

School of Information Sciences

INFORMATION SCIENCES

www.sis.pitt.edu

The Bachelor of Science in information sciences (BSIS) program comprises an interdisciplinary course of study that includes such diverse areas as communication, computer science, linguistics, mathematics, philosophy, and psychology.

Pitt's BSIS program is a two-year program that normally begins in your junior year. Your freshman and sophomore years are spent in the School of Arts and Sciences or the College of General Studies taking preparatory classes for information sciences. The information science faculty work very closely with Arts and Sciences advisors to plan these very important first years. Introductory courses in information science, as well as courses in mathematics, logic, and psychology, are generally recommended.

This program is designed to prepare you to assume professional responsibilities as a system analyst and designer, database developer and manager, interactive system designer, and information retrieval specialist. An education in information science has universal applications throughout society in banking, health care, libraries, judicial systems, communication, education, agriculture, private industry and governmental agencies.

Pre-Professional Preparation in the School of Arts and Sciences

You will complete 55–60 credit hours, distributed over information science courses, skills, and general education requirements for the information sciences major, and related field courses.

Skills Requirements

Writing

- ENGCMP 0200 General Writing (3 cr.)
- ENGCMP 0400 Written Professional Communication (3 cr.)

Quantitative (any one of the following)

- MATH 0120 Business Calculus (4 cr.)
- MATH 0220 Analytical Geometry and Calculus (4 cr.)
- MATH 0400 Discrete Mathematical Structures (3 cr.)

Language (either of the fall/spring courses)

- LING 1950 Introduction to Linguistics (3 cr.)
- PHIL 0500 Introduction to Logic (3 cr.)

General Education Requirements

Where specific course numbers and titles are not indicated, see your advisor once you are enrolled at the University for an approved list.

Literature (3 cr.)

One course from an approved list.

Music and Art (3 cr.)

One course from an approved list.

Communication (3 cr., either of the following courses)

- COMMRC 0300 Communication Process
- COMMRC 0520 Public Speaking

Social Science (6–7 cr.)

Two courses from two different fields from an approved list.



History and Culture (3 cr.)

One course from an approved list.

Psychology (3 cr., either of the following courses)

PSY 0010 Introduction to Psychology

PSY 0015 Introduction to Psychology as a Natural Science

Natural Science (9–12 cr.)

Two-course sequence from an approved list (6–8 cr.)

One course in a field different from the two-course sequence (3–4 cr.)

Related Field

Completion of five courses (a minimum of 15 credit hours) from any area in which a degree program is offered at Pitt is required. Some recommended areas are anthropology, biology, business, computer science, economics, mathematics, physics, psychology, and sociology.

Admission

Students enrolled at the University of Pittsburgh may apply to the BSIS program at the junior-year level by completing an Undergraduate Academic Program Change Form and SIS School Transfer Application in the dean's office of their current college or school. Transfer students from other institutions must apply through the Office of Admissions and Financial Aid. To be considered for admission, a student must have:

- Completed a minimum of 55 credits (including current term credits)
- Maintained an overall grade point average (GPA) of 2.75, with an information science GPA of at least 2.75
- Completed INFSCI 0010 Information, Systems, and Society
- Completed INFSCI 0012 Introduction to Programming, or CS 0132 Unix in C, or CS 0401 Introduction to Computer Science, or INFSCI Special Topics: JAVA 1.

Recommended Courses

The list below outlines other courses that can reinforce your curriculum. Please keep in mind that these are suggestions and you may choose to take as few or as many as you think will benefit your application.

- MATH 0120 Business Calculus, MATH 0220 Calculus 1, MATH 0400 Discrete Math
- PHIL 0500 Introduction to Logic, LING 1000 Introduction to Linguistics
- STAT 0200, 1000, or 1100 Statistics
- PSYCH 10 or 12 Introduction to Psychology

Core Courses for BSIS (21 credits)

INFSCI 0010 INFORMATION, SYSTEMS, and SOCIETY (formerly INTRODUCTION TO INFORMATION SCIENCE)

This course is an introduction to the concepts, principles, and skills of information science. Topics include the need for information, the use of information, data collection, coding, storage and retrieval, information processing, information display, and the evaluation of information.

INFSCI 1004 TELECOMMUNICATIONS

This course covers the concepts of telecommunications systems used in information networks. Topics include equipment utilization in information networks, techniques utilized to transmit signals, methods of message handling, network configuration, and software utilized in implementing networks.

INFSCI 1022 DATABASE MANAGEMENT SYSTEMS

The design, implementation, and utilization of database management systems are the focus of this course. It will contrast the methodologies of file systems and database management systems. Within database management systems, the course focuses on data structures and several databases as well as the administrative tasks required in a database management environment.

INFSCI 1024 INFORMATION SYSTEMS ANALYSIS AND DESIGN

Analysis, design, implementation, and evaluation of information systems are the focus of this course. Emphasis is on analysis of user information needs, system design methodologies, system development, life cycle, and evaluation techniques as well as the integration of technology, procedures, and people.

INFSCI 1042 HUMAN INFORMATION PROCESSING

Introduction to research and theory on topics in human cognition, including perception, attention, pattern recognition, memory, representation of knowledge, language, problem solving, reasoning, and learning, with emphasis on the relationship to computer models of these processes and implications of this body of knowledge for building information systems.

INFSCI 1044 HUMAN FACTORS IN SYSTEM DESIGN

This course examines human-machine designs with special emphasis on human-computer interaction. Topics center on how to analyze, create, and improve equipment and environment to be compatible with human capabilities and expectations.

INFSCI SPECIAL TOPICS: JAVA 1

This is an introductory course that covers the concepts, principles, and skills of programming, including compilers, algorithms, and problem solving using a high-level programming language such as JAVA. This course is intended for students with little or no programming experience who seek an information sciences major.

The BSIS course of study is designed to meet the future needs of industry; in fact, industry leaders have guided the development of the program. The series of core courses will provide students with the requisite skills needed to succeed in the industry. In consultation with their advisor, students further augment their skills by enrolling in additional courses from three concentrations: Information Systems, User-Centered Design, and Networks and Security. All students also must complete an approved statistics course to graduate.

Elective Courses

Information Systems topics enable students to use object-oriented design tools to design, build, implement, and test Web-based information systems. Courses include:

JAVA II, Object-Oriented Design, GIS, Enterprise Systems, Architecture and OS, Web Services

User-Centered Design provides the visual and human-computer interaction skills needed to design and build prototypes of information systems interfaces, as well as to perform usability testing of these systems. Courses include:

User-Centered Design, Visualization, Web Programming, Graphics

Networks and Security offers skills needed to design, build, and test LANS, WANS, wireless, Internet, and Web-based networks. Courses include:

Networks II, Computer Security, Wireless Networks, Mobile Applications.

Capstone Requirement

All BSIS majors will participate in a capstone experience as a final enhancement to their practical skills. This one-course requirement may be an internship with a regional industry, assisting with a graduate-level research project, or a self-designed independent study.

Opportunities for Graduates with a BS in Information Science

Training in information science has universal applications throughout society—in banking, law, administration of justice, health records and healthcare delivery systems, pharmacies, libraries, judicial systems, communication, education, agriculture, private industry, and governmental agencies. Modern technology has provided numerous tools for managing the growth and use of knowledge and meeting the day-to-day demands for the application of knowledge resources to human problem solving and decision making. Economists tell us that employment in agriculture, manufacturing, and service occupations has now been surpassed by employment based entirely on the production, utilization, and transfer of information. These indicators point to an increasing demand for information professionals at all levels of training. Generally speaking, information science majors holding a baccalaureate degree can expect to work as part of an interdisciplinary team, designing individual systems and networks that generate, store, transfer, and utilize data and information.

Graduate Programs for Information Sciences Students

BSIS students seeking advanced degrees often pursue them in fields such as information science, telecommunications, business, law, library science, and health-related professions, to name a few.

Endnotes

At the present time, information science graduates are in great demand. Employers are expressing interest in college graduates with a fundamental awareness and understanding of the phenomenon of information, and of systems that organize and manage the flow of information. Employers are beginning to realize that it is people who design and develop information systems, and it is also people who use these systems. They are looking more and more for individuals who know something about how people behave and why they behave the way they do, in addition to the technical aspects of information. Many employers developing systems to handle their information needs and problems are sending individuals to become information systems specialists at company expense. The field is new and exciting, and people entering now are going to be the leaders of the future.

For more information about the information sciences program, contact:

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School of Information Sciences
Robert R. Perkoski
Director, Undergraduate Program
505 SIS Building
Pittsburgh, PA 15260
412-624-5143
www.sis.pitt.edu
E-mail: perks@pitt.edu

For more information about other majors, contact:

University of Pittsburgh
Office of Admissions and Financial Aid
Alumni Hall, 4227 Fifth Avenue
Pittsburgh, PA 15213
412-624-PITT
E-mail: oafa@pitt.edu
www.pitt.edu/~oafa

Special Programs and Opportunities

Speigel Book Scholarship

This \$250 book award is offered yearly to a deserving full-time student in the BSIS program. The student must have a quality point average of 3.0, be an upperclass student, and be financially disadvantaged. Students must submit a 500–1,000-word essay on a topic that focuses on communications and technology.

Internships

Having an internship can be one of the most enlightening and productive aspects of your undergraduate education. It not only gives you a closer look at working in a particular field but can help you gain a competitive edge, make contacts in the marketplace, and earn credits toward your degree. All BSIS undergraduates are encouraged to seek part-time employment directly related to their career goals. However, not just any job will qualify as an internship; therefore, each job assignment is evaluated on an individual basis. Some companies that have offered internships are American Management Systems, Eli Lilly, Mellon Financial Corp., Union Switch & Signal Inc., and U.S. Steel. Typical job titles include programmer, software developer, database developer, user trainer, help desk support, and Web page designer.

Undergraduate Research

During past years, the School of Information Sciences faculty has won more than \$3 million in research, equipment, and training funds. Qualified undergraduate students have the opportunity to work with faculty on research projects related to the faculty's areas of interest, which include systems analysis and design, telecommunication and networking, visualization, human/computer interface, and information storage and retrieval.

American Society for Information Science (ASIS)

The School of Information Sciences (SIS) has a student chapter of ASIS and is open to all SIS students. Activities include participation in the ASIS meetings; monthly meetings here at SIS, which include guest speakers; and tours of local facilities of interest. The organization's goal is to foster professionalism, not to serve as a social organization.

PRISM

Pitt Representation of Information Science Majors (PRISM) represents the body of information sciences undergraduates. It is an active organization that offers information pertaining to the major by sponsoring workshops, speakers, and presentations. It also lays the foundation for possible awards and scholarships for students with academic integrity and leadership qualities.

Special Libraries Association (SLA)

Members belong to both the student chapter and the Pittsburgh chapter of SLA, which meets monthly in different places in the Pittsburgh area for dinner and a program that usually includes a speaker of interest to chapter members. The student group has its own activities, including speakers and tours of area special libraries.

Volunteer Service

Volunteering gives you valuable experience that enhances your learning, personal development, and the process of discovering your interests. The Student Volunteer Outreach center coordinates a variety of volunteer opportunities with local community agencies and annual programs such as the mentoring and tutoring programs, Junior Achievement, Alternative Spring Break, and annual volunteer agency fair. Several local not-for-profit organizations have requested volunteers to help with the design and evaluation of their information systems.