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**INDIANA UNIVERSITY
SCHOOL OF INFORMATICS
UNDERGRADUATE PROGRAM**
Bloomington and Indianapolis Campuses

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School of Informatics, IUB



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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.

Today, 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 information technology opens doors to art and science in 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 is now an "information processor." 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.

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 for the foreseeable future. The School of Informatics prepares students to meet the continuing demand for information technology professionals who know how to grow and adapt to this environment of rapid technological change.

Informatics is focused on the best applications of technologies, and emphasizes the social and psychological aspects of information technology.

Some have called informatics "technology with a human face." Informatics prepares professionals to use information technology to solve problems in a variety of settings. The degrees emphasize the development of new uses for technologies, always keeping in mind the needs of people and the best and most appropriate uses for technology.

Informatics students have the following:

- A technical understanding of how computing systems and programs operate
- An ability to adapt/assess and apply new trends in information technology (IT)
- Well-developed problem-solving skills
- Experience working on a team, such as those formed for the senior capstone experience
- Well-developed communications skills to clearly convey solutions and observations to others
- An understanding of social and ethical principles as they relate to IT issues

Degrees from the School of Informatics are unique because they involve students in learning how information technology relates to a traditional discipline in the sciences, liberal arts, or professions. In the School of Informatics, a student learns to use technology to solve problems in the chosen area of emphasis and is prepared to use technology to solve problems in a wide variety of career settings.

The undergraduate curriculum looks at information technology from a balanced perspective. It includes a technical core in the areas of mathematical foundations, distributed information, human-computer interaction, social/organization informatics, and new media. In addition to knowledge of core informatics and of informatics in the context of a traditional discipline, students must take a set of general-education courses to ensure that they can communicate clearly in both written and spoken English, read effectively, and reason quantitatively. They must be able to raise and rationally debate ethical concerns suggested by information technologies and their interactions with other people. Students also must have some knowledge of the world; its peoples; and their cultural, artistic, and scientific achievements. To this end, the general-education requirement exposes students to the arts and humanities, social and historical studies, and the natural sciences.

The school offers a Bachelor of Science in Informatics degree, four specialized professional master's degrees, a Bachelor of Science in Computer Science degree, the Professional Master's Program in Computer Science, a variety of undergraduate and graduate

programs in New Media, and the Undergraduate Program in Health Information Administration. Informatics research is conducted at the Informatics Research Institute, which provides expanded educational opportunities for both undergraduate and graduate students.

One School, Five Campuses

The School of Informatics spans the IU Bloomington (IUB), Indiana University–Purdue University Indianapolis (IUPUI), IU South Bend (IUSB), IU Kokomo (IUK), and IU Southeast (IUSE) campuses. By combining the strengths of these five 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 disciplines 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.

Bloomington Campus

Indiana University Bloomington (IUB) is a residential campus that offers undergraduate, professional, and graduate degrees in more than 70 fields of study. In the fall semester of 2005, the campus had a total enrollment of 37,975, including 29,120 undergraduates and 7,903 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 fourth in collection size among the Big Ten universities, fifth in the Committee on Institutional Cooperation (CIC), and thirteenth in the nation among major research libraries. The libraries' collections include 6.6 million bound volumes, 4 million microforms, and more than 70,000 current serials. The Herman B Wells Library houses a core collection especially for undergraduates and extensive graduate research collections—as well as reference services, technical services, government publications, and other essential library services. The Wells Library also is home to the Information Commons, which has more than 350 computer workstations. These facilities

are complemented by the 14 campus libraries serving diverse disciplines, such as music, optometry, chemistry, geology, education, business, journalism, and other areas.

University Information Technology Services at IUB

University Information Technology Services (UITS) 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 Wells Library, offers programs and specialized information technology services for students with disabilities. Research computing facilities on campus include 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 that UITS brings is the Network Operations Centers for both Abilene (Internet 2) and TransPac. More fully described in the next section, they are housed on the IUPUI campus, but scholars and students in Bloomington also benefit from these high-speed communication links.

IUB Hutton Honors College

The School of Informatics encourages superior students to take advantage of the variety of opportunities offered through the Hutton Honors College and is pleased to help honors students plan their individual programs.

Grants and Scholarships at IUB

The School of Informatics is developing new sources of funding, and students are encouraged to review the Informatics Web site for up-to-date information. At the date of publication, scholarships and awards are funded by the Lilly Endowment and Silicon Graphics, Incorporated.

Grants and scholarships also are available through other IU offices, such as the Hutton Honors College. Students are encouraged to consult with the Office of Student Financial Assistance (www.indiana.edu/~sfa) for additional funding opportunities.

IUPUI Campus

IUPUI is an urban campus that combines IU and Purdue programs. In the fall semester of 2005 its schools had a total enrollment of 29,933, including 21,438 undergraduates and 8,495 students in graduate and professional programs. IUPUI currently ranks among the 10 largest

campuses in the nation that offer graduate professional degrees.

IUPUI University Library

The IUPUI University Library is a technology-based learning center that supports teaching and learning in a new Information Commons; at hundreds of workstations in the library; at computers throughout the campus; and in the homes of students, faculty, and staff.

The collection covers a wide range of academic disciplines—from liberal arts to science, engineering, and technology. The collection contains 4,145 subscriptions to electronic and print periodicals, more than 25,000 e-books, more than 1 million print and online volumes, and the Joseph and Matthew Payton Philanthropic Studies Library and Ruth Lilly Special Collections and Archives. The University Library also creates and hosts digital resources about the state of Indiana, including an electronic atlas and image collection.

The University Library information system hosts more than 350 computer workstations, permitting patrons to search for information through an extensive and sophisticated online research system. Word processing and other electronic applications are also available on these machines. The University Library has more than 500 general and graduate study carrels; 40 group-study rooms with seating for approximately 180; and class and meeting rooms, including a 100-seat auditorium.

University Information Technology Services at IUPUI

University Information Technology Services (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 another 2 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 with 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. 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.

IUPUI Honors Program

The IUPUI Honors Program offers special opportunities for academically superior students to do honors work or pursue department or general honors degrees. Undergraduates may enroll in independent study, H-Option courses, graduate courses, or designated honors courses. Students should check the Schedule of Classes for course offerings.

Students who have SAT scores of 1100 or above, rank in the top 10 percent of their high school class, or have a 3.30 grade point average are eligible to enroll in honors courses. For additional information on honors degrees, contact the Honors Office, University College 3140, at (317) 274-2660.

South Bend (IUSB) Campus

Indiana University South Bend provides all the services and opportunities of a large university combined with the advantages and atmosphere of a small college.

Information on the School of Informatics degree programs offered at the IUSB campus can be located on the Web at www.iusb.edu/~majors/inform.shtml.

Kokomo (IUK) Campus

The Bachelor of Science in Informatics is offered on the Kokomo campus under the Department of Natural, Information, and Mathematical Sciences. Information on the Informatics degree program can be located on the Web at www.iuk.edu/~konims/Programs/BS_Info.shtml.

Southeast (IUSE) Campus

The Bachelor of Science in Informatics is offered on the Southeast campus under the Department of Natural Sciences. Information on the Informatics degree program can be located on the Web at www.ius.edu/NaturalSciences/Informatics/index.cfm.

Degrees Awarded with Distinction at IUB and IUPUI

For those graduating in the top 10 percent of their undergraduate class, the School of Informatics awards bachelor's degrees with three levels of distinction: Distinction (3.5 GPA); High Distinction (3.75 GPA); and Highest Distinction (3.9 GPA). The level of distinction is determined by the overall Indiana University grade point average. Students must have taken 60 graded credit hours at Indiana University.

The level of distinction is printed on both the final transcript and the diploma.

Dean's Honor List and Recognition Award at IUB and IUPUI

The School of Informatics recognizes exceptional academic performance in baccalaureate degree programs. The Dean's Honor List contains the names of students who have achieved a GPA semester index of 3.5 or higher during any semester in which the student completes 12 or more graded credit hours. Part-time students (taking 6 or more credit hours) who have completed at least 26 credit hours of course

work will receive the Dean's Recognition Award if they have a semester and cumulative GPA of 3.5 or higher.

Informatics Research Institute

Research and theory in informatics move rapidly to application and development. The faculty who teach 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 the Informatics Research Institute (IRI). The IRI conducts 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.



In July of 2005 the Department of Computer Science merged with the School of Informatics.

Undergraduate Programs

The School of Informatics offers a Bachelor of Science in Informatics (BSINFO), a Bachelor of Science in Computer Science (BSCSCI), a Bachelor of Science in Health Information Administration, a Bachelor of Science in Media Arts and Science, and a Professional Master's in Computer Science.

The very nature of these degrees, with the changing technologies and applications, requires that the content of each degree be continuously assessed and revised. Therefore, the faculty of the School of Informatics will periodically review and revise the curricula to ensure that students are prepared to meet contemporary workplace and intellectual demands. Please contact the School of Informatics Student Services Office, or refer to our Web site at www.informatics.indiana.edu, www.cs.indiana.edu, www.informatics.iupui.edu, or newmedia.iupui.edu to confirm current program requirements.

Admission

Admission to the School of Informatics, IUB

Students wishing to major in informatics or computer science must be admitted to Indiana University and first enter the University Division at IUB. Freshmen should begin to satisfy specific degree requirements in the first year. Undergraduates who wish to be admitted to the School of Informatics must first satisfy the following requirements:

1. Complete 26 credit hours of course work that can count toward a bachelor of science degree in informatics or computer science with a minimum cumulative grade point average of 2.0 (C).
2. Complete the English composition requirement (ENG W131 or equivalent) with a minimum grade of C.
3. Individual programs may have additional requirements.

Students pursuing a Bachelor of Science degree in informatics must also satisfy the following two requirements:

1. Complete INFO I101, Introduction to Informatics, with a minimum grade of C.
2. Complete the fundamental math skills requirement (MATH M118, or equivalent) with a minimum grade of C.

Contact the Office of Admissions at (812) 855-0661, e-mail iuadmit@indiana.edu, or view the Web site at www.indiana.edu/~iuadmit for complete instructions. For specific information on

the Informatics program, phone (812) 856-1321, e-mail undergraduate@informatics.indiana.edu, or view the Web site at www.informatics.indiana.edu. For specific information on the Computer Science program, phone (812) 855-6038, e-mail ug-info@cs.indiana.edu, or view the Web site at www.cs.indiana.edu.

Direct Admission

Incoming freshmen with strong high school records and an interest in majoring in informatics or computer science can be offered direct admission into the School of Informatics. For more information, send e-mail to beterrel@indiana.edu.

Admission to the School of Informatics, IUPUI

After students have been admitted by the Enrollment Center at IUPUI, the specific school in which they intend to pursue a degree also must admit them. The School of Informatics welcomes nontraditional students and students entering directly from high school if they wish to pursue an informatics degree and meet the school's requirements for admission.

Students who have not yet determined their major area of study or who plan to eventually enroll in a professional school may seek admission through the University College.

Students who are contemplating degrees in professional areas can benefit from the advice and counsel of informatics faculty at the outset of their academic careers. The School of Informatics Office works individually with undecided students and draws on the expert counsel of IUPUI's Career and Employment Office. The School of Informatics maintains close contact with the University College.

Admission to the New Media Program, IUPUI

All students entering the School of Informatics' New Media Program must be admitted officially to the university by the Enrollment Center, either at IUPUI or enrolled at another Indiana University campus as a degree-seeking student. After students have been admitted to IUPUI, the specific school in which they intend to pursue a degree must also admit them. The New Media Program welcomes nontraditional students and students entering directly from high school if they wish to pursue a new media degree and meet the school's requirements for admission.

Freshmen: For students entering directly from high school, admission depends on the student's subject matter preparation, high school rank, and SAT or ACT scores. Freshmen are expected to rank in the upper half of their high school graduating classes.

High school students should file applications early in their senior year. Students who have been out of high school for two or more years need not provide SAT or ACT scores.

Citizens of other countries and recent immigrants should ask the Enrollment Center for the International Application for Admission.

With all applications for admission, a nonrefundable fee is required. Checks should be payable to IUPUI.

Admission to IUPUI is usually open throughout the year; however, students who are not admitted and have not taken the placement test in time to receive counseling may not be able to register until a later semester. Therefore, applicants are encouraged to complete their applications and testing as soon as possible. Counseling is available. Direct all questions about admissions to:

Enrollment Center
IUPUI
Cavanaugh Hall
425 University Boulevard
Indianapolis, IN 46202-5143

Adult Students: Adult special students who are 21 or older may enroll in a maximum of 15 credit hours before they must apply for admission as degree candidates. Adult special students are subject to the same regulations as degree-seeking students. All credits taken as adult special credits can apply toward a bachelor's or associate degree in accordance with various school requirements.

Visiting Students: Students seeking degrees at colleges or universities outside Indiana University may enroll at IUPUI. Students must present to the Enrollment Center a letter of good standing or a transcript verifying at least a 2.0 grade point average from the institution at which they are seeking a degree. Students are generally not allowed to register under this status for consecutive semesters.

Students with Disabilities: Students with a learning, hearing, speech, physical, or mental disability that may affect their ability to fulfill a requirement of the school should contact Adaptive Educational Services prior to registering. Requirements normally will not be waived for students with disabilities, but accommodations may be made within specific courses. The office is located in Cavanaugh Hall 001E and can be contacted by calling (317) 274-3241 or TDD (317) 278-2051.

Undecided Students

A student who has not yet determined a major area of study or who plans eventually to enroll in a professional school may wish to seek admission initially to the New Media Program as an undecided student. This alternative to the

University College is especially recommended for students whose aspirations depend on a strong new media background, strong analytical skills, or an in-depth knowledge of computer software.

Students who are contemplating advanced degrees in professional areas can benefit from the advice and counsel of new media faculty at the outset of their academic careers. The School of Informatics Student Services Office works individually with undecided students and draws on the expert counsel of IUPUI's Career Center. Moreover, undecided students can take advantage of peer counseling; well-qualified, successful undergraduates in new media are available to share their perspectives on a more informal and immediate basis. The New Media Program maintains close contact with University College, and undecided students can take advantage of the services and expertise of both units regardless of their formal admission to one unit or the other.

Direct Admission to New Media

The New Media Program encourages the direct admission of qualified IUPUI freshmen and transfer students into the program. Students who know which area they wish to pursue may be admitted to the program; undecided applicants are admitted to the program as undecided majors.

Undecided students are advised through the New Media Program Office or University College, which works with students individually to select courses and, eventually, majors.

To be eligible for direct admission, applicants must meet the general university and campus requirements. Additionally, freshmen must have a combined SAT I (or equivalent) test score of 800. Applicants who have been out of high school two or more years are not required to submit test scores, although the standardized tests are highly recommended. Evaluation of students who request admission without presenting test scores will be made on an individual basis.

Applicants who do not qualify for direct admission may be considered for probationary admission to the University College. Students who qualify for probationary admission according to campus guidelines may be admitted directly to the New Media Program on a probationary status according to the procedures described in the following section.

Probationary Admission to New Media

Individuals who do not qualify for a direct admission or whose college grade point average is lower than 2.0 (C) may petition the New Media Program for probationary admission. Special consideration is given to adult learners

and students returning after five or more years. Petitions are available from the School of Informatics Student Services Office, (317) 278-INFO.

Deadline to enroll for the fall semester:	July 15
Deadline to enroll for the spring semester:	November 15
Deadline to enroll for the summer session:	April 15

At the discretion of the dean, the New Media Program may admit on a probationary basis those students who do not meet the minimum requirements for direct admission. To be

considered for probationary admission, students must be in the upper two-thirds of their high school graduating class and have combined SAT I scores of at least 650. Such students are counseled through the School of Informatics Student Services Office and remain on probation until they have successfully raised their cumulative grade point average to 2.0 (C) and satisfied any other limitations set. Students admitted on probationary status become eligible for dismissal if they fail to achieve a minimum GPA of 2.3 during each semester until they have reached a minimum cumulative GPA of 2.0 (C). Students who do not achieve a cumulative grade point average of 2.0 (C) after two semesters or 24 credit hours will be dismissed.

Application Materials and Deadlines

Application Materials and Additional Information:

Bloomington:

Office of Admissions
Indiana University
300 N. Jordan Avenue
Bloomington, IN 47405-1106
(812) 855-0661
E-mail: iuadmit@indiana.edu
Web: www.indiana.edu/~iuadmit

Indianapolis:

Office of Admissions
IUPUI
Cavanaugh Hall, Room 129
Indianapolis, IN 46202-5143
(317) 274-4591
E-mail: apply@iupui.edu
Web: www.iupui.edu/prospect.htm

International students should request the International Application for Admission from:

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

Office of International Affairs
IUPUI
902 W. New York Street, ES 2126
Indianapolis, IN 46202
(317) 274-7000
E-mail: intlaff@iupui.edu
Web: www.iupui.edu/~oia

Students also may contact the School of Informatics or the Department of Computer Science for additional information:

School of Informatics
Indiana University
901 E. Tenth Street
Bloomington, IN 47408
(812) 856-6016
E-mail: undergraduate@informatics.indiana.edu
Web: www.informatics.indiana.edu

School of Informatics
IUPUI
535 W. Michigan
Indianapolis, IN 46202-5167
(317) 278-INFO
E-mail: info@informatics.iupui.edu
Web: www.informatics.iupui.edu

Computer Science
Indiana University
Lindley Hall 215
150 S. Woodlawn Avenue
Bloomington, IN 47405
(812) 855-6038
E-mail: ug-info@cs.indiana.edu
Web: www.cs.indiana.edu

Priority Dates for Application for Admission to Indiana University Bloomington

	International Students	U.S. Citizens and Permanent Residents
August (Fall)	February 1	February 1
January (Spring)	September 15	November 1
May (Summer I)	February 1	April 1
June (Summer II)	March 1	April 15

Priority Dates for Application for Admission to Indiana University Purdue–University Indianapolis

	International Students	U.S. Citizens and Permanent Residents
August (Fall)	March 15	June 1
January (Spring)	October 15	October 1
May (Summer I)	March 15	March 15
June (Summer II)	March 15	May 1

Program Planning and Counseling

The School of Informatics provides counseling services to assist students in planning their study. Students who have chosen a major are assigned an advisor and should make an appointment with that advisor prior to each registration period to discuss long-term goals as well as specific course work for the upcoming semester. Consulting an advisor is a semester-by-semester obligation of students to ensure ongoing progress toward a degree.

Students, however, are responsible for their progress. They should be thoroughly familiar with the general requirements for an informatics degree, a computer science degree, or a new media degree. Students are urged to complete most of their general education requirements during their freshman and sophomore years.

When planning a program, students should refer to both the *Enrollment and Student Academic Information Bulletin* or the *Registration Guide and Academic Information* and this bulletin. Special attention should be paid to course descriptions and prerequisites. This bulletin identifies prerequisites with a “P,” corequisites with a “C,” and recommended courses with an “R.” Students should not enroll in courses for which they do not have the prerequisites. Instructors may require a student to drop a class if the student has not fulfilled the prerequisites.

Transfer Students**Transfers from Other Undergraduate Schools on the IUB Campus**

Students transferring to the School of Informatics at IUB from other undergraduate schools of the university—such as the College of Arts and Sciences or the Schools of Education, Public and Environmental Affairs, Music, or the

Kelley School of Business—must have completed at least 26 credit hours of course work that can count toward a degree in the School of Informatics, with a minimum cumulative grade point average of 2.0 (C). Students also must complete the English composition requirement and receive a grade of C or higher before entering the School of Informatics. Students pursuing a B.S. degree in informatics (BSINFO) must also complete INFO I101 Introduction to Informatics, complete the mathematics requirement, and receive a grade of C or higher before entering the School of Informatics. Requests for transfer must be completed by July 1 for the fall semester, December 1 for the spring semester, or April 15 for the summer sessions.

Transfers from Other Undergraduate Schools on the IUPUI Campus

Students with a minimum grade point average of 2.0 (C) who wish to transfer from another IUPUI school to the School of Informatics may do so by filing a Change of Record Form. For details, check with the School of Informatics Student Services Office, (317) 278-INFO.

Transfers Within the School of Informatics on the IUB and IUPUI Campuses

Transfer students admitted to the School of Informatics on the IUB campus who want to transfer to the School of Informatics on the IUPUI campus, or vice versa, should file an Intercampus Transfer Form. Intercampus Transfer Forms are accepted throughout the year.

Transfers from Other Indiana University Campuses

Please consult “Transfer to Other Indiana University Campuses” at the back of this bulletin for information on transfers between Indiana University campuses.

Transfers from Other Colleges and Universities to IUB

Students who have completed at least 26 credit hours that can count toward a degree in the School of Informatics—including the English composition requirement—may apply for admission to the School of Informatics at IUB. Students pursuing a B.S. degree in informatics (BSINFO) must also complete the fundamental math skills requirement prior to applying for admission. Upon acceptance, students pursuing a B.S. degree in informatics (BSINFO) must enroll in INFO I101 Introduction to Informatics during their first semester and complete the course with a minimum grade of C.

The Office of Admissions at IUB will determine acceptance of credit from other institutions. The dean of the School of Informatics will determine the applicability of credit toward degree requirements. Please consult “Undergraduate Admissions Policy” at the back of this bulletin for more information about transfers from other colleges and universities.

Transfers from other College and Universities to IUPUI

Students with transfer credit from other colleges or universities may be considered for admission to the School of Informatics or the New Media Program. Transcripts of credits and grades earned in all subjects at previous institutions should be presented to the Enrollment Center, in which credits will be evaluated.

The Enrollment Center at IUPUI will determine acceptance of credit from other institutions. The dean of the School of Informatics or the New Media Program Office will determine the applicability of credits toward degree requirements. Please consult “Undergraduate Admissions Policy” at the back of this bulletin for more information about transfers from other colleges and universities.

Transfer Credit Rules

Credits transferred to the IUB or IUPUI campuses are generally evaluated according to the following rules:

1. Courses taken at other institutions in which the student earned a grade below C do not transfer.
2. Courses taken at other institutions on a quarter system instead of a semester system will be evaluated as carrying fewer credit hours (for example, a 3 credit hour course taken on a quarter system will transfer as 2.5 credits).
3. Courses taken at other institutions for which there is an equivalent IU course (in terms of course description, level, and prerequisites) generally will be evaluated as credit in the equivalent IU courses.
4. Courses taken at other institutions for which there is no equivalent IU course (in terms of course description, level, and prerequisites) generally will be evaluated as “undistributed” credit (marked UNDI on the IU transcript). Undistributed credits generally count toward the student’s degree requirements, but the School of Informatics determines how the credits apply (either toward a requirement or as an elective).
5. Transfer students who have questions about how their previous course work will apply to their degree or who encounter difficulties in the process of transferring credit should contact the School of Informatics Student Services Office, the undergraduate office in Computer Science, or the New Media Program Office.

Academic Regulations

Absences

From Final Examinations: Students are required to adhere to the policies regarding final examinations, as published in the *Enrollment and Student Academic Information Bulletin* or the *Registration Guide and Academic Information*.

From Scheduled Classes: Illness is usually the only acceptable excuse for absence from class. Other absences must be explained to the satisfaction of the instructor, who will decide whether omitted work may be made up.

Credit for Correspondence Courses

With prior permission from the dean, the School of Informatics will accept a maximum of 2 courses (6 credit hours total) by correspondence study to count toward the degree requirements. Only general elective courses can be taken by correspondence.

Degree Application

Candidates for graduation must file an application with the school by March 1 for December graduation and by October 1 for May, June, or August graduation. Credits for all course work, except that of the current semester, must be recorded on the candidate’s Indiana University transcript at least one month prior to the date of graduation.

Statute of Limitations

Candidates for the bachelor’s degree in informatics have the right to complete the degree requirements specified by the bulletin in effect at the time they entered Indiana University, provided that the required courses are available and that no more than eight calendar years have elapsed since the date of entry.

Grading Policies

The School of Informatics follows the official grading system of Indiana University, which is as follows:

A+	= 4.00	C+	= 2.30
A	= 4.00	C	= 2.00
A-	= 3.70	C-	= 1.70
B+	= 3.30	D+	= 1.30
B	= 3.00	D	= 1.00
B-	= 2.70	D-	= 0.70
		F	= 0.00

The following grades carry no grade points: I (Incomplete), NC (No Credit), NR (No Report Filed by Instructor), P (Passing), R (Deferred), S (Satisfactory), W (Withdrawal).

Grade Point Average

The cumulative grade point average is computed by dividing the total number of grade points earned by the total number of credit hours completed in which grades of A through F are assigned. Credit earned at another institution may be applied toward degree requirements, but the grades earned at other institutions will not be calculated in the Indiana University cumulative grade point average.

Change of Grade

A student desiring a change of grade should discuss the situation with the instructor. A change of grade must be justified. If the instructor agrees, the faculty member will file a Grade Change Authorization Form. If the instructor and student do not agree on a changed grade, or if the instructor cannot be located, the student should discuss the matter with the chairperson or director of the department offering the course. Appeals unresolved at this level may be referred to the academic deans. Appeals of grades or requests for other actions will not be considered after one calendar year from the end of the semester in which the course in question was taken.

Incomplete Courses

A temporary grade of Incomplete (I) on the transcript indicates that the course work is mostly completed, generally 75 to 80 percent, and of passing quality.

It is the student's responsibility to contact the instructor to have a grade of Incomplete assigned. The instructor specifies the work to be done to remove the grade of Incomplete and the period of time allowed for completion. If the student fails to remove the Incomplete within one calendar year, the Office of the Registrar will change the grade to an F. The dean (or instructor) authorizes adjustments of this period in exceptional circumstances. A student who has received a grade of Incomplete should not

register for the course a second time but should arrange with the instructor to have the grade changed to a letter grade upon completion of requirements, provided that it is done within the year.

Pass/Fail Option

Students in the School of Informatics may elect to take a maximum of 12 credit hours total under the Pass/Fail option. The procedure for declaring this option can be found in the *Enrollment and Student Academic Information Bulletin* or the *Registration Guide and Academic Information*. Special regulations affecting the Pass/Fail option for School of Informatics students are as follows:

1. Only one course per semester or one course per summer session can be taken under the Pass/Fail option.
2. School of Informatics students may take only university elective courses or general elective courses on a Pass/Fail basis. The Pass/Fail option may not be used for any course that satisfies the requirements for a minor or certificate.
3. A grade of P is not counted in the grade point average; a grade of F is included. Grades of P cannot be changed to any other letter grade.
4. Pass/Fail forms are available in the School of Informatics Office and the Computer Science Office.

R Grade

The R grade (Deferred) on the final report indicates that the nature of the course is such that the work of the student can be evaluated only after two or more terms. Courses in which an R grade is assigned will be announced as deferred grade courses in the online enrollment system and *Registration Guide and Academic Information*.

FX Option

FX denotes an undergraduate-level course originally failed and subsequently retaken.

The School of Informatics will calculate FX grades as grades of F for internal purposes and degree requirements. This calculation will apply to all categories of academic standing (good standing, probation, and dismissal); class rank; and all grade point average requirements in the degree, including cumulative, semester, and major concentrations.

A student may use the FX option for purposes of the university transcript. An undergraduate student who has repeated a course previously failed may request to have only the second grade in that course counted in the student's grade point average as entered on the student's transcript. A student may exercise this FX option for no more than three courses, totaling no more than 10 credit hours. A student may use the FX

option on the transcript only once for a given course. Requests for approval of FX courses should be made in consultation with the student's advisor.

Extended-X Option

The School of Informatics will calculate Extended-X grades for internal purposes and degree requirements. This calculation will apply to all categories of academic standing (good standing, probation, and dismissal); class rank; and all grade point average requirements in the degree, including cumulative, semester, and major concentrations.

A student may retake a course for which he or she receives a grade below an A during the first 45 hours of course work. A student may exercise this option for no more than 3 courses, totaling no more than 10 credit hours. A student may use the Extended-X option on the transcript only once for a given course.

Only courses attempted during or after the fall 2001 term will be eligible for replacement under the Extended-X policy. Students enrolled at IU prior to fall 2001 may replace courses under the Extended-X policy or under the FX policy. The following grades cannot be replaced under the Extended-X policy: S, P, W, I, R, NC.

Withdrawals

A grade of W (Withdrawal) is given automatically to the student who withdraws from courses during the automatic withdrawal period as specified in the *Enrollment and Student Academic Information Bulletin* or the *Registration Guide and Academic Information*. After the automatic withdrawal period, a student may withdraw only with the permission of the dean. This approval is given only for urgent reasons related to extended illness or equivalent distress. The desire to avoid a low grade is not an acceptable reason for withdrawal from a course.

A grade of W does not affect the overall grade point average. A grade of F will be recorded on the official transcript if a student stops attending but does not officially withdraw from class. Students who alter their schedules, whether at their own initiative or by departmental directive, must follow withdrawal procedures. Students who do not assume this responsibility are jeopardizing their records because they will incur a failing grade in a course not properly dropped and will not receive credit for work done in a course not properly added.

IU Bloomington

Students who wish to cancel their Bloomington campus registrations for a future semester must notify the Office of the Registrar in writing prior to the first day of classes.

Students who are forced to discontinue all studies during the semester (even if enrolled

in only one course) and withdraw from the university must contact the Student Advocates Office in Franklin Hall 206 to complete the withdrawal process.

At IUB, if a student withdraws after the first week of classes, the courses in which the student was enrolled will be retained on the student's record with a grade of W or F (as appropriate) and a notation of the date of withdrawal. To qualify for a grade of W after the deadline, a student must be passing the course(s) on the date of withdrawal. If the student is failing, the grade on the date of withdrawal will be F.

IUPUI

To withdraw from any or all courses, students must submit to the registrar's office a Schedule Adjustment Form that has been signed by the advisor. If forms are turned in no later than the beginning of classes, the course will be deleted from student records—except for complete withdrawals, which result in the grade of W (Withdrawal) on student records. If withdrawals are turned in by the end of the first half of the semester or summer session, the grade of W is automatically given and recorded on the official transcript. Thereafter, but prior to the end of the third quarter of classes, both the advisor's and the instructor's signatures are required for withdrawal, and the instructor designates the grade of W or F.

Upon notification from the IUPUI registrar's office that a student has accumulated eight (8) or more Ws, the School of Informatics will send a letter of concern to the student, requesting an explanation. This notification will likewise remind students that their record of withdrawals from courses may jeopardize financial aid. Students with 10 or more grades of W may be regarded as not making the "reasonable academic progress" required to maintain eligibility for financial aid, and lack of such progress constitutes grounds for denying further financial aid.

Academic Standing

A student is in good academic standing for an Indiana University bachelor's degree when his or her semester grade point average is a minimum of 2.0 (C) for the last semester's course work and when his or her cumulative grade point average is at least 2.0 (C). Students must be in good academic standing to graduate.

Class Standing

Class standing is based on the number of credit hours completed:

- Freshman, fewer than 26 credits
- Sophomore, 26 to 55 credits
- Junior, 56 to 85 credits
- Senior, 86 or more credits

Semester Load

A typical full-time academic load is 12 to 17 credit hours per semester, with the average load being approximately 15 credit hours. Students who expect to carry more than 17 credit hours a semester should have a cumulative grade point average of at least 3.0 (B) and have approval from an academic advisor or dean.

Academic Probation

Students will be placed on academic probation if their semester grade point average (semester grade index) or cumulative grade point average is below 2.0. After one semester on probation, students who fail to return to good academic standing will be placed on critical probation. At the discretion of the dean, these students can be dismissed. If a student is given the opportunity to enroll under critical probation, the School of Informatics will establish strict conditions that must be met before that student will be allowed to register for future classes.

Dismissal

Students can be dismissed if they fail to return to good academic standing after one semester on critical probation. Students may also be dismissed if, in the opinion of the dean, they are not making satisfactory progress toward their degree.

Students eligible for dismissal will be notified in writing that they have been dismissed and will be withdrawn from classes for which they have registered.

Readmission

Dismissed students must petition the dean of the School of Informatics for readmission. A Petition for Readmission Form must be filed by July 15 for fall, November 15 for spring, and April 15 for summer readmission. A student who has been dismissed for the second time is eligible to return to school only after being out of school for one regular semester and having petitioned successfully. A third dismissal is final. Dismissed students whose petitions are denied will not be allowed to register.

Academic Misconduct

Cheating

Cheating is dishonesty of any kind with respect to course assignments, alteration of records, or examinations. It is the student's responsibility not only to abstain from cheating, but also to avoid the appearance of cheating and to guard against making it possible for others to cheat. Any student who helps another student cheat is as guilty of cheating as the student assisted. The student also should do everything possible to induce respect for the examining process and for

honesty in the performance of assigned tasks in or out of class.

Plagiarism

Plagiarism is assuming credit for someone else's work, words, or ideas—whether or not the ideas are expressed in the borrower's own words. Honesty requires that any ideas or materials taken from another source for either written or oral use must be fully acknowledged. Plagiarism includes language or ideas taken from isolated formulas, sentences, or paragraphs; entire articles copied from books, periodicals, or speeches; the writings or created works of other students; and materials assembled or collected by others in projects or collections without acknowledgment.

A faculty member who has evidence that a student is guilty of cheating or plagiarism will initiate the process of determining the student's guilt or innocence. No penalty will be imposed until the student has been informed of the charge and of the evidence on which it is based, and has been given an opportunity to present a defense. If the faculty member finds the student guilty, the faculty member assesses a penalty within the course and promptly reports the case in writing to the dean of the school or comparable head of the academic unit. The report should include the names of any other students who may be involved in the incident and recommendations for further action. The dean, in consultation with the faculty member if the latter so desires, will initiate any further disciplinary proceedings and inform the faculty member of any action taken. In every case, a record of the offenses remains on file.

For further regulations, please refer to the *IU Code of Student Rights, Responsibilities, and Conduct*.

Student Grievance Procedures

All academic personnel (faculty, part-time instructors, and advisors) are expected to conform to the Code of Academic Ethics published in the *Indiana University Academic Handbook*. Students who feel that they have been treated unfairly by a faculty member may lodge a complaint by following these steps: (1) Discuss the matter with the faculty member or instructor. (2) If step 1 fails to resolve the situation, discuss the matter with the chairperson of the department or the coordinator of the program in which the faculty member is employed. The departmental chairperson will discuss it with the faculty member and seek some resolution. (3) If step 2 fails, the student may discuss the matter or file a written, signed complaint with the dean. Anonymous complaints will not be entertained. A copy of any written complaint will be forwarded to the faculty member, who may respond in writing. (4) When warranted, the

dean may refer a written complaint and the faculty member's response to the Faculty Affairs Committee for further investigation and review. (5) The Faculty Affairs Committee will evaluate the complaint on the basis of university policy and may recommend to the dean that the instructor be sanctioned. If the committee finds the complaint to be unfounded, a letter to that effect may be placed in the student's file.

Informatics Degree Programs, IUB and IUPUI

Academic counseling for each student in the School of Informatics is provided by a faculty member or an academic advisor prior to each semester's enrollment. Although academic counseling is intended to provide effective guidance, students are responsible for planning their own programs and for meeting the following degree requirements for graduation. Students are advised to read bulletin descriptions of all courses selected, paying careful attention to conditions concerning awarding of credit.

Bachelor of Science in Informatics, IUB and IUPUI

General Requirements

Students must successfully complete a minimum of 122 credit hours for the Bachelor of Science degree. The campus at which a student is admitted will award the degree. Students may transfer no more than 60 credit hours toward a Bachelor of Science degree. Students must complete the specific degree requirements of the School of Informatics as follows:

1. Students must complete a minimum of 30 credit hours in courses at the 300–400 (junior-senior) level.
2. Students must have a minimum cumulative grade point average of 2.0 (C). Any course taken to satisfy the major core requirements must be completed with a minimum grade of C– unless otherwise specified, and the grade point average of all courses taken in the major must be at least 2.0. The major core requirements for informatics include core courses, informatics electives, and cognate courses.
3. Students are expected to complete the requirements for their undergraduate degree within eight years of admission to the School of Informatics. Students are allowed to continue beyond this time period only at the discretion of the dean. If a student has not taken classes for three years or more, that student must satisfy program requirements of the School of Informatics in effect at the time of reactivation. Requests for deviation from requirements listed in the bulletin must be approved in writing by the dean, whose decision is final.

4. Courses that fulfill the requirements for a cognate area also may meet the general-education distribution requirements.
5. Cognate area courses cannot count as informatics core courses or informatics elective courses.
6. If cognate area courses are equivalent to informatics core courses, students should substitute additional informatics elective courses in place of informatics core courses to meet the 35 credit hour requirement.
7. Courses that fulfill the requirements for a bachelor's degree in informatics also may apply to a minor outside of the School of Informatics. Students may obtain a maximum of three minors.
8. Students must file a degree application with the School of Informatics Recorder or Student Services Office by March 1 for December graduation and by October 1 for May, June, or August graduation. Failure to file by the deadline may delay the official date of graduation.

Course Requirements

The course work required for the B.S. in Informatics consists of five parts:

- Informatics Core Courses
- Informatics Electives
- Cognate Area Courses
- General-Education Requirements
- General Electives

Required Informatics Core Courses (35 cr.)

- INFO I100 First Year Experience (1 cr.) (IUPUI only)
 INFO I101 Introduction to Informatics (4 cr.)
 INFO I201 Mathematical Foundations of Informatics (4 cr.) P: INFO I101 and MATH M118, or MATH D116–D117
 INFO I202 Social Informatics (3 cr.) P: INFO I101
 INFO I210 Information Infrastructure I (4 cr.)
 INFO I211 Information Infrastructure II (4 cr.) P: INFO I210
 INFO I300 Human-Computer Interaction (3 cr.) P: INFO I211
 INFO I308 Information Representation (3 cr.) P: INFO I101, INFO I201, INFO I210
 INFO Y395 Career Development for Informatics Majors (1 cr.) (IUB only)

Select one three credit hour 300-level or above informatics course:

- INFO I303 Organizational Informatics (3 cr.) P: INFO I101
 INFO I310 Multimedia Arts and Technology (3 cr.) P: INFO I308
 INFO I320 Distributed Systems and Collaborative Computing (3 cr.) P: INFO I211
 INFO I330 Legal and Social Informatics of Security (3 cr.) P: INFO I230
 INFO I421 Applications of Data Mining (3 cr.) P: INFO I308

INFO I430 Security for Networked Systems (3 cr.) P: INFO I230, or consent of instructor
 INFO I433 Protocol Design and Analysis (3 cr.)
 Consult an advisor for additional approved courses.

Select one of the following capstone options:

INFO I450/I451 Design and Development of an Information System (3/3 cr.) (senior standing; capstone project, two-semester course) P: completion of core informatics courses including INFO Y395

INFO I460/I461 Thesis (3/3 cr.) (senior standing; capstone experience)

With prior approval from the dean, a student may substitute INFO I450/I451 and INFO I460/I461 with an equivalent capstone experience for a total of 6 credit hours in another department, or complete 6 credit hours of INFO I491 Capstone Project Internship, to fulfill the capstone requirement. Internships require students to be at junior or senior standing. A project or report must be submitted after the internship is completed.

Recommended Courses The following courses are recommended for students who lack a strong computing background. These courses are considered general elective courses.

INFO I110 Basic Tools of Informatics—
 Programming Concepts (1.5 cr.) (IUB only)

INFO I111 Basic Tools of Informatics—
 Introduction to Databases (1.5 cr.) (IUB only)

INFO I112 Basic Tools of Informatics—
 Programming and Database Concepts (3 cr.) (IUPUI only)

IUB students who wish to pursue a cognate in computer science may substitute CSCI C211/C212 for INFO I210/I211, and CSCI C241 for INFO I201.

Informatics Electives (6 cr.)

The selection of informatics electives will vary between the IUB and IUPUI campuses. Any course at the 300 level or above in computer science (IUB), CPT (IUPUI), computer and information science (IUPUI), informatics (IUB, IUPUI), journalism (IUPUI), or new media (IUPUI) can count as an elective if not used to fulfill the core requirements.

BUS S302 Management Information Systems (3 cr.) P: BUS K201

BUS S305 Business Telecommunications (3 cr.) P: BUS S302

BUS S307 Data Management (3 cr.) P: BUS S205; P or C: BUS S302

BUS S310 Systems Analysis and Design (3 cr.) P: BUS S307

BUS S405 Alternative Development Methods and Systems (3 cr.) P: BUS S310; P or C: BUS S210 or BUS S215

BUS S410 Systems Implementation (3 cr.) P: BUS S310, P or C: BUS S210 or BUS S215

COGS Q351/CSCI B351 Introduction to Artificial Intelligence and Computer Simulation (3 cr.) P: CSCI C211

INFO I303 Organizational Informatics (3 cr.) P: INFO I101

INFO I310 Multimedia Arts and Technology (3 cr.) P: INFO I308

INFO I320 Distributed Systems and Collaborative Computing (3 cr.) P: INFO I211

INFO I330 Legal and Social Informatics of Security (3 cr.) P: INFO I230

INFO I400 Topics in Informatics (3 cr.) P: at least junior standing

INFO I421 Applications of Data Mining (3 cr.) P: INFO I308

INFO I430 Security for Networked Systems (3 cr.) P: INFO I230 or consent of instructor

INFO I433 Protocol Design and Analysis (3 cr.)
 JOUR J300 Journalism/Communications Law (3 cr.)

JOUR J414 Globalization of Information (also International Newsgathering Systems) (3 cr.)

TEL T321 Policymaking in Telecommunications (3 cr.) P: TEL T207 or consent of instructor

TEL T421 Economics of Communications Industries (3 cr.) P: TELT207 or consent of instructor

TEL T427 International Telecommunications (3 cr.) P: TEL T205 or TEL T207

Note: All the above courses are subject to the successful completion of prerequisites or approval of the instructor. Students also may count other courses with informatics content as informatics electives upon approval of the dean.

Cognate Area Courses (15–18 cr.)

Departments offering informatics cognate courses are listed in Appendix I of this bulletin. Students should, in consultation with their academic advisors, choose cognate areas before their sophomore year. Students must receive a grade of C– or higher in each course and a cumulative GPA of 2.0 or higher. Students should contact the School of Informatics Student Services Office or refer to our Web site at informatics.indiana.edu or informatics.iupui.edu for the most current list of cognate areas.

General-Education Requirements (38–41 cr.)

English Composition (3 cr.)

This writing requirement may be fulfilled in any one of the following ways:

IUB:

1. Exemption without credit. Students scoring 670 or above on the SAT Verbal Examination, 32 or above on the ACT English Composition section, or 4 to 5 on the Advanced Placement English

Composition section, are exempt from English composition.

2. Exemption with credit. A student will be granted 2 credit hours of English W143 if the student has the following:
 - a. A score of 670 or above on the SAT Verbal Examination, 32 or above on the ACT English Composition section, or 4 to 5 on the Advanced Placement English Composition section, plus
 - b. A score of 660 or better on the SAT II English Writing Test, **and** if the student applies to the Department of English.
3. Completion of any of the following options with a minimum grade of C (2.0) in each course:
 - a. ENG W110 Writing Across the Curriculum (3 cr.)
 - b. ENG W131 Elementary Composition (3 cr.)
 - c. ENG W170 Projects in Reading and Writing (3 cr.)
 - d. ENG L141 and L142 Introduction to Writing and the Study of Literature I-II (4-4 cr.)
 - e. AFRO A141-A142 Introduction to Writing and the Study of Black Literature I-II (4-4 cr.)
 - f. Two semesters of ENG W143 Interdisciplinary Study of Expository Writing (1 cr.), combined with two introductory courses (3 cr.) from the following: CMLT C145 Major Characters in Literature, C146 Major Themes in Literature.
 - g. A combination of any two courses from d, e, and f above.

Note: Courses taken under these options, except for ENG W110, W131, W143, and W170, may, if they are so designated, be applied toward distribution requirements.

IUPUI:

Students must complete 6 credit hours from the following:

- ENG W131 Elementary Composition I (3 cr.)
and
 ENG W231 Professional Writing Skills (3 cr.)
or
 JOUR J200 Reporting, Writing and Editing (3 cr.)

Check the listings for courses in the *Registration Guide and Academic Information* each semester to make certain that the course section chosen fulfills the requirement.

Writing (3 cr.)

IUB:

ENG W231 Professional Writing Skills, an approved substitute (3 cr.), or completion

of one intensive writing course at the 200 level or above after completing the English composition requirement. Intensive writing courses at IUB are defined by the College of Arts and Sciences.

Students must check the listings for courses in the online enrollment system each semester to make certain that the course section they have chosen fulfills the requirement.

Oral Communication (3 cr.)

IUB: CMCL C121 Public Speaking, or approved substitute (3 cr.)

IUPUI: COMM R110 Fundamentals of Speech Communication (3 cr.)

Quantitative and Analytical Skills IUB, IUPUI

IUB (6 cr.):

1. Select one of the following: MATH A118 Finite Mathematics for the Social and Biological Sciences; MATH D116-D117 Introduction to Finite Mathematics I-II; M118 Finite Mathematics; or S118 Honors Finite Mathematics. Students must receive a minimum grade of C in each course to meet the School of Informatics admission requirements.
2. Select one of the following statistics courses: MATH/PSY K300 Statistical Techniques; MATH/PSY K310 Statistical Techniques for Data Analysis; SPEA K300; ECON E370 Statistical Analysis for Business and Economics; ECON S370 Statistical Analysis for Business and Economics: Honors; SOC S371 Statistics for Sociology; or M365 Introduction to Probability and Statistics.

IUPUI (9 cr.):

1. Select 6 credit hours from the following MATH courses: MATH M118 Finite Mathematics (3 cr.), MATH M153 Algebra and Trigonometry I (3 cr.), MATH M154 Algebra and Trigonometry II (3 cr.), MATH M163 Integrated Calculus and Analytic Geometry I (5 cr.), or MATH M164 Integrated Calculus and Analytic Geometry II (5 cr.).
2. Select 3 credit hours from the following statistics courses: 301 or 350

Web-Based Programming (9 cr.)

IUPUI:

9 credit hours from any CSCI-N courses at the 300 level or above.

Natural Sciences (8 cr.)**IUB:**

A minimum of 8 credit hours of natural science courses selected from the following list. A Topics course (E105 or S105) will count as one of the required courses in this area. *One of the courses must be a laboratory course or have an associated laboratory section.*

Anthropology: ANTH B200

Bioanthropology (3 cr.), ANTH B301 Laboratory in Bioanthropology (3 cr.), ANTH B368 Evolution of Primate Social Behavior (3 cr.), and ANTH B370 Human Variation (3 cr.).

Astronomy**Biology****Chemistry****Geography: GEOG G107 Physical Systems**

(3 cr.), GEOG G109 Weather and Climate (3 cr.), GEOG G185 Global Environmental Change (3 cr.), GEOG G208 Human Impact on Environment (3 cr.), GEOG G304 Physical Meteorology (3 cr.), GEOG G305 Environmental Change (3 cr.), GEOG G336 Remote Sensing (3 cr.), GEOG G350 Atmospheric Science (3 cr.), GEOG G431 Meteorology (3 cr.), GEOG G433 Synoptic Meteorology (3 cr.), GEOG G434 Air Pollution Meteorology (3 cr.), GEOG G471 Boundary Layer Meteorology (3 cr.), GEOG G473 Mesoscale Meteorology (3 cr.), GEOG G475 Climate Change (3 cr.), and GEOG G477 Atmospheric Science (3 cr.).

Geological Sciences**Physics**

Psychology (excluding courses that are considered mathematical science and social and historical studies courses), PSY P101 Introductory Psychology I (3 cr.), PSY P106 General Psychology, Honors (4 cr.), PSY P151 Introduction to Psychology I for Majors (4 cr.), PSY P201 Biological Bases of Behavior (3 cr.), PSY P204 Psychological and Biological Bases of Human Sexuality (3 cr.), PSY P211 Methods of Experimental Psychology (3 cr.), PSY 325 Psychology of Learning (3 cr.), PSY P327 Psychology of Motivation (3 cr.), PSY P329 Sensation and Perception (3 cr.), PSY P330 Perception/Action (3 cr.), PSY P336 Psychological Tests and Individual Differences (3 cr.), PSY P350 Human Factors/Ergonomics (3 cr.), and PSY P417 Animal Behavior (3 cr.).

Arts, Humanities, and Social Sciences, IUB and IUPUI

Informatics students must have basic training in the arts, humanities, and social

sciences, which will assist them in their lives and give them a broader perspective from which to approach the applications of information technology. The requirements for each campus are as follows:

IUB (15 cr.):

Five courses in arts and humanities and social and historical studies, as defined by the College of Arts and Sciences. Topics courses will count as one of the required courses in each area. At least two courses must be taken in each area.

One of the five courses must be a course in ethics:

PHIL P140 Introduction to Ethics (3 cr.)
PHIL P242 Applied Ethics (3 cr.)
PHIL P340 Classics in Ethics (3 cr.)
PHIL P342 Problems of Ethics (3 cr.)
REL R170 Religion, Ethics, and Public Life (3 cr.) or an approved professional ethics course

IUPUI (12 cr.):

One arts and humanities course (3 cr.) selected from the following:

AFRO A150 Survey of the Culture of Black Americans (3 cr.)
AMST A103 Topics in American Studies (3 cr.)
CLAS C205 Classical Mythology (3 cr.)
CMLT C190 Introduction to Film (3 cr.)
COMM T130 Introduction to Theatre (3 cr.)
ENG L105 Appreciation of Literature (3 cr.)
ENG L115 Literature for Today (3 cr.)
FLAC F200 World Cultures through Literature (3 cr.)
FOLK F101 Introduction to Folklore (3 cr.)
HER H100 Art Appreciation (3 cr.)
HER H101 History of Art I (3 cr.)
HER H102 History of Art II (3 cr.)
HIST H105 American History I (3 cr.)
HIST H106 American History II (3 cr.)
HIST H108 Perspectives on the World to 1800 (3 cr.)
HIST H113 History of Western Civilization I (3 cr.)
HIST H217 The Nature of History (3 cr.)
MUS M174 Music for the Listener (3 cr.)
PHIL P110 Introduction to Philosophy (3 cr.)
PHIL P120 Ethics (3 cr.)
REL R133 Introduction to Religion (3 cr.)
REL R173 American Religion (3 cr.)
REL R180 Introduction to Christianity (3 cr.)
REL R212 Comparative Religions (3 cr.)
WOST W105 Women's Studies (3 cr.)

One social science course (3 cr.) selected from the following:

- AFRO A150 Survey of the Culture of Black Americans (3 cr.)
- ANTH A104 Culture and Society (3 cr.)
- COMM C180 Interpersonal Communication (3 cr.)
- ECON E101 Survey of Current Economic Issues and Problems (3 cr.), ECON E201 Introduction to Microeconomics (3 cr.), or ECON E202 Introduction to Macroeconomics (3 cr.)
- ENG G104 Language Awareness (3 cr.)
- FOLK F101 Introduction to Folklore (3 cr.)
- GEOG G110 Introduction to Human Geography (3 cr.)
- GEOG G130 World Geography (3 cr.)
- HIST H117 Introduction to Historical Analysis (3 cr.)
- POLS Y101 Principles of Political Science (3 cr.)
- POLS Y103 Introduction to American Politics (3 cr.)
- POLS Y213 Introduction to Public Policy (3 cr.)
- POLS Y219 International Relations (3 cr.)
- PSY B104 Psychology as a Social Science (3 cr.)
- PSY B310 Life Span Development (3 cr.)
- SOC R100 Introduction to Sociology (3 cr.)
- SOC R121 Social Problems (3 cr.)
- WOST W105 Introduction to Women's Studies (3 cr.)

One comparative world cultures course (3 cr.) selected from the following:

- ANTH A104 Culture and Society (3 cr.)
- CLAS C205 Classical Mythology (3 cr.)
- FLAC F200 World Cultures through Literature (3 cr.)
- GEOG G110 Introduction to Human Geography (3 cr.)
- HIST H108 Perspectives on the World to 1800 (3 cr.)
- POLS Y217 Introduction to Comparative Politics (3 cr.)
- REL R133 Introduction to Religion (3 cr.)
- REL R212 Comparative Religions (3 cr.)

One of these must be a course in ethics:

- CPT 410 Information Technology Ethics and Leadership (3 cr.)
- PHIL P120 Ethics (3 cr.)
- PHIL P326 Ethical Theory (3 cr.)
- PHIL P493 Biomedical Ethics (3 cr.)
- REL R283 Religion, Ethics and Values (3 cr.)
- REL R293 Ethics and World Religions (3 cr.)
- REL R393 Comparative Religious Ethics (3 cr.)

General Electives (23–29 cr.)

Courses for the remaining credits will be decided by the individual student, in consultation with an advisor, to fulfill additional career and/or personal interests. Students may take a maximum of 4 credit hours of HPER elective (“E”-prefix) physical education courses.

Dual Baccalaureate Degree

In certain circumstances, students may be permitted to pursue a B.S. in Informatics and complete an undergraduate degree in another degree-granting school of the university. Check with your academic advisor for more details and approval.

Second Baccalaureate Degree

In certain cases, the dean may admit bachelor's degree holders to candidacy for a second bachelor's degree. When such admission is granted, the candidates must earn at least 60 additional credit hours and meet the requirements of the School of Informatics. Students seeking second degree candidacy should review the guidelines available from the School of Informatics office. Students with a bachelor's degree who wish to further their education should also consider becoming qualified for admission to a graduate program.

Certificate and Minor in Informatics

The undergraduate minor or certificate allows a student majoring in another subject to get appropriate training in informatics and obtain certification as someone who knows how to apply informatics tools to that subject area.

Certificate in Informatics

1. Minimum grade of 2.0 (C) in all courses taken for the certificate.
2. Students are required to complete 27 credit hours from the following list:
 - INFO I101 Introduction to Informatics (4 cr.)
 - INFO I202 Social Informatics (3 cr.)
 - INFO I210 Information Infrastructure I (4 cr.) [cross-listed with CSCI A201 Introduction to Programming I (IUB)]
 - INFO I211 Information Infrastructure II (4 cr.) [cross-listed with CSCI A202 Introduction to Programming II (IUB)]
 - INFO I300 Human-Computer Interaction—Design and Programming (3 cr.) P: INFO I211
 - INFO I303 Organizational Informatics (3 cr.)
 - INFO I308 Information Representation (3 cr.) P: INFO I101, INFO I201, INFO I210

In addition, students must take an additional course (3 credit hours) from the School of Informatics curriculum. These additional courses can be chosen from the listed electives

for the School of Informatics and can therefore be taken in another department, if the other department is not the student's major department.

Minor in Informatics

1. Minimum grade of 2.0 (C) in all courses taken for the minor.
2. Courses taken for the minor must be 3 credit hours or above.
3. Students are required to take three courses from the following list:
 - INFO I101 Introduction to Informatics (4 cr.)
 - INFO I202 Social Informatics (3 cr.)
 - I210 Information Infrastructure I (4 cr.)
[cross-listed with CSCI A201
Introduction to Programming I (IUB)]
 - I211 Information Infrastructure II (4 cr.)
[cross-listed with CSCI A202
Introduction to Programming II (IUB)]
 - I308 Information Representation (3 cr.)
4. Students are required to take two courses from the following list of upper-level courses:
 - 300 Human-Computer Interaction—Design and Programming (3 cr.); **or**
 - I303 Organizational Informatics (3 cr.); **or**
 Courses from the list of approved-in-advance informatics elective courses. The courses cannot be in the student's major department.

Minor in Entrepreneurship, IUB

IUB students pursuing a bachelor's degree in the School of Informatics who have completed 26 or more credit hours of college course work may obtain a minor in business by successfully fulfilling the following requirements:

Required:

- BUS A200 Foundations of Accounting (3 cr.) or (A100 and A201) or (A100 and A202)
- BUS K201 The Computer in Business (3 cr.)
- BUS L201 Legal Environments of Business (3 cr.) or BUS L350 Online Law (3 cr.)
- BUS M300 Introduction to Marketing (3 cr.)
P: A 200 or (A100 and A201) or (A100 and A202)
- BUS W211 Contemporary Entrepreneurship (3 cr.)
- BUS W300 Small Business Management (3 cr.)

The School of Informatics requires a grade of C– or higher in each course (except for BUS K201, which requires a minimum grade of C) and an overall GPA of 2.0 in all courses taken for the minor. The above courses may not be taken by Independent Study/ Correspondence or Distance Education, and must be taken on the Bloomington campus. Students completing a business minor should fill out an

Application for Minor Form during their senior year to have the minor listed on their transcripts.

Minor in Business, IUB

IUB students pursuing a bachelor's degree in the School of Informatics and who have completed 26 or more credit hours of college course work may obtain a minor in business by successfully fulfilling the following requirements:

Required:

- BUS A200 Foundations of Accounting (3 cr.) or (A100 and A201) or (A100 and A202)
 - BUS K201 The Computer in Business (3 cr.)
 - BUS L201 Legal Environment of Business (3 cr.) or BUS L350 Online Law (3 cr.)
- #### Option I
- Required:
- BUS P300 Introduction to Operations Management (3 cr.) P: A 200 or (A100 and A201) or (A100 and A202)
- Select three of the following courses:
- BUS F300 Introduction to Financial Management (3 cr.)
 - BUS G300 Introduction to Managerial Economics (3 cr.)
 - BUS J306 Strategic Management (3 cr.) P: Junior standing, or BUS Z302 Managing and Behavior in Organizations (3 cr.) P: Junior standing.
 - BUS M300 Introduction to Marketing (3 cr.)
P: A 200 or (A100 and A201) or (A100 and A202)
 - BUS W300 Small Business Management (3 cr.)

Option II

- Required:
- BUS F300 Introduction to Financial Management (3 cr.)
 - BUS G300 Introduction to Managerial Economics (3 cr.)
 - BUS J306 Strategic Management (3 cr.) P: Junior standing, or BUS Z302 Managing and Behavior in Organizations (3 cr.) P: Junior standing.
 - BUS M300 Introduction to Marketing (3 cr.)
P: A 200 or (A100 and A201) or (A100 and A202)

The School of Informatics requires a grade of C– or higher in each course, (except for BUS K201, which requires a minimum grade of C, and an overall GPA of 2.0 in all courses taken for the minor. The above courses may not be taken by Independent Study/Correspondence or Distance Education, and must be taken on the Bloomington campus. Students completing a business minor should fill out an Application for Minor Form during their senior year to have the minor listed on their transcripts.

Minor in Business, IUPUI

IUPUI students pursuing a bachelor's degree in the School of Informatics may obtain a minor in business by successfully fulfilling the following requirements:

- BUS A100 Basic Accounting Skills (1 cr.)
- BUS A201 Introduction to Financial Accounting (3 cr.)
- BUS A202 Introduction to Managerial Accounting (3 cr.)
- ECON E201 Introduction to Microeconomics (3 cr.)
- ECON E202 Introduction to Macroeconomics (3 cr.)
- ECON E270 Introduction to Statistical Theory in Economics (3 cr.)
- MATH M118 Finite Mathematics (3 cr.)
- MATH M119 Brief Survey of Calculus I (3 cr.)

In addition, BUS K201, The Computer in Business, or its equivalent must be completed with a minimum grade of C prior to starting the integrative core. Students are required to take the integrative core, which is 9 credit hours taken together as a single educational unit (BUS F301 Financial Management, M301 Introduction to Marketing Management, and P301 Operations Management).

In addition to the 12 required courses listed above, BUS X204 Business Communications, BUS L302 Commercial Law I, and BUS Z302 Managing and Behavior in Organizations are recommended.

Minor in Computer Science, IUB

Students pursuing a bachelor's degree in the School of Informatics may obtain a minor in computer science by successfully completing a minimum of 15 credit hours that include the following requirements:

- CSCI C211 Introduction to Computer Science (4 cr.)
- CSCI C212 Introduction to Software Systems (4 cr.)

- CSCI C241 Discrete Structures for Computer Science (3 cr.)
- CSCI C335 Computer Structures (4 cr.) **or**
- CSCI C343 Data Structures (4 cr.)

Note: CSCI C211, CSCI C212, and CSCI C241 replace INFO I210, INFO I211, and INFO I201 respectively.

Minor in Information Technology, IUB

Students pursuing a bachelor's degree in the School of Informatics may obtain a minor in information technology by successfully completing a minimum of 15 credit hours that include the following requirements:

- CSCI A201 / A202 or CSCI C211 / C212 Introduction to Programming I and II (4 cr./4 cr.)
- CSCI A338 Network Technologies and Administration (4 cr.)
- CSCI A346 User-Interface Programming (3 cr.) **or**
- CSCI A348 Mastering the World Wide Web (4 cr.)
- CSCI A112 Basic Tools in Informatics—Programming and Database Concepts is recommended for students without a programming background.

Note: CSCI A201 and CSCI A202 are equivalent to INFO I210 and INFO I211, and CSCI C211 and CSCI C212 substitute for these School of Informatics courses, respectively.

Bachelor of Science Degree in Computer Science, IUB

The Department of Computer Science offers a B.S. degree, a strong departmental honors program, a professional master's program combining the B.S. and M. S. in five years of study, and undergraduate minors in computer science and in information technology. In addition, the department offers a spectrum of courses (labeled A) for students not majoring in computer science, ranging from the foundational to the practical.

General Requirements

Students must successfully complete a minimum of 122 credit hours for the Bachelor of Science degree. The campus at which a student is admitted will award the degree. Students may transfer no more than 60 credit hours toward a Bachelor of Science degree. Students must complete the specific degree requirements of the School of Informatics as follows:

1. Students must have a minimum cumulative grade point average of 2.0 (C) to graduate. Any course taken to satisfy the requirements of the major must be completed with a minimum grade of C- unless otherwise specified, and the grade point average of all courses taken in the major must be at least 2.0 (C).
2. Students must complete a minimum of 30 credit hours at the 300–400 (junior-senior) level for the B.S. degree.
3. Every degree candidate must complete at least 26 credit hours of the work in senior status in residence on the Bloomington campus of Indiana University. At least 12 credit hours of course work in the major field of study must be completed on the Bloomington campus.
4. Students must file a degree application with the School of Informatics Student Services Office or Computer Science undergraduate office by March 1 for December graduation and October 1 for May, June, or August graduation. Failure to file by the deadline may delay the official date of graduation.
5. Engineering, technology, or self-acquired competency credits will not be accepted.

General-Education and Distribution Requirements

English Composition (3 cr.)

This writing requirement may be fulfilled in any one of the following ways:

1. Exemption without credit. Students scoring 670 or above on the SAT Verbal Examination, 32 or above on the ACT English Composition section, or 4 to 5 on the Advanced Placement English Composition section are exempt from English Composition.

2. Exemption with credit. A student will be granted 2 credit hours of English W143 if the student has the following:
 - a. A score of 670 or above on the SAT Verbal Examination, 32 or above on the ACT English Composition section, or 4 to 5 on the Advanced Placement English Composition section
 - b. A score of 660 or better on the SAT II English Writing Test, and if the student applies to the Department of English
3. Completion of any of the following options with a minimum grade of C (2.0) in each course:
 - a. ENG W131 Elementary Composition (3 cr.)
 - b. ENG W170 Projects in Reading and Writing (3 cr.)
 - c. ENG L141 and L142 Introduction to Writing and the Study of Literature I-II (4–4 cr.)
 - d. AFRO A141-A142 Introduction to Writing and the Study of Black Literature I-II (4–4 cr.)
 - e. Two semesters of ENG W143 Interdisciplinary Study of Expository Writing (1 cr.), combined with two introductory courses (3 cr.) from the following: CMLT C145 Major Characters in Literature, C146 Major Themes in Literature
 - f. A combination of any two courses from c, d, and e above

Note: Courses taken under these options, except for ENG W110, W131, W143, and W170, may, if they are so designated, be applied toward distribution requirements.

Writing (3 cr.)

Students must complete one intensive writing course at the 200 level or above after completing the English composition requirement. Intensive writing courses at IUB are defined by the College of Arts and Sciences.

Students must check the listings for courses in the online enrollment system each semester to make certain that the course section they have chosen fulfills the requirement.

International Dimension (6-11 cr.)

The international dimension may be fulfilled in any of the following three ways:

1. Two courses from an approved list that involve either the study of a culture other than the student's own culture or the study of the global context of informatics; or
2. Three semesters in the same language, or equivalent proficiency; or
3. An approved international experience.
4. Only intensive writing may double-count as an international dimension course. Courses taken to satisfy the international dimension requirement may not be used to

fulfill Arts, Humanities, and Social Sciences requirements.

See Appendix II for a list of approved International Dimension courses.

Language Placement Tests. Students who wish to continue a foreign language begun in high school or at another university at Indiana University must take a foreign language placement test. Contact the Evaluation Services and Testing office (855-1595) or foreign language departments for more information.

Special Credit as a Result of Placement Tests. Students placing at the second semester may be eligible for special credit for the first semester. Students placing at the third semester may be eligible for special credit for both the first and second semesters. Students who are eligible for such credit in French, German, Hebrew, Italian, or Spanish will automatically receive credit if the placement test is taken at Indiana University or if the student's CEEB test score is sent to Indiana University. For special credit in other foreign languages and for special credit above the first-year level, students should check directly with the foreign language departments.

International Students. Students whose native language is not English may demonstrate required proficiency in their language, with permission of the School of Informatics. They may not, however, earn credit for any courses at the first- or second-year level in their native language.

Arts, Humanities, and Social Sciences (15 cr.)

The School of Informatics students must have basic training in the arts, humanities, and social sciences, which will assist them in their lives and give them a broader perspective from which to approach the applications of information technology. Students are required to take five courses in arts and humanities and social and historical studies, as defined by the College of Arts and Sciences. At least two courses must be taken in each area.

Natural Science (12 cr.)

Twelve credit hours chosen from PSY P106 and PSY P211, COGS Q270 and any natural and mathematical science course from: AST, BIOL, CHEM, GEOL, and PHYS.

Mathematical Science (10 cr.)

Students must complete MATH M211 (or equivalent proficiency) and at least two of the following courses: MATH M212, MATH M213, MATH M 301, MATH M303, MATH M311, MATH M312, MATH M343, MATH M348, MATH X384, MATH M365, MATH M371, MATH M391, MATH M405, MATH M409, or PHIL P251, PHIL P350, or PHIL P352.

Classification of Major Courses

Core Courses

The six core courses of the computer science undergraduate curriculum (labeled C) provide a solid general foundation in computer science: CSCI C211, C212, C241, C311, C335, and C343. The department offers an honors version (labeled H) of each core course at least once per year.

Advanced Courses

Computer science courses numbered 300 level or higher and of at least 3 credit hours, excluding Y398 and A courses, are considered "advanced computer science courses."

Most of the department's courses at the 400 level and above are classified into four areas:

1. Foundations (middle digit 0 or 1)
2. Programming languages (middle digit 2)
3. Systems (middle digit 3 or 4)
4. Applications (middle digit 5, 6, 7, or 8)

A middle digit 9 indicates a general course. Courses with a major "programming-in-the-large" component are labeled P. Independent study courses are labeled Y. The remaining computer science major courses are labeled B.

Mathematics M471-M472 may be applied to the computer science major as 400-level "applications" courses. Mathematics M471-M472 may not be treated as "programming-in-the-large" courses.

Major Requirements

1. All six core courses: CSCI C211, CSCI C212, CSCI C241, CSCI C311, CSCI C335, and CSCI C343 or corresponding H versions.
2. Seven advanced computer science courses, including at least 12 hours taken on the Bloomington campus, to include the following:
 - a. A foundations course and the remaining six courses from two of the three areas other than foundations;
 - b. Two "programming-in-the-large" (P) courses.

Bachelor of Science in Computer Science with Honors

Students must satisfy the requirements for the B.S. in Computer Science and the following additional requirements:

1. Computer science courses must include at least 11 credit hours of honors courses (H courses or Y499).
2. One additional advanced computer science course.

Students must also complete the requirements and follow the procedures listed under "General Requirements for Bachelor's Degrees."

Professional Master's Degree in Computer Science

The Professional Master's degree in Computer Science is designed to enable students to complete a graduate degree in five years. It requires more graduate-level courses than the combined total of the B.S. and M.S., but fewer total credit hours than the sum total of the B.S. and M.S. when taken individually.

Decisions to admit students to the Professional Master's degree in Computer Science program are made following the freshman year, at the time of enrollment in the School of Informatics. Students planning to apply to the program should contact the undergraduate office in Computer Science for details on admissions and advising.

Students in the program are normally classified as undergraduates until the end of the first semester in which 122 or more hours of credit toward graduation have been earned. During this semester, students in good standing, defined as having a GPA of at least 3.0 overall and 3.0 in computer science, must submit the standard application to the Graduate School (which includes a processing fee) and initiate the transition to graduate status; if the transition to graduate status is delayed beyond this time, professional master's status will normally revert to undergraduate B.S. status. Students are advised to check on the effect the transition to graduate status may have on existing undergraduate funding; the possibility of graduate funding is conditional upon transition to graduate status. Those not in good standing at this time are dropped from the program and reclassified as undergraduate B.S. students.

Students in the Professional Master's degree in Computer Science Program must complete at least 15 hours of course work while registered in graduate status. Normally, this would encompass no fewer than two semesters.

Students in the program may receive a B.S., optionally with honors (B.S.H.), when they complete the requirements for that degree. Students in the program are encouraged to

pursue the B.S.H. Students should be aware that the application for the bachelor's degree must be completed to be eligible for the master's degree, and that the degrees may be taken either sequentially or simultaneously.

Requirements for a Minor

Any course in which the student receives a grade below C- may not be used to fulfill minor requirements. A GPA of all courses taken to fulfill minor requirements must be at least 2.0. A student may complete a total of three minors.

Minor in Computer Science

Requirements Students must complete a minimum of 15 credit hours to include the following:

1. CSCI C211;
2. CSCI C212;
3. CSCI C241;
4. CSCI C335, or CSCI C343.

The minor in computer science is administered through the College of Arts and Sciences.

Minor in Information Technology

Requirements Students must complete a minimum of 15 credit hours to include the following:

1. CSCI A201-A202, or CSCI C211-C212;
2. CSCI A338;
3. CSCI A346, or CSCI A348.

CSCI A112 is recommended for students without a programming background. Computer majors are not eligible for this minor.

Minor in Business

Students earning a bachelor's degree with a major in computer science may obtain a minor in business by successfully completing the following:

Business BUS A200 (or equivalent), BUS F300, BUS L201, BUS M300, BUS P300, BUS Z302, and CSCI C211 (computer science majors may substitute CSCI C211 for BUS K201 requirement).

Undergraduate Courses in Informatics, IUB and IUPUI

The abbreviation “P” refers to the course prerequisite or prerequisites. The number of credit hours granted by a course is indicated in parentheses following the course title.

I100 First-Year Experience (1 cr.) This course introduces specific survival skills for success in college and beyond, while reconciling personal learning skills with instructor-based teaching styles. Master the art of inquiry and elevate your sense of integrity while sharpening your personal edge by exploring critical thinking, project management, and current/future job market trends. Required by all informatics and new media majors. Offered on the IUPUI campus only.

I101 Introduction to Informatics (4 cr.) Problem solving with information technology; introductions to information representation, relational databases, system design, propositional logic, cutting-edge technologies: CPU, operation systems, networks; laboratory emphasizing information technology including Web page design, word processing databases, using tools available on campus.

I110 Basic Tools of Informatics I—Programming Concepts (1.5 cr.) P: CSCI A110, CSCI A111, or equivalent computing experience. Introduction to programming for users of computer systems. Emphasis on problem-solving techniques. An eight-week lecture and laboratory course. Cross-listed with CSCI A112. Credit given for only one of the following: INFO I110, CSCI A112, or INFO I112.

I111 Basic Tools of Informatics II—Introduction to Databases (1.5 cr.) P: CSCI A110, CSCI A111, or equivalent computing experience. Introduction to database design concepts. Entering and modifying data, accessing data using visual tools and SQL, and building database applications using forms and application development tools. Emphasis on problem-solving techniques. An eight-week lecture and laboratory course. Cross-listed with CSCI-A 114. Credit given for only one of the following: INFO I111, CSCI A114, or INFO I112.

I112 Basic Tools of Informatics—Programming and Database Concepts (3 cr.) Introduction to programming and database design concepts. Emphasis on problem-solving and information-gathering techniques. The lecture will discuss general concepts and syntax. The lab will focus on the use of software, including a programming language, modifying and accessing data using visual tools, and building database applications using forms and

development tools. Lecture and laboratory. Offered on the IUPUI campus only. Equivalent to the combination of INFO I110 and INFO I111. Credit given for INFO I112 and either INFO I110 or INFO I111.

I130 Introduction to Cybersecurity (1 cr.) P or C: INFO I101. This course introduces students to cybersecurity. The course will primarily focus on introduction to three core areas (technical aspects of security, organizational aspects of security, and legal aspects of security). Through examples of security problems in real life, this course will illuminate fundamental ideas and concepts of information security. One-half semester.

I201 Mathematical Foundations of Informatics (4 cr.) P: INFO I101 and MATH M118, MATH A118, MATH S118, or MATH D116-D117. An introduction to methods of analytical, abstract, and critical thinking; deductive reasoning; and logical and mathematical tools used in information sciences. The topics include propositional and predicate logic, natural deduction proof system, sets, functions and relations, proof methods in mathematics, mathematical induction, and graph theory. Cross-listed with COGS Q250. Credit given for either INFO I201 or COGS Q250.

I202 Social Informatics (3 cr.) P: INFO-I 101. Introduction to key social research perspectives and literatures on the use of information and communication technologies. Discusses current topics such as information ethics, relevant legal frameworks, popular and controversial uses of technology (for example, peer-to-peer file sharing), digital divides, etc. Outlines research methodologies for social informatics.

I210 Information Infrastructure I (4 cr.) Recommended prerequisite or concurrent: INFO I101. The software architecture of information systems. Basic concepts of systems and applications programming. Cross-listed with CSCI A201. Credit given for only one of the following: INFO I210 or CSCI A201 (IUB).

I211 Information Infrastructure II (4 cr.) P: INFO I210. The systems architecture of distributed applications. Advanced programming, including an introduction to the programming of graphical systems. Cross-listed with CSCI A202. Credit given for only one of the following: INFO I211, CSCI A202 (IUB), or CSCI C212 (IUB).

I230 Analytical Foundations of Security (3 cr.) P: INFO I130. This course will allow students to reevaluate and conceptualize material learned in discrete courses to consider the topics from their perspective of security. For example, computer system basics such as hardware (CPUs, memory) and software are reconsidered from the perspective of how their interactions create

vulnerabilities. Vulnerabilities that combine standard hardware and software configurations will be examined because they illuminate both security and computer networks. Operating systems and file systems are examined from the perspective of access control, permissions, and availability of system services.

I231 Computational Foundations of Cybersecurity (3 cr.) P or C: INFO I130. The goal of this course is for students to be introduced to the basic mathematical tools used in modern cybersecurity. The course covers introductory mathematical material from a number of disparate fields including probability theory, analysis of algorithms, complexity theory, number theory, and group theory.

I250 Photography at a Crime Scene I (3 cr.) Basics of photography using film, digital, and video camera in the recording of a crime scene. Lectures, discussions, and practical exercises help students practice each system applying specific photographic principles that will be used to document mock crime scenes. Offered on the IUPUI campus only.

I251 Photography at a Crime Scene II (3 cr.) P: INFO I250. Documents a crime scene with high-quality photographs that fairly and accurately represent what was found at a scene so that the implications can be conveyed to others sitting in judgment. Offered on the IUPUI campus only.

I260 Scientific Digital Imaging I (3 cr.) Digital imaging technology provides the opportunity for increased efficiency and effectiveness in processing images for legal matters. It is possible to more quickly capture the right images and extract more information from images by using high-speed computers and advanced software. This course teaches the techniques and processes that can be used. Offered on the IUPUI campus only.

I261 Scientific Digital Imaging II (3 cr.) Basics of image processing for courtroom purposes. Digital imaging methods, following guidelines of the scientific working group on imaging technology of the FBI will be utilized to produce high-quality, valid, and reliable images suitable for courtroom applications. Offered on the IUPUI campus only.

I300 Human-Computer Interaction—Design and Programming (3 cr.) P: INFO I211. The analysis of human factors and the design of computer application interfaces. A survey of current HCI designs with an eye toward what future technologies will allow. The course will emphasize learning HCI based on implementation and testing interfaces.

I303 Organizational Informatics (3 cr.) P: INFO I101. Examines the various needs, uses, and consequences of information in organizational

contexts. Topics include organizational types and characteristics, functional areas and business processes, information-based products and services, the use of and redefining the role of information technology, the changing character of work life and organizational practices, sociotechnical structures, and the rise and transformation of information-based industries. Credit given for either INFO I303 or SPEA V369.

I308 Information Representation (3 cr.) P: INFO I101, INFO I201, and INFO I210. The basic structure of information representation in digital information systems. Begins with low-level computer representations such as common character and numeric encodings. Introduces formal design and query languages through Entity Relationship Modeling, the Relational Model, XML, and XHTML. Laboratory topics include SQL and XPath querying.

I310 Multimedia Arts and Technology (3 cr.) P: INFO I308. The study of the evolution of media arts and underlying principles of communication. Application development paradigms in current practice.

I320 Distributed Systems and Collaborative Computing (3 cr.) P: INFO I211. An introductory treatment of distributed systems and programming. Topics range from the distributed and object models of computation to advanced concepts such as remote method invocations, object brokers, object services, open systems, and future trends for distributed information systems.

I330 Legal and Social Informatics of Security (3 cr.) P: INFO I230, or consent of instructor. This course examines that set of ethical and legal problems most tightly bound to the issues of information control. The interaction and technology changes, but the core issues have remained: privacy, intellectual property, Internet law, concepts of jurisdiction, speech anonymity versus accountability, and ethical decision making in the network environment.

I350 Foundations in Legal Informatics (3 cr.) This course examines the basic concepts of the design, evaluation and use of technology in the study and practice of law. The course provides an overview of the application of a variety of emerging informatics and new media technologies to the field of law. Covers technology for law office management, imaging and animations, case management, and electronic court filing.

I371 Chemical Informatics I (1 cr.) Presents basic concepts of information representation, storage, and retrieval as they pertain to chemistry. The course is designed to give an overview of the techniques that make modern chemical informatics systems work. Looks at

some of the coding techniques that form the basis for chemical information retrieval by structures, nomenclature, and molecular formulas. Examines various methods of coding for visualization of chemical structures and chemical data. In addition, some of the major algorithms and techniques used in the modern pharmaceutical industry to enhance their research efforts are presented in INFO I371.

I372 Molecular Modeling (2 cr.) P: CHEM C341. Molecular modeling and computational chemistry; application of quantum mechanics and molecular mechanics to derive structural and energetic information about molecules; conformational analysis; quantitative structure activity relationships (QSAR) and related methods for drug design.

I391 Internship in Informatics Professional Practice (1–3 cr.) P: Approval of dean and

completion of 100- and 200-level requirements in informatics. Students gain professional work experience in an industry or research organization setting, using skills and knowledge acquired in informatics course work. May be repeated for a maximum of 3 credit hours. S/F grading.

I399 Current Topics in Informatics (1–3 cr.)

Variable topic course. Emphasis is on new developments and research in informatics. Can be repeated twice with different topic.

I400 Topics in Informatics (3 cr.) P: At least junior standing or permission of instructor.

Variable topic. Emphasis is on new developments and research in informatics. Can be repeated twice for credit when topics vary, subject to approval of the dean.



Reception for the 2005 graduating students.

I421 Applications of Data Mining (3 cr.) P: INFO I308. The course explores the use of data mining techniques in different settings, including business and scientific domains. The emphasis will be on using techniques instead of developing new techniques or algorithms. Students will select, prepare, visualize, analyze, and present data that leads to the discovery of novel and actionable information.

I427 Search Informatics (3 cr.) Techniques and tools to automatically crawl, parse, index, store, and search Web information, organizing knowledge that can help meet the needs of organizations, communities and individual users. Social and business impact of search engine technology. As a project, students will build a real search engine and compare it with Google.

I430 Security for Networked Systems (3 cr.) P: INFO I230, or permission of instructor. This course is an extensive survey of network security. The course materials cover threats to information confidentiality, integrity, and availability in different Internet layers, and defense mechanisms that control these threats. The course also provides a necessary foundation on network security, such as cryptographic, primitives/protocols, authentication, authorization and access control technologies; and hands-on experiences through programming assignments and course projects.

I433 Protocol Design and Analysis (3 cr.) This class covers the fundamentals of computer security by looking at how things can go wrong, and how people can abuse the system. This is a matter of creative cheating; to find loopholes and exploit them. After students learn how to attack the system, it is possible to propose ways to make the system secure. Students will gain a basic overview of existing security problems and be exposed to methods that can be used to secure against such problems. The course should be taken by any one designing, selecting, or using applications in which security or privacy plays a role.

I441 Human-Computer Interaction Design I (3 cr.) Human-computer interaction design (HCID) describes the way a person or group accomplishes tasks with a computer—what the individual or group does and how the computer responds; what the computer does and how the individual or group responds. This course is organized around a collection of readings and three design projects applying human-computer interaction principles to the design, selection, and evaluation of interactive systems.

I450/I451 Design and Development of an Information System (3/3 cr.) P: Approval of the dean and completion of required core informatics courses. Students work on capstone projects in supervised teams. They select an appropriate project (preferably based on cognate) and then learn to develop a plan that leads to success. Teamwork, communication, and organizational skills are emphasized in a real-world-style environment.

I460/I461 Senior Thesis (3/3 cr.) P: Senior standing and approval of the dean. The senior student prepares and presents a thesis: a substantial, typically multichapter paper based on a well-planned research or scholarly project, as determined by the student and a sponsoring faculty member.

I491 Capstone Project Internship (3–6 cr.) P: Approval of dean and completion of all required core informatics courses. Students put their informatics education in practice through the development of a substantial project while working in a professional information technology environment. May be repeated for a maximum of 6 credit hours.

I499 Readings and Research in Informatics (1–3 cr.) P: Consent of instructor and completion of 100- and 200-level requirements in informatics. Independent readings and research related to a topic of special interest to the student. Written report required. Can be repeated for a maximum of 6 credit hours.

T100 Topics in Informatics Technology (1–3 cr.) Variable topic. The course serves as an introduction to a specific information technology in a hands-on setting. Emphasis is on problem solving techniques using technology. Credit hours may not be applied toward satisfying major requirements in the School of Informatics.

Y395 Career Development for Informatics Majors (1 cr.) Helps students develop skills and knowledge to successfully pursue a career search, both at the time of graduation and as they progress through their careers. The course covers techniques and strategies to make the job search more efficient and effective. One-half semester.

Undergraduate Courses in Computer Science, IUB

A110 Introduction to Computers and Computing (3 cr.)

N & M P: One year of high school algebra or MATH M014. Basic principles of computers and software. Social and lifestyle effects of information technology. Emphasis on problem-solving techniques. Productivity software skills are taught using real-world projects. Lecture and laboratory. Credit given for only one of A106, A110, or A111.

A111 A Survey of Computers and Computing (1.5 cr.)

P: one year of high school algebra or MATH M014, and some prior computing experience. Survey of computing concepts, with emphasis on problem-solving techniques. Experience in a variety of popular applications software for tasks such as word processing, Web browsing, spreadsheet calculations, and databases. Lecture and laboratory. One-half semester. Credit given for only one of A106, A110, or A111.

A112 Programming Concepts (1.5 cr.)

P: A110, A111, or equivalent computing experience. Introduction to programming for users of computer systems. Emphasis on problem-solving techniques. Lecture and laboratory. One-half semester.

A113 Data Analysis Using Spreadsheets (1.5 cr.)

P: A110, A111, or equivalent. An introduction to data analysis using spreadsheets, including both scientific and business applications. Elementary statistical concepts and their applications to data analysis. Emphasis on problem-solving techniques. Lecture and laboratory.

A114 Introduction to Databases (1.5 cr.)

P: CSCI A110, A111, or equivalent. Introduction to database design concepts. Entering and modifying data, accessing data using visual tools and SQL, building database applications using forms and application development tools. Emphasis on problem-solving techniques. Lecture and laboratory. One-half semester.

A115 Using the World Wide Web (1.5 cr.)

P: A110, A111, or equivalent computing experience. Browsing (surfing) the Web, information retrieval, and information gathering. Web page authoring. Introduction to network terminology and social implications. Emphasis on problem-solving techniques. Lecture and laboratory. One-half semester. Credit given for only one of A115 or A148.

A116 Multimedia Communication (1.5 cr.)

P: A110, A111, or equivalent computing experience. Introduction to the use of mixed-media software tools for effective communication. Related software and

hardware concepts and trends. Emphasis on problem-solving techniques. Lecture and laboratory. One-half semester.

A190 Excursions into Computing (3 cr.)

For non-science majors. This course exposes students to information technology in everyday life and work. Use of computers in everyday problem solving. Labs include hands-on experience with computer applications packages. No credit toward a major in computer science.

A201 Introduction to Programming I (4 cr.)

N & M P: Two years of high school mathematics or MATH M014. Fundamental programming constructs, including loops, arrays, classes, and files. General problem-solving techniques. Emphasis on modular programming, user-interface design, and developing good programming style. Not intended for computer science majors.

A202 Introduction to Programming II (4 cr.)

N & M P: A201 or A304. Advanced programming techniques; user-defined functions and types; recursion versus iteration; parameter-passing mechanisms. Classic abstract data types and algorithms. Programming style. Object-oriented programming. May be used in place of C212 to satisfy computer science major requirements.

A290 Adventures in Computing (1–2 cr.)

Exploration for non-majors of topics in computing and computer science. Prerequisites, if any, vary by topic. Generally, a basic background in high school mathematics is sufficient. Lecture and laboratory format. No credit toward a major in computer science.

A304 Introductory C++ Programming (2 cr.)

P: Programming experience. Topics include aspects of C++ that are not object-oriented, basic data structures, standard libraries, and Unix tools for project management.

A306 Object-Oriented Programming in C++ (2 cr.)

P: A201, A304, A597, or C212. Topics include objects, classes, encapsulation, inheritance, polymorphism, templates, and exceptions.

A321 Computing Tools for Scientific Research (4 cr.)

C: MATH M118 or higher required; MATH M211 recommended. Introduction to computer-based tools useful for analysis and understanding of scientific data. Basic methods of computation, data processing, and display in systems such as Matlab combined with elementary practical C/C++ programming. Techniques to support customized scientific research tasks, with particular emphasis on biological, neural, and behavioral sciences. Lecture and laboratory.

A338 Network Technologies and Administration (4 cr.) P: A110, EDUC W200, or equivalent computer literacy. Introduction to network principles and current network technology, both hardware and software. Network administration tools and techniques. Laboratory provides practical experience.

A346 User-Interface Programming (3 cr.) P: A202, A306, A597, C212, or equivalent experience. Learn to prototype and build graphical user interfaces for computer applications. Contemporary software design methodology. Students design and implement prototype interfaces to applications provided by the instructor. Extensive use is made of both commercial and experimental software tools.

A348 Mastering the World Wide Web (3–4 cr.) P: Two semesters of programming experience or equivalent, and some knowledge of operating systems. Project-oriented course leading to ability to maintain a fully functional Web site. Topics include Internet network protocols and Web programming, server administration, protocols, site design, and searching and indexing technologies.

C102 Great Ideas in Computing (3 cr.) P: None. Survey of great ideas in computing and the role of computing in the modern world. Explores how people use computing tools to realize their ideas. Emphasis on the impact of modern technology and the use of hardware and software to create solutions to everyday problems. Lecture and laboratory.

C211 Introduction to Computer Science (4 cr.) N & M C: MATH M118 or higher required; MATH M211 recommended. A first course in computer science for those intending to take advanced computer science courses. Introduction to programming and to algorithm design and analysis. Using the SCHEME programming language, the course covers several programming paradigms. Credit given for only one of C211 or H211. Lecture and laboratory.

H211 Introduction to Computer Science, Honors (4 cr.) N & M C: MATH M118 or higher required; MATH M211 recommended. Honors version of C211. Credit given for only one of H211 or C211.

C212 Introduction to Software Systems (4 cr.) N & M P: C211 or H211. Design of computer software systems and introduction to programming in the environment of a contemporary operating system. Topics include a modern object-oriented programming language; building and maintaining large projects; and understanding the operating system interface. Lecture and laboratory.

H212 Introduction to Software Systems, Honors (4 cr.) N & M P: C211 or H211. Honors version of C212. Credit given for only one of H212 or C212.

C241 Discrete Structures for Computer Science (3 cr.) N & M P: C211, and MATH M118 or higher (MATH M211 recommended). Induction and recursive programs, running time, asymptotic notations, combinatorics and discrete probability, trees and lists, the relational data model, graph algorithms, propositional and predicate logic. H241 Discrete Structures for Computer Science, Honors (3 cr.) N & M P: H211 or C211. Honors version of C241. Credit given for only one of H241 or C241.

C311 Programming Languages (4 cr.) N & M P: C335 or H335. P or C: C343 or H343. Systematic approach to programming languages. Relationships among languages, properties, and features of languages; and the computer environment necessary to use languages. Lecture and laboratory.

H311 Programming Languages, Honors (4 cr.) N & M P: H335. P or C: H343. Honors version of C311. Credit given for only one of H311 or C311.

C322 Object-Oriented Software Methods (4 cr.) Recommended: CSCI C 212. Design and implementation of complex software systems and applications exploiting the object-oriented paradigm. Selection and effective utilization of object-oriented libraries and interfaces.

C335 Computer Structures (4 cr.) N & M P: C212 or H212. P or C: C241 or H241. Structure and internal operation of computers. The architecture and assembly language programming of a specific computer are stressed, in addition to general principles of hardware organization and low-level software systems. Lecture and laboratory.

H335 Computer Structures, Honors (4 cr.) N & M P: C212 or H212. P or C: H241. Honors version of C335. Credit given for only one of H335 or C335.

C343 Data Structures (4 cr.) N & M P: C212 or H212. P or C: C241 or H241. R: C335 or H335. Systematic study of data structures encountered in computing problems, structure and use of storage media, methods of representing structured data, and techniques for operating on data structures. Lecture and laboratory.

H343 Data Structures, Honors (4 cr.) N & M P: H212 or C212. P or C: H241. R: H335. Honors version of C343. Credit given for only one of H343 or C343.

B351 Introduction to Artificial Intelligence and Computer Simulation (3 cr.) N & M (COGS Q351) P: C211 or COGS Q350. A survey of

techniques for machine intelligence and their relation to human intelligence. Topics include modeling techniques, neural networks and parallel processing systems, problem-solving methods, vision, heuristics, production systems, speech perception, and natural language understanding. Credit given for only one of B351 or COGS Q351.

B355 Autonomous Robotics (3 cr.) P: Two semesters of computer programming or consent of instructor. Introduction to the design, construction, and control of autonomous mobile robots. This course covers basic mechanics, electronics and programming for robotics, as well as the applications of robots in cognitive science. Credit given for only one of CSCI-B 335 or COGS-Q 360.

H498 Honors Seminar (1–3 cr.) P: Junior or senior major in computer science or informatics with a GPA of at least 3.3, or permission of instructor. A survey of faculty research in computer-related fields with different professors discussing their research each week. Cannot be repeated for more than 6 credit hours.

Y390 Undergraduate Independent Study (1–3 cr.) P: Instructor's permission. Independent research based on existing literature or original work. A report in the style of a departmental technical report is required. May be repeated, but credit not given for more than 6 credit hours of any combination of Y390, Y391, Y398, Y499, C390, and C391.

Y391 Undergraduate Independent System Development (1–3 cr.) P: Instructor's permission. The student designs, programs, verifies, and documents a project assignment. Prior to enrolling, the student must arrange for an instructor to supervise the course activity. May be repeated, but credit not given for more than 6 credit hours of any combination of Y390, Y391, Y398, Y499, C390, and C391.

Y398 Internship in Professional Practice (3–6 cr.) P: Sophomore standing and approval of the department. Students receive credit for selected career-related, full-time work. Evaluation by employer and faculty member. Does not count toward distribution requirements. Total credit cannot exceed 6 hours for any combination of computer science courses Y390, Y391, Y398, Y399, C390, and C391.

Y399 Project in Professional Practice (3–6 cr.) P: Two of C311, C335, C343, or honors versions; and approval of the department. The student designs, programs, verifies, and documents a project assignment selected in consultation with an employer and the department. Total credit cannot exceed 6 hours for any combination of computer science courses Y390, Y391, Y398, Y399, C390, and C391.

B401 Fundamentals of Computing Theory (3 cr.) N & M P: C241. P or C: C212.

Fundamentals of formal language theory, computation models and computability, the limits of computability and feasibility, and program verification.

B403 Introduction to Algorithm Design and Analysis (3 cr.) N & M P: C241 and C343, or honors equivalents, and MATH M216 or M212. Algorithm design methodology. General methods for analysis of algorithms. Analysis of the performance of specific algorithms, such as those for searching and sorting.

P415 Introduction to Verification (3 cr.) N & M P: C311. Tools and techniques for rigorous reasoning about software and digital hardware. Safety, reliability, security, and other design-critical applications. Decision algorithms. Projects involving the use of automated reasoning, such as model checkers, theorem provers, and program transformation.

P423 Compilers (4 cr.) N & M P: C311 or H311. Compiler design and construction, including lexical analysis, parsing, code generation, and optimization. Extensive laboratory exercises.

P436 Introduction to Operating Systems (4 cr.) N & M P: C311, C335, C343, or honors equivalents. Organization and construction of computer systems that manage computational resources. Topics include specification and implementation of concurrency, process scheduling, storage management, device handlers, and mechanisms for event coordination. Lecture and laboratory.

P438 Introduction to Computer Networks (4 cr.) Foundations of Computer Networks. Networking hardware technology such as Ethernet, ATM, Wireless. Networking protocols (TCP/IP), routing, error correcting. Network services such as DNS, Web servers, virtual private networks (VPNs), and open SSL. Introduction to performance analysis of Web traffic patterns.

B441 Digital Design (4 cr.) N & M P: C335 or H335. Organization and logic design of digital systems. Course presents a structured design philosophy, emphasizing hard-wired and microprogrammed control. Boolean algebra, hardware building blocks, circuit synthesis, microprogramming. In the laboratory, students build, study, and debug a working minicomputer from elementary hardware components. Lecture and laboratory.

P442 Digital Systems (4 cr.) N & M P: B441. Elements of computer architecture construction of hardware systems, emphasizing a combination of components to form systems, and applications of general principles of

computing to digital implementation. Lecture and laboratory.

B443 Introduction to Computer Architecture (3 cr.) N & M P: C335 and C343, or honors versions. P or C: C311 or H311. Principles of processors, control units, and storage systems. Registers, buses, microprogramming, virtual storage. Relationship between computer architecture and system software.

B461 Database Concepts (3 cr.) P: C241, C335, C343, or honors versions. Introduction to database concepts and systems. Topics include database models and systems: hierarchical, network, relational, and object-oriented; database design principles; structures for efficient data access; query languages and processing; database applications development; views; security; concurrency; recovery. Students participate in a project to design, implement, and query a database using a standard database system. Credit given for only one of B461 or B561.

P465-P466 Software Engineering for Information Systems I-II (3–3 cr.) N & M P: C335 and C343, or honors versions. P or C: B461. Analysis, design, and implementation of information systems. Project specification. Data modeling. Software design methodologies. Software quality assurance. Supervised team development of a real system for a real client.

B481 Interactive Graphics (4 cr.) N & M P: C343 or H343, MATH M301 or M303. Computer graphics techniques. Introduction to graphics hardware and software. Two-dimensional graphics methods, transformations, and interactive methods. Three-dimensional graphics, transformations, viewing geometry, object modeling, and interactive manipulation methods. Basic lighting and shading. Video and animation methods. Credit given for only one of B481 or B581.

B490 Seminar in Computer Science (1–3 cr.) Special topics in computer science. May be repeated up to a total of 6 credit hours.

Y499 Honors Research (1–12 cr.) P: Approval of departmental honors committee. Credit not given for more than 6 credit hours of any combination of Y390, Y391, Y398, Y499, C390, and C391. I Sem., II Sem., SS.

New Media Degree Programs, IUPUI

The New Media Program, located at IUPUI, offers a Bachelor of Science in Media Arts and Science and a Certificate in Internet Application Development; all provide an integrated approach to the study of new media. Focused on applied research and application, the degree is oriented toward professional practice. Together, they encompass the design, development, management, integration, application, assessment, and deployment of new and digital media for communication.

The programs and requirements described apply to the New Media Program at IUPUI.

Bachelor of Science in Media Arts and Science

All students must meet the requirements as established by the faculty of the New Media Program and applied to all IUPUI New Media students. The New Media Program, Office of Student Services, can answer questions about general education courses and distribution requirements.

General Requirements

1. All IUPUI students must fulfill the following undergraduate requirements:
 - 9 credit hours of communication (written and oral)
 - 6 credit hours of analytical skills
 - 3 credit hours of arts and humanities
 - 3 credit hours of social sciences
2. A minimum of 122 credit hours is required for a New Media degree.
3. A minimum cumulative grade point average of 2.0 (C) is required for graduation.
4. A minimum of 51 credit hours must be at the 300–400 level. Courses taken at other institutions at the freshman and sophomore levels, regardless of title or description, will not be accepted in satisfaction of this requirement.
5. At least 12 credit hours of 300–400 level courses must be taken outside the major program as electives.
6. A maximum of 12 credit hours may be taken using the Pass/Fail option and applied to university electives only.
7. A minimum of 24 credit hours must be taken in the concentration/specialization area. For requirements in the concentration/specialization area, refer to the plan of study, available from your advisor.
8. Any course in which a student receives a grade below C (2.0) may not be used to fulfill any requirement (a C– will not count).

9. A minimum of 26 credit hours of the work of the senior year must be completed at IUPUI except in the case of students transferring within the campuses of Indiana University. (See academic advisor for specific residency requirements).
10. Credit toward the degree will not be accepted for remedial courses.
11. Once a course has been applied toward one requirement, it cannot be used to satisfy a second requirement, except where explicitly stated otherwise. No course will be counted more than once toward graduation with the exception of variable-titled courses, seminars, independent study, internships, and other special courses.

Course Requirements

The course work required for the B.S. in Media Arts and Science consists of six parts:

- Required New Media Core Courses**
- Web-Based Computer Programming Concentration/Specialization Courses**
- New Media Advanced Electives**
- General Education Requirements**
- University Electives**

The New Media Program recommends that students complete English W131 or Honors W140 during the first semester or as soon afterward as placement test scores and course availability allow. Students whose placement test scores indicate a need to take English W001 should enroll in that course their first semester. Students must earn a minimum grade of C in English W001 to advance to English W131. It also is recommended that English W132, English W150, or JOUR J200 be taken the semester following successful completion of English W131.

Speech Communication R110 (3 cr.) Students with previously acquired competency in public speaking may be eligible for special credit and exemption from the requirement; contact the chairperson of the Department of Communication Studies, Cavanaugh Hall 309, or call (317) 274-0566.

Advanced Courses In addition to advanced courses in one's major, the new media student should conduct in-depth study in other areas. Courses at the 300 level and above must be completed in five areas: Required Core (6), Web-Based Programming (9), Concentration or Specialization (12), New Media Electives (12), and University Electives (12).

Required New Media Core Courses (18 cr.)
 NEWM N100 Introduction to Digital Media Principles (3 cr.)
 NEWM N110 Visualizing Information (3 cr.)
 NEWM N190 Topics in Interactive Media (3 cr.)

NEWM N199 Directed Study I (1 cr.)
NEWM N201 Design Issues in Digital Media (3 cr.)
NEWM N299 Directed Study II (1 cr.)
NEWM N399 Directed Study III (1 cr.)
NEWM N499 Capstone: Portfolio or Project (3 cr.)

Web-Based Computer Programming (15 cr.)

CSCI N241 Introduction to Web Design (3 cr.)
CSCI N301 Fundamental Computer Science Concepts (3 cr.)
Nine (9 cr.) hours in any CSCI-N courses at the 300 level or above.

Concentration/Specialization Courses (24 cr.)

To be selected from one of the following areas (of which a minimum of 12 credits must be at the 300 level or above).

Area 1: Computer Science
Computer Technology
Library Information and Science
New Media/Informatics

Area 2: Art
Journalism
Music
New Media/Informatics

New Media Advanced Electives (21 cr.)

Students must complete 21 credit hours of media arts and science advanced electives of which 12 credit hours must be completed at the 400 level.

General-Education Requirements Communication (written and oral) (9 cr.)

COMM R110 Fundamentals of Speech Communication (3 cr.)
ENG W131 English Composition I (3 cr.) **and**
JOUR J200 Reporting, Writing, and Editing I (3 cr.) **or**
ENG W132 English Composition II (3 cr.) **or**
TCM 220 Technical Report Writing (3 cr.)

Analytical Skills (6 cr.)

MATH M118 Finite Mathematics (3 cr.)
MATH M153 Algebra and Trigonometry I (3 cr.)
PHIL P162 Practical Logic (3 cr.)
PHIL P265 Elementary Symbolic Logic (3 cr.)
STAT 301 Elementary Statistical Methods (3 cr.) P: MATH 111
STAT 350 Data Analysis (3 cr.)

Arts and Humanities (3 cr.)

CMLT C292 Introduction to Film (3 cr.)
COMM T130 Theatre Appreciation (3 cr.)
HER H100 Art Appreciation (3 cr.)
MUS M174 Music for the Listener (3 cr.)
PHIL P120 Personal and Social Ethics (3 cr.)

Social Sciences (3 cr.)

AFRO A150 Culture of Black Americans (3 cr.)
ANTH A104 Anthropology (3 cr.)
ECON E101 Survey of Current Economic Issues and Problems (3 cr.)
E201 Introduction to Microeconomics (3 cr.)
E202 Introduction to Macroeconomics (3 cr.)
GEOG G110 Introduction to Human Geography (3 cr.)
POLS Y101 Introduction to Political Science (3 cr.)
PSY B104 Psychology as a Social Science (3 cr.)
SOC R100 Introduction to Sociology (3 cr.)

University Electives (23 cr.)

12 of the 23 credit hours must be completed at the 300 level or above.



Informatics seniors participate in capstone projects, working with community businesses to gain real-world experience.

Undergraduate Courses in the New Media Program, IUPUI

The abbreviation “P” refers to the course prerequisite or prerequisites. The number of credit hours awarded by a course is indicated in parentheses following the course title.

A450 Digital Matte (3 cr.) P: Completion of any track. The combination of digital painting, perspective, and light used to create a 2-D backdrop. By bringing together existing footage, textures, and painting techniques, students will design environments and create atmosphere. Other topics covered include traditional painting techniques, advanced digital painting techniques, video effects, and green screen.

A451 Advanced Video (3 cr.) P: Completion of the P track. Advanced course focusing on the creation and direction of a short narrative. This course will demonstrate mastery of editing and narrative skills culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Adobe After Effects, Premiere, Final Cut Pro]

A455 Advanced Web (3 cr.) P: Completion of the M track. Advanced course focusing on the creation of media-rich Web experiences. This course will demonstrate mastery of design, interactivity, and animation for the Web culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Flash, Anark]

A460 Advanced Interactive (3 cr.) P: Completion of the M track. Advanced course focusing on the creation of interactive experience. This course will demonstrate mastery of design and interactivity culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Director, Flash, Anark]

A465 Advanced Sequential Narrative (3 cr.) P: Completion of the S track. Advanced course focusing on the creation of a sequential narrative using 2-D animation. This course will demonstrate mastery of graphic and audio synchronization in a final project. This course will expand on the ideas of pacing, tempo, and sequence. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Flash, Freehand, and Sound Forge]

A470 Advanced 2-D Animation (3 cr.) P: Completion of the S track. Traditional and digital animations converge to produce

advanced broadcast quality projects. Students will further develop their understanding of preproduction and postproduction in service to the animated stories and characters created. Other topics include character and environment design, soundtrack, syncing, backgrounds and animation, and motion principles. [Animation program: Flash]

A475 Advanced Animation for Integrated Media (3 cr.) P: Completion of the M track. Advanced course in the development of animated sequences. Using graphics and sound, students will develop title sequences for video and sound productions. Other topics will include scientific visualization, animation, video editing, and sound implementation. [Maya]

A480 Advanced 3-D Animation (3 cr.) P: Completion of the S track. Advanced course focusing on the creation of high-end, broadcast-quality animations. This course will demonstrate mastery of narrative and animation skills culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Maya]

A481 Advanced 3-D Simulation (3 cr.) P: Completion of the P track. Advanced course focusing on the creation of high, broadcast-quality simulations. This course will demonstrate mastery of video and animation skills culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Maya]

A485 Advanced Video Game Design (3 cr.) P: Completion of the S track. Advanced course focusing on the creation of an interactive simulation. This course will demonstrate mastery of modeling and conceptual skills culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Maya]

A490 Advanced Sound Design (3 cr.) P: Completion of the P track. Advanced course focusing on the creation of sound effects and soundtracks. This course will demonstrate mastery of composition and editing skills culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction.

A495 Advanced Editing (3 cr.) P: Completion of the P track. Advanced course focusing on the editing of sound and video effects. This course will demonstrate mastery of composition and editing skills, culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction.

M355 Web Design (3 cr.) P: N265 and N280.

Creation, production, and management of online publications. By utilizing strategic thinking, information architecture, and principles of design, students will successfully launch a media-rich Web site. Other topics covered include file management, developing a target audience, interface design, and design deconstruction. [2-D Web-based and or 3-D Web-based Program: Go-Live or Dreamweaver, Anark]

M360 Interactive Design (3 cr.) P: N300.

Synthesize static media, streaming media, and information organization to create an interactive project. By maximizing elements from various media, including audio, video, and static sources, students will test and produce an interactive experience for a target-specific audience. Other topics covered include strategic thinking, audio development, developing assets, project management, and usability testing. [Interactive Program: Director or Flash]

M365 Simulation for Integrated Media (3 cr.)

P: M355. Principles of new media, usability, and design are combined to create a spatial environment and develop its content. Students will utilize their knowledge of interactivity to develop and exhibit a concept of their creation. Other topics covered include traffic flow management, spatial design, kiosk design, and exhibition design and graphics. [Design Programs: Illustrator, Photoshop, Flash or Director, Maya or 3-D Studio Max]

M370 Animation for Integrated Media (3 cr.)

P: Completion of three 300-level classes from M track. Images and animation converge to develop an animated sequence. Using text, graphics, and sound, students will create animations and visualizations. Other topics include video editing and sound design. [Animation Programs: 3-D Studio Max or Maya]

N100 Introduction to Digital Media Principles (3 cr.)

Introduces skills and knowledge critical to making a successful new media product in today's competitive market. Students are exposed to new and emerging technologies and applications, and will be able to define and understand new media markets. These competencies will be developed through lectures, demonstrations, class discussion, guest lecturers, and examples of new media.

N101 Topics in Interactive Multimedia (3 cr.)

P or C: N100. Interactive multimedia is a rapidly evolving field that is significantly influenced by changes in theory, storage media, computing hardware, design and editing principles from animation and video production, authoring/presentation software, and communication capabilities in disciplines such as music, art, and journalism. Students will be

exposed to recent trends by hands-on development of interactive media projects. These projects will include development of interactive multimedia for use on multiple platforms, developing multimedia that can be accessed via the Internet, real-time/real-audio interaction between users, and the development of interactive CD-ROM based multimedia.

N110 Visualizing Information (3 cr.) P or C:

N100. An introductory course for new media students using traditional, digital media, and print best practices. Students develop an understanding of basic design principles and applications. Design history and the elements of composition and typography are applied through exercises and projects. The focus is on foundations of visual thinking, sketching, exploring the relationship between type and image, and developing multiple solutions to a given problem in the context of simple and complex visual information. Computer images will be constructed using the basics of Illustrator.

N175 Digital Media I: Vector Imaging (3 cr.)

P: N101. Vector graphics are produced using traditional visualization (sketches) and computer methods. Color theory, geometric construction, perspective, and rendering techniques are utilized in vector-based graphic creation for use in new media applications. [Illustrator]

N180 Digital Media II: Raster Imaging (3 cr.)

P: N101. Raster graphics are produced using traditional visualization (sketches) and computer methods. Topics will include image composition, realistic representation, digital imaging for new media, color mode and pallet usage, and material and value representation. [PhotoShop]

N190 Topics in Interactive Media (3 cr.)

P: N110 and N201. Applying existing core competencies to dissect and produce new media projects. Students will create new media projects in a real-world context as a team and as individuals. These competencies will be developed through strategic thinking, public speaking, team building, analysis, and community outreach. [Graphics and time-based programs: Photoshop and Director]

N199 Directed Study I (1 cr.) P: N190; C: First

flex-core class. This course introduces new media students to the current job market as they begin their journey to understand this new and ever-expanding field. Students will explore various new media careers in business, education, entertainment, science, and other related fields. Students will research different career paths to see what is needed to be a success in the field of new media.

N200 Desktop Tools for Digital Media (3 cr.)

P: N101. An introduction to the principles of multimedia creation and digital effects. Authoring, video, and sound editing computer applications, as well as cyberspace protocols and language, are engaged. The class will focus on a number of different software programs.

N201 Design Issues in Digital Media (3 cr.)

P: N110. Introductory course that will equip students with strategies for assembling visuals applicable to any medium. It explores composition strategies, visual literacy and awareness, and principles of the visual display of quantitative information. The course begins with traditional visual (print) media and moves into digital forms to give the student an awareness and ability to work in any medium. Projects, lectures, discussion, and writing assignments serve as a survey of best practice.

N204 Introduction to Interactive Media (3 cr.)

P: N101. The creation of interactive multimedia products for multiplatform delivery. Topics include the multimedia-production process, audience analysis, hardware and software requirements, authoring tools, scripting, content development, interface design, distribution, and development strategies. Concentration will be on real-world applications for interactive multimedia. [Director I]

N210 Introduction to Digital Sound (3 cr.)

P: N101. An introduction to digital sound creation and editing. Topics focus on analog sound techniques and equipment, analog-to-digital conversion, basic editing, formats and conversions, digital-to-analog conversion, and basic sound effect techniques for new media. [Soundforge, n-Track, and ProTools]

N215 Online Document Development (3 cr.)

P: N101. An introductory course for the creation, publication, and management of documents and images for online distribution on the Internet. Topics include an introduction to hypermedia development, portable document formats, Web publishing, document conversion, file exchanges, and image preparation. [Dreamweaver]

N230 Introduction to Game Design and Development (3 cr.)

P: N101, N175, N180. An introductory course covering "video" game design and development for entertainment. Topics covered include game theory, design and development of computer-based games, current game-delivery systems and software, the commercial development cycle, case studies of current games, ethical issues including the current game rating system, emerging technical developments in game development, and current game trends. Production is in reference to developing new levels of existing games.

N235 Introduction to Computer

Simulation/Animation (3 cr.) P: N101. An introductory course covering applied 3-D computer graphic animation for students interested in the use of design, time and motion study, surface texture mapping, lighting, color, and the technology required to produce computer animations for commercial applications in manufacturing design, marketing, training, gaming, Web creation, and entertainment. [3-D Studio Max I]

N240 Introduction to Digital Video (3 cr.)

P: N101. An introductory course covering video-production techniques for digital media. The technology (hardware and software) along with techniques are taught through lecture and projects. All phases of video production are addressed from preproduction through production to postproduction, with a focus on the digital media aspects. [Adobe Premiere]

N250 Team Building in Technology (3 cr.)

P: N101. A methods course designed to help students improve their effectiveness in solving problems and expand critical thinking when working in groups of three or more people. This course is practical in orientation, including the interpersonal process, decision-making styles, problem-solving concepts and procedures, the creative effort, conflict resolution, leadership, and assessment. Projects will be developed with objectives, requirements, and constraints; client requests; and implementation of the design solution, executing the design plan, and evaluating the final project.

N260 Scriptwriting (3 cr.)

P: N190 or C: N199.

An introduction to writing for new media. Concentrating on developing ideas, concepts, plans, and stories, students will generate scripts and analysis for numerous new media projects. Other topics covered include writing for scripts, grants, storyboards, advertising, and marketing plans. [Word processing, Internet]

N265 Sound Composition (3 cr.)

P: N190 or C: N199. An introduction to digital sound creation and editing. Concentrating on sound effects, voiceover, and composition, students will generate sound for various new media projects. Other topics covered include recording, formatting, effects, editing, and conversion. [Sound editing program: Sound Forge, Peak, Gold]

N275 Visual Practices (3 cr.)

P: N190 or C: N199. An introduction to drawing and idea generation for new media projects. Students will develop control over spatial relationships and defining ideas through drawing and other visualization techniques. Other topics covered include perspective, life drawing, rendering, developing roughs, and advanced storyboards.

N280 Design Principles (3 cr.) P: N190 or C: N199. An introductory course that will equip students with strategies for assembling visuals applicable to all new media. Students will explore composition strategies in raster and vector-based problems. Other topics include typography, color theory, grids and layouts, and style. [Vector, Raster and Interactive Programs: Illustrator, Photoshop, Director or Flash]

N290 Creative Concept Development (3 cr.) Creativity, ideation, and concept development are the focus of this new media course. Students learn the processes of creative problem solving and idea generation and development through specific theories, methodologies, and projects as they apply to new media design in two dimensions, three dimensions, and sound. Processes include brainstorming, group think-tanking, sketching, storyboarding, and other image-making for image, motion, and sound.

N295 Career Enrichment Cooperative (3 cr.) P: Sophomore standing and approval of the dean. A semester of external career experiences designed to enrich the student's preparedness for entering the workforce. Periodic meetings with faculty advisors and a comprehensive written report on the experience detailing the intern's activities and reactions is required.

N299 Directed Study II (1 cr.) P: Completion of flex-core. This course applies design and

visualization information toward the development of a comprehensive portfolio and resume. The development of the portfolio and resume will provide students with a framework for display of personal growth and achievement. Students will develop the portfolio and resume to be used for future career opportunities.

N300 Digital Media Production (3 cr.) P: N240 and N280. This is an advanced course demanding innovational design and technical skills to meet systematic studio work on complex computational undertakings, resulting in multimedia projects that are conceived, observed, and analyzed. Digital skills and tools are taught in lecture and hands-on experimentation format including creative process and evaluation. Combines the production of journalism, music composition, and animation/journalism with computer transmission of imaging, sound, and video.

N302 Media Simulation Methods (3 cr.) P: N101. A study of the fundamentals and methods of building and using computer-based simulation models, including the utility of simulation as a decision support tool, representing queuing systems in a computer model, simulated sampling from distributions of input variables, point and interval estimates of expected values of output variables, and the design of simulation sampling experiments. [3-D Studio Max II]



Undergraduate students are honored with scholarships to further their informatics studies.

N304 Interactive Media Applications (3 cr.)

P: N204. Digital design methodology and techniques, control and timing, machine organization, instruction sequencing, and data flow control; control unit implementation by means of hardware and microprogramming; synchronization of input/output operations with interface design. [Director II]

N311 The Digital Paradigm Shift: Effects in International Cultures and Society (3 cr.)

This course teaches how the paradigm shift to a digital world will affect international cultures and societies. A study of the major paradigm shifts in reference to culture and society as well as the effect for the future for humanity as a culture. Based on readings, lectures, class discussions, and papers with supported citations.

N315 Online Document Development II (3 cr.)

P: N215. Advanced creation, publication, and management of interactive publications for online distribution with the inclusion of emerging technologies for a media-rich experience. Topics include an interactive Web site development, animations for the Web, online interactive design, document conversion, file exchanges, and digital media development for online usage. [Dreamweaver, Flash, Fireworks]

N330 Game Design, Development, and Production (3 cr.)

P: N230. Advanced game development by producing interactive computer-based games. The process learned in N230 will be put into practice by developing a story, characters, programming, and interactive game based on current trends in game development. Use of actual game development systems for current console gaming systems.

N335 Computer-Based Character Simulation/Animation II (3 cr.)

P: N235. A class that takes the basics of computer animation to the next level by including character animation. Students learn the craft of biped motion by using traditional and advanced methods. The class instructs on the physics-based topics of gravity, balance, drag, and overshoot in developing character movements. Students also learn skills in modeling the character and creating synced facial animation. Project-based and two character animations will be completed from storyboard to digital movie format.

N340 Digital Video Production (3 cr.)

P: Completion of two 200-level classes. Video-production techniques for digital media. Preproduction, production, and postproduction of digital video will be addressed and utilized for the completion of a short video project. Other topics covered include directing, editing, media optimization, and assembling assets.

[Video Capture and Editing Programs: Premiere, Final Cut Pro]

N399 Directed Study III (1 cr.) P: Completion of track. This course covers specific information relating to career development and provides instruction on the development of job promotional material. Students will create self-promotional documentation to enable image branding and other assets needed for future careers in the field of new media.

N400 Imaging and Digital Media Seminar (3 cr.)

Variable-titled course designed to bring guest speakers from industry as well as other disciplines on campus to expose students to the wide realm of new media and how it can be utilized in each discipline. Class discussions, assigned readings, and research papers.

N410 History and Theory of Digital Media (3 cr.)

Examines the history of computer-based media, technologies, and the digital information age. Topics include studying the historical components and developments, as well as presenting digital media, and research speculation toward the future of digital media and technologies.

N420 Multimedia Project Development (3 cr.)

This course focuses on total project design and development of interactive multimedia applications. Topics covered include system design and development, selection of appropriate hardware and software platforms, use of productivity tools, project management, dynamics of team-based project development, cost analysis, prototyping, pilot testing, and other evaluation/usability techniques to ensure product quality. Students will work in teams to develop large-scale projects.

N435 Computer Simulation/Animation III Production (3 cr.)

P: N335. Advanced animation course focusing on the creation of high-end simulation productions. This course focuses in more depth on greater story development and on a commercially finished animation. Topics covered in lecture format include rigid body dynamics, soft bodies, track animation, nurbs modeling, and particle dynamics. Concept theories discuss physics and gravity, incorporation of digital sound and music, quality story and character development, and outputting techniques for broadcast application. [Maya]

N440 DV and CGI Digital Effects (3 cr.)

P: N340 and N335. An advanced course covering the integration of CGI (computer-generated imagery) and digital effect techniques for video production, as used in industry. Students learn the techniques for creating digital effects, shooting video for effects, and the use of effects to aid in telling a story. Topics include integration of text, graphics, sound, video, and

2-D/3-D animation into video productions. Advanced editing and composite techniques will be explored through projects. [Adobe After Effects, DVD authoring software, Alias Wavefront Maya]

N450 Usability Principles for New Media Interfaces (3 cr.) This course introduces the principles of human-computer interaction (HCI) and user experience modeling through a focused study of the theory and application of user-centered design, usability, and usability testing in the context of new media (hypermedia and multimedia) product development. Relationships are drawn between aesthetics, human factors, and cognitive psychology in the development of graphic user interfaces (GUIs), information architecture, navigation, and interactivity. Methods to validate new media design solutions are applied through controlled usability inspections, testing, and the statistical assessment of data through an interface prototype project.

N475 Research in Design Methods (3 cr.) This course is designed to give students an understanding of the advanced concepts of theoretical topics, simulation modeling, and analysis concepts. Investigates applications of simulation in systems characterized by probabilistic.

N480 Technology and the Law (3 cr.) Provides students with a solid foundation on legal matters that impact new media and informatics, including intellectual property (copyright, patents, trademark, trade secrets), contracts, licensing, privacy, publicity, global legal issues, and professional ethics.

N485 Seminar in New Media (3 cr.) Current trends, problems, best practices, and developments in new media. Students pursue a special interest and share information and experience with the group. This course is an in-depth exploration of topics and issues at the forefront of new media. Seminar format with research papers and class discussion/presentations.

N490 Independent Study (1–6 cr.) Research and practical experience in various areas of new media as selected by the student prior to registration, outlined in consultation with the instructor, and approved by the program advisor. Total credit of Internship/Independent Study shall not exceed 9 credit hours.

N495 Enrichment Internship (3 cr.) P: Junior standing and program advisor approval. Industry, corporate, or similar experience in new media-oriented employment. Projects jointly arranged, coordinated, and evaluated by faculty and industrial supervisors. Apply during the

semester prior to desired internship. Total credit of Internship/Independent Study shall not exceed 9 credit hours. Completion of 9 hours of new media electives at the 300–400 level is required.

N499 Capstone Experience (3 cr.) P: To be taken during the student's senior year. The capstone experience is the culmination of the student's major in both knowledge and abilities of a particular area of interest in new media. The successful execution, individually or as a team, integrates student's learning across the field.

P350 Video (3 cr.) P: N240 and N260. Video production techniques for digital media. Preproduction, production, and postproduction of digital video will be addressed and utilized for the completion of a short video project. Other topics covered include directing, editing, media optimization, and assembling assets. [Video capture and editing programs: Premiere, Final Cut Pro]

P355 Intermediate Sound (3 cr.) P: N260 and N265. Sound design course developing soundtracks and sound effects. Applying sound construction and engineering, students will produce aural solutions to promote storytelling and atmosphere. Other topics covered include advance sound effects, pacing issues, style, and soundtrack. [Sound editing programs: Sound Forge, Peak, Gold]

P360 Lighting and Field Production (3 cr.) P: P350. Theoretical and practical application of lighting, filming, and audio recording. Students will work in a variety of locations to encompass as many different environments as possible. Other topics covered include daytime shooting, nighttime shooting, studio shooting, and storytelling. [Video capture and editing programs: Premiere, Final Cut Pro]

P365 Simulation and Visualization Production (3 cr.) P: P355. Building and using computer-based simulation models skills will be applied to simulate a concept, event, or story. Other topics covered include editing, sound, narration, and effects to clarify concepts. [Animation and video-editing programs: Maya or 3-D Studio Max, Final Cut Pro or After Effects]

P370 Digital Effects (3 cr.) P: Completion of three 300-level classes from track. Covering the integration of CGI and digital effects technique for video production. Students learn the techniques for creating digital effects, shooting video for effects, and the use of effects to aid in storytelling. Other topics covered include programming/scripting, shooting raw footage, effects, and integrating all new media. [Video editing, special effects, animation programs: Final Cut Pro, After Effects, Maya]

S350 Sequential Narrative (3 cr.) P: N240 and N260. Digital techniques and traditional storytelling concepts produce a sequential narrative. Students investigate panel-to-panel and frame-to-frame sequential storytelling as foundational elements of animation. Other topics include previsualization, storyboards, and character design. [Raster and layout programs: Photoshop and Quark]

S355 2-D Interactive (3 cr.) P: N240 and N275. Concept, production, and development of video games. By developing motivational goals, programming events, and implementing story, students will successfully create a video game experience. Other topics covered include world development, sound design, programming, basic animation, and playability testing. [Vector and game design programs: Illustrator or Freehand, Flash]

S360 2-D Animation (3 cr.) P: S350. Intermediate course focusing on the creation of a narrative through 2-D principles. This course demonstrates mastery of design and illustration skills, culminating in a final project. Other topics covered include research/planning, marketing, preproduction, production, and postproduction. [Photoshop, QuarkXPress, Flash, After Effects]

S365 3-D Interactive (3 cr.) P: S355. Intermediate character, concepts, and level design will produce a mod-based game. Students will develop assets within an existing game engine to produce an original game concept. Other topics covered include advanced conceptual design, character modeling, digital painting, and level design. [Modeling program: 3-D Studio Max or Maya]

S370 3-D Animation (3 cr.) P: Completion of three 300-level classes from the S track. Intermediate animation course developing high-end simulation productions. Applying construction/rendering techniques and applying physics and dynamics, students will produce a 3-D animated narrative. Other topics include advanced character modeling, camera movement, backgrounds, textures, and lighting. [Animation program: Maya]

Health Information Administration, IUPUI

Health information administrators collect, interpret, and protect health data and then determine how data are used. They are managers and information specialists who frequently interact with other members of the medical, financial, and administrative staffs. It is their responsibility to ensure that the information system is protected and driven by accurate, up-to-the-minute information. Responsibilities of department managers include the following:

- Supervising and training clerical and technical personnel.
- Determining health information policies.
- Designing health information collection, storage, and report systems.
- Selecting computer systems for processing and storing clinical data.
- Serving on standards, improvement, and utilization review committees.
- Acting as liaison to other departments.
- Determining departmental budget and resource needs.
- Ensuring that the medical documentation requirements of various accrediting and governmental agencies are met.

Although many health information administrators are employed in hospitals, others work for insurance companies, long-term care and psychiatric facilities, computer companies, physician group practices, pharmaceutical companies, and government agencies. They also coordinate quality management programs for health care facilities, teach in colleges and universities, and perform consulting activities.

The program graduate is eligible to seek registration as a Registered Health Information Administrator (RHIA) by successfully passing a national qualifying examination offered by the American Health Information Management Association. RHIA registration is an important credential when seeking employment as a health information administrator.

Credential Required to Practice: RHIA, Registered Health Information Administrator.

Licensure Requirements to Practice: State licensure does not apply.

Bachelor of Science in Health Information Administration

Educational Program

Completion of the program will take four years; 62 semester hours of prerequisite course work plus two years (60 credit hours) of professional course work. The professional component of the program is offered in the junior and senior years

of a Bachelor of Science undergraduate degree. The program begins in the fall semester and includes a final clinical course in health information that is taken in the summer session of the senior year. The prerequisites and the professional program may be taken on a part-time or full-time basis.

The professional courses focus on managing health information systems and utilizing computerized clinical data. The professional component of the curriculum integrates lecture and laboratory courses with technical and professional practice experiences in hospitals and other health care facilities and related settings. A four-week professional practice experience is arranged for each senior student in the summer session.

Additional Cost: In addition to regular university tuition and fees, students should expect to pay program-related expenses. Contact the program for a current cost sheet.

Accreditation: The Health Information Administration Program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).

Admission

Students accepted into the program must complete the School's admission requirements and the following program admission requirements. Admission to the professional program is competitive; therefore, completion of the prerequisites does not guarantee admission to the program. The criteria used for selection of classes are the completion of prerequisite courses, grade point average, and interview.

In addition to the School of Informatics admission policies and procedures found at the beginning of this section of the bulletin, the following admission policies apply to the Health Information Administration Program.

Application Deadline

November 15 of the year preceding the planned date of entry.

Total Number of Prerequisite Credit Hours
62

Distribution of Credit Hours in Specific Areas
See prerequisites

Limitations of Course Work

Remedial course work will not count toward the 62 required prerequisite credit hours.

Minimum Cumulative Grade Point Average
2.5 on a 4.0 scale. This requirement is applied at the time of program application and must be maintained. Grades for remedial courses are included in the cumulative grade point average.

Minimum Grade Requirement in a Stated Prerequisite Course

2.0 on a 4.0 scale in anatomy, analytic skills/quantitative methods, business administration, computer science, organization/management, and physiology.

Interview

All qualified applicants may be interviewed prior to admission.

Volunteer Experience

Although volunteer experience is not required, it is very helpful for making a career choice.

Course Requirements

Prerequisites

Prior to entering the program, students must complete at least 56 credit hours of the following minimum prerequisites. Students should consult with their academic advisors for appropriate courses and semester sequence to complete prerequisites. Prerequisites may be taken at any accredited college or university.

The code "G" indicates a course that meets the school's general education requirements. An asterisk (*) indicates courses that must be completed prior to entering the professional program.

Oral Communications (G)	3 cr.
Written Communications (G)	6 cr.
Human Anatomy (G)*	4-5 cr.
Human Physiology (G) *	4-5 cr.
Medical Terminology	2 cr.
Information Technology *	13 cr.
Social/Behavioral Sciences (G)	3 cr.
Business *	6 cr.
Analytical Skills/ Quantitative Methods (G) *	6 cr.
Professional Ethics	3 cr.
Humanities (G)	3 cr.
Accounting	4 cr.
Organization/Management	3 cr.

Plan of Study

The following is a suggested two-year plan of prerequisites. Variations of this schedule can be made. Students should check with their advisors to make sure all requirements are met.

Freshman

Fall

Oral Communications	3 cr.
Introduction to Informatics	4 cr.
Introduction to Business Administration	3 cr.
Math	3 cr.
Basic Accounting Skills	<u>1 cr.</u>
Total	14 cr.

Spring

English Composition I	3 cr.
Anatomy	4-5 cr.
Basic Tools of Informatics	3 cr.
Social/Behavioral Science Elective	<u>3 cr.</u>
Total	13-14 cr.

Sophomore

Fall

Written Communications Elective	3 cr.
Physiology	4-5 cr.
Information Technology Elective	3 cr.
Foundations of Accounting	<u>3 cr.</u>
Total	13-14 cr.

Spring

Information Technology Elective	3 cr.
Business Legal Aspects Elective	3 cr.
Statistics Elective	3 cr.
Professional Ethics Elective	3 cr.
Humanities Elective	<u>3 cr.</u>
Total	15 cr.

Additional required prerequisite courses, including Organization/Management and Medical Terminology, may be taken during summer sessions or (to a limited extent) concurrent with the professional program courses in the junior year. The additional 5-7 credit hours of required prerequisite courses, including Organization/Management, Medical Terminology, and general electives, may be taken during summer sessions or (to a limited extent) concurrent with the professional program courses in the junior year. (See example in professional program curriculum.) Students should contact the School of Informatics for a complete listing of approved elective courses.

Professional Program

Courses in the professional program are sequential and therefore must be taken in the order specified by the program faculty. A minimum grade of C (2.0) is required in each professional course. The curriculum will be offered via distance education, beginning with the junior class courses in fall 2005.

Junior

Fall

ICD-9-CM Coding	3 cr.
Health Care Information Requirements/Standards	3 cr.
Medical Science I	3 cr.
Health Information Enrichment Electives	<u>2-3 cr.</u>
Total	13-14 cr.

Spring

Health Information Storage and Retrieval	2 cr.
Hospital Organization/Management Medicine and the Law	3 cr.
Medical Science II	2 cr.
Health Information Enrichment	2 cr.
Health Information Management	<u>3 cr.</u>
Total	15 cr.

Senior*Fall*

Quantitative Methods and Research Seminar in Health Information Administration	2 cr.
Health Planning/Information Systems Long-Term Care	1 cr.
Release of Information	3 cr.
Health Care Quality Improvement	1 cr.
Professional Practice Experience I	<u>4 cr.</u>
Total	13 cr.

Spring

Seminar in Health Information Administration	1 cr.
CPT Coding	3 cr.
Health Reimbursement Systems	3 cr.
Directed Study	1 cr.
Capstone Experience	3 cr.
Professional Practice Experience II	<u>4 cr.</u>
Total	15 cr.

Summer Session

Clinical in Health Information Administration	6 cr.
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Graduation Requirements

Satisfactory completion of 122 credit hours including 62 credit hours of prerequisite and general education courses and 60 credit hours of professional courses. All course work must be completed in compliance with the program's and school's academic and professional policies.

Certificates

The Medical Coding Certificate and the Cancer Registry Certificate are designed for people interested in the medical coding and cancer registry professions as well as students pursuing a bachelor's degree in another field of study who may wish to enhance their primary degree program.

Upon completion of the Medical Coding Certificate, students are prepared to find employment in a hospital or physician's office. They will be eligible for Certificated Coding Associate (CCA) certification by the American Health Information Management Association (AHIMA).

The Cancer Registry Certificate prepares students to work in a hospital or cancer treatment program. Upon completion of the certificate, they will be eligible for Certified Tumor Registrar (CTR) certification by the National Cancer Registrars Association (NCRA).

College credit earned for either certificate can be applied toward a bachelor's degree.

Medical Coding Certificate Requirements

The student must be admitted to the IUPIU campus and have knowledge of anatomy, physiology, and informatics tools. The Health Information Administration Program Admissions Committee will determine whether the applicant demonstrates adequate knowledge to enroll in the certificate program.

The certificate requires 24 credit hours for completion. The following courses constitute the certificate:

Medical Terminology	2 cr.
Medical Science I	3 cr.
Medical Science II	3 cr.
Health Care Requirements and Standards	3 cr.
ICD-9-CM Coding	3 cr.
CPT Coding	3 cr.
Health Care Reimbursement Systems	3 cr.
Release of Information	1 cr.
Professional Practice Experience	3 cr.

Cancer Registry Certificate Requirements

The student must be admitted to the IUPUI campus and have knowledge of anatomy, physiology, management/supervision, and informatics tools. The Health Information Administration Program Admissions Committee will determine whether the applicant demonstrates adequate knowledge to enroll in the certificate program.

The certificate requires 21 credit hours for completion. The following courses constitute the certificate:

Medical Terminology	2 cr.
Quantitative Methods and Research	3 cr.
Medical Science I	3 cr.
Medical Science II	3 cr.
Health Care Requirements and Standards	3 cr.
Health Care Quality Improvement	1 cr.
Release of Information	1 cr.
Cancer Registry Fundamentals	3 cr.
Professional Practice Experience	3 cr.

The School of Informatics reserves the right to amend program requirements. Those interested in the program are strongly encouraged to consult with an academic advisor from the School of Informatics for the latest information available.

Scholarships

Two Van Ausdall and Farrar Scholarships are awarded to full-time students in the Health Information Administration Program. Awards are predicated on demonstrated financial need and ability to successfully complete the program. Preference is given to students who plan employment in Indiana.

Two Gertrude L. Gunn Memorial Fund Scholarships, established in memory of the founder of the program, are awarded to senior health information administration students. They are based on scholarship and demonstrated financial need.

The Mary L. McKenzie Scholarship is awarded to a health information administration student. It is based on scholarship and demonstrated financial need.

The Elton T. Ridley Minority Scholarship is awarded to health information administration students. The scholarship is awarded to a

student who is a member of a class of individuals who are traditionally underrepresented in the program.

The Foundation of Research and Education (FORE) Scholarship is available through the American Health Information Management Association (AHIMA). This scholarship is awarded through application directly to AHIMA. Information will be provided to students after acceptance to the Professional Program.

Other scholarships may be available.

Awards

Based on superior performance and in accordance with Indiana University–Purdue University Indianapolis policies, the program faculty will recommend that qualified students be awarded degrees with distinction.



Informatics students are problem-solvers and team players.

Undergraduate Courses in Health Information Administration (HIA), IUPUI

“P” refers to a course prerequisite and “C” to a course that must be taken concurrently. The number of credit hours awarded by a course is indicated in parentheses following a course title.

M315 Quantitative Methods and Research (2 cr.) This course will outline the procedures associated with vital statistics in health care (birth/death certificates). The student will learn about the statistics associated with health care. The research portion will focus on data search and access techniques, national research policy-making, biomedical and health research investigation, and research protocol data management.

M322 Hospital Organization and Management (3 cr.) Orientation to hospital departments; hospital organization; inter- and intrarelationships of hospital and community agencies.

M325 Health Care Information Requirements and Standards (3 cr.) This course will outline accreditation standards and regulatory requirements for all aspects of health care including the hospital setting, psychiatric records, and other alternate forms of delivery. It will focus on the content of the health record and documentation requirements, including an orientation to the health information management profession.

M330 Medical Terminology (2 cr.) Understanding and use of the language of medicine, including building, analyzing, defining, pronouncing, and spelling diagnostic terms that relate to the structure of the body systems (vocabulary standards).

M340 Cancer Registry Fundamentals (3 cr.) This course will outline the organization of cancer registry programs and their operational requirements. Students will learn how to prepare annual reports and how to interpret health information data and translate it into ICD-03 codes.

M350 Medical Science for Health Information I (3 cr.) This course will cover pathophysiology and pharmacology associated with the body systems.

M355 ICD-9-CM Coding (3 cr.) This course will focus on International Classification of Diseases [ICD] and coding. Students will learn how to code, index, and sequence diagnoses and procedures. Ethical coding guidelines will be taught.

M380 Seminar in Health Information Administration (1 cr.) Allows the student to refine skills in planning health care seminars for the profession, in hospitals, and within the classroom setting. Written summaries and oral presentations required. Fall semester only.

M400 Health Information Storage and Retrieval (2 cr.) This course will focus on the creation of forms design including retrieving, filing, and storing health care information according to the guidelines established by federal and state regulations. Registries will be discussed with specific focus on the cancer registry and master patient index [MPI].

M420 Health Care Planning and Information Systems (3 cr.) Understanding the design of systems; researching various vendors; presenting information so that a selection of information systems can be recommended. This course will also address systems planning, systems selection process, clinical and business applications of computing in health care, and resolving organization information issues.

M441 Professional Practice Experience I (3–6 cr.) Supervised laboratory practice with on-site observations of medical, technical, and administrative systems. Study in the function of health information management procedures in the clinical setting.

M442 Professional Practice Experience II (4 cr.) P: M441. This course is a continuation of M441. Supervised laboratory practice with on-site observations of medical, technical, and administrative systems. Study in the function of health information management procedures in the clinical setting.

M445 Medicine and the Law (2 cr.) Presentation of concepts of law in medical and/or health-related areas as applied to the physician, hospital, health institutions, health information, and individual health workers.

M450 Medical Science for Health Information II (3 cr.) P: M350. This course is a continuation of M350. Course will cover pathophysiology and pharmacology associated with the body systems.

M455 CPT Coding (3 cr.) P: M355. Focus on Current Procedural Terminology coding. Sequence of procedures as they relate to correct coding guidelines. Study of Healthcare Common Procedure Coding System [HCPCS] will also be included.

M459 Clinical in Medical Record Administration (6 cr.) Professionally supervised internship in an approved clinical site for management experiences in health information services.

M460 Long-Term Care (1 cr.) This course discusses the scope of work and the role of long-term care. Students will understand the purpose of the Resident Assessment Instrument (RAI), Minimum Data Set (MDS), and Resident Assessment Protocols (RAPS). Long-term care reimbursement issues are addressed.

M461 Release of Healthcare Information (1 cr.) This course will outline the requirements associated with confidentiality and privacy of health information. This course will focus on Health Insurance Portability and Accountability Act (HIPAA) code sets and transactions privacy.

M462 Health Care Quality Improvement (1 cr.) This course will identify quality/performance improvement methods and techniques for health care professionals. Interpretation of data appropriate to user needs and presentation of information will also be covered.

M470 Health Care Reimbursement Systems (3 cr.) P: M355 and M455. This course will present data elements that apply to prospective payment systems. Students will gain the knowledge of correct reimbursement systems and be able to identify issues and patient types in meeting medical necessity guidelines.

M480 Seminar in Health Information Administration (1 cr.) This course enables the student to refine skills in planning health care seminars for the profession, in hospitals, and within the classroom setting. Written executive summaries and oral presentations are required. Spring semester only.

M485 Health Information Administration Enrichment (1 cr.) Current trends, problems, best practices, and developments are discussed that affect the health care profession. Students pursue special interests and share information and experiences with the group. This course is an in-depth exploration of topics and issues in the forefront of health care. Format includes research papers, class discussions, and presentations.

M490 Directed Study (1 cr.) This course will reinforce the concepts taught throughout the semester in an independent study approach to review for the certification examination.

M499 Capstone Experience (3 cr.) This final project enables students to synthesize and culminate all the information learned throughout the professional program. Written research projects and oral presentations test the students' integrated knowledge and abilities across the field.

School of Informatics Faculty

(B) = IUB; (I) = IUPUI; (SB) = South Bend

Core Faculty

Ashton, Janatha, M.S. (*Indiana University, 1978*), Associate Professor Emeritus of Informatics, Health Information Administration (I)

Aspray, William, Ph.D. (*University of Wisconsin-Madison, 1980*), Rudy Professor of Informatics; Adjunct Professor of Computer Science, Information Science, and History and Philosophy of Science (B)

Baik, Mu-Hyun, Ph.D. (*University of North Carolina, 2000*), Assistant Professor of Informatics; Assistant Professor of Chemistry (B)

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

Baker, Pauline M., Ph.D. (*University of Illinois, 1990*), Associate Professor of Informatics; Associate Professor, School of Science; Distinguished Professor, IPCRES Laboratories (I)

Baldwin, Dan, M.F.A. (*Savannah College of Art and Design, 2000*), Assistant Professor of Informatics (I)

Bao, Xiaoqui, M.S. (*Indiana University, 2001*), Visiting Research Associate (I)

Bardzell, Jeffrey, Ph.D. (*Indiana University, 2004*), Assistant Professor of Informatics (B)

Bleviss, Eli, Ph.D. (*Queen's University at Kingston, 1990*), Assistant Professor of Informatics and Cognitive Science (B)

Bramley, Randall, Ph.D. (*University of Illinois at Urbana-Champaign, 1989*), Professor of Computer Science (B)

Brown, Geoffrey, Ph.D. (*University of Texas at Austin, 1987*), Associate Professor of Computer Science (B)

Camp, Jean, Ph.D. (*Carnegie Mellon University, 1996*), Associate Professor of Informatics; Adjunct Associate Professor of Computer Science; Adjunct Associate Professor of Telecommunications; Associate Director, Center for Applied Cybersecurity Research (B)

Chauhan, Arun, Ph.D. (*Rice University, 2003*), Assistant Professor of Computer Science (B)

Chen, Jake Yue, Ph.D. (*University of Minnesota, 2001*), Assistant Professor of Informatics; Assistant Professor of Computer and Information Science, Purdue School of Science; Associate Member, Center for Computational Biology and Bioinformatics; Member, Indiana University Cancer Center (I)

Comer, Robert S., M.S. (*Indiana University, 2001*), Research Associate (I)

Connelly, Kay, Ph.D. (*University of Illinois, 2003*), Assistant Professor of Computer Science; Associate Director of the Center for Applied Cybersecurity Research (B)

Cutu, Florin, Ph.D. (*The Weizmann Institute of Science, Rehovot, [Israel], 1997*), Assistant Professor of Computer Science (B)

Dalkilic, Mehmet, Ph.D. (*Indiana University, 2000*), Assistant Professor of Informatics; Adjunct Assistant Professor of Computer Science; Group Leader, Center for Genomics and Bioinformatics (B)

Defazio, Joseph, M.S. (*Indiana State University, 1993*), Assistant Professor of Informatics; Interim Associate Director of New Media; Adjunct Assistant Professor of Computer Information Technology, Purdue School of Engineering and Technology (I)

Dunker, A. Keith, Ph.D. (*University of Wisconsin-Madison, 1969*), Professor of Informatics, Biochemistry and Molecular Biology; Adjunct Professor of Biology; Director, Center for Computational Biology (I)

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

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

Elmore, Garland, Ph.D. (*Ohio University, 1979*), Associate Professor of Informatics and Communication Studies; Associate Vice President for Teaching & Learning Technologies; Dean of Information Technologies (I)

Faiola, Anthony, M.F.A., M.A. (*Ohio State University, 1979; Ohio State University, 1984*), Associate Director of Human Computer Interaction Graduate Program; Associate Professor of Informatics (I)

Flammini, Alessandro, Ph.D. (*University of Rome [Italy], 1993*), Assistant Professor of Informatics; Adjunct Assistant Professor of Physics; Affiliated Researcher in the Biocomplexity Institute (B)

Forgey, Danita, M.I.S. (*Indiana University, 2001*), Director of Health Information Administration and Clinical Assistant Professor of Informatics (I)

Fox, Geoffrey C., Ph.D. (*Cambridge University [United Kingdom], 1967*), Distinguished Scientist, Laboratory for Grid Technology; Professor of Computer Science, Physics, and Informatics (B)

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

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

- Gao, Dengfeng, Ph.D. *Doctoral Candidate (University of Arizona, 2005), Acting Assistant Professor of Informatics (SB)*
- Gasser, Michael E., Ph.D. *(University of California at Los Angeles, 1988), Associate Professor of Computer Science and Linguistics (B)*
- Groth, Dennis, Ph.D. *(Indiana University, 2002), Assistant Professor of Informatics and Cognitive Science; Adjunct Assistant Professor of Computer Science (B)*
- Gupta, Minaxi, Ph.D. *(Georgia Institute of Technology, 2004), Assistant Professor of Computer Science (B)*
- Haghverdi, Esfandiar, Ph.D. *(University of Ottawa, 2000), Assistant Professor of Informatics and Mathematics (B)*
- Matthew Hahn, Ph.D. *(Duke University University, 2003), Assistant Professor of Informatics and Biology (B)*
- Hakken, David, Ph.D. *(American University, Washington D.C., 1978), Professor of Informatics and Adjunct Professor of Anthropology (B)*
- Hamdouchi, Mohamed, M.S. *(Indiana University, 2003), Visiting Research Associate (I)*
- Hanson, Andrew J., Ph.D. *(Massachusetts Institute of Technology, 1971), Chair and Professor of Computer Science (B)*
- Haynes, Christopher T., Ph.D. *(University of Iowa, 1982), Associate Professor of Computer Science; Adjunct Associate Professor of Informatics (B)*
- Hill, Raquel, Ph.D. *(Harvard University, 2002), Assistant Professor of Computer Science and Informatics (B)*
- Hofstadter, Douglas R., Ph.D. *(University of Oregon, 1975), College Professor of Cognitive Science and Computer Science; Adjunct Professor of Philosophy, Psychology, History & Philosophy of Science; and Comparative Literature; Director of the Center for Research on Concepts and Cognition (B)*
- Hook, Sara A., M.B.A., J.D. *(Indiana University, 1988; Indiana University, 1994), Associate Dean for Academic Affairs and Undergraduate Studies; Professor of Informatics (I)*
- Huang, Edgar, Ph.D. *(Indiana University, 1999), Associate Professor of Informatics (I)*
- Huang, Jeffrey R.J., Ph.D. *(George Mason University, 1998), Associate Professor of Informatics and Assistant Professor of Computer and Information Science, Purdue School of Science (I)*
- Huckleberry, Don J., M.S. *(Indiana University Purdue University Indianapolis, 1999), Research Associate of Informatics (I)*
- Huffman, John C., Ph.D. *(Indiana University, 1974), Co-Director of Informatics Research Institute; Senior Scientist in Chemistry; Adjunct Professor of Informatics; Director, Indiana University Molecular Structure Center (B)*
- Jakobsson, Markus, Ph.D. *(University of California at San Diego, 1997), Associate Professor of Informatics; Adjunct Associate Professor of Computer Science; Associate Director, Center for Applied Cybersecurity Research (B)*
- Johnson, Steven D., Ph.D. *(Indiana University, 1983), Professor of Computer Science (B)*
- Jones, Josette W., Ph.D. *(University of Wisconsin, 2002), Assistant Professor of Informatics and Nursing (I)*
- Kernick, Jolene, M.S. *(Indiana University, 2004), Visiting Research Associate (I)*
- Kim, Sun, Ph.D. *(University of Iowa, 1997), Assistant Professor of Informatics; Associate Director of Bioinformatics Programs; Affiliated Researcher, Biocomplexity Institute; Adjunct Assistant Professor of Computer Science; INGEN Investigator, Center of Genomics, Proteomics and Bioinformatics (B)*
- Kisling, Eric, Ph.D. *Doctoral Candidate (Indiana University), Director of Educational Development and Lecturer of Computer Science (B)*
- Koch, Clinton, M.S. *(Indiana University Purdue University Indianapolis, 2000), Clinical Associate Professor of Informatics (I)*
- Laranja, Ricardo, M.F.A. *(Savannah College of Art and Design, 1995), Visiting Lecturer (I)*
- Leake, David, Ph.D. *(Yale University, 1990), Professor of Computer Science; Graduate Program Director of Computer Science (B)*
- Leivant, Daniel, Ph.D. *(University of Amsterdam [Netherlands], 1975), Professor of Computer Science; Adjunct Professor of Philosophy and Mathematics (B)*
- Lim, Youn-Kyung, Ph.D. *(Institute of Design at Illinois Institute of Technology, 2003), Assistant Professor of Informatics and Cognitive Science (B)*
- Lumsdaine, Andrew, Ph.D. *(Massachusetts Institute of Technology, 1992), Professor of Computer Science (B)*
- Lykins, Elizabeth, M.S. *(Indiana University, 2004), Visiting Research Associate (I)*
- Mahoui, Malika, Ph.D. *(University of Montpellier [France], 1995), Visiting Assistant Professor of Informatics (I)*
- Mannheimer, Steve, M.F.A. *(Washington University, 1975), Professor of Informatics (I)*
- McDaniel, Anna M., D.N.S. *(Indiana University, 1992), Director, Program in Health Informatics; Associate Professor of Nursing; and Director, Evaluation for the National Center of Excellence in Women's Health and Associate Professor of Informatics (I)*
- McKenzie, Mary, M.S. *(Indiana University, 1973), Associate Professor Emeritus of Informatics, Health Information Administration (I)*

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

Medina, Eden Miller, Ph.D. (*Massachusetts Institute of Technology*, 2005), *Assistant Professor of Informatics* (B)

Menczer, Filippo, Ph.D. (*University of California at San Diego*, 1998), *Associate Professor of Informatics, Computer Science and Cognitive Science*; and *Adjunct Associate Professor of Physics* (B)

Merchant, Mahesh, Ph.D. (*University of Utah*, 1980), *Associate Professor of Informatics* (I)

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

Mostafa, Javed, Ph.D. (*University of Texas at Austin*, 1994), *Victor H. Yngve Professor of Information Science*; *Professor of Informatics*; *Associate Dean for Research*; *Professor of Cognitive Science*; and *Adjunct Professor of Computer and Information Science, Purdue School of Science* (B)

Mukhopadhyay, Snehasis, Ph.D. (*Yale University*, 1994), *Associate Director of Bioinformatics Graduate Program*; *Associate Professor of Computer Science, Purdue School of Science* (I)

Myers, Steven, Ph.D. (*University of Toronto [Canada]*, 2004), *Assistant Professor of Informatics*; *Adjunct Assistant Professor of Computer Science*; and *Research Affiliate, Center for Applied Cybersecurity Research* (B)

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

Palakal, Mathew J., Ph.D. (*Concordia University [Canada]*, 1987), *Chair and Professor, Department of Computer and Information Science*; *Co-Director of Informatics Research Institute* (I)

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

Perumal, Narayana B., Ph.D. (*Carnegie-Mellon University*, 1985), *Assistant Professor of Informatics* (I)

Plale, Beth, Ph.D. (*State University of New York at Binghamton*, 1998), *Associate Professor of Computer Science* (B)

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

Prosser, Franklin, Ph.D. (*Pennsylvania State University*, 1961), *Professor Emeritus of Computer Science* (B)

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

Radivojac, Predrag, Ph.D. (*Temple University*, 2003), *Assistant Professor of Informatics* (B)

Raphael, Christopher, Ph.D. (*Brown University*, 1991), *Associate Professor of Informatics and Cognitive Science*; *Adjunct Associate Professor of Music Theory* (B)

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

Reed, Mary Ellen, M.S. (*Indiana University Purdue University Indianapolis*, 2001), *Lecturer in Informatics* (I)

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

Rocha, Luis Mateus, Ph.D. (*State University of New York at Binghamton*, 1997), *Associate Professor of Informatics and Cognitive Science*; *Adjunct Associate Professor of Computer Science* (B)

Romero, Pedro, Ph.D. (*Washington State University*, 1999), *Assistant Professor of Informatics* (I)

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

Schadow, Gunther, Ph.D. (*Free University, Berlin [Germany]*, 1999), *Professor of Informatics*; *Medical Information Scientist, Regenstrief Institute*; *Medical Information Scientist, Indiana University School of Medicine* (I)

Schnell, Santiago, Ph.D. (*Universidad Simon Bolívar and University of Oxford*, 2002), *Assistant Professor of Informatics*; *Adjunct Assistant Professor of Biology and Physics*; *Associate Director, Biocomplexity Institute* (B)

Schwartz, Ruth, Ph.D. (*Temple University*, 1993), *Associate Professor of Computer and Information Sciences*, *Director of Informatics* (SB)

Shankar, Kalpana, Ph.D. (*University of California at Los Angeles*, 2002), *Assistant Professor of Informatics*; *Assistant Professor of Cognitive Science*; *Adjunct Assistant Professor of Information Science* (B)

Siegel, Martin A., Ph.D. (*University of Illinois*, 1973), *Executive Associate Dean of Informatics*; *Professor of Informatics, Cognitive Science and Instructional Systems Technology* (B)

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

Stolterman, Erik, Ph.D. (*Umea University [Sweden], 1991*), Professor of Informatics; Director of Human-Computer Interaction Design (B)

Talon, Durwin S., M.A. (*Syracuse University, 1998*), Associate Professor of Informatics (I)

Tang, Haixu, Ph.D. (*Shanghai Institute of Biochemistry [China], 1998*), Assistant Professor of Informatics; Adjunct Assistant Professor of Computer Science; Affiliated Researcher in the Center for Genomics and Bioinformatics (B)

Tennant, Susan, M.S. (*Indiana University Purdue University Indianapolis, 2000*), Clinical Assistant Professor of Informatics (I)

Todd, Peter M., Ph.D. (*Stanford University, 1992*), Professor of Informatics and Cognitive Science (B)

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

Vespignani, Alessandro, Ph.D. (*University of Rome [Italy], 1993*), Professor of Informatics; Professor of Cognitive Science; Adjunct Professor of Physics; and Affiliated Researcher, Biocomplexity Institute (B)

Walker, Ruth, M.I.S. (*Indiana University, 2001*), Academic Specialist, Professional Practice Coordinator, Health Information Administration (I)

Wang, XiaoFeng, Ph.D. (*Carnegie Mellon University, 2004*), Assistant Professor of Informatics; Adjunct Assistant Professor of Computer Science; Affiliated Researcher in the Center for Applied Cybersecurity Research (B)

Wiggins, Gary D., Ph.D. (*Indiana University, 1985*), Director of Chemical Informatics Program; Interim Director of Bioinformatics Program; Adjunct Professor of Informatics; Librarian (B)

Wild, David, Ph.D. (*Sheffield University [United Kingdom], 1994*), Assistant Professor of Informatics (B)

William, Albert, M.S. (*Indiana University, 2002*), Visiting Research Associate (I)

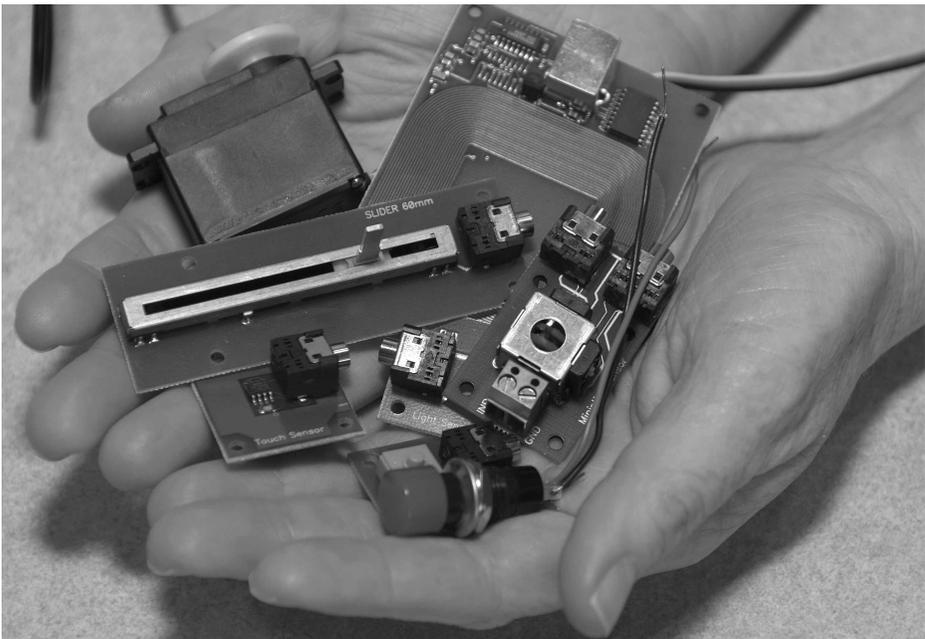
Winkel, David E., Ph.D. (*Iowa State University, 1957*), Professor Emeritus of Computer Science (B)

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

Wu, Yuqing (Melanie), Ph.D. (*University of Michigan, Ann Arbor, 2004*), Assistant Professor of Informatics, Adjunct Assistant Professor of Computer Science (B)

Wyss, Catharine M., Ph.D. (*Indiana University, 2002*), Assistant Professor of Informatics and Computer Science (B)

Yaeger, Larry, Ph.D. (*Polytechnic Institute of New York, 1974*), Professor of Informatics and Adjunct Professor of Cognitive Science (B)



Special Faculty

Agrafiotis, Dimitris, Ph.D. (*Imperial University of London [United Kingdom], 1988*), Adjunct Professor of Informatics; Senior Research Fellow, Johnson & Johnson (B)

Barnard, John, Ph.D. (*University of Sheffield [United Kingdom], 1983*), Adjunct Professor of Informatics (B)

Ben-Miled, Zina, Adjunct Associate Professor of Informatics (I)

Börner, Katy, Ph.D. (*University of Kaiserslautern [Germany], 1997*), Adjunct Associate Professor of Informatics; Core Member of Cognitive Science Program; Assistant Professor of Information Science (B)

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

Cherbas, Peter, Ph.D. (*Harvard University, 1973*), Professor of Biology; Senior Fellow, Institute for Molecular and Cellular Biology; Adjunct Professor of Informatics (B)

Eberle, Ruth, Ph.D. (*Indiana University, 1995*), Adjunct Assistant Professor of Informatics and Cognitive Science (B)

Glazier, James, Ph.D. (*University of Chicago, 1989*), Adjunct Professor of Informatics; Professor of Physics; Director, Institute of Biocomplexity (B)

Gyssens, Marc, Ph.D. (*University of Antwerp [Belgium], 1985*), Adjunct Professor of Computer Science (B)

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

Kirkley, Sonny, Ph.D. (*Indiana University, 2003*), Adjunct Professor of Informatics (B)

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

McKelvey, John, Ph.D. (*Georgia Institute of Technology, 1971*), Adjunct Professor of Informatics (B)

McMullen, Donald, Ph.D. (*Indiana University, 1982*), Director of Indiana University Center for Innovative Computer Applications; Adjunct Professor of Computer Science (B)

Moss, Lawrence S., Ph.D. (*University of California at Los Angeles, 1984*), Associate Professor of Mathematics; Adjunct Associate Professor of Computer Science, Informatics, Linguistics, and Philosophy; Director of Logic Program, Department of Mathematics (B)

Ortoleva, Peter J., Ph.D. (*Cornell University, 1970*), Distinguished Professor of Arts and Sciences; Adjunct Professor of Informatics (B)

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

Sengupta, Arijit, Ph.D. (*Indiana University, 1997*), Assistant Professor of Information Systems, Kelly School of Business; Adjunct Assistant Professor of Computer Science (B)

Lecturers

German, Dan-Adrian, M.S. (*Indiana University, 1994*), Lecturer of Computer Science (B)

Hayes, Barbara, M.S. (*Indiana University, 2001*), Visiting Lecturer (I)

Hottell, Mathew, M.S. (*Indiana University, 2003*), Lecturer of Informatics (B)

Ludwick, John B., M.F.A. (*Savannah College of Art and Design, 1995*), Visiting Lecturer of New Media (I)

Menzel, Suzanne, M.S. (*Rutgers University, 1983*), Senior Lecturer of Computer Science (B)

Mineo, Nicole, M.S. (*Indiana University, 2003*), Adjunct Faculty, Health Information Administration (I)

Pope, Charles E., B.S. (*Ambassador University, 1993*), CSCI A110 Course Coordinator; Lecturer of Computer Science (B)

Whitmer, Jeffrey M., M.A. (*Indiana University, 1986*), Lecturer of Computer Science (B)

Key to Course Codes

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

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 1,129 degree programs, the university attracts students from all 50 states and around the world. The full-time faculty numbers more than 5,000 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 nearly 100,000 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 Disability Services for Students 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.

Undergraduate Admissions Policy

Indiana University has adopted the following admissions policy to ensure that undergraduate students are properly prepared for college work. These standards seek to ensure either adequate academic preparation in high school or evidence of unusual motivation on the part of each student admitted to the university. Applicants for admission to Indiana University are expected to meet the following criteria.

Freshman Students¹

1. Graduation from an accredited Indiana high school or comparable out-of-state institution, successfully completing a minimum of 28 semesters of college-preparatory courses including the following:
 - (a) Eight semesters of English. (One semester each of speech and journalism may be included.)
 - (b) Four semesters of social science (economics, government, history, psychology, or sociology).
 - (c) Four semesters of algebra (two semesters of which must be advanced algebra) and two semesters of geometry.
 - (d) Two semesters of laboratory science (biology, chemistry, or physics).

¹ Some academic programs require specific qualifications in addition to those enumerated in this policy.

- (e) Eight semesters in some combination of foreign language; additional mathematics, laboratory science, or social science; computer science; and other courses of a college-preparatory nature.
 - (f) Four semesters of foreign language are strongly recommended.
 - (g) Courses to develop writing composition skills are strongly recommended.
2. A rank in the upper half of the high school graduating class for Indiana residents or a rank in the upper third of the high school graduating class for out-of-state residents.
 3. A score above the median established by Indiana students on a nationally standardized admissions test. Students who have been out of high school for three or more years do not have to submit test scores unless required for admission to specific programs.
 4. Each campus may accept students who are deficient in (1), (2), or (3) of the above specifications upon receipt of such evidence as the combination of strength of college-preparatory program, rank in class, grades and grade trends in college-preparatory courses, and standardized test scores. For persons who do not meet the above criteria and who have been out of high school three or more years, admission can be based on other factors such as a General Educational Development (GED) diploma, maturity, work experience, military service, and other factors as determined by the campus.
 5. Each campus, at its discretion, may admit a student on a probationary basis and/or through faculty sponsorship.
 6. Indiana residents are expected to complete Core 40, and the Academic Honors Diploma is encouraged.

Transfer Students¹

1. Submission of official transcripts from all previous institutions attended.
2. The transcripts must reflect a cumulative grade point average of at least a 2.0 (on a 4.0 scale) for Indiana residents and at least a 2.5 (on a 4.0 scale) for out-of-state residents.
3. If the student has fewer than 26 transferable credit hours, the high school record should reflect compliance with freshman admission requirements as specified above.
4. The credentials of students seeking transfer to Indiana University will be evaluated on an individual basis.

¹ Some academic programs require specific qualifications in addition to those enumerated in this policy.

When students do not qualify upon first application, they will be counseled about ways of removing deficiencies so that they may qualify for admission at a later date. If any provision of this policy is held invalid, the invalidity does not affect other provisions of this policy which can be given effect without the invalid provision, and to this end the provisions of this policy are severable.

Transfer to Other Indiana University Campuses

The policy stated below concerning transfer credit pertains to undergraduate students only.

Each campus has established one office to serve as the central information source for intercampus transfers. Some campuses have priority dates for students to declare an interest in making an intercampus transfer. Even if a campus has no priority date, it is important to start investigating the transfer requirements as early as possible to assure the best possibility of enrolling in your desired courses.

Consult the intercampus transfer Web site at www.iupui.edu/~moveiu for detailed information and a listing of campus contacts and intercampus transfer policies. You can also initiate an intercampus transfer by completing the form on the Web site.

Students who want to transfer from one Indiana University campus to another campus should follow these procedures:

1. Meet with your home campus advisor to discuss academic preparation, grades, and other eligibility issues. You can get a general idea of how your classes may apply to another degree by using the Degree Progress Report, a computerized degree-audit system available on the Web through the OneStart portal at onestart.iu.edu. While the advising capacity of The Degree Progress Report is qualified by each individual's circumstances, it can help you learn how courses will apply toward different degrees.
2. Consult the intercampus transfer office at the proposed new campus if academic and/or eligibility questions remain. Remember that application for intercampus transfer does not guarantee admission to the campus or a specific school on the campus. Campuses may provide additional information and contact points for questions.
3. If applicable, talk to the financial aid offices at the present and proposed campuses. Your aid eligibility does not transfer automatically from one campus to another.

4. Visit the new campus to explore possible academic and social adjustment issues; some campuses may establish special open house events for those students who have expressed interest. Some campuses may also require that you attend a special orientation program or take placement examinations.
5. If you decide to proceed with the transfer, complete the intercampus transfer form. The receiving campus will respond to you and your home campus. If you decide later not to transfer, you should notify both campuses.

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.¹
 - (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.²
 - (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."²
 - (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.

¹ Invocation of the provision in Rule 2(a) that applies to cases of divorce or separation requires appropriate legal documentation.

² Rule 2(b) and 2(c) apply only to unemancipated persons under 21 years of age.

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.
 - (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 April 2006 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 *Enrollment and Student Academic Information Bulletin* (Bloomington campus) or the *Registration Guide and Academic Information* (Indianapolis campus).

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, distance education, student teaching, and some physical education courses also carry additional fees. See the campus *Enrollment and Student Academic Information Bulletin* or *Registration Guide and Academic Information* 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	\$2,753.49 flat fee/semester for 12 to 17 credit hours (matriculated before summer 2003)	\$9,249.20 flat fee/semester for 12 to 17 credit hours (matriculated before summer 2003)
	\$3,328.44 flat fee/semester for 12 to 17 credit hours (matriculated summer 2003 or later)	\$9,834.60 flat fee/semester for 12 to 17 credit hours (matriculated summer 2003 or later)
	\$171.90/credit hour under 12 or over 17 (matriculated before summer 2003)	\$578.10/credit hour under 12 or over 17 (matriculated before summer 2003)
	\$207.83/credit hour under 12 or over 17 (matriculated summer 2003 or later)	\$614.75/credit hour under 2 or over 17 (matriculated summer 2003 or later)
Graduate and Professional ¹		
Business—M.B.A. Program ²	\$7,116.70/semester	\$14,527.80/semester
Business ²	\$474.50/credit hour	\$968.60/credit hour
Law ²	\$409.00/credit hour;	\$1,033.05/credit hour;
	\$7,489.85/semester for 9 or more credit hours	\$14,753.60/semester for 9 or more credit hours
Library and Information Science	\$277.60/credit hour	\$808.65/credit hour
Optometry ²	\$335.20/credit hour;	\$706.20/credit hour;
	\$6,913.40/semester for 8 or more credit hours	\$14,565.90/semester for 8 or more credit hours
Public and Environmental Affairs	\$293.35/credit hour	\$780.55/credit hour
Other	\$241.30/credit hour	\$702.75/credit hour
Independent Study (Correspondence)	\$138.65/credit hour	\$138.65/credit hour
Dissertation Research (G901) ³	\$150.00/semester	\$150.00/semester
Advanced Research Law (B798)	\$150.00/semester	\$150.00/semester
Auditing (no credit)	\$25.00/credit hour	\$25.00/credit hour
Distance Education Special Courses ⁴	Same as rate for on-campus instruction in respective category	

INSTRUCTIONAL FEES	Indiana Resident	Nonresident
	Indianapolis Campus	
Undergraduate (returning) ¹ (matriculated before summer 2003)	\$166.94/credit hour	\$527.74/credit hour
Undergraduate (new) ¹ (matriculated summer 2003 or later)	\$197.46/credit hour	\$558.86/credit hour
Graduate and Professional: ¹		
Business—M.B.A. Program	\$461.40/credit hour	\$940.50/credit hour
Business—Columbus M.B.A. Program	\$266.00/credit hour	\$720.00/credit hour
Business—M.P.A. Program	\$382.80/credit hour	\$780.40/credit hour
Dentistry	\$19,224.70/year	\$45,980.00/year
Engineering	\$263.05/credit hour	\$752.25/credit hour
Law	\$413.60/credit hour	\$913.45/credit hour
Library and Information Science	\$277.60/credit hour	\$808.65/credit hour
Medicine	\$23,276.10/year	\$42,130.00/year
Nursing	\$272.80/credit hour	\$825.05/credit hour
Public and Environmental Affairs	\$253.50/credit hour	\$705.45/credit hour
Physical/Occupational Therapy	\$322.70/credit hour	\$695.20/credit hour
Social Work	\$248.40/credit hour	\$661.40/credit hour
Master of Public Health	\$313.60/credit hour	\$761.20/credit hour
Master of Fine Arts	\$470.00/credit hour	\$820.00/credit hour
Other	\$226.55/credit hour	\$661.40/credit hour
Dissertation Research (G901) ³	\$100.00/semester	\$100.00/semester
Auditing (no credit)	applicable credit hour rate	applicable credit hour rate
Distance Education Courses	Special rates apply to many distance education courses; check with the individual program.	
MANDATORY FEES ⁵	Bloomington Campus	Indianapolis Campus
Intercollegiate athletics fee		\$34.98
Student health fee ⁶	\$93.77/semester \$75.09/summer session, more than 3 credit hours	
Student activity fee ⁷	\$34.74 or \$69.51/semester \$25.80 or \$51.60/ summer session	\$46.75 to \$87.92/semester \$9.01 or \$27.01/ summer session
Technology fee, fall or spring semesters ⁸		
Undergraduate	\$47.47, \$94.94, \$187.86	\$59.00, \$118.10, \$177.10
Graduate/professional, nondegree students	\$47.47, \$94.94, \$187.86	\$52.80, \$91.20, \$186.90
Technology fee, summer sessions ⁹		
Undergraduate	\$75.95 or \$150.28	\$59.00 or \$88.50
Graduate/professional, nondegree students	\$75.95 or \$150.28	\$80.00 or \$90.00
Transportation fee ¹⁴	\$12.62, \$25.24, \$50.47/semester \$10.02, \$30.66/summer session	

¹ Includes credit courses in the School of Continuing Studies.

² M.B.A., law, and optometry students: New M.B.A. students enrolled in 1 or more credit hours of business courses will be assessed this flat rate. Returning students will be assessed their entering rate. Enrollment in any courses other than business will be assessed on a per-credit-hour basis. Law students enrolled in or after 2001-02 with 9 or more credit hours of law courses will be assessed a flat rate, and enrollment in any courses other than law will be assessed on a per-credit-hour basis. Law students entering before 2001-02 will be assessed the credit hour rate. Optometry students enrolled in 8 or more credit hours of optometry courses will be assessed a flat rate, and enrollment in any courses other than optometry will be assessed on a per-credit-hour basis. Graduate business credit hour rates apply to students enrolled in a doctoral business program.

³ 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 \$150.00 (Bloomington). 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.

INCIDENTAL FEES¹⁰	Bloomington Campus	Indianapolis Campus
Application for admission		
Domestic, undergraduate	\$50.00	\$50.00
Domestic, graduate	\$50.00	\$50.00
International	\$60.00	\$60.00
Deferment service fee ¹¹	\$30.00	\$25.00
Late payment charge	1.5 percent of balance	\$13.50/month
Late schedule change ¹²	\$23.00/course added or dropped	\$22.00/course added
Late registration ¹³	\$60.00 to \$210.00/semester \$60.00/summer session	\$45.00 to \$100.00/semester \$45.00 to \$68.00/ summer session
Transcripts	\$10.00	\$8.00
University Division services fee (freshmen and sophomores) (juniors and seniors)	\$25.00/semester \$50.00/semester	
Business undergraduate program fee ¹⁵	\$190.00, \$380.00, \$480.00	
M.B.A./M.P.A./M.S.I.S. program fee	\$300.00/academic year \$300.00/summer session	
Engineering program fee		\$19.50/credit hour

⁴ In addition to instructional fee rates, course fees for education, library and information science, and HPER will be assessed. Check with the specific school for current information.

⁵ Assessed to all students based on the number of enrolled on-campus credit hours.

⁶ The health fee is assessed each semester/session on the bursar's bill for all day and evening students enrolled in more than 6 credit hours. Eligible individuals not covered by the health fee will be seen on a fee-for-service basis.

⁷ Bloomington students enrolled in 3 or fewer credit hours during the fall and spring semesters pay a mandatory student activity fee of \$34.74. Students enrolled in more than 3 credit hours pay \$69.51. Summer students pay according to the number of credit hours in which they are enrolled: 3 or fewer credit hours, \$25.80; more than 3 credit hours, \$51.60. At Indianapolis, students pay a fee according to the number of credit hours in which they are enrolled each semester: 0.5 to 5.5 credit hours, \$46.75; 6 to 8.5 credit hours, \$63.92; 9 to 11.5 credit hours, \$82.49; and more than 11.5 credit hours, \$87.92. Indianapolis summer students pay \$9.01 for up to 2.5 credit hours, \$16.23 from 3 through 5.5 credit hours, and \$27.01 for above 5.5 credit hours. IUPU Columbus students pay \$3.19 per credit hour up to a maximum of \$38.28 per semester.

⁸ Technology fees are listed at temporary 100 percent increases until state technology funding is restored. 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.

⁹ At Bloomington, summer-session students are assessed a technology fee based on the number of credit hours as follows: 3 credit hours or fewer; more than 3 credit hours. 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 and more than 3 credit hours for undergraduates, and 6 or fewer credit hours and more than 6 credit hours for graduate/ professional students.

¹⁰ Applicable to both in-state and out-of-state students.

¹¹ Fee is assessed if deferred billing option is elected.

¹² After drop/add period (100 percent refund period), students will be assessed \$23.00 in Bloomington and \$22.00 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.

¹³ 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 \$60.00 for students who register by the last Friday before classes begin and increases on the Monday of each successive week to a maximum of \$210.00. On the Indianapolis campus, a \$45.00 late registration fee is in effect upon conclusion of registration through the end of the first week of classes, increasing by \$23.00 the first week, \$20.00 the second week, and \$12.00 the third week to a maximum of \$100.00. In Indianapolis summer sessions, a late registration fee of \$45.00 is assessed the first week, and \$68.00 the second week and thereafter.

¹⁴ At Bloomington, the ranges for the transportation fee during each semester are 3 or fewer credit hours; more than 3 through 6 credit hours; more than 6 credit hours. The ranges during each summer session are 3 or fewer credit hours; greater than 3 credit hours.

¹⁵ At Bloomington, the ranges for the business undergraduate program fee are fewer than 6 credit hours; 6 to 12 credit hours; more than 12 credit hours.

Course Fee Refund Schedule

Time of Withdrawal	Refund
Courses less than 2 weeks in duration	
Withdrawal on 1st day of classes	100%
Withdrawal on 2nd day of classes	50%
Withdrawal on 3rd day of classes and thereafter	0%
Courses at least 2 weeks but less than 5 weeks in duration	
Withdrawal on 1st or 2nd day of classes	100%
Withdrawal on 3rd or 4th day of classes	50%
Withdrawal during 3rd week of classes and thereafter	0%
Courses at least 5 weeks but less than 9 weeks in duration	
Withdrawal during 1st week of classes	100%
Withdrawal during 2nd week of classes	50%
Withdrawal during 3rd week of classes and thereafter	0%
Time of Withdrawal	Refund

Courses at least 9 weeks or more in duration

Withdrawal during 1st week of classes	100%
Withdrawal during 2nd week of classes	75%
Withdrawal during 3rd week of classes	50%
Withdrawal during 4th week of classes	25%
Withdrawal during 5th week of classes and thereafter	0%

Fee Refund Schedule Applies to audit, credit-hour, and course-related fees.

Procedure See the specific campus registrar's Web site 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 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 On the IUPUI campus, check with a VA representative in the Office of the Registrar for positive verification of your hourly status.

Appendix I

Cognate Areas, IUB

Students must receive at least a C- in each cognate area course and a cumulative GPA of 2.0 or higher in the cognate area. Cognate area courses may require prerequisites.

Biology

Required:

- BIOL L211 Molecular Biology (3 cr.)
- BIOL L311 Genetics (3 cr.)
- BIOL L312 Cell Biology (3 cr.)
- BIOL L318 Evolution (3 cr.)
- BIOL L473 Ecology (3 cr.)

Business

Required:

- BUS A200 Foundations of Accounting (3 cr.) **OR** (A100 and A201) **OR** (A100 and A202)
- BUS K201 The Computer in Business (3 cr.) (minimum grade of C required)
- BUS L201 Legal Environments of Business (3 cr.) or BUS L350 Online Law (3 cr.)
- Select 6 credit hours from the following list:
- BUS F300 Introduction to Finance (3 cr.)
- BUS G300 Introduction to Managerial Economics (3 cr.)
- BUS J306 Strategic Management (3 cr.) **OR**
- BUS Z302 Managing and Behavior in Organizations (3 cr.)
- BUS M300 Introduction to Marketing (3 cr.)
- BUS P300 Introduction to Operations Management (3 cr.)
- BUS W300 Small Business Management (3 cr.)

Students are advised to pursue the entrepreneurship minor (18 credit hours) or the business minor (21 credit hours) by taking additional courses beyond the 15 credit hours required for the cognate. If students plan to pursue the entrepreneurship minor, they should elect to take BUS M300 and BUS W300. If they plan to pursue the business minor, they should elect to take BUS G300, BUS J306 or BUS Z302, BUS M300, or BUS F300. BUS W300 will not apply to the minor.

If students plan to pursue a degree in business informatics, they must apply to the Computer Information Systems or Business Process Management concentrations in the Kelley School of Business.

Chemistry

Students interested in obtaining a background in chemical informatics should first complete a minor in chemistry. The minor will give students the skills necessary to study in the field

of chemical informatics. In addition, students must complete two one-hour chemical informatics courses, INFO I371 and CHEM C372, and are encouraged to take CHEM C471 and CHEM C472 to meet the requirements of a cognate in chemistry.

Required:

- CHEM C117 Principles of Chemistry and Biochemistry I (5 cr.)
- CHEM C118 Principles of Chemistry and Biochemistry II (5 cr.)
- CHEM C341 Organic Chemistry Lectures I (3 cr.)
- CHEM C342 Organic Chemistry Lectures II (3 cr.)
- INFO I371 Chemical Informatics I (1 cr.)
- INFO I372 Chemical Informatics II (1 cr.)
- CHEM C483 Bioorganic Chemistry (3 cr.)

Cognitive Science

Required:

- COGS Q240 Philosophical Foundations of the Cognitive and Information Sciences (4 cr.)
- COGS Q270 Experiments and Models in Cognition (4 cr.)
- COGS Q301 Brain and Cognition (3 cr.)
- COGS Q320 Computation in the Cognitive and Information Services (4 cr.)

Communication and Culture

Required:

- CMCL C205 Introduction to Communication and Culture (3 cr.)
- CMCL C190 Introduction to Media (3 cr.)
- CMCL C202 Media in the Global Context (3 cr.) **OR** CMCL C413 Global Villages (3 cr.)
- CMCL C337 New Media (3 cr.)
- CMCL C410 Media Theory (3 cr.)

Computer Science

Option I: Information Technology

- CSCI C211 Introduction to Computer Science (4 cr.)
- CSCI A338 Network Technologies and Administration (4 cr.)
- CSCI A348 Mastering the World Wide Web (4 cr.)
- CSCI B351 Introduction to Artificial Intelligence and Computer Simulation (3 cr.)

Option II: Computer Science

Required:

- CSCI C211 Introduction to Computer Science (4 cr.)
- CSCI C335 Computer Structures (4 cr.)
- CSCI C343 Data Structures (4 cr.)
- Select one of the following courses:
- CSCI A348 Mastering the World Wide Web (4 cr.)

- CSCI B351 Introduction to Artificial Intelligence and Computer Simulation (3 cr.)
 CSCI C311 Programming Languages (4 cr.)

Cybersecurity

Prerequisite:

INFO I231 Introduction to the Mathematics of Cybersecurity (3 cr.) OR equivalent knowledge

Required:

- INFO I130 Introduction to Cybersecurity (1 cr.)
 INFO I230 Analytical Foundations of Security (3 cr.)
 INFO I330 Legal and Social Informatics of Security (3 cr.)
 INFO I430 Security for Networked Systems (3 cr.)
 INFO I433 Protocol Design and Analysis (3 cr.)
 BUS I433 Information Systems Security (3 cr.)

Economics

Required:

- ECON E201 Introduction to Microeconomics (3 cr.)
 ECON E202 Introduction to Macroeconomics (3 cr.)
 ECON E321 Intermediate Microeconomic Theory (3 cr.)
 ECON E327 Game Theory (3 cr.) or BUS G300
 ECON E382 The Digital Economy (3 cr.) (E201, E202, and M119 or M211 are prerequisites for E321. E321 is a prerequisite for E327 and E490.)

Fine Arts

Courses selected for a cognate must be approved by the School of Fine Arts.

Required:

- FINA N110 Introduction to Studio Art for Nonmajors (3 cr.)
 FINA S250 Introduction to Design Practice (3 cr.)
 FINA T230 Computer Art: Survey and Practice (3 cr.)

Select three courses from one of the following areas:

Computer Art

- FINA T330 Interactive Media (3 cr.) P: FINA T230
 FINA T340 3D Computer Graphics (3 cr.) P: FINA F101, FINA T230, FINA T330, and consent of instructor by portfolio review
 FINA T430 Advanced Multimedia (3 cr.) P: FINA T330, and consent of instructor by portfolio review

- FINA T440 Computer Graphical Environments (3 cr.) P: FINA T340
 Graphic Design
 FINA S351 Typography and Integration Imagery (3 cr.) P: S250
 FINA S352 Production for the Graphic Designer (3 cr.) P: S351
 FINA S451 Graphic Design Problem Solving (1–6 cr.) P: S352

Students also may consider computer-based courses in printmaking, photography, and video. All courses selected for the cognate must be approved by the School of Fine Arts. Students are cautioned to review prerequisite requirements for upper-level courses.

Geography

Students must complete 15 credit hours from the following list of courses:

- GEOG G250 Computer Methods in Geography (3 cr.) P: MATH M118, M119, or M211
 GEOG G237 Cartography and Geographic Information (3 cr.)
 GEOG G338 Geographic Information Systems (3 cr.)
 GEOG G438 Advanced Geographical Information Systems (3 cr.) P: G338
 GEOG G450 Undergraduate Readings and Research in Geography (1–3 cr.) P: Consent of Instructor
 GEOG G460 Geography Internship (3–6 cr.) P: Consent of Instructor
 GEOG G488 Applied Spatial Statistics (3 cr.) P: six hours of geography courses

Instructional Systems Technology

Students must have completed 26 credit hours of course work with a minimum 2.2 GPA. No prerequisite courses are required.

Required:

- EDUC R311 Introduction to Instructional Technology (3 cr.)
 EDUC R341 Multimedia in Instructional Technology (3 cr.)
 EDUC R347 Impact of Games and Simulations in Instruction (3 cr.)
 EDUC R441 Development and Management in Instructional Technology (3 cr.)
 EDUC R481 Specialized Project in Instructional Technology (3 cr.)

Journalism

To be considered for admission, students must file an application with the School of Journalism, be admitted to a degree program in the School of Informatics, and have completed 26 credit hours with a minimum 2.2 cumulative grade point average (FX and WF will be calculated as F), including: J110 Foundations of Journalism

and Mass Communications, with a minimum grade of C-.

Required:

- JOUR J110 Foundations of Journalism and Mass Communications (3 cr.)
- JOUR J200 Reporting, Writing, and Editing I* (3 cr.)
- JOUR J201 Reporting, Writing, and Editing II (3 cr.)
- JOUR J210 Visual Communications (3 cr.)
- Electives: Select at least two courses from the following list:
- JOUR J360 Topics (Online Journalism)(3 cr.)
- JOUR J460 Topics (Information Graphics) (3 cr.)
- JOUR J463 Computerized Publication Design I (3 cr.)
- JOUR J465 Computerized Publication Design II (3 cr.)

Linguistics

At least three courses must be taken at the 300 level or higher, and up to 3 credits from a related field.

Required:

- LING L303 Introduction to Linguistic Analysis (3 cr.)
- LING L306 Phonetics (3 cr.)
- Any two of the following courses:
- LING L307 Phonology (3 cr.)
- LING L308 Morphology (3 cr.)
- LING L310 Syntax (3 cr.)
- LING L325 Semantics (3 cr.)
- LING L431 Field Methods (3 cr.)
- One of the following courses:
- LING L445 Introduction to Computational Linguistics (3 cr.)
- LING L485 Topics in Linguistics (3 cr.)
- MATH M385 Mathematics from Language, or any course from outside the Department of Linguistics with sufficient computational content, subject to approval by the Linguistics Undergraduate Advisor.

Mathematics

Students must complete at least 16 credit hours including MATH M211 and M212, and three of the following:

- MATH M301 or M303 Linear Algebra (3 cr.)
- MATH M371 Elementary Computational Methods (3 cr.)
- MATH M385 Mathematics from Language (3 cr.)
- MATH M447 Mathematical Models and Applications I (3 cr.)

Psychology

Required:

- PSY P101 Introduction to Psychology (or PSY P151) (3 cr.)

- PSY P329 Sensation and Perception (3 cr.)
- PSY P335 Cognitive Psychology (3 cr.)
- PSY P350 Human Factors/Ergonomics (3 cr.)
- COGS Q270 Experiments and Models in Cognition (4 cr.)
- COGS Q301 Brain and Cognition (3 cr.)

Public and Environmental Affairs

Prerequisite:

- INFO I303 Organizational Informatics (3 cr.) or
- SPEA V369 Managing Information Technology (3 cr.)

Required:

- SPEA E418 Vector-Based GIS or V450 GIS in Public Management (3 cr.)
- SPEA V461 Computer Application in Public Affairs (3 cr.)
- SPEA V475 Database Management Systems (3 cr.)

In addition, students must select a focus area from one of the following:

Option I: Environmental Issues

Required:

- SPEA E418 Vector-Based GIS (3 cr.)
- Select two courses from the following;
- SPEA E325 Computing for Environmental Scientists (2 cr.)
- SPEA E363 Environmental Management (E162 recommended prerequisite) (3 cr.)
- SPEA E419 Applied Remote Sensing (3 cr.)
- SPEA E466 International and Comparative Environmental Policy (3 cr.)
- SPEA E476 Environmental Law and Regulation (3 cr.)

Option II: Health Issues

Required:

- SPEA H320 Health Systems Administration (3 cr.)
- At least one of the following:
- SPEA H316 Environmental Health (3 cr.)
- SPEA H402 Hospital Administration (3 cr.)
- SPEA H411 Long-Term Care Administration (3 cr.)

Option III: Urban Affairs

Select two of the following:

- SPEA V340 Urban Government Administration (3 cr.)
- SPEA V368 Managing Government Operations (3 cr.)
- SPEA V372 Government Finance and Budgets (3 cr.)
- SPEA V421 Metropolitan Development (3 cr.)

Option IV: Public Policy Analysis

Select two of the following:

- SPEA V348 Management Science (3 cr.)

- SPEA V370 Research Methods and Statistical Modeling (3 cr.)
- SPEA V386 Case Studies for Policy Analysis (3 cr.)
- SPEA V401 Finance and Cost Benefit Analysis (3 cr.)

Option V: Public Finance

Required:

- SPEA V372 Government Finance and Budgets (3 cr.)
- Select one of the following:
- SPEA V346 Introduction to Government Accounting and Financial Reporting (3 cr.)
- SPEA V361 Financial Management (3 cr.)
- SPEA V401 Financial and Cost-Benefit Analysis (3 cr.)
- SPEA V441 Topics in Financial Management and Policy (3 cr.)

Capstone Experience:

SPEA V461 System Analysis and Design will serve as a capstone experience and should be taken as the last course in the cognate sequence. This is a project-oriented course, in which students select projects related to their focus areas. A SPEA faculty member with expertise in that particular area will direct this project.

Public Health

Required:

- HPER C366 Community Health (3 cr.)
- HPER C403 Techniques in Public Health Education (3 cr.)
- HPER H311 Human Diseases and Epidemiology (3 cr.) (P or C: HPER H391)
- HPER H391 Introduction to Health Information and Statistics (3 cr.)
- HPER H494 Research and Evaluation Methods in Health and Safety (3 cr.) (P or C: HPER H391)

Recommended:

One of the following courses is recommended if the student has done no previous course work in health or a related field:

- HPER H263 Personal Health (3 cr.)
- HPER H305 Women's Health (3 cr.)
- HPER H306 Men's Health (3 cr.)

Telecommunications

Option I: Applications

This cognate area focuses on video and multimedia production using computers. The applications option requires the completion of 18 credit hours.

Required:

- TEL T101 Living in the Information Age (3 cr.)

- TEL T206 Introduction to Design and Production (3 cr.)
- TEL T283 Production Techniques and Practices (3 cr.) **or**
- TEL T284 Introduction to Interactive Media Design (3 cr.)
- Plus at least 9 credit hours from the following:
- TEL T351 Video Field and Postproduction (3 cr.) P: T 206, T283
- TEL T353 Audio Production (3 cr.) P: T 206, T283
- TEL T354 Program Graphics and Animation (3.0 cr.) P: T206, T283 or T284
- TEL T355 Digital Video (1.5 cr.)
- TEL T361 Interactive Transmedia Design (3 cr.) P: T284
- TEL T364 Introduction to 3-D Digital Modeling and Animation (3 cr.) P: T283
- TEL T365 Advanced 3-D Digital Modeling and Animation (3 cr.) P: T364

See advisor for additional approved courses.

Option II: Implications

The implications cognate area allows students to tailor their studies to issues of particular interest.

Required:

- TEL T101 Living in the Information Age (3 cr.)
- TEL T205 Introduction to Telecommunications and Society (3 cr.)
- Plus 9 credit hours from the following list:
- TEL T311 Media History (3 cr.)
- TEL T312 Politics and the Media (3 cr.)
- TEL T316 Media Ethics and Professional Responsibility (3 cr.)
- TEL T317 Children and the Media (3 cr.)
- TEL T424 Telecommunications and the Constitution (3 cr.)
- TEL T427 International Telecommunications (3 cr.)

Option III: Foundations

The Foundations cognate area focuses specifically on the development and operation of advanced telecommunications networks.

Required:

- TEL T101 Living in the Information Age (3 cr.)
- TEL T207 Introduction to Telecommunications Industry and Management (3 cr.)
- TEL T322 Telecommunications Networks (3 cr.)
- TEL T326 Network Design (3 cr.)
- TEL T327 Data Communications (3 cr.)

Cognate Areas, IUPUI

Biology

- BIOL K101 Concepts of Biology I (5 cr.)
- BIOL K103 Concepts of Biology II (5 cr.)
- BIOL K322 Genetics & Molecular Biology (3 cr.)
- BIOL K341 Ecology and Evolution (3 cr.)
- BIOL K324 Cell Biology (3 cr.)

Chemistry

Required:

- CHEM C105 Principles of Chemistry I (3 cr.)
- CHEM C106 Principles of Chemistry II (3 cr.)
- CHEM C341 Organic Chemistry Lecture I (3 cr.)
- CHEM C342 Organic Chemistry Lecture II (3 cr.)
- CHEM C371 Chemical Informatics I (1 cr.)
- CHEM C372 Chemical Informatics II (1 cr.)
- CHEM C471 Chemical Information Sources and Services (1 cr.)
- CHEM C472 Computer Sources for Chemical Informatics (1 cr.)
- CHEM C483 Biological Chemistry (3 cr.)

Computer Science

The computer science cognate requires at least 17 credit hours in the CSCI department.

Required:

- CSCI 230 Computing I (4 cr.)
- CSCI 240 Computing II (4 cr.)
- CSCI 265 Advanced Programming (3 cr.)
- CSCI 300 Systems Programming (3 cr.)
- CSCI 340 Discrete Computational Structures (3 cr.)

Students must maintain at least a 2.5 GPA in these courses. Mathematics 164 is recommended as preparation for this option. A student choosing this cognate area can earn a minor in computer science with the addition of CSCI 362 Data Structures (3 cr.).

Computer and Information Technology

Students who have completed the core courses in informatics should meet all prerequisites for the first course listed in each cognate area.

Option I: Systems and Database Development

- CIT 374 Systems and Database Analysis (4 cr.)
- CIT 384 Systems Design (3 cr.)
- CIT 352 Decision Support and Information Systems (3 cr.)
- CIT 410 Ethics and Leadership (3 cr.)
- CIT 479 Database Physical Design and Implementation (3 cr.)

Option II: Data Communications

- CIT 303 Communications Security and Network Controls (3 cr.)
- CIT 307 Data Communications (4 cr.)
- CIT 336 Data Communications Lab (2 cr.)
- CIT 402 Design and Implementation of Local Area Networks (3 cr.)
- CIT 440 Communication Network Design (3 cr.)

Option III: Web Technologies

Most of these courses are delivered over the Web.

Prerequisite: CIT 212 Web Site Design or CIT 223 Web Page Design

- CIT 215 Web Programming (3 cr.)
- CIT 313 Commercial Web Site Development (3 cr.)
- CIT 323 Multimedia (3 cr.)
- CIT 423 Electronic Commerce (3 cr.)
- CIT 490 Senior Project (3 cr.)

Criminal Justice Minor

Required:

- SPEA J101 The American Criminal Justice System (3 cr.)
 - SPEA J201 Theoretical Foundations of Criminal Justice Policies (3 cr.)
- Select two courses from the following core listing:
- SPEA J202 Criminal Justice Data, Methods, and Resources (3 cr.)
 - SPEA J301 Substantive Criminal Law (3 cr.)
 - SPEA J305 Juvenile Justice (3 cr.)
 - SPEA J306 The Criminal Courts (3 cr.)
 - SPEA J321 American Policing (3 cr.)
 - SPEA J331 Corrections (3 cr.)
 - SPEA J439 Crime and Public Policy (3 cr.)

Take two other criminal justice courses with a "J" prefix. At least one of these two courses must be at the 300 or 400 level. Only one of the following may be used to meet this requirement: J370, J380, J470, J480.

E-Commerce

Offered by the Department of Computer Technology, the E-Commerce Development Certificate is available in one of two tracks that the student may choose:

ASP.net Track

- CPT 213 Web-Based Analysis and Design (3 cr.)
- CPT 312 Advanced Web Site Design (3 cr.)
- CPT 242 ASP.net Programming (3 cr.)
- CPT 347 Advanced ASP.net Programming (3 cr.)
- CPT 412 XML-Based Web Applications (3 cr.)
- CPT 436 Advanced E-Commerce Development (3 cr.)

Java Track:
 CPT 213 Web-Based Analysis and Design (3 cr.)
 CPT 270 Java Programming (3 cr.)
 CPT 312 Advanced Web Site Design (3 cr.)
 CPT 329 Java Server Programming (3 cr.)
 CPT 412 XML-Based Web Applications (3 cr.)
 CPT 436 Advanced E-Commerce Development (3 cr.)

The following prerequisites must be met before students can pursue this program: 200-level programming course or equivalent experience; 200-level relational database course or equivalent experience; 200-level HTML course or equivalent experience.

Economics

Required:

ECON E201 Introduction to Microeconomics (3 cr.)
 ECON E202 Introduction to Macroeconomics (3 cr.)
 ECON E321 Intermediate Microeconomic Theory (3 cr.) P: ECON E201, MATH M119 or MATH M163.
 ECON E327 Game Theory (3 cr.)
 ECON E385 Economics of Industry (3 cr.)

English

Required:

ENG G205 Introduction to the English Language (3 cr.)
 ENG W315 Composing Computer-Delivered Text (3 cr.)
 ENG W365 Theories and Practices of Editing (3 cr.)
 TCM 320 Written Communication in Science and Industry (3 cr.)
 TCM 350 Visual Elements of Technical Documents (3 cr.)

French

The French cognate is composed of 15–17 credit hours in the following courses:

FREN F203 Intermediate French I (4 cr.)
 FREN F204 Intermediate French II (4 cr.) or
 FREN F299 French by Advanced Placement (6 cr.)
 FREN F328 Advanced French Grammar and Composition (3 cr.)
 FREN F330 Introduction to Translating French and English (3 cr.)
 FREN F350 Introduction to Translation Studies (3 cr.)
 FREN F450 Computers in Translation (3 cr.)

Geography

Must complete five of the following courses with a minimum grade of C– in each course and a minimum average of 2.0 (C) overall:

GEOG G336 Introduction to Remote Sensing and Air Photo Interpretation (3 cr.)
 GEOG G337 Computer Cartography and Graphics (3 cr.)
 GEOG G338 Introduction to Geographic Information Systems (3 cr.)
 GEOG G436 Advanced Remote Sensing: Digital Image Processing (3 cr.) P: GEOG G336.
 GEOG G438 Advanced Geographic Information Systems (3 cr.) P: GEOG G338.
 GEOG G439 Seminar in Geographic Information Science (3 cr.) P: GEOG G436 or GEOG G438.
 GEOG G488 Spatial Statistics (3 cr.)

Additional opportunities to undertake independent research and/or gain internship-type experience with this technology and its applications are available through G450 Independent Research and Readings in Geography (3 cr.), G460 Internship in Geography (1–6 cr.), and G491 Capstone Experience in Geography (1 cr.).

German

The German cognate comprises 15–17 credit hours of which these courses are required:

GER G225 Intermediate German I (4 cr.)
 GER G230 Intermediate German II (4 cr.) **or**
 GER G299 German for Advanced Credit (6 cr.)
 GER G333 German Translation Practice (3 cr.)
 GER F350 Introduction to Translation Studies (3 cr.) **or**
 GER F450 Computers in Translation (3 cr.)
 And choose one course from the following:
 GER G300 Mittelstufe I (3 cr.)
 GER G330 Mittelstufe II (3 cr.)
 GER G331 Business German (3 cr.)
 GER G333 German Translation Practice (3 cr.)
 GER G423 The Craft of Translation (3 cr.)
 GER G431 Advanced Business German (3 cr.)
 GER G445 Oberstufe Grammatik (3 cr.)
 GER G465 Oberstufe Kommunikation (3 cr.)

Health Science

Required:

BIOL N212 Human Biology I (2 cr.)
 BIOL N213 Human Biology I Laboratory (1 cr.)
 BIOL N214 Human Biology II (2 cr.)
 BIOL N215 Human Biology II Laboratory (1 cr.)
 HIA M325 Healthcare Information Requirements and Standards (3 cr.)
 HIA M330 Medical Terminology (2 cr.)

- HIA M420 Health Care Planning and Information Systems (3 cr.)
- HIA M322 Hospital Organization and Management (3 cr.)
- HIA M445 Medicine and the Law (2 cr.)

Human Resource Management Certificate

All students must successfully complete all the following courses:

- OLS 331 Occupational Safety and Health (3 cr.)
- OLS 368 Personnel Law (3 cr.)
- OLS 375 Training Methods (3 cr.)
- OLS 378 Labor Relations (3 cr.)
- OLS 383 Human Resources Management (3 cr.)
- OLS 476 Compensation Planning and Management (3 cr.)
- OLS 479 Staffing Organizations (3 cr.)

Japanese

The Japanese cognate is composed of 16–18 credit hours. Of these, the following are required:

- EALC J201 Second-Year Japanese I (3 cr.)
- EALC J202 Second-Year Japanese II (3 cr.)
- EALC J301 Third-Year Japanese I (3 cr.)
- EALC J302 Third-Year Japanese II (3 cr.)

With an additional 6 credit hours from the following:

- EALC J330 Business Japanese (3 cr.)
- EALC J401 Fourth-Year Japanese I (3 cr.)
- EALS J402 Fourth-Year Japanese II (3 cr.)
- EALC J498 Individual Studies in Japanese (1–3 cr.)
- FLAC 351 Studies in East Asian Cultures (3 cr.)
- EALC 472 Modern Japanese Fiction (3 cr.)
- EALC G467 History of Japan I (3 cr.)
- EALC G468 History of Japan II (3 cr.)

Journalism

To be considered for this cognate, students must have completed 26 credit hours with a minimum 2.2 cumulative grade point average (FX and WF will be calculated as F), including the following:

Required:

- JOUR J100 Computer Methods for Journalism (3 cr.)
- JOUR J110 Foundations of Journalism and Mass Communications (3 cr.)
- JOUR J200 Reporting, Writing, and Editing I (3 cr.)
- JOUR J201 Reporting, Writing, and Editing II (3 cr.)
- JOUR J210 Visual Communications (3 cr.)

Electives: Select at least two courses from the following list:

- JOUR J460 Topics (Online Journalism) (3 cr.)
- JOUR J460 Topics (Information Graphics) (3 cr.)
- JOUR J460 Topics (Digital Photography) (3 cr.)
- JOUR J463 Computerized Publication Design I (3 cr.)
- JOUR J465 Computerized Publication Design II (3 cr.)

Leadership Studies Certificate

Students are required to successfully complete the following courses:

- OLS 252 Human Behavior in Organizations (3 cr.)
- OLS 263 Ethical Decisions in Leadership (3 cr.)
- OLS 274 Applied Leadership (3 cr.)
- OLS 327 Leadership for a Global Workforce (3 cr.)
- OLS 390 Leadership Theories and Processes (3 cr.)

Any OLS 300- or 400-level selective course in consultation with an advisor

Mechanical Engineering Technology

Option I: Technical Animation and Spatial Graphics

- CGT 116 Geometric Modeling for Visualization and Communication (3 cr.)
- CGT 211 Raster Imaging for Computer Graphics (3 cr.)
- CGT 241 Introduction to Animation and Spatial Graphics (3 cr.)
- CGT 346 Digital Video and Audio (3 cr.)
- CGT 441 Advanced Computer Animation (3 cr.)

Option II: Engineering Graphics

- CGT 112 Sketching for Visualization and Communication (3 cr.)
- CGT 116 Geometric Modeling for Visualization and Communication (3 cr.)
- CGT 223 Introduction to Constraint-Based Modeling (3 cr.)
- CGT 323 Introduction to 3-D Surface Geometry (3 cr.)
- CGT 326 Manufacturing Graphics Standards (3 cr.)
- CGT 423 Manufacturing Document Production and Management (3 cr.)

New Media

The cognate requires the prerequisites of NEWM N175 Digital Media I and NEWM N180 Digital Media II. Students must receive a C

average in the cognate area and at least a C– in each course.

Option I: Animation

Required:

- NEWM N235 Introduction to Computer Simulation/Animation (3 cr.)
- NEWM N240 Introduction to Digital Video (3 cr.)
- NEWM N335 Computer-Based Character Simulation/Animation II (3 cr.)
- NEWM N340 Digital Video Production (3 cr.)
- NEWM N435 Computer Simulation/Animation III (3 cr.) or
- NEWM N440 DV and CGI Special Effects (3 cr.)

Option II: Interactive

Required:

- NEWM N204 Introduction to Interactive Media (3 cr.)
- NEWM N215 Online Document Development I (3 cr.)
- NEWM N300 Digital Media Production (3 cr.)
- NEWM N304 Interactive Media Application (3 cr.)
- NEWM N315 Online Document Development II (3 cr.) or
- NEWM N420 Multimedia Project Development (3 cr.)

Option III: General

Required:

- NEWM N200 Desktop Tools for Digital Media (3 cr.)
- NEWM N204 Introduction to Interactive Media (3 cr.)
- NEWM N250 Team Building in Technology (3 cr.)
- NEWM N300 Digital Media Production (3 cr.)
- NEWM N420 Multimedia Project Development (3 cr.) or
- NEWM N475 Research in Design Methods (3 cr.)

Philosophy

A minimum of 21 credit hours in philosophy, including one course each from two of these three groups of basic courses:

Group I:

- PHIL P110 Introduction to Philosophy (3 cr.)
- PHIL S110 Honors Introduction to Philosophy (3 cr.)

Group II:

- PHIL P120 Ethics (3 cr.)
- PHIL S120 Honors Ethics (3 cr.)
- PHIL P237 Environmental Ethics (3 cr.)

- PHIL P326 Ethical Theory (3 cr.)
- PHIL P393 Biomedical Ethics (3 cr.)

Group III:

- PHIL P162 Logic (3 cr.)
- PHIL P265 Introduction to Symbolic Logic (3 cr.)

A minimum of 6 credit hours at the 300–500 level, including the following:

- PHIL P331 Philosophy of Science (3 cr.) and
- PHIL P468 Seminar in the Philosophy of the Mind (3 cr.) or
- PHIL P503 The Semiotics of C. S. Peirce (3 cr.)

Physics

This cognate is composed of 19 credit hours and results in the student earning a minor in physics. The grade for each course submitted for the minor must be a C (2.0) or higher.

Required:

- PHY 152 Mechanics (4 cr.)
- PHY 251 Heat, Electricity, and Optics (5 cr.)
- PHY 342 Modern Physics (3 cr.)
- PHY 342 Modern Physics Laboratory (1 cr.)

In addition, choose 6 credits from the following:

- PHY 300 Introduction to Elementary Mathematical Physics (3 cr.)
- PHY 310 Intermediate Mechanics (4 cr.)
- PHY 330 Intermediate Electricity and Magnetism (3 cr.)
- PHY 400 Physical Optics (3 cr.)
- PHY 416 Thermal Physics (3 cr.)
- PHY 442 Quantum Mechanics (3 cr.)

Political Science

The area of concentration in Information and Political Decision Making consists of any five courses (15 cr.) from the following list:

- POLS Y205 Elements of Political Analysis (3 cr.)
- POLS Y213 Introduction to Public Policy (3 cr.)
- POLS Y310 Political Behavior (3 cr.)
- POLS Y317 Voting/Elections/Public Opinion (3 cr.)
- POLS Y391 Political Decision Making (3 cr.)
- POLS Y394 Public Policy Analysis (3 cr.)

Psychology

Required:

- PSY B104 Introductory Psychology (3 cr.)
- PSY B105 Psychology as Biological Science (3 cr.)

Choose 9 credit hours from the following:

- PSY B307 Tests and Measurement (3 cr.)
- PSY B310 Life Span Development (3 cr.)
- PSY B320 Behavioral Neuroscience (3 cr.)
- PSY B334 Perception (3 cr.)
- PSY B340 Cognition (3 cr.)
- PSY B344 Learning (3 cr.)
- PSY B356 Motivation (3 cr.)

- PSY B358 Introduction to Industrial/Organizational Psychology (3 cr.)
- PSY B370 Social Psychology (3 cr.)
- PSY B380 Abnormal Psychology (3 cr.)
- PSY B398 Brain Mechanisms of Behavior (3 cr.)
- PSY B424 Theories of Personality (3 cr.)

Elective:

One additional upper level (300 or above) psychology course. Informatics students choosing psychology as a cognate are encouraged to consider taking PSY B305 Statistics (3 cr.) as their elective.

Public and Environmental Affairs

Required:

- SPEA K300 Statistical Techniques (3 cr.)
- SPEA V170 Introduction to Public Affairs (3 cr.)

Choose one from the following:

- SPEA E162 Environment and People (3 cr.)
- SPEA E272 Introduction to Environmental Sciences (3 cr.)

Choose three from the following:

- SPEA E272 Introduction to Environmental Sciences (3 cr.)
- SPEA E400 Topics in Environmental Studies (3 cr.)
- SPEA V263 Public Management (3 cr.)
- SPEA V366 Managing Behavior in Public Organizations (3 cr.)
- SPEA V373 Human Resources Management in the Public Sector (3 cr.)

- SPEA V376 Law and Public Policy (3 cr.)
- SPEA V432 Labor Relations in the Public Sector (3 cr.)
- SPEA V444 Public Administrative Organizations (3 cr.)
- SPEA V450 Contemporary Issues in Public Affairs (3 cr.)

Spanish

Required:

- SPAN F450 Computers in Translation (3 cr.)
- SPAN S204 Intermediate Spanish II (4 cr.)
- SPAN S311 Spanish Grammar (3 cr.)
- SPAN S313 Spanish Composition (3 cr.)
- SPAN S317 Spanish Conversation and Diction (3 cr.)

Students also must complete 3 additional credit hours at the 300–400 level from the Spanish department's offerings. 11–14 credit hours of college-level Spanish or placement by testing are prerequisites to S204. Students completing this cognate will earn a minor in Spanish.

Appendix II

International Dimension Courses, IUB

International Dimension courses may require prerequisites.

African Studies

- AFRI-L 231 African Civilization (3 cr.)
- AFRI-L 232 Contemporary Africa (3 cr.)

Anthropology

- ANTH-E 110 Indians of Mexico: Ancient and Modern (3 cr.)
- ANTH-E 240 Southwestern American Indian Ritual and Belief (3 cr.)
- ANTH-E 310 Introduction to the Cultures of Africa (3 cr.)
- ANTH-E 312 African Religions: Myth, Ritual, and Art (3 cr.)
- ANTH-E 319 American Indian Religions (3 cr.)
- ANTH-E 320 Indians of North America (3 cr.)
- ANTH-E 321 Peoples of Mexico
- ANTH-E 322 Peoples of Brazil (3 cr.)
- ANTH-E 323 Indians of Indiana (3 cr.)
- ANTH-E 324 Native American Art (3 cr.)
- ANTH-E 327 Native Amazonians and the Environment (3 cr.)
- ANTH-E 329 Indians in the United States in the Twentieth Century (3 cr.)
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