36,000 current periodicals and journals, more than 1,197,000 microforms, and more than 152,400 government documents and audiovisual materials. The library also includes excellent resources, a powerful communications infrastructure, and widely deployed workstations for students. There are 1,760 data connections that are run throughout the building to 640 individual carrels for laptop connectivity, 8 computer clusters, 42 group study rooms, 40 faculty study rooms, a 50-seat general classroom, 2 computer classrooms, a 100-seat auditorium, and an adaptive educational services center.

University Information Technology Services (UITS) at IUPUI

UITS at IUPUI supports the application, use, and development of information technology for research, teaching, and learning. Students have access to more than 500 public workstations on campus. UITS partners with academic schools on campus to provide consulting support in 16 student technology centers and operates two other centers as campus-wide resources. The network operations center for Abilene, the high-speed Internet2 backbone network, is located on the IUPUI campus, as is the network operations center for TransPAC, a high-speed network connecting the United States to countries in Asia and the Pacific Rim. The IUPUI campus also is home to the Cisco Networking Academy Training Center and the Cisco Certified Internetwork Expert (CCIE) Practice Lab. One of two such labs in the nation, the CCIE lab provides a testing environment for networking professionals worldwide who are candidates for certification as Cisco Certified Internetwork Experts.

Because Indiana's government, business, industry, finance, health, service, and nonprofit organizations are centered in Indianapolis, the urban environment plays an important role as a learning resource for students enrolled in the informatics programs at IUPUI. Many of the state's communication industries are concentrated in the capital city and the larger organizations based here have made commitments to improve their communication and business processes through the use of information and information technology. IUPUI has established strong working relationships with both industry and government agencies in communications, information technology, and media arts and sciences.

Informatics Research Institute

Research and theory in informatics move rapidly to application and development. The faculty teaching in the School of Informatics participate in research activities and new applications of technology. As a result, faculty can transmit state-of-the-art knowledge to their students. Indiana University is capitalizing on this great research strength in informatics at both IUB and IUPUI with the formation of an Informatics Research Institute (IRI). The Informatics Research Institute will conduct research in areas of emphases shared with the School of Informatics, including: fundamental research in human computer interaction; fundamental research in capturing, managing, analyzing, and explaining information and making it available for its myriad uses; and expanding research into policy and socioeconomic issues arising from information technology.

Future location of the School of Informatics, IUB

Graduate Program

The Master of Science Degrees

Given the rapid and apparently unlimited growth of this new field at all levels of competence, each of the master's degree programs serves students who need education in the use of information technologies to enhance their job performance or employment prospects.

The School of Informatics offers five master's degrees:

- Master of Science in Bioinformatics
- Master of Science in Chemical Informatics
- Master of Science in Health Informatics
- Master of Science in Human Computer Interaction
- Master of Science in Media Arts and Science (see the "Media Arts and Science" section in this bulletin for policies, regulations, and requirements)

Bioinformatics, Chemical Informatics, Health Informatics, and Human Computer Interaction require 36 credits including the completion of two common graduate core courses. Media Arts and Science requires 30 credits including the completion of 18 credit hours of core courses.

Application Procedures

Students holding a bachelor's degree from an accredited four-year collegiate institution are eligible to apply for admission. Admission is selective; the Admission Committee evaluates applicants' abilities to succeed academically and their potential to contribute to the program.

The master's degree is designed for students with a bachelor's degree in another discipline who seek additional professional education in informatics to complement this knowledge. Most graduates of the School of Informatics will emerge as highly sought-after employees in a burgeoning information industry. The master's degrees are designed for a population of students with diverse backgrounds in computer science and technology, graphics, visualization, electronic networking and media communication, library and information science, telecommunications, psychology, cognitive science, journalism, medicine, health and nursing, biology, chemistry, and a host of other fields.

The master's degrees are focused on developing specialized skills and knowledge in information and information technology, with particular application to a specific field of study or practice. Each degree is an interdisciplinary endeavor that combines course work and field experiences from a traditional subject area or discipline with intensive study of information and technology. Because these specialized skills are developed and applied differently in these different fields, specific requirements are established for each degree, and have a content-specific rationale.

Application Procedures for U.S. Citizens

Requests for domestic applications should be directed to the School of Informatics.
Completed applications should be sent to:

Bloomington
Graduate Admissions Committee
School of Informatics
Indiana University
Sycamore Hall, Room 339
1033 E. Third Street
Bloomington, IN 47405
Email: informat@indiana.edu
www.informatics.indiana.edu

Indianapolis
Graduate Admissions Committee
School of Informatics
IUPUI
Mary Cable Building, Room 117
525 N. Blackford Street
Indianapolis, IN 46202
E-mail: info@informatics.iupui.edu
www.informatics.iupui.edu

Application Procedures for International Students

Requests for international applications should be directed to:

Bloomington
International Admissions
Indiana University
300 N. Jordan Avenue
Bloomington, IN 47405-1106
(812) 855-4306
E-mail: intladm@indiana.edu
Web: www.indiana.edu/~iuadmit

Indianapolis
Office of International Affairs
IUPUI
620 N. Union Drive, 207
Indianapolis, IN 46202-5167
(317) 274-7294
E-mail: oia@iupui.edu
Web: www.iupui.edu/~oia/admissions/

Completed international applications and all supporting materials should be sent to:

Bloomington
Office of International Admissions
Indiana University
300 N. Jordan Avenue
Bloomington, IN 47405-1106

Indianapolis
Office of International Affairs
IUPUI
620 Union Drive, 207
Indianapolis, IN 46202-5167

Application Deadlines

Applications will not be acted upon until all required documents have been received (including transcripts, letters of recommendation, application fee, GRE scores, and TOEFL scores for all non-native English speakers). Admission to the School of Informatics (excluding the New Media program) is decided on a rolling basis. In order to allow time for processing and making financial aid decisions, applicants must meet the following deadlines for matriculation in fall:

Informatics IUB/IUPUI

	U.S. Citizens	*International Students*
Financial Aid Consideration	January 15	January 15

New Media IUPUI

	Fall	*Spring*
Admission	March 15	November 15

Financial aid decisions will be made at the same time that admission decisions are made. Students must submit all application materials by the deadline to be considered for financial support.

Admission to the Master's Programs

Successful applicants for admission to the master's programs must demonstrate skills and knowledge in an academic field relevant to the particular master's program (e.g., biology for bioinformatics). Promising applicants who have deficiencies may, with faculty help, select courses that will provide instruction to overcome deficiencies and meet admissions requirements. However, the courses will not count toward the total number of credits required for the advanced degree.

- Degree requirement: bachelor's degree (with demonstrated technical skills) from an accredited college or university.
- Minimum overall grade point average of 3.0 (on a 4.0 point scale).
- Three letters of recommendation from individuals in positions to evaluate the applicant's professional promise. Indiana University reserves the right to validate the source of the letters received.
- Scores from the general Graduate Record Examination (GRE), taken within the last five years. Subject tests are recommended if appropriate to the degree.
- Personal statement or sample of creative work.

Each application for admission is carefully evaluated by the admissions committee for the appropriate degree. Applicants to all degree programs must do the following:

1. Submit applications to the School of Informatics, or, if necessary, to International Admissions on the IUB campus or the Office of International Affairs on the IUPUI campus.
2. Pay a nonrefundable graduate application fee to Indiana University.
3. Submit three Application Reference Forms completed by individuals familiar with the applicant's activities and potential to succeed in graduate work. These forms are included in the application packet.
4. Arrange for official transcripts to be sent from all colleges and universities attended by the applicant. Transcripts indicating "issued to student" are not considered official. An official transcript bears the original signature of the registrar and/or original seal of the issuing institution. Transcripts should be mailed directly by a registrar, or given to the applicant by the registrar in a sealed and signed envelope. International applicants should refer to the guidelines outlined in the International Graduate Application for Admission form. If the student has not completed all undergraduate course work at the time of application, the admission decision will be based on information available at the time of application. However, a final transcript showing graduation must be submitted before enrollment. Students who have taken course work on any Indiana University campus do not need to submit an Indiana University transcript.
5. Submit scores from the Graduate Record Examination (GRE). Only the General Exam is required; however, an appropriate subject exam (e.g., chemistry for chemical informatics) may be helpful in determining the applicant's potential.
   The school does not specify minimum scores, preferring instead to use the full information available in the applicant's dossier. The Media Arts and Science program does not require GRE scores. Information concerning these examinations may be obtained from Graduate Record Examinations, Educational Testing Service, CN 6000, Princeton, NJ 08541-6000. (www.gre.org).
6. If your native language is not English, you must submit results of the Test of English as a Foreign Language (TOEFL). The TOEFL is required of all non-native English speakers. The TOEFL may be waived if a B.S. or M.S. degree has been earned in the United States. A minimum TOEFL score of 600 is required. Registration information can be requested from: TOEFL/TSE Publications, P.O. Box 6154, Princeton, NJ 08541-6154. (www.toefl.org).
7. Submit a personal statement (300-500 words) describing the applicant's educational background and reasons for pursuing graduate study. In addition, some programs may require a sample of creative work or professional accomplishment, which may include written work, a computer program, multimedia presentation, portfolio, etc. Submitted materials should support the applicant's career intentions and plans. (Contact the Office of Informatics for further information).

Financial Assistance

Graduate Assistantships

Students may compete for a limited number of graduate assistantship appointments. Assistantships are awarded solely on the basis of merit. These appointments constitute the most common type of financial assistance offered through the School of Informatics. Graduate assistantships include a stipend and a fee scholarship. Students will be assigned to work in areas supporting the mission of the School of Informatics.

Students applying for admission to the program should complete the financial aid form if they wish to be considered for a Graduate Assistantship.

Fellowships and Scholarships

Although the majority of financial aid is in the form of assistantships, a limited number of fellowships and scholarships are also available. Those receiving fellowships and scholarships are not required to perform any duties in return for the stipend. These awards are also made solely on a merit basis.

Students applying for admission to the program are considered for fellowships and scholarships; there is no additional application to complete. Awards are normally granted for an academic year. The school is developing new sources of funding, and students are encouraged to review the informatics web site for up-to-date information or call the School of Informatics.

Grants

The GradGrants Center(GGC) is a free service available to all enrolled graduate students on all campuses of Indiana University. The GGC provides information and training to assist graduate students in their search for funding to further graduate study at Indiana University. The GradGrants Center-Bloomington is located in the Main Library, Room 1052E; (812) 855-5281; gradgrnt@indiana.edu; www.indiana.edu/~gradgrnt/index.html. The Indianapolis campus has a center to provide similar services for IUPUI graduate students located in the Union Building, Room 518; (317) 274-4023.

Loans

Domestic students who need financial assistance not provided by any of the awards already mentioned are eligible to apply for need-based financial aid. For graduate students, most need-based aid is in the form of student loans. For further information, contact the Office of Student Financial Assistance, Indiana University, Franklin Hall 208, Bloomington, IN 47405; (812) 855-0321; or the Office of Student Financial Aid, IUPUI, Cavanaugh Hall 103, 425 University Blvd., Indianapolis, IN 46202; (317) 274-4162.

Academic Regulations

Applicability of Degree Requirements

Students may choose to complete either the specific degree requirements published in the appropriate bulletin at the time of entry into the university or those in the bulletin current at the time of graduation.

Residency Requirements

The campus at which a student is admitted will certify and award the degree.

Intercampus Transfer

Students enrolled in the School of Informatics at any campus of Indiana University may transfer to the School of Informatics on another campus, provided they are in good standing.

Transfer of Credit

A maximum of 8 credit hours of graduate course work with grades of B (3.0) or better may be transferred from other accredited colleges and universities and applied to the School of Informatics degree programs. The transfer must be approved by the dean, and is not an automatic occurrence. (See "Revalidation" section below).

Revalidation

Normally, a course may not be counted toward degree requirements if it has been completed more than five years prior to the awarding of the degree for master's students. The advisor may recommend to the dean that course work taken prior to the deadline be revalidated if it can be demonstrated that the knowledge contained in the course(s) remains current. Currency of knowledge may be demonstrated by (a) passing an examination specifically on the material covered by the course; (b) passing a more advanced course in the same subject area; (c) passing a comprehensive examination in which the student demonstrates substantial knowledge of the content of the course; or (d) publishing scholarly research demonstrating knowledge of the content of the course.

Courses taken while an undergraduate and counted toward the requirements of a baccalaureate degree may not also be counted toward a graduate degree.

Grading System

The official grading system is as follows:

A	= 4.0	D+	= 1.3
A–	= 3.7	D	= 1.0
B+	= 3.3	D–	= 0.7
B	= 3.0	F	= Failed
B–	= 2.7	I	= Incomplete
C+	= 2.3	W	= Withdrawn
C	= 2.0	R	= Deferred
C–	= 1.7	NR	= No grade reported

A minimum of a B (3.0) average in graduate work is required for continuance in graduate study. Courses completed with grades below C (2.0) are not counted toward degree requirements, but such grades will be counted in calculating a student's grade point average. Note that no work may be transferred from another institution unless the grade is B (3.0) or higher.

Incomplete

A grade of Incomplete may be given only if the completed portion of a student's work is of passing quality. It is the responsibility of the student to satisfy the requirements of that course within one calendar year from the date on which the Incomplete is recorded. The student is expected to finish all necessary work in time for the instructor to assign a regular grade before the expiration of this time period. If the student is unable to do so, it is the student's responsibility to notify the instructor of the course and the graduate advisor within the year to request an extension of time. Every overdue Incomplete will be changed to a grade of F after one calendar year.

Withdrawals

Because deadlines for withdrawal from courses may vary by campus and/or school, students should check with the current campus *Schedule of Classes* to verify deadlines and procedures.

Course Waivers

Requests for waiver of specific courses or requirements on the basis of previous course work are to be submitted in writing to the dean.

Credit Earned in Non-degree Status

Not more than 9 hours of graduate credit completed as a non-degree student may be credited toward a School of Informatics graduate degree. Deficiency courses do not apply to the 9 credit hours.

Academic Standing

Students are considered to be in good standing during any semester in which their academic grade point average is at least 3.0 (B) for both their last semester's course work and for the cumulative average of all course work completed. Only courses with grades of C (2.0) or above may be counted toward degree requirements. However, grades below C are used in computing the cumulative grade point average, even if a course is repeated and a higher grade is earned.

Academic Probation

Students are placed on probation following a semester in which their graduate cumulative or semester grade point average falls below 3.0. Students on probation are required to attain an average of at least 3.0 for all graduate course work completed by the end of the next semester of full-time enrollment or its equivalent (9 credit hours). Failure to do so is cause for dismissal.

Academic Integrity

Academic integrity requires that students take credit only for their own ideas and efforts. Misconduct, including cheating, fabrication, plagiarism, interference, or facilitating academic dishonesty, are prohibited because they undermine the bonds of trust and cooperation among members of this community and between us and those who may depend on our knowledge and integrity. Complete details are contained in the Indiana University *Code of Student Rights, Responsibilities, and Conduct.*

Thesis

Depending on particular degree requirements, students will complete either a capstone project or a research-based thesis under the guidance of an advisor. More details are given in the appropriate section for each program.

Degree Conferral

For all students seeking a master's degree, an application for the degree must be filed with the School of Informatics at least 60 days before the date anticipated for degree conferral. All degree requirements must be completed at least 30 days prior to the date of expected degree conferral, including submission of the bound copies of the master's thesis (if required for degree).

Time Requirements

All requirements for the M.S. degrees must be met within five consecutive calendar years from the date of completion of the first credited (i.e., non-deficiency) course.

Degree Requirements

Master of Science in Bioinformatics, IUB/IUPUI (36 cr.)

Bioinformatics is a pure and an applied science dealing with the collection, management, analysis and dissemination of biological data and knowledge, especially with respect to genetics and molecular biology. A Master of Science in Bioinformatics addresses needs for education in this rapidly growing field of bioinformatics. This is an interdisciplinary program at the Bloomington and Indianapolis campuses, involving faculty from the departments of biology, computer science, chemistry, library and information science, and others.

The end of the twentieth century saw an explosion of data discovered from living organisms, especially in areas of molecular biology and genetics. The goal of bioinformatics is to deal with this flood of data, organize it as comprehensible information, and turn it into useful knowledge. For example, the flow of information from the Human Genome Project will revolutionize medical practice and biological research in this century, and enable an understanding of most inherited diseases. Study of the genomic code, coupled with new understanding of its organization, regulation and function in cells, and in development of organisms, is forming the basis for designing new treatments for many diseases and for understanding and modulating health problems associated with aging. Genome information is quickly becoming the basis for designing new drugs. It is also central to the improvement of genomes of economically important crops and animals.

Experienced bioinformaticians are limited in number, while the need for them in industry, academe, and government has grown rapidly. Full understanding and application of this new data requires a large body of intelligent, creative, and experienced scientists with a firm understanding of both computation and biology. There is a current and projected shortage of such people and a pressing need for educational institutions to teach bioinformatics. In the mid-1990s, biosciences industries discovered the importance of bioinformatics to their goals and quickly stripped academic centers of many experts who would normally serve to educate a new generation of students. New directions following the unraveling of the genomic code also point to greatly increased information flow and an increasing scale in the application of computing methods to biosciences.

The IUPUI and IUB campuses are well suited for offering graduate education in bioinformatics. At IUPUI, the Department of Computer and Information Science and the Department of Biology in the School of Science collaborate closely with the Department of Biochemistry and Molecular Biology and other departments in the School of Medicine. Many ongoing projects funded by federal agencies need the knowledge and technology of bioinformatics. The Department of Computer and Information Science has obtained funds from the Research Laboratories at Eli Lilly and Company for research in bioinformatics. Individual faculty members in the Department of Computer and Information Science and the Department of Biochemistry and Molecular Biology are also engaged in a research initiative in Bioinformatics at IUPUI.

At IUB, the Department of Biology has a strong, highly respected faculty and is the center for internationally recognized bioinformatics projects, including the popular IUBio Archive of biology software and data. This department is home to the FlyBase Drosophila genome informatics project, which is recognized as one of the most technologically advanced databases of the Human Genome Project. New bioinformatics initiatives at IUB include areas of phylogenetics, genomics and microarray data processing.

General Requirements for the M.S. in Bioinformatics

This curriculum includes a set of core and elective courses covering concepts and training in bioinformatics, biosciences and informatics, and computer sciences. A primary goal of this curriculum is to provide scientists with a strong foundation in the areas of computation/informatics and biology, though their primary focus may be in one or the other area. The integration of knowledge from biology, computing, mathematics, and related areas will receive particular emphasis. Students with different levels of background in biology, computing, and informatics sciences are encouraged to apply. Students with academic deficiencies will address these through individually planned programs of suggested course work. Students will gain experience in the applications of computing methods to biology information by completing course work and non-classroom original research projects. These projects will be supervised jointly by informatics and biosciences faculty.

Prerequisites

Prospective students for graduate study in bioinformatics will be expected to have introductory background in both informatics and biology. Students need approximately 6 undergraduate credit hours of coursework in biology, covering areas of molecular biology, genetics, and evolution. Students need approximately 6 undergraduate credit hours of computer science or informatics coursework, covering areas of programming, discrete structures, and data structures. Students not having completed these prerequisites may need to take appropriate undergraduate courses to ensure regular progress through the program.

To receive the master's degree, the applicant must be admitted as a graduate student and complete 36 credits in bioinformatics-related courses accepted for graduate credit, including 9 hours of core courses, 21 hours of electives and 6 hours of project or thesis credit. The following courses may be used for this:

Core Courses, IUB (9 cr.)

INFO I501 Introduction to Informatics (3 cr.)

INFO I502 Information Management (3 cr.), P: INFO I501

Choose one from among the following:

BIOL L519 Bioinformatics: Theory and Application (3 cr.)

BIOL L529 Bioinformatics in Molecular Biology and Genetics: Practical Applications (4 cr.)

INFO I531 Seminar in Bioinformatics (1-3 cr.)

INFO I552 Independent Study in Bioinformatics (1-3 cr.)

Core Courses, IUPUI (9 cr.)

CSCI 548 Topics: Introduction to Bioinformatics (3 cr.)

INFO I501 Introduction to Informatics (3 cr.)

INFO I502 Information Management (3 cr.)

Electives, IUB (21 cr.)

BIOL L505 Molecular Biology of Evolution (3 cr.)

BIOL L521 Problems in Genetics—Higher Organisms (3 cr.)

BIOL L585 Molecular Genetics (3 cr.)

BIOL L586 Cell Biology (4.5 cr.)

BIOL L587 Developmental Biology (4.5 cr.)

BIOL Z540 Genetics of Populations (3 cr.)

CHEM C571 Chemical Information Technology (3 cr.)

CHEM C572 Computational Chemistry and Molecular Modeling (3 cr.)

CHEM C581 Function and Structure of Macromolecules (3 cr.)

CHEM C687 Seminar: Computing Methods in Biochemistry (3 cr.)

CSCI A504 Introductory C++ Programming (2 cr.)

CSCI A506 Obect-Oriented Programming in C++ (2 cr.)

CSCI A546 User-Interface Programming (2 cr.)

CSCI A547 Network Technologies and Administration (2 cr.)

CSCI A548 Mastering the World Wide Web (2 cr.)

CSCI A591 Introduction to Computer Science (3 cr.)

CSCI A592 Introduction to Software Systems (3 cr.)

CSCI A594 Data Structures (3 cr.)

CSCI A596 Programming Languages (3 cr.)

CSCI A597 Introduction to Programming I (3 cr.)

CSCI A598 Introduction to Programming II (3 cr.)

CSCI B503 Algorithms Design and Analysis (3 cr.)

CSCI B521 Programming Language Principles (3 cr.)

CSCI B538 Networks and Distributed Computing (3 cr.)

CSCI B551 Elements of Artificial Intelligence (3 cr.)

CSCI B561 Advanced Database Concepts (3 cr.)

CSCI B581 Advanced Computer Graphics (3 cr.)

CSCI P536 Advanced Operating Systems (3 cr.)

CSCI P565-P566 Software Engineering I-II (6 cr.)

CSCI P573 Scientific Computing (3 cr.)

MATH M566 Mathematical Statistics I (3 cr.)

MATH M567 Mathematical Statistics II (3 cr.)

SLIS L505 Organization and Representation of Knowledge and Information (3 cr.)

SLIS L542 Introduction to Human Computer Interaction (3 cr.)

SLIS L544 Information Technology Standardization (3 cr.)

SLIS L578 User Interface Design for Information Systems (3 cr.)

SPEA E555 Topics in Environmental Sciences (3 cr.)

Electives, IUPUI (21 cr.)

BIOL 484 Cellular Biochemistry (3 cr.)

BIOL 507 Molecular Biology (3 cr.)

BIOL 540 Topics in Biotechnology (3 cr.)

BIOL 548 Techniques in Biotechnology (3 cr.)

BIOL 641 Microbial Genetics (2 cr.)

CSCI 503 Operating Systems (3 cr.)

CSCI 504 Concepts in Computer Organization (3 cr.)

CSCI 506 Management of the Software Development Process (3 cr.)

CSCI 507 Object-Oriented Design and Programming (3 cr.)

CSCI 520 Computational Methods in Analysis (3 cr.)

CSCI 536 Computer Networks (3 cr.)

CSCI 541 Database Systems (3 cr.)
CSCI 542 Distributed Database Systems (3 cr.)
CSCI 565 Programming Languages (3 cr.)
CSCI 580 Analysis of Algorithms (3 cr.)
CSCI 590 Artificial Intelligence (3 cr.)
CSCI 590 Data Mining (3 cr.)
CSCI 695 M.S. Project (3-6 cr.)
CSCI 698 Research M.S. Thesis (6-9 cr.)
GRAD G865 Fundamental Molecular Biology (2-5 cr.)
MGEN Q580 Basic Human Genetics (3 cr.)
MGEN Q630 Genetics of Populations (3 cr.)
STAT 511 Statistical Methods I (3 cr.)
STAT 514 Designs of Experiments (3 cr.)

Project/Thesis, IUB/IUPUI (6 cr.)

Students must perform an independent research project and produce a report or thesis for public defense. The project might consist of a research paper, a designed artifact, or other appropriate deliverable format.

INFO I692 Thesis/Project in Bioinformatics (1-6 cr.)

Master of Science in Chemical Informatics, IUB/IUPUI (36 cr.)

The size of the information problem in chemistry is staggering. It can be judged from the fact that Chemical Abstracts Service adds over 700,000 new compounds to its database annually. Massive amounts of physical and chemical property data are generated each year for new and existing chemical substances. The avalanche of data can bury a chemical research project unless chemists find ways to cope with it. Fortunately, those trained in chemical informatics provide the tools to acquire, organize, and evaluate data, yielding new insights for further chemical research. Chemical informatics companies combine molecular simulation and data analysis techniques with high-quality graphical visualization to obtain stunning results. Chemical informatics thus helps chemists investigate new problems and organize and analyze scientific data to develop novel compounds, materials, and processes through the application of information technology.

The curriculum for a Master of Science in Chemical Informatics in the School of Informatics, developed jointly by IUB and IUPUI, educates students in the following major aspects of chemical informatics:

- **Information Acquisition:** Methods used for generating and collecting data empirically (experimentation) or from theory (molecular simulation)
- **Information Management:** Storage and retrieval of information
- **Information Use:** Data analysis, correlation, and application to problems in the chemical and biochemical sciences.

Prerequisites

Prospective students for graduate study in chemical informatics will be expected to have training in both informatics and chemistry. If sufficient background has not been completed, some additional coursework may be necessary to ensure progress through the program.

Students with a Bachelor's Degree in Computer Science, Informatics, or Other Information Fields

Students with a B.S. in any information-based field will require approximately 22 undergraduate credit hours of coursework in chemistry to provide sufficient background for coursework required to study for the M.S. in Chemical Informatics. This includes:

General Chemistry with laboratory (two semesters)
Organic Chemistry (two semesters)
Biological Chemistry or Biochemistry (one semester)
Physical Chemistry (one semester)

Students with a Bachelor's Degree in Chemistry (B.A. or B.S.)

Students with undergraduate degrees in chemistry (typically 25 or more credits in chemistry or biochemistry courses) will need some preparative work in informatics. Four or more credits in formal informatics coursework, computer science courses relevant to informatics, or bioinformatics or chemical informatics coursework will provide the necessary background for graduate study. Students not having completed this study may need to take appropriate undergraduate courses to ensure regular progress through the program.

Core Courses, IUB/IUPUI (6 cr.)

INFO I501 Introduction to Informatics (3 cr.)
INFO I502 Information Management (3 cr.), P: INFO I501

Core Courses, IUB (6 cr.)

CHEM C571 Chemical Information Technology (3 cr.)
CHEM C572 Computational Chemistry and Molecular Modeling (3 cr.)

Core Courses, IUPUI (6 cr.)

CHEM 696 Special Topics in Chemistry (3 cr.) Course content changes each semester. Students register for 3 credit hours for two semesters.

Electives, IUB (18 cr., at least 6 of which must be in chemistry or biochemistry)

Some of the following courses may also be offered at IUPUI; check current course schedules.

Biology

BIOL L505 Molecular Biology of Evolution (3 cr.)
BIOL L519 Bioinformatics: Theory and Application (3 cr.)
BIOL L529 Bioinformatics in Molecular Biology and Genetics: Practical Applications (4 cr.)
BIOL L585 Molecular Genetics (3 cr.)
BIOL M400 Biomedical Sciences Documentation (1 cr.)
BIOL Z540 Genetics of Populations (3 cr.)

Biochemistry

CHEM C484 Biomolecules and Catabolism (3 cr.)
CHEM C485 Biosynthesis and Physiology (3 cr.)
CHEM C581 Function and Structure of Macromolecules (3 cr.)
CHEM C687 Computing Methods in Biochemistry (3 cr.)

Analytical Chemistry

CHEM C315 Chemical Measurements Laboratory I (3 cr.)
CHEM C317 Equilibria and Electrochemistry (2 cr.)
CHEM C318 Spectrochemistry and Separations (2 cr.)
CHEM C501 Chemical Instrumentation (4 cr.)
CHEM C502 Spectroscopic Methods in Inorganic Chemistry (3 cr.)
CHEM C503 Spectrometric Methods of Structure Determination (3 cr.)
CHEM C613 Mass Spectrometry and Stable Isotopes (1.5-3 cr.)

Inorganic Chemistry

CHEM C430 Inorganic Chemistry (3 cr.)

Organic Chemistry

CHEM C343 Organic Chemistry Laboratory I (2 cr.)
CHEM C344 Organic Chemistry Laboratory II (2 cr.)
CHEM C540 Advanced Organic Chemistry (3 cr.)
CHEM C543 Organic Reactions (3 cr.)
CHEM C644 Physical Organic Chemistry (1-3 cr.)

Physical Chemistry

CHEM C362 Physical Chemistry of Molecules (3 cr.)
CHEM C364 Introduction to Basic Measurements (3 cr.)
CHEM C460 Nuclear Chemistry (3 cr.)
CHEM C561 Atomic and Molecular Quantum Theory (3 cr.)
CHEM C562 Computational Quantum Chemistry (3 cr.)

Informatics

CHEM C578 Seminar in Chemical Informatics (1-3 cr.)
INFO I503 Social Impact of Information Technologies (3 cr.)

Computer Science

CSCI A504 Introductory C++ Programming (2 cr.)
CSCI A506 Object Oriented Programming in C++ (3 cr.)
CSCI A547 Network Technologies and Administration (3 cr.)
CSCI A548 Mastering the World Wide Web (2 cr.)
CSCI A597 Introduction to Programming I (3 cr.)
CSCI A598 Introduction to Programming II (3 cr.)
CSCI B503 Algorithms Design and Analysis (3 cr.)
CSCI B521 Programming Language Principles (3 cr.)
CSCI B538 Networks and Distributed Computing (3 cr.)
CSCI B561 Advanced Database Concepts (3 cr.)
CSCI B581 Advanced Computer Graphics (3 cr.)
CSCI B673 Advanced Scientific Computing (3 cr.)
CSCI P536 Advanced Operating Systems (3 cr.)
CSCI P565-P566 Software Engineering I-II (6 cr.)

Library and Information Science

SLIS L505 Organization and Representation of Knowledge and Information (3 cr.)
SLIS L542 Introduction to Human Computer Interaction (3 cr.)
SLIS L544 Information Technology Standardization (3 cr.)
SLIS L561 The Information Industry (1-3 cr.)
SLIS L570 Online Information Retrieval (3 cr.)
SLIS L571 Information Networking (3 cr.)
SLIS L576 Digital Libraries (3 cr.)
SLIS L578 User Interface Design for Information Systems (3 cr.)

Statistics

MATH M566 Mathematical Statistics I (3 cr.)
MATH M567 Mathematical Statistics II (3 cr.)
PSY P536 Theory of Tests and Measurements (3 cr.)

Other Courses

COGS Q550 Models in Cognitive Science (3 cr.)
MUS U522 Electronic Text Processing and Distribution (3 cr.)

Electives, IUPUI (18 cr., at least 6 of which must be in chemistry or biochemistry)

Biochemistry

BIOC B807 Enzyme Chemistry (3 cr.)
BIOC G865 Fundamentals of Molecular Biology (3 cr.)
BIOL K484 Cellular Biochemistry (3 cr.)
BIOL 507 Molecular Biology (3 cr.)
CHEM 533 Introduction to Biochemistry (3 cr.)
CHEM 636 Biochemistry (3 cr.)
CSCI 548 Introduction to Bioinformatics (3 cr.)

Analytical Chemistry

CHEM 621 Advanced Analytical Chemistry (3 cr.)
CHEM 629 Chromatography (3 cr.)
CHEM 696 Chemometrics (3 cr.)

Organic Chemistry

CHEM 651 Advanced Organic Chemistry (3 cr.)
CHEM 652 Synthetic Organic Chemistry (3 cr.)

Physical Chemistry

CHEM 575 Intermediate Physical Chemistry (3 cr.)
CHEM 672 Quantum Chemistry (3 cr.)
CHEM 675 Chemical Kinetics (3 cr.)
CHEM 696 Introduction to Computational Chemistry (3 cr.)

Computer Science

CSCI 542 Distributed Database Systems (3 cr.)
CSCI 590 Artificial Intelligence (3 cr.)
CSCI 590 Data Mining (3 cr.)

New Media

NEWM N502 Digital Media Motion and Simulation Methods (3 cr.)
NEWM N504 Advanced Interactive Design Application (3 cr.)

Project/Thesis or Internship, IUB, IUPUI (6 cr. taken in year two)

As a capstone experience, students will complete 6 credits of research, a project, or an internship under the guidance of a chemistry faculty member.

INFO I693 Informatics Thesis/Project (1-6 cr.)

The Master of Science in Health Informatics, IUPUI (36 cr.)

The School of Informatics offers a Master of Science in Health Informatics at IUPUI to address needs emanating from the rapidly changing health care environment. Research and educational programs in medical, nursing, and health informatics are growing at a rapid rate nationally. This can be attributed in large part to the increasing complexity and importance of health care reimbursement, which has created a need for improved classification, storage, and analysis of medical information to establish best clinical practice and cost efficiency. Users of health informatics include clinicians, researchers, health care educators, health organization administrators, health policy analysts, health information administrators, quality improvement directors, and chief information officers. Those who are professionally involved in health informatics work in a variety of settings, including acute care hospitals, managed care organizations, consulting firms, claims and reimbursement organizations, accounting firms, home health care agencies, long-term care facilities, corrections facilities, pharmaceutical companies, behavioral health organizations, insurance companies, state and federal health care agencies, and health computing industries.

The IUPUI campus is uniquely suited to conduct graduate education in health informatics through its health schools, research centers, and affiliated academic units. The School of Medicine has a long history of fellowship training and research in medical informatics. The School of Allied Health Sciences offers an undergraduate degree in health information administration. This baccalaureate program prepares professionals to plan and manage health information systems. The curriculum is grounded in computer systems, health law, medical documentation, and organizational management. The School of Nursing, which is the largest in the country, is in the forefront in the development of nursing informatics, with a particular emphasis on consumer health informatics. The School of Library and Information Science offers master's and doctoral degrees in information science, which are distinguished by their sociotechnical orientation. The school also has a broad research thrust exploring the interconnection of social, behavioral, and technological issues associated with the use of information and communication technologies. The Department of Computer and Information Science offers a master's degree in Computer Science with a specialization in databases and data mining. The department supports the computer science requirements of the M.S. in Health Informatics. Faculty in the department are externally funded to conduct research in medical informatics and bioinformatics. Other academic programs at Indianapolis and Bloomington in public health, applied health sciences, and hospital administration offer important supporting course work.

General Requirements for the M.S. in Health Informatics

To receive the Master of Science in Health Informatics, students must complete 36 credit hours of prescribed courses. In addition to core courses, students choose, in consultation with advisors, a set of concentration electives. Examples of concentration areas include: 1) knowledge-based health care information, 2) health services informatics, and 3) clinical databases.

Knowledge-based health care information focuses on the storage, organization, evaluation, and dissemination of health and medical knowledge (e.g., textbooks, journals, other media, and information) to support evidence-based practice and patient education. End-users of knowledge-based health care information include clinicians, patients, health educators, and health planners.

Health services informatics focuses on information management in health care systems and addresses such diverse needs as patient flow, resource allocation, billing, and compiling and reporting of data. This involves developing information systems for processing and storing clinical data, complying with medical documentation requirements of accrediting and governmental agencies, and setting health information policies.

Clinical databases focuses on the storage of medical data and linkage of electronic systems. Study in this concentration would be based on an electronic medical record system which would include existing standards and coding, links between health-related databases, and data extraction for clinical care and management. Research would be oriented to using such databases to learn more about disease and health maintenance (e.g., clinical epidemiology, pharmacoepidemiology, public health informatics, and nursing informatics).

Prerequisites (12 cr.)

All students applying for the M.S. in Health Informatics should have prerequisite courses or equivalencies in the following areas:

Anatomy, biology, or physiology (200-level or higher)	3 cr.
Computer Science CSCI N301	3 cr.
Medical Terminology	3 cr.
Statistics	3 cr.

To receive a master's degree, the applicant must be admitted as a graduate student and complete 36 credits in health informatics-related courses numbered 500 or above as listed below. The following courses are offered at IUPUI; courses may also be taken at IUB with approval of the advisor.

Core Courses (15 cr.)

All of the following are required:

INFO I501 Introduction to Informatics (3 cr.)
INFO I502 Information Management (3 cr.), P: INFO I501
INFO I503 Social Impact of Information Technologies (3 cr.)
INFO I530 Seminar in Health Informatics Applications (3 cr.)

Choose one of the following:

PBHL G651 Biostatistics for Public Health (3 cr.)
NURS R505 Measurement and Data Analysis (3 cr.)
SPEA H518 Public Health Statistics (3 cr.)

Electives (15 cr.)

Electives may be selected from existing graduate courses in numerous schools and other academic units, depending on student need. Of these 15 credit hours, 9 credit hours must be selected from the list of informatics and computer science courses. (This list is neither exhaustive nor exclusive.) In consultation with their advisors, students will have wide latitude in choosing appropriate courses.

Informatics and Computer Science

CSCI 503 Operating Systems (3 cr.)
CSCI 504 Concepts in Computer Organization (3 cr.)
CSCI 536 Computer Networks (3 cr.)
CSCI 541 Database Systems (3 cr.)
CSCI 542 Distributed Database Systems (3 cr.)
CSCI 565 Programming Languages (3 cr.)
CSCI 590 Topics: Artificial Intelligence (3 cr.)
NURS T619 Computer Technologies (3 cr.)
SLIS L542 Introduction to Human Computer Interaction (3 cr.)
SLIS L570 Online Information Retrieval (3 cr.)
SLIS L571 Information Networking (3 cr.)
SLIS L574 Communication in Electronic Environments (3 cr.)
SPEA H628 Healthcare Information Systems (3 cr.)

SPEA V516 Public Management Information Systems (3 cr.)

SPEA V519 Database Management Systems (3 cr.)

SPEA V611 Design of Information Systems (3 cr.)

SPEA V613 Implementation of Information Systems (3 cr.)

Design, Measurement, and Evaluation

AHLT W520 Research Methodology for Allied Health (3 cr.)

AHLT W570 Research Communication in Allied Health (3 cr.)

ECON E528 Economic Analysis of Health Care (3 cr.)

NURS L650 Data Analysis for Clinical and Administrative Decision Making (3 cr.)

NURS R500 Nursing Research Methods I (3 cr.)

NURS R600 Nursing Research Methods II (3 cr.)

NURS R601 Instrument Development for Health Behavior I (2 cr.)

NURS R602 Instrument Development for Health Behavior II (2 cr.)

NURS R720 Metanalysis of Health/Illness or Disease/Illness (3 cr.)

NURS T617 Evaluation in Nursing (3 cr.)

PBHL G652 Biostatistics II (3 cr.)

SPEA H517 Managerial Epidemiology (3 cr.)

SPEA H521 Management Sciences for Health Services Administration (3 cr.)

SPEA H615 Strategic Management, Decision Making, and Evaluation II (3 cr.)

SPEA V541 Benefit-Cost Analysis of Public and Environmental Policies (3 cr.)

Health Sciences

AHLT W510 Trends and Issues in Allied Health (3 cr.)

AHLT W560 Topics: Patient-Centered Outcomes Research (3 cr.)

HPER C501 Program Planning in Public Health Education (3 cr.)

HPER C515 Health Education in Clinical Settings (3 cr.)

NURS M560 Teaching Strategies to Promote Client Functioning (3 cr.)

PBHL P503 Public Health Community Project (3 cr.)

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

SPEA H501 Introduction to Health and Medical Care Organization (3 cr.)

SPEA H503 Health Systems Organization and Management (3 cr.)

Project/Thesis, IUPUI (6 cr.)

As a capstone experience, students will complete either a project, planned in conjunction with their advisor, or a researched-based thesis, supervised by a research advisor and a thesis committee. Core and support faculty from the participating schools will have a wide range of research interests that will provide graduate students with choices relevant to their concentration areas.

INFO I691 Thesis/Project in Health Informatics (1-6 cr.)

Master of Science in Human Computer Interaction, IUB (36 credits)

Human Computer Interaction (HCI) is the branch of informatics that studies and supports the design, development, and implementation of humanly usable and socially acceptable information technologies. The goal of the field is to shape new media and tools that will support human use, augment human learning, enhance communication and lead to more acceptable technological developments at the individual and the social levels.

Research into HCI draws extensively on mainstream informatics concerns with cognition, communication, representation, and computation. HCI professionals seek to identify the nature and parameters of human information processing at the interface, to design forms of representation that support human interpretation and use of information, to reliably and validly test new technologies for usability and acceptability, and to determine how information technologies change working practices and social activities.

Regular job postings for HCI personnel express a desire for professionals with suitable scientific training in design and evaluation, and increasingly, applied social scientists with technological skills are finding employment in the software industry as HCI professionals. At Indiana University, the HCI program draws faculty from across campus to provide the appropriate blend of multi-disciplinary expertise required to study this new discipline.

General Requirements for the M.S. in Human Computer Interaction (HCI)

To receive the master of science degree, the applicant must be admitted as a graduate student and complete 36 credits of graduate study in HCI according to the following schedule:

Core Courses (12 cr.)

INFO I501 Introduction to Informatics (3 cr.)

INFO I502 Information Management (3 cr.), P: INFO I501

SLIS L542 Introduction to HCI (3 cr.)

EDUC Y502 Intermediate Statistics (or equivalent) (3 cr.)

Electives (18 cr.)

Students may choose from among the following, and must take courses from at least two departments.

BUS S601 MIS Research Topics in Applications Systems Design (3 cr.)

BUS S602 MIS Research Topics in Administration and Technology (3 cr.)

CSCI A546 User Interface Programming (3 cr.)

CSCI B581 Advanced Computer Graphics (3 cr.)

CSCI B582 Image Synthesis (3 cr.)

CSCI B665 Software Engineering Management (3 cr.)

CSCI B666 Software Management Implementation (1-3 cr.)

CSCI B669 Topics in Database and Information Systems (1-6 cr.)

CSCI B689 Topics in Graphics and Human-Computer Interaction (1-6 cr.)

CSCI P565-P566 Software Engineering I-II (6 cr.)

EDUC P544 Applied Cognition and Learning Strategies (3 cr.)

EDUC P600 Topical Seminar in Learning Cognition and Instruction (3 cr.)

EDUC R685 Human Computer Interface Design (1-3 cr.)

JOUR J530 Issues in New Communication Technologies (3 cr.)

PSY P450 Human Factors (graduate credit available) (3 cr.)

SLIS L576 Digital Libraries (3 cr.)

SLIS L578 User Interface Design for Information Systems (3 cr.)

SLIS L642 Information Usage and the Cognitive Artifact (HCI II) (3 cr.)

SLIS L697 Advanced Topics in Information Systems (1-4 cr.)

SPHS S522 Digital Signal Processing (3 cr.)

TEL T541 Processes and Effects: Individual Level Theory and Research (3 cr.)

TEL T571 Applied Emotional and Cognitive Psychology Theory (3 cr.)

Project/Thesis, IUB (6 cr.)

Students will perform an independent research project, and produce a report or thesis, a designed artifact, or other appropriate deliverable format for public defense.

INFO I694 Thesis/Project in Human-Computer Interaction (1-6 cr.)

Informatics Graduate Course Descriptions

The abbreviation "P" refers to the course prerequisite or prerequisites. The number of hours of credit given a course is indicated in parentheses following the course title.

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

INFO I502 Information Management (3 cr.), P: INFO I501. Survey of information organization in medical, health, chemical, and biology related areas; basic techniques of the physical database structures and models, data access strategies, management, and indexing of massively large files; analysis and representation of structured and semi-structured medical/clinical/chemical/biological data sets.

INFO I503 Social Impact of Information Technologies (3 cr.) An overview of important social, legal, and ethical issues raised by information technology.

INFO I590 Topics in Informatics (1-3 cr.)

Bioinformatics, IUB/IUPUI

BIOL L519 Bioinformatics: Theory and Application (3 cr.) Biosequence analysis, sequence alignment and assembly; RNA structure, protein, and molecular modeling; genomics and proteomics: gene and function discovery above the sequence level; phylogenetic analysis including parsimony, maximum likelihood, and related concepts; information and machine learning; artificial intelligence, neural networks, hidden Markov models; visual and graphical analysis in bioinformatics; world-wide biologic databases (use, management, analysis, federation, and access); experimental design and data collection techniques; scientific and statistical data analysis; database and data mining methods; network and Internet methods.

BIOL L529 Bioinformatics in Molecular Biology and Genetics: Practical Applications (4 cr.) P: two semesters of programming experience or equivalent, knowledge of Unix operating system. Emphasis on problem solving with molecular biology data; biosequence analysis methods; practical software engineering in bioinformatics; methods in data collection, management, analysis and distribution; Internet client-server methods applied to genomic databases; lecture and laboratory.

INFO I532 Seminar in Bioinformatics (1-3 cr.) Presentation and discussion of new topics in bioinformatics as seminar by students. Concentration on a particular area each semester to be announced before registration.

INFO I552 Independent Study in Bioinformatics (1-3 cr.) Independent study under the direction of a faculty member, culminating in a written report. May be repeated for credit.

INFO I692 Thesis/Project in Bioinformatics (1-6 cr.)

Chemical Informatics, IUB/IUPUI

C571 Chemical Information Technology (3 cr.) Chemical structure and data representation and search systems; bioinformatics; chemical information and database systems: laboratory information management systems, spectral and crystallographic databases, chemical reaction databases, patent information management systems, commercial chemical information databases, electronic chemical publishing systems.

C572 Computational Chemistry and Molecular Modeling (3 cr.) Molecular modeling: computer models of molecules and their behavior in gas and condensed phases; implicit and explicit solvation models; quantum and molecular mechanics; search strategies for conformational analysis, geometry optimization methods; information content from Monte Carlo and molecular dynamics simulations. Statistics and chemometrics, multivariate statistics and experimental design, numerical methods, calibration and chemical analysis, optimization methods, artificial intelligence; molecular design, de novo design techniques; quantitative structure activity relationships (QSAR); comparative molecular field analysis; docking; molecular diversity and combinatorial libraries.

INFO I533 Seminar in Chemical Informatics (1-3 cr.) Presentation and discussion of new topics in chemical informatics. Concentration on a particular area each semester to be announced before registration.

INFO I553 Independent Study in Chemical Informatics (1-3 cr.) Independent study under the direction of a faculty member, culminating in a written report. May be repeated for credit.

INFO I693 Thesis/Project in Chemical Informatics (1-6 cr.)

Health Informatics, IUPUI

INFO I530 Seminar in Health Informatics Applications (3 cr.) Presents an overview of the various professional applications and research directions taken in health informatics. Requires directed laboratory experience.

INFO I531 Seminar in Health Informatics (1-3 cr.)

INFO I551 Independent Study in Health Informatics (1-3 cr.) Independent study under the direction of a faculty member, culminating in a written report. May be repeated for credit.

INFO I691 Thesis/Project in Health Informatics (1-6 cr.)

Human Computer Interaction, IUB

INFO I534 Seminar in Human Computer Interaction (1-3 cr.) Topics vary yearly and include the following: information visualization, immersive technologies, designing hypermedia for educational applications, user-centered design techniques and tools, formal methods and cognitive modeling in HCI.

INFO I554 Independent Study in Human Computer Interaction (1-3 cr.) Independent study under the direction of a faculty member, culminating in a written report. May be repeated for credit.

INFO I694 - Thesis/Project in Human Computer Interaction (1-6 cr.)

Mehmet Dalkilic, Informatics faculty, IUB

Master of Science in Media Arts and Science

The Master of Science degree develops specialized skills and knowledge in new media with the purpose of preparing students to manage and conduct research on Internet and Web environments and multimedia production techniques. Like all new media programs, the masters degree is focused on applied research and application. The course of study is oriented toward professional practice and relies on a theory base drawn from fundamental disciplines which study communication as sight, sound and motion.

Skills and knowledge embedded in this degree program include: web page and multimedia research design, computer programming and database programming, multimedia authoring language skills and data collection, software, multimedia development of audio and video impact on users, digital graphics assessment techniques, and writing and editing of materials for multimedia evaluation and assessment.

The Master of Science in Media Arts and Science includes required courses in new media with specific emphasis of philosophy and principles of the field as well as techniques using technology in communication and cybernetic/human interaction theory. Graduates will be prepared to conduct research in the development and effects of using communication technology in academic, social, and vocational settings. Opportunity will exist within the field for students to conduct applied research in media related disciplines.

Career options include 2D/3D artist, animator, creative technologist, multimedia producer, director of software development, electronic publisher, hypermedia specialist, Internet developer, graphic artist, interactive trainer, music producer, multimedia developer, composer, techno-artist, video/audio editor, webmaster, and web site designer.

Application Procedures

See section on application procedures for informatics.

Admissions Requirements

Students must hold a Bachelor's degree with demonstrated media arts skills. Students must have an overall grade point average of 3.0 on a 4.0 point scale.

- Students will be required to attend an interview to assess the applicant's computer literacy, personal skills, and professional experience.
- Students must present a portfolio. This can include a multimedia application and/or an original computer software program.
- Students also must submit three letters of recommendation to support the application for admission.
- Arrange for official transcripts to be sent from all colleges and universities attended by the applicant. Transcripts indicating "issued to student" are not considered official. An official transcript bears the original signature of the registrar and/or original seal of the issuing institution. Transcripts should be mailed directly by a registrar, or given to the applicant by the registrar in a sealed and signed envelope. International applicants should refer to the guidelines outlined in the International Graduate Application for Admission form. If the student has not completed all undergraduate course work at the time of application, the admission decision will be based on information available at the time of application. However, a final transcript showing graduation must be submitted before enrollment. Students who have taken course work on any Indiana University campus do not need to submit an Indiana University transcript.

Degree Requirements

The Master of Science degree is a 30 credit-hour program that includes a core of 18 hours and a specialization area of 12 hours. Electives will be available which allow students to specialize in "major field" areas within the new media graduate curriculum.

Required Core Courses (18 hours)

N500 Foundations of Media Arts Production (3 cr.)

N501 TPCS: Principles of Multimedia Technology (3 cr.)

N502 Digital Media Motion and Simulation Methods (3 cr.)

N503 Multimedia Design Applications (3 cr.)

N504 Advanced Interactive Design Applications (3 cr.)

N505 Internship in Media Arts and Technology (3 cr.) **or** N506 Media Arts and Technology Major Project (3 cr.)

N510 Web Database Concepts (3 cr.)

Specialization Core Courses (12 hours)

Specialization courses must be selected from the 400 and 500 level courses offered in the schools of: Informatics, Art, Journalism, Music, Library and Information Science, or the departments of Computer Science, and Computer Technology.

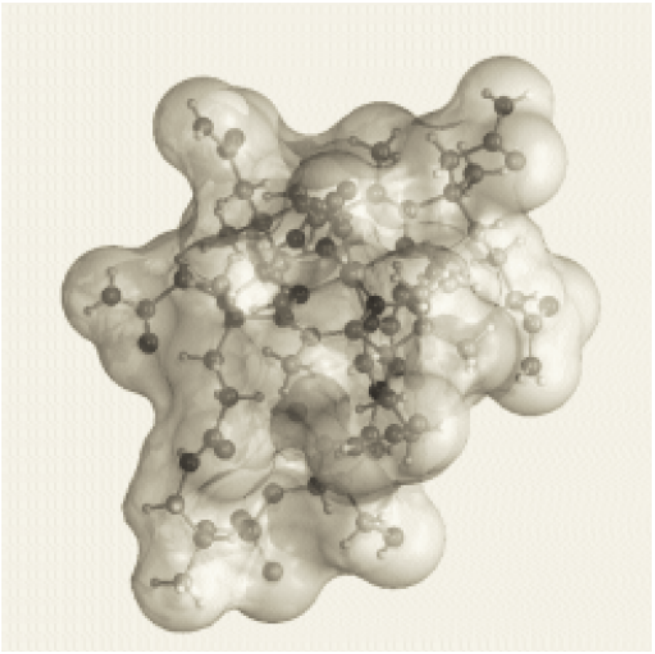
Area 1:

Computer Technology
Computer Science
Library Information and Science
New Media

Area 2:

Music
Art
Journalism
New Media

The specialization core MUST be approved by the School of New Media academic advisor and the head of graduate studies PRIOR to enrollment in the courses.



A vitamin B12 derivative rendered showing the solvent envelope using XMView, a software package developed at Indiana University.

New Media Graduate Course Descriptions

The abbreviation "P" refers to the course prerequisite or prerequisites. The number of hours of credit given a course is indicated in parentheses following the course title.

N500 Foundations of Digital Arts Production (3 cr.) Examines foundations and principles of digital media production. Topics include: publishing electronic print media, written composition, methods, textbooks, multimedia, computer transmission of imaging, sound, and video. Other aspects covered are network and broadband media transmission, televideo and computer graphics, background audio, script credit approval, clearances, recording, audio and video sampling. Also included is reproduction of sound and images, tools for digital media application development. Legal and ethical aspects regarding the protection of intellectual property, copyright, name-branding, business affairs, and live performances for the commercial media industry will be assessed.

N501 TPCS: Principles of Multimedia Technology (3 cr.) Examines current practices in the use of digital media technology with special emphasis in Computer Technology, Library Science, Computer Science, Music, Journalism and Art and Design. Paradigms of applied research; implementation and resource allocation; assessment designs for specific production models; assessment of database-backend; study of current applications and concepts.

N502 Digital Media Motion and Simulation Methods (3 cr.) Applications in animation/simulation design and creation using computer desktop tools. Animation models for Web design, Internet applications, composite techniques, and instructional sequences will be developed. Skills will be developed through design and modeling of individual or team multi-disciplinary projects.

N503 Digital Media Application Design Processes (3 cr.) Presents the principles and fundamentals of design techniques using authoring tools on PC, Macintosh and emerging computer platforms. Included are storyboarding, planning and organization of scripts, use of current technology, computers, video and digital arts equipment; computer-assisted design and project planner software tools and management of design team concepts.

N504 Advanced Interactive Design Applications (3 cr.) P: N502. Incorporates extensive analysis and use of computer and multimedia authoring tools intended for distributed learning applications. Project management and programming team organization; media management and selection criteria for digital arts media development; task analysis and instructional sequencing applied to training and instruction; assessment modeling and feedback schedules for intrinsic motivation of students and trainees are examined.

N505 Internship in Media Arts and Technology (3 cr.) An internship program for students to work with and learn from experts in media (digital arts) technology fields who are developing and using new applications in commercial and educational settings. Requirements for interns include the development of a technology project proposal; interview, resume, and project presentation; on-site intern residency; project report; oral and media presentation of project outcomes.

N506 Media Arts and Technology Project (3 cr.) Students create and orally present a multimedia teaching/training project combining elements of digital media technology including CD-ROM, videodisc, digital audio and video, MIDI, and Internet applications. Requirements include technology project proposal development; oral presentation of proposal, research and development of project, project final report, and the presentation of project. Final project to be submitted in digital form for a permanent archive.

N510 Web-Database Concepts (3 cr.) P: N503. Addresses diverse issues arising when designing World Wide Web interfaces. Basic database concepts will be presented, but the course will focus on discussion of interface issues specific to web databases, technologies for linking databases to web servers for delivery, discussion of various web-database applications, case studies, and industry trends.

School of Informatics Founding Faculty

(B) = IUB; (I) = IUPUI

The following faculty, drawn from many other academic units, are involved in founding the School of Informatics.

Appleman, Robert L., Ph.D. *(Indiana University, 1993), Coordinator, Multimedia Development, School of Education (B)*

Bailey, Darrell L., Ed.D. *(University of Illinois, 1989), Associate Dean of Informatics; Director, New Media; Associate Professor of Music (I)*

Barwise, K. Jon, Ph.D. (deceased) *(Stanford University, 1967), Professor of Computer Science, Mathematics and Philosophy; Adjunct Professor of Linguistics (B)*

Berbari, Edward J., Ph.D. *(University of Iowa, 1980), Director, Biomedical Engineering; Chair and Professor of Electrical Engineering; and Professor of Medicine (I)*

Bernbom, Gerald V., M.S.Ed. *(Northern Illinois University, 1978), Director, Research and Academic Computing; and Special Assistant to the Vice President for Information Technology (B)*

Billings, Diane M., Ed.D. *(Indiana University, 1986), Associate Dean and Professor of Nursing (I)*

Bobay, Julianne, M.L.S. *(Indiana University, 1980), Head of Library and Information Science; Head Librarian and Walden Librarian (B)*

Boling, Elizabeth, M.F.A. *(Indiana University, 1983), Chair, Instructional Systems Technology; and Associate Professor of Education (B)*

Börner, Katy, Ph.D. *(University of Kaiserslautern, 1997), Core Member of Cognitive Science Program; and Assistant Professor of Information Science (B)*

Boschmann, Erwin, Ph.D. *(University of Colorado, 1968), Associate Vice President for Distributed Education and Professor of Chemistry (I)*

Bower, Frederick, M.F.A. *(Cranbrook Academy of Art, 1994), Visiting Assistant Professor in New Media (I)*

Bramley, Randall B., Ph.D. *(University of Illinois, 1989), Associate Professor of Computer Science (B)*

Brown, Chris, J.D. *(Indiana University, 1996), Associate Partner, Woodard, Emhardt, Naughton, Moriarty and McNutt; Adjunct Professor of New Media (I)*

Brown, James W., Ph.D. *(Indiana University, 1977), Associate Dean and Professor of Journalism; Adjunct Professor of Communication Studies (I)*

Brown, Paul T., M.F.A. *(Indiana University, 1985), Associate Dean of Art; Associate Professor of Visual Communication (I)*

Bucy, Erik P., Ph.D. *(University of Maryland, 1998), Assistant Professor of Telecommunications (B)*

Bukhres, Omran, Ph.D. *(North Dakota State University, 1990), Associate Professor of Computer and Information Science (I)*

Cate, Fred H., J.D. *(Stanford University, 1987), Professor of Law and Harry T. Ice Faculty Fellow (B)*

Chapuis, Andre, Ph.D. *(Indiana University, 1993), Part-time Assistant Professor of Informatics (B)*

Chidambaram, Laku, Ph.D. *(Indiana University, 1989), Associate Professor, Accounting and Information Systems, and Public and Environmental Affairs (B)*

Cohen, Mervyn D., M.D. *(University of Edinburgh [Scotland], 1978), Chairman, Department of Radiology; Eugene C. Klatte Professor of Radiology (I)*

Crews, Kenneth Donald, Ph.D. *(University of California, Los Angeles, 1990), Associate Dean of the Faculties and Director of Copyright Management; Associate Professor of Law and Library and Information Science (I)*

Cronin, Blaise, Ph.D. *(Queens University [Northern Ireland], 1983), Dean of Library and Information Science, and Rudy Professor of Information Science (B)*

Cunningham, Donald J., Ph.D. *(University of Illinois, 1970), Director, Center for Semiotics Studies and Professor of Education (B)*

Cutzu, Florin, Ph.D. (The Weizmann Institute of Science, 1997), *Assistant Professor of Computer Science (B)*

Dalkilic, Mehmet, Ph.D. *(Indiana University, 2000), Visiting Assistant Professor of Informatics (B)*

Davis, Kenneth W., Ph.D. *(University of Michigan, 1975), Chair and Professor of English; Adjunct Professor of New Media (I)*

Defazio, Joseph, M.S. *(Ball State University, 1993), Assistant Professor of New Media; Lecturer in Computer Technology (I)*

Dillon, Andrew Patrick, Ph.D. *(Loughborough University [England], 1991), Director, Program in Human-Computer Interaction; Associate Professor of Informatics and Information Science; Adjunct Associate Professor of Computer Science (B)*

Dolinsky, Margaret, M.F.A. *(University of Illinois, 1998), Visiting Assistant Professor of Fine Arts and Research Scientist (B)*

Duffy, Thomas M., Ph.D. *(University of Illinois, 1969), Director, Center for Learning and Technology; Barbara B. Jacobs Chair and Professor of Education; Research Associate, Instructional Support Services (B)*

Dunn, J. Michael, Ph.D. *(University of Pittsburgh, 1966), Dean of Informatics; Oscar R. Ewing Professor of Philosophy; Professor of Computer Science (B)*

Dybvig, R. Kent, Ph.D. *(University of North Carolina, 1987), Professor of Computer Science (B)*

Elliott, Terry L., B.A. *(Indiana University, 1998), Adjunct Professor of Informatics; Visiting Lecturer in Computer and Information Science (I)*

Fang, Shiaofen, Ph.D. *(University of Utah, 1992), Assistant Professor of Computer and Information Science (School of Science) (I)*

Friedman, Daniel P., Ph.D. *(University of Texas, 1973), Professor of Computer Science (B)*

Gannon, Dennis B., Ph.D., *(University of California, Davis, 1974; University of Illinois, 1980), Chair and Professor of Computer Science (B)*

Gantz, Walter, Ph.D. *(Michigan State University 1975), Chair and Professor of Telecommunications (B)*

Gasser, Michael E., Ph.D. *(University of California, 1988), Associate Professor of Linguistics and Computer Science (B)*

Gilbert, Donald G., Ph.D. *(Indiana University, 1981), Associate Scientist in Biology (B)*

Gillespie, Thomas K., Ph.D. *(University of California, 1992), Clinical Associate Professor of Telecommunications (B)*

Hanson, Andrew J., Ph.D. *(Massachusetts Institute of Technology, 1971), Director of Graduate Studies and Professor of Computer Science (B)*

Harris, Andrew J., B.S. *(Indiana University, 1990), Lecturer in Computer and Information Science (I)*

Haynes, Christopher T., Ph.D. *(University of Iowa, 1982), Director of Undergraduate Studies and Associate Professor of Computer Science (B)*

Henning, Joanna, M.S. *(Indiana University, 1995), Associate Professor of English; Adjunct Professor of New Media; Staff Development, Media Technology Department of MSD, Pike High School (I)*

Herring, Susan, Ph.D. *(University of California-Berkeley, 1991), Associate Professor of Information Science (B)*

Hieftje, Gary M., Ph.D. *(University of Illinois, 1969), Gill Chair and Distinguished Professor of Chemistry; Director, Linda and Jack Gill Center for Instrumentation and Measurement Science; Professor of Public and Environmental Affairs (B)*

Ho, Thomas, Ph.D. *(Purdue University, 1974), Chair and Professor of Computer Technology (I)*

Hofstadter, Douglas R., Ph.D. *(University of Oregon, 1975), College Professor of Cognitive Science and Computer Science; Adjunct Professor of Philosophy; Adjunct Professor of History and Philosophy of Science (B)*

Hook, Sara A., M.B.A., J.D. *(Indiana University, 1988; Indiana University, 1994), Associate Dean of the Faculties; Professor of Dental Informatics; Librarian, School of Dentistry Library (I)*

Houser, Nathan R., Ph.D. *(University of Waterloo [Canada], 1985), Director, Peirce Project; Professor of Philosophy; Adjunct Associate Professor, American Studies Center (I)*

Huang, Jeffrey R.J., Ph.D. *(George Mason University, 1998), Assistant Professor of New Media and Computer Science (I)*

Huckleberry, Don J., M.S. *(Indiana University, 1999), Adjunct Professor of New Media and Media Technology Coordinator (I)*

Huffman, John C., Ph.D. *(Indiana University, 1974), Senior Scientist in Chemistry (B)*

Jacob, Elin K., Ph.D. *(University of North Carolina, 1994), Assistant Professor of Library and Information Science (B)*

Jafari, Ali, Ph.D. *(Indiana University, 1988), Director of Information Technology Laboratory; Associate Professor of Computer Technology (I)*

Jamieson, Patrick W., M.D. *(Ohio State University, 1981), Associate Scientist in Radiology; Associate Professor of Radiology (I)*

Johnson, Steven D., Ph.D. *(Indiana University, 1983), Associate Professor of Computer Science (B)*

Jones, Scott, B.S. *(Indiana University, 1984), Adjunct Professor of Informatics (B)*

Karnick, Kristine B., M.A. *(University of Wisconsin, 1984), Associate Professor of Communication Studies (I)*

Kewley-Port, Diane, Ph.D. *(CUNY, 1981), Associate Professor of Speech and Hearing Sciences (B)*

Kidd, Gary R., Ph.D. *(Ohio State University, 1984), Associate Scientist in Speech and Hearing Sciences (B)*

Kling, Rob, Ph.D. *(Stanford, 1971), Professor of Information Science and Systems; Adjunct Professor of Computer Science (B)*

Koch, Clinton, M.S. *(Indiana University–Purdue University-Indianapolis, 2000), Adjunct Professor of Informatics (I)*

Koh, Jee, Ph.D. *(University of Michigan, 1983), Associate Professor of Mathematics (B)*

Lang, Annie, Ph.D. *(University of Wisconsin, 1987), Professor of Telecommunications (B)*

Leaffer, Marshall A., J.D., L.L.M. *(University of Texas, 1971), New York University, 1976) Distinguished Scholar in Intellectual Property Law and University Fellow (B)*

Leake, David, Ph.D. *(Yale University, 1990), Associate Professor of Computer Science (B)*

Leivant, Daniel M., Ph.D. *(University of Amsterdam, 1975), Professor of Computer Science; Adjunct Professor of Philosophy and Mathematics (B)*

Lewis, David W., M.S. *(Columbia University, 1975), Associate Executive Director of University Libraries; Acting University Librarian; Librarian, Public Services (I)*

Liou, Jawshing Arthur, M.F.A. *(University of Florida, 1998), Assistant Professor of Fine Arts, Studio Art Program (B)*

Lipkowitz, Kenneth B., Ph.D. (*Montana State University, 1975), Associate Director, Program in Chemical Informatics; Professor of Chemistry (I)*

Liu, Wei-min, Ph.D. *(Cornell University, 1987), Associate Professor of Computer and Information Science (I)*

Malik, David J., Ph.D. *(University of California 1976), Chair and Professor of Chemistry (I)*

Massey, Anne P., Ph.D. *(Rensselaer Polytechnic Institute, 1991), Associate Professor of Information Systems (B)*

McCarty, David C., D. Phil. *(Oxford University [England], 1985), Associate Professor of Philosophy, Adjunct Associate Professor of Computer Science (B)*

McDaniel, Anna M., D.N.S. *(Ball State University, 1991), Interim Director, Program in Health Informatics; Associate Professor of Nursing; Adjunct Associate Professor of Public Health (I)*

McDonald, Clement J., M.D. *(University of Illinois, 1965), Director, Regenstrief Institute; Distinguished Professor of Medicine; Regenstrief Professor of Health Services Research; Professor of Public and Environmental Affairs (I)*

McGerr, Michael E., Ph.D. *(Yale University, 1984), Associate Dean of Arts and Sciences; Director, Liberal Arts and Management Program; Associate Professor of History (B)*

McGowan, Julie J., Ph.D. *(University of South Carolina, 1991), Director, Ruth Lilly Medical Library (I)*

McGregor, Michael A., J.D. *(Georgetown University, 1977), Chair and Associate Professor of Telecommunications (B)*

McMullen, Donald F., Ph.D. *(Indiana University, 1982), Director, CICA; Assistant Professor of Computer Science; Adjunct Professor of Computer Science (B)*

McRobbie, Michael A., Ph.D. *(Australian National University, 1979), Vice President for Information Technology and Chief Information Officer; Professor of Computer Technology; Professor of Computer Science; Professor of Philosophy; Adjunct Professor of Information Science (B)*

Miller, Theodore K., Ph.D. *(University of Iowa, 1970), Co-Director, Interdisciplinary Consortium for Statistical Applications; Professor of Public and Environmental Affairs Professor of Geography (B)*

Mills, Jonathan W., Ph.D. *(Arizona State, 1988), Associate Professor of Computer Science (B)*

Molnar, Robert S., B.S. *(Indiana University, 1996), Adjunct Professor of Informatics; Lecturer in Computer and Information Science (I)*

Morris, Harold, P.E.D. *(Indiana University, 1972), Chair and Professor of Kinesiology (B)*

Moss, Lawrence S., Ph.D. *(University of California, Los Angeles, 1984), Associate Professor of Mathematics; Adjunct Associate Professor of Linguistics (B)*

Mostafa, Javed, Ph.D. *(University of Texas-Austin, 1994), Victor H. Yngve Associate Professor of Information Science; Associate Professor of Informatics; Adjunct Associate Professor of Computer Science (B) (I)*

Mukhopadhyay, Snehasis, Ph.D. *(Yale University, 1994), Associate Director, Program in Bioinformatics; Assistant Professor of Computer and Information Science (I)*

Nunn, Samuel, Ph.D. *(University of Delaware, 1981), Associate Professor of Public and Environmental Affairs (I)*

Odland, John Jacob M., Ph.D. *(Ohio State University, 1972), Professor of Geography (B)*

Ogan, Christine, Ph.D. *(University of North Carolina, 1976), Associate Dean of Informatics and Professor of Journalism (B)*

Olson, Andrew M., D. Sc. *(Washington University, 1969), Associate Professor of Computer and Information Science (I)*

Palakal, Mathew J., Ph.D. *(Concordia University [Canada], 1987), Chair, Department of Computer and Information Science; Associate Professor of Computer and Information Science (I)*

Paolillo, John, Ph.D. *(Stanford University, 1992), Visiting Associate Professor of Linguistics; Visiting Associate Professor of Informatics; Visiting Associate Professor of Information Science (B)*

Patterson, Robert, B.S. *(University of Texas, 1987), Visiting Lecturer in New Media (I)*

Pavlis, Gary L., Ph.D. *(University of Washington, 1982), Professor of Geological Science (B)*

Peebles, Christopher S., Ph.D. *(University of California, Santa Barbara, 1974), Associate Vice President-Research and Academic Computing; Dean, Information Technology; Director, Glenn Black Laboratory of Archaeology; Professor of Anthropology; Research Associate for Language and Semiotic Studies (B)*

Perkins, William C., D.B.A. *(Indiana University, 1966), Professor of Information Systems; Professor of Decision and Information Systems (B)*

Perry, Douglas G., Ph.D. *(City University of New York, 1991), Associate Dean of Informatics; Associate Dean of Medicine-Allied Health Sciences; Associate Professor of Health Sciences; Adjunct Associate Professor of Medicine (I)*

Peters, G. David, D.Mus.Ed. (*University of Illinois, 1974), Director, Music Program and Professor of Music (I)*

Plater, William M., Ph.D. *(University of Illinois, 1973), Executive Vice Chancellor; Dean of the Faculties; Professor of English; Adjunct Professor of Philanthropic Studies (I)*

Port, Robert F., Ph.D. *(University of Connecticut, 1976), Professor of Linguistics and Computer Science (B)*

Priss, Uta E., Ph.D. *(Technische Hochschule Darmstadt, 1996), Assistant Professor of Library and Information Sciences (B)*

Purdom, Paul W., Jr., Ph.D. *(California Institute of Technology, 1966), Professor of Computer Science (B)*

Raje, Rajeev R., Ph.D. *(Syracuse University, 1994), Assistant Professor of Computer and Information Science (I)*

Rawlins, Gregory J.E., Ph.D. *(University of Waterloo [Canada], 1987), Associate Professor of Computer Science (B)*

Reed, Mary Ellen, B.F.A. *(Herron School of Art, 1971), Adjunct Professor of Informatics (I)*

Reese, Fred, D.Musical Arts *(University of Southern California, 1977), Adjunct Professor of New Media (I)*

Rieseberg, Loren H., Ph.D. *(Washington State University, 1987), Senior Fellow, Institute for Molecular and Cellular Biology; Professor of Biology (B)*

Robbin, Alice R., Ph.D. *(University of Wisconsin, 1984), Associate Professor of Library and Information Science (B)*

Roberts, Michele S., M.A., M.B.A. *(Indiana State University, 1978; Indiana Wesleyan, 1995), Adjunct Professor of New Media; Lecturer in Computer and Information Science (I)*

Robertson, Edward L., Ph.D. *(University of Wisconsin, 1970), Associate Dean of Informatics and Professor of Computer Science (B)*

Rosenbaum, Howard S., Ph.D. *(Syracuse University, 1996), Assistant Professor of Library and Information Science (B)*

Rubin, Barry M., Ph.D. *(University of Wisconsin, 1977), Associate Dean of Bloomington Programs for Public and Environmental Affairs; Director of Graduate Programs and Professor of Public and Environmental Affairs (B)*

Sabry, Amr, Ph.D. *(Rice University, 1994), Associate Professor of Computer Science (B)*

Schwartz, Helen J., Ph.D. *(University of Washington, 1971), Professor of English (I)*

Schwen, Thomas, Ed.D. *(Indiana University, 1970), Associate Professor of Education (B)*

Shakespeare, Robert A., B.A. *(Brock University [Canada], 1973), Associate Professor of Theatre and Drama (B)*

Shaw, Debora, Ph.D. *(Indiana University, 1983), Associate Dean and Associate Professor of Library and Information Science; Chair of Curriculum Committee of Informatics (B)*

Shiffrin, Richard M., Ph.D. *(Stanford University, 1968), Luther Dana Waterman Professor of Psychology (B)*

Smith, Brian Cantwell, Ph.D. *(Massachusetts Institute of Technology, 1982), Professor of Cognitive Science and Computer Science (B)*

Soni, Ashok K., D.B.A. *(Indiana University, 1981), Chair of Technology of Kelley School of Business; Associate Professor of Decision Sciences (B)*

Sothmann, Mark S., Ph.D. *(Purdue University, 1982), Dean and Professor of Allied Health Sciences; Associate Dean of Medicine (I)*

Springer, George, Ph.D. *(Harvard University, 1949), Professor Emeritus of Mathematics and Computer Science (B)*

Sutherland, Scott, B.F.A. *(Ohio State University), Visiting Lecturer of New Media and Instructor of Art (I)*

Tennant, Susan, M.S. *(Indiana University–Purdue University-Indianapolis 2000), Visiting Lecturer in New Media (School of Informatics) (I)*

Terry, Herbert A., Ph.D. *(University of Minnesota, 1976), Associate Professor of Telecommunications (B)*

Thorin, Suzanne E., M.L.S. *(University of Michigan, 1968), Ruth Lilly University Dean, Librarian, and Adjunct Professor of Library and Information Science (B)*

Tierney, William M., M.D. *(Indiana University, 1976), Professor of Medicine and Public and Environmental Affairs (I)*

Tuceryan, Mihran, Ph.D. *(University of Illinois, 1986), Associate Professor of Computer and Information Science (I)*

Van Gucht, Dirk, Ph.D. *(Vanderbilt University, 1985), Associate Professor of Computer Science (B)*

Watson, Charles S., Ph.D. *(Indiana University, 1963), Director, Institute for the Study of Human Capabilities; Professor Emeritus of Psychology and Speech and Hearing Sciences (B)*

Wiggins, Gary D., Ph.D. *(Indiana University, 1985), Director of Programs in Bioinformatics and Chemical Informatics; Director of Chemical Informatics Center; Librarian and Head of Chemistry Library; Coordinator of Science Libraries (B)*

Willing, Stephen J., M.B.A., M.D. *(University of Alabama, 1997; Medical College of Georgia, 1980), Associate Professor of Radiology (I)*

Wise, David S., Ph.D. *(University of Wisconsin, 1971), Professor of Computer Science (B)*

Wittlich, Gary E., Ph.D. *(University of Iowa, 1969), Professor Emeritus of Music (B)*

Key to Course Codes

AFRO	Afro-American Studies (COAS)
AMID	Apparel Merchandising and Interior Design (COAS)
AMST	American Studies Program (COAS)
ANAT	Anatomy (Medical Sciences Program)
AST	Astronomy (COAS)
BIOL	Biology (COAS)
BUS	Business (Kelley School of Business)
CHEM	Chemistry (COAS)
CLAS	Classical Studies (COAS)
COAS	College of Arts and Sciences
COGS	Cognitive Science Programs (COAS)
CMLT	Comparative Literature (COAS)
CJUS	Criminal Justice (COAS)
CSCI	Computer Science (COAS)
ECON	Economics (COAS)
EDUC	Education (School of Education)
ENG	English (COAS)
FINA	Fine Arts (COAS)
GEOG	Geography (COAS)
GEOL	Geological Sciences (COAS)
GNDR	Gender Studies (COAS)
HIST	History (COAS)
HPER	School of Health, Physical Education, and Recreation
HPSC	History and Philosophy of Science (COAS)
HON	Honors (COAS)
INFO	Informatics (School of Informatics)
JOUR	Journalism (School of Journalism)
LAMP	Liberal Arts and Management Program (COAS)
LING	Linguistics (COAS)
MATH	Mathematics (COAS)
MUS	Music (COAS)
NEWM	New Media (School of Informatics)
NURS	Nursing (School of Nursing)
PHIL	Philosophy (COAS)
PHSL	Physiology (Medical Sciences Program)
PHYS	Physics (COAS)
POLS	Political Science (COAS)
PSY	Psychology (COAS)
REL	Religious Studies (COAS)
SLIS	School of Library and Information Science
SOC	Sociology (COAS)
SPEA	School of Public and Environmental Affairs
SPHS	Speech and Hearing Sciences (COAS)
TEL	Telecommunications (COAS)
THTR	Theatre and Drama (COAS)
UDIV	University Division (COAS)

Indiana University

When you become a student at Indiana University, you join an academic community internationally known for the excellence and diversity of its programs. With 1,013 degree programs, the university attracts students from all 50 states and around the world. The full-time faculty numbers more than 4,000 and includes members of many academic societies such as the American Academy of Arts and Sciences, the American Philosophical Society, and the National Academy of Sciences.

Indiana University was founded at Bloomington in 1820 and is one of the oldest and largest institutions of higher education in the Midwest. It serves 92,000 students on eight campuses. The residential campus at Bloomington and the urban center at Indianapolis form the core of the university. Campuses in Gary, Fort Wayne, Kokomo, New Albany, Richmond, and South Bend join Bloomington and Indianapolis in bringing an education of high quality within reach of all of Indiana's citizens.

General Policies

Equal Opportunity/Affirmative Action Policy of Indiana University

Indiana University pledges itself to continue its commitment to the achievement of equal opportunity within the university and throughout American society as a whole. In this regard, Indiana University will recruit, hire, promote, educate, and provide services to persons based upon their individual qualifications. Indiana University prohibits discrimination based on arbitrary consideration of such characteristics as age, color, disability, ethnicity, gender, marital status, national origin, race, religion, sexual orientation, or veteran status.

Indiana University shall take affirmative action, positive and extraordinary, to overcome the discriminatory effects of traditional policies and procedures with regard to the disabled, minorities, women, and Vietnam-era veterans.

An Affirmative Action office on each campus monitors the university's policies and assists individuals who have questions or problems related to discrimination.

Special Assistance

For people who have disabilities and need special assistance, special arrangements can be made to accommodate most needs. In Bloomington, contact Disabled Student Services at (812) 855-7578; at IUPUI, contact Adaptive Educational Services at (317) 274-3241.

Confidentiality of Student Records

In accordance with federal statutes and regulations, student records are confidential and available for disclosure to persons other than the student only under stated conditions.

Student Rights and Responsibilities

A statement of students' rights and responsibilities is published in a handbook, *Code of Student Rights, Responsibilities, and Conduct*, which contains a description of due process hearings in the event of disciplinary action.

Degree Requirements Students are responsible for understanding all requirements for graduation and for completing them by the time they expect to graduate. Information about a specific school or division can be found in the front section of the bulletin for that school.

Requests for deviation from department, program, or school requirements may be granted only by written approval from the respective chairperson, director, or dean (or a designated administrative representative). Disposition at each level is final.

Rules Determining Resident and Nonresident Student Status for Indiana University Fee Purposes

These Rules establish the policy under which students shall be classified as residents or nonresidents upon all campuses of Indiana University for University fee purposes. Nonresident students shall pay a nonresident fee in addition to fees paid by a resident student.

These Rules shall take effect February 1, 1974; provided, that no person properly classified as a resident student before February 1, 1974, shall be adversely affected by this Rule, if he or she attended the University before that date and while he or she remains continuously enrolled in the University.

1. "Residence" as the term, or any of its variations (e.g., "resided"), as used in the context of these Rules, means the place where an individual has his or her permanent home, at which he or she remains when not called elsewhere for labor, studies, or other special or temporary purposes, and to which he or she returns in seasons of repose. It is the place a person has voluntarily fixed as a permanent habitation for himself or herself with an intent to remain in such place for an indefinite period. A person at any one time has but one residence, and a residence cannot be lost until another is gained.
   (a) A person entering the state from another state or country does not at that time acquire residence for the purpose of these Rules, but except as provided in Rule 2(c)[1], such person must be a resident for 12 months in order to qualify as a resident student for fee purposes.
   (b) Physical presence in Indiana *for the predominant purpose* of attending a college, university, or other institution of higher education, shall not be counted in determining the 12-month period of residence; nor shall absence from Indiana for such purpose deprive a person of resident student status.
2. A person shall be classified as a "resident student" if he or she has continuously resided in Indiana for at least 12 consecutive months immediately preceding the first scheduled day of classes of the semester or other session in which the individual registers in the University, subject to the exception in (c)[1] below.
   (a) The residence of an unemancipated person under 21 years of age follows that of the parents or of a legal guardian who has actual custody of such person or administers the property of such person. In the case of divorce or separation, if either parent meets the residence requirements, such person will be considered a resident.[2]
   (b) If such person comes from another state or country for the predominant purpose of attending the University, he or she shall not be admitted to resident student status upon the basis of the residence of a guardian in fact, except upon appeal to the Standing Committee on Residence in each case.[1]
   (c) Such person may be classified as a resident student without meeting the 12-month residence requirement within Indiana if his or her presence in Indiana results from the establishment by his or her parents of their residence within the state *and* if he or she proves that the move was predominantly for reasons other than to enable such person to become entitled to the status of "resident student."[1]
   (d) When it shall appear that the parents of a person properly classified as a "resident student" under subparagraph (c) above have removed their residence from Indiana, such person shall then be reclassified to the status of nonresident; provided, that no such reclassification shall be effective until the beginning of a semester next following such removal.
   (e) A person once properly classified as a resident student shall be deemed to remain a resident student so long as remaining continuously enrolled in the University until such person's degree shall have been earned, subject to the provisions of subparagraph (d) above.
3. The foreign citizenship of a person shall not be a factor in determining resident student status if such person has legal capacity to remain permanently in the United States.
4. A person classified as a nonresident student may show that he or she is exempt from paying the nonresident fee by clear and convincing evidence that he or she has been a resident (see Rule 1 above) of Indiana for the 12 months prior to the first scheduled day of classes of the semester in which his or her fee status is to be changed. Such a student will be allowed to present his or her evidence only after the expiration of 12 months from the Residence Qualifying Date, i.e., the date upon which the student commenced the 12-month period for residence. The following factors will be considered relevant in evaluating a requested change in a student's nonresident status and in evaluating whether his or her physical presence in Indiana is for the predominant purpose of attending a college, university, or other institution of higher education. The existence of one or more of these factors will not require a finding of resident student status, nor shall the non-existence of one or more require a finding of nonresident student status. All factors will be considered in combination, and ordinarily resident student status will not result from the doing of acts which are required or routinely done by sojourners in the state or which are merely auxiliary to the fulfillment of educational purposes.
   (a) The residence of a student's parents or guardians.
   (b) The situs of the source of the student's income.
   (c) To whom a student pays his or her taxes, including property taxes.
   (d) The state in which a student's automobile is registered.

[1]Rules 2(b) and 2(c) apply only to unemancipated persons under 21 years of age.
[2]Invocation of the provision in Rule 2(a) that applies to cases of divorce or separation requires appropriate legal documentation.

(e) The state issuing the student's driver's license.
(f) Where the student is registered to vote.
(g) The marriage of the student to a resident of Indiana.
(h) Ownership of property in Indiana and outside of Indiana.
(i) The residence claimed by the student on loan applications, federal income tax returns, and other documents.
(j) The place of the student's summer employment, attendance at summer school, or vacation.
(k) The student's future plans including committed place of future employment or future studies.
(l) Admission to a licensed profession in Indiana.
(m) Membership in civic, community, and other organizations in Indiana or elsewhere.
(n) All present and intended future connections or contacts outside of Indiana.
(o) The facts and documents pertaining to the person's past and existing status as a student.
(p) Parents' tax returns and other information, particularly when emancipation is claimed.

5. The fact that a person pays taxes and votes in the state does not in itself establish residence, but will be considered as hereinbefore set forth.
6. The Registrar or the person fulfilling those duties on each campus shall classify each student as resident or nonresident and may require proof of all relevant facts. The burden of proof is upon the student making a claim to a resident student status.
7. A Standing Committee on Residence shall be appointed by the President of the University and shall include two students from among such as may be nominated by the student body presidents of one or more of the campuses of the university. If fewer than four are nominated, the President may appoint from among students not nominated.
8. A student who is not satisfied by the determination of the Registrar has the right to lodge a written appeal with the Standing Committee on Residence within 30 days of receipt of written notice of the Registrar's determination, which Committee shall review the appeal in a fair manner and shall afford to the student a personal hearing upon written request. A student may be represented by counsel at such hearing. The Committee shall report its determination to the student in writing. If no appeal is taken within the time provided herein, the decision of the Registrar shall be final and binding.
9. The Standing Committee on Residence is authorized to classify a student as a resident student, though not meeting the specific requirements herein set forth, if such student's situation presents unusual circumstances and the individual classification is within the general scope of these Rules. The decision of the Committee shall be final and shall be deemed equivalent to a decision of the Trustees of Indiana University.
10. A student or prospective student who shall knowingly provide false information or shall refuse to provide or shall conceal information for the purpose of improperly achieving resident student status shall be subject to the full range of penalties, including expulsion, provided for by the University, as well as to such other punishment which may be provided for by law.
11. A student who does not pay additional monies which may be due because of his or her classification as a nonresident student within 30 days after demand, shall thereupon be indefinitely suspended.
12. A student or prospective student who fails to request resident student status within a particular semester or session and to pursue a timely appeal (see Rule 8) to the Standing Committee on Residence shall be deemed to have waived any alleged overpayment of fees for that semester or session.
13. If any provision of these Rules or the application thereof to any person or circumstance is held invalid, the invalidity does not affect other provisions or applications of these Rules which can be given effect without the invalid provision or application, and to this end the provisions of these Rules are severable.

Fees

The instructional fees listed here were approved at the May 2000 meeting of the Trustees of Indiana University. Fees are subject to change by action of the trustees. For up-to-date information about fees in effect at registration time, see the campus *Schedule of Classes*.

Certain courses and programs requiring studios, laboratories, microscopes, computers, or other special equipment may involve special fees in addition to the instructional fee. Applied music, student teaching, and some physical education courses also carry additional fees. See the campus *Schedule of Classes* for a list of such courses and programs.

Fees for Indiana University campuses other than Bloomington and Indianapolis are published in the bulletin of the specific campus.

INSTRUCTIONAL FEES	Indiana Resident	Nonresident
	Bloomington Campus	
Undergraduate[1]	$1,951.20 flat fee/semester for 12 to 17 credit hours $121.80/credit hour under 12 or over 17	$6,479.05 flat fee/ semester for 12 to 17 credit hours $404.90/credit hour under 12 or over 17
Graduate and Professional[1]		
Business–M.B.A. Program[2]	$4,674.55/semester	$9,349.10/semester
Business[3]	$292.25/credit hour	$584.70/credit hour
Law	$255.10/credit hour	$654.25/credit hour
Library and Information Science	$178.35	$519.50
Optometry	$206.55/credit hour	$573.55/credit hour
Public and Environmental Affairs—M.P.A. and M.S.E.S. Programs	$204.10/credit hour	$553.35/credit hour
Other	$168.60/credit hour	$491.15/credit hour
Independent Study (Correspondence)	$99.60/credit hour	$99.60/credit hour
Dissertation research (G901)[4]	$150.00/semester	$150.00/semester
Auditing (no credit)	$25.00/credit hour	$25.00/credit hour
Distance Education Special Courses[5] for Schools of Education; and Health, Physical Education, and Recreation:		
Graduate Undergraduate	Same as rate for on-campus instruction in respective category	
	Indianapolis Campus	
Undergraduate[1]	$119.00/credit hour	$370.25/credit hour
Graduate and Professional[1]		
Business–M.B.A. Program	$270.00/credit hour	$540.00/credit hour
Business–M.P.A. Program	$200.00/credit hour	$400.00/credit hour
Dentistry	$13,166.00/year	$28,196.00/year
Engineering	$178.25/credit hour	$509.60/credit hour
Law	$246.80/credit hour	$599.40/credit hour
Medicine	$13,908.00/year	$31,847.00/year
Nursing	$163.90/credit hour	$472.85/credit hour
Social Work	$167.00/credit hour	$481.50/credit hour
Master of Accountancy	$200.00/credit hour	$400.00/credit hour
Other	$163.90/credit hour	$472.85/credit hour
Dissertation research (G901)[4]	$100.00/semester	$100.00/semester
Auditing (no credit)	Applicable credit hour rate	Applicable credit hour rate
Distance Education Special Courses for Allied Health Histotechnology:		
Graduate and Undergraduate	Same as rate for on-campus instruction in respective category	

[1] Includes credit courses in the School of Continuing Studies.
[2] M.B.A. students enrolled in 9 or more credit hours of business courses will be assessed a flat rate. Enrollment in any courses other than business will be assessed on a per-credit-hour basis.
[3] Graduate business credit hour rates apply to (a) M.B.A. students enrolled in fewer than 9 credit hours of business courses, and (b) students enrolled in a doctoral business program.
[4] To keep their candidacies active, doctoral students with 90 credit hours or more and Master of Fine Arts students with 60 credit hours or more may enroll in G901 for a flat fee of $150. Also, they must have completed all graduate degree requirements except for the dissertation or final project/performance. Enrollment in G901 is limited to six times. Students who do not meet these criteria pay the applicable credit hour rate for dissertation research.
[5] In addition to instructional fee rates, course fees of $90.00 for Education, $75.00 for HPER, and $50.00 for Library and Information Science will be assessed.

INCIDENTAL FEES[6]	Bloomington Campus	Indianapolis Campus
Application for admission		
Domestic, undergraduate	$40.00	$35.00
Domestic, graduate	$45.00	$55.00
International	$45.00	$55.00
Deferment service charge[7]	$24.00	$22.00
Health service fee[8]	$76.50/semester $32.80/summer I $43.70/summer II	
Late payment charge[9]	$10.00-$50.00/month	$11.00/month
Late program change[10]	$21.00/course added or dropped	$19.00/course added
Late registration[11]	$54 to $94/semester $54.00/summer session	$40.00 to $100.00/ semester $40.00 to $65.00/ summer session
Student activity fee[12]	$26.77 or $53.55/semester $13.37 or $26.77/summer session	$24.25 or $44.10/ semester $27.70/semester for Athletic Development
Technology fee, fall or spring semesters[13]		
Undergraduate	$25.00, $50.00, $100.00	$27.85, $55.70, $83.55
Graduate/professional, nondegree students	$12.00, $25.00, $50.00	(varies)
Technology fee, summer sessions[14]		
Undergraduate	$25.00, $50.00	$27.85, $41.75
Graduate/professional, nondegree students	$12.00, $25.00	(varies)
Transcripts	$9.00	$7.00
University Division services fee	$25.00/semester	
Business Undergraduate program fee	$200.00/semester	

[6]Applicable to both in-state and out-of-state students.
[7]Fee is assessed if deferred billing option is elected.
[8]The health fee is assessed each semester/session on the Bursar's bill for all day and evening students enrolled in more than 3 credit hours. Eligible individuals not covered by the health fee will be seen on a fee-for-service basis.
[9]Any payment due by you to the university that is not received by the due date is subject to a monthly late fee based on a sliding scale of at least $10.00 (for fees of $200.00 to $999.99) and as much as $50.00 (for $5,000.00 or more). The late fee will continue to be assessed monthly until the account is restored to good standing.
[10]After drop/add period (100 percent refund period), students will be assessed $21.00 in Bloomington and $19.00 in Indianapolis for each added course, section change, change of arranged hours, or credit/audit change. On the Bloomington campus, students will also be assessed for each dropped course.
[11]A late registration fee will be assessed any student who does not register during the scheduled registration period. On the Bloomington campus, the fee is $54.00 for students who register by the last Friday before classes begin and increases by $10.00 on the Monday of each successive week to a maximum of $94.00. On the Indianapolis campus, a $40.00 late registration fee is in effect upon conclusion of registration through the end of the first week of classes, increasing by $25.00 the first week, $20.00 the second week, and $15.00 the third week to a maximum of $100.00. In Indianapolis summer sessions, a late registration fee of $40.00 is assessed the first week, and $65.00 the second week and thereafter.
[12]Bloomington students enrolled in 3 or fewer credit hours during the fall and spring semesters pay a mandatory student activity fee of $26.77. Students enrolled in more than 3 credit hours pay $53.55. Summer-session students pay a fee per session according to the number of credit hours in which they are enrolled: 3 or fewer credit hours, $13.37; more than 3 credit hours, $26.77. At Indianapolis, the student activity fee for 1 to 8 credit hours is $24.25 per semester. Students enrolled in 9 or more credit hours pay $44.10 per semester. Indianapolis students are also charged a $27.70 Athletic Development fee each semester.
[13]A technology fee will be assessed according to the number of enrolled credit hours as follows: 3 credit hours or fewer; greater than 3 through 6 credit hours; greater than 6 credit hours.
[14]At Indianapolis, a technology fee is assessed for summer sessions according to the number of enrolled credit hours as follows: 3 or fewer credit hours; greater than 3 credit hours. At Bloomington, summer-session students are assessed half the regular-semester technology fee, based on the number of credit hours as follows: 3 credit hours or fewer; greater than 3 credit hours.

Course Fee Refund Schedule

Time of Withdrawal	Refund
9- through 16-week classes	
During 1st week of classes	100%
During 2nd week of classes	75%
During 3rd week of classes	50%
During 4th week of classes	25%
During 5th week of classes and thereafter	None
5- through 8-week classes	
During 1st week of classes	100%
During 2nd week of classes	50%
During 3rd week of classes and thereafter	None
2- through 4-week classes	
During the 1st and 2nd day of classes	100%
During 3rd and 4th day of classes	50%
During 5th day of classes and thereafter	None
1-week (or less) classes	
During 1st day of classes	100%
During 2nd day of classes	50%
During 3rd day of classes and thereafter	None

The refund policy applies to credit hour fees and all course-related fees.

Procedure See the *Schedule of Classes* for more information about how to withdraw from classes.

Student Financial Assistance Students can obtain information about financial assistance through the financial aid office, through the student employment office, or through their schools and departments. For courses taken in Bloomington, contact the Office of Student Financial Assistance or Human Resources Management for information about faculty/ staff fee courtesy; for courses taken at IUPUI, contact the Office of Student Financial Aid Services.

Veterans Benefits

Eligible students will receive veterans benefits according to the following scale, which is based on the number of credit hours in which the student is enrolled.

Undergraduate Benefits	Bloomington and IUPUI Fall/Spring Semesters[1]	IUPUI Summer I[1]	Bloomington Summer I	Bloomington and IUPUI Summer II[1]
full	12 or more	6	4	6
three-quarters	9-11	4-5	3	4-5
one-half	6-8	3	2	3
tuition only	fewer than 6	1-2	1	1-2
Graduate Benefits				
full	8 or more	4	4	4
three-quarters	6-7	3	3	3
one-half	4-5	2	2	2
tuition only	fewer than 4	1	1	1

It is the responsibility of the veteran or veteran dependent to sign up for benefits each semester or summer session of enrollment. It is also the responsibility of the veteran or veteran dependent on the Bloomington campus to notify the Office of Veterans Affairs of any schedule change that may increase or decrease the amount of benefits allowed. Veterans and veteran dependents on the IUPUI campus should notify the Office of the Registrar.

Veterans with service-connected disabilities may qualify for the Department of Veterans Affairs Vocational Rehabilitation Program. They should contact their regional VA office for eligibility information.

At IUPUI, veterans and veteran dependents must notify their veteran benefit representative in the Office of the Registrar in person at the time of registration.

[1]Students on the IUPUI campus who are taking Summer I or II classes lasting more than six weeks should check with a VA representative in the Office of the Registrar for positive verification of their benefit status.

Indiana University Bulletins

You may want to explore other schools of Indiana University. The following is a complete list of our bulletins. Please write directly to the individual unit or campus for its bulletin.

Indiana University Bloomington

College of Arts and Sciences
Kelley School of Business[1]
School of Continuing Studies[2]
School of Education[1]
School of Health, Physical Education, and Recreation
School of Informatics[1]
School of Journalism
Division of Labor Studies
School of Law—Bloomington[3]
School of Library and Information Science
School of Music
School of Optometry
School of Public and Environmental Affairs[1]
University Division[4]
University Graduate School

*Indiana University–Purdue University Indianapolis

*School of Allied Health Sciences
*Kelley School of Business[1]
*School of Continuing Studies[2]
*School of Dentistry
School of Education[1]
School of Engineering and Technology (Purdue University)
Herron School of Art
School of Journalism
*Division of Labor Studies
*School of Law—Indianapolis[3]
School of Liberal Arts
*School of Medicine
Military Science Program
*School of Nursing[1]
School of Physical Education
*School of Public and Environmental Affairs[1]
School of Science (Purdue University)
*School of Social Work
*University College
University Graduate School

Indiana University East (Richmond)

Indiana University–Purdue University Fort Wayne

Indiana University Kokomo

Indiana University Northwest (Gary)

Indiana University South Bend

Indiana University Southeast (New Albany)

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[1]Two bulletins are issued: graduate and undergraduate. Undergraduate information about the Schools of Business and Nursing at IUPUI is found in the IUPUI campus bulletin.
[2]Bulletins on the General Studies Degree Program and the Independent Study Program are available from this school.
[3]There are two Indiana University schools of law. Be sure to specify whether you want a bulletin of the Bloomington or Indianapolis school.
[4]Available only to admitted University Division students.
*IUPUI produces one campus bulletin including information about all schools listed here. Schools marked with an asterisk (*) also produce separate bulletins.