The Department of Computing Sciences at the University of Scranton offers three undergraduate majors, each of which prepares students for professional careers and for advanced study. The emphasis is on mastering the foundational concepts of computing while making use of state-of-the-art tools.

The Bachelor of Science Degree (B.S.) in Computer Science (CS) was first offered in 1970, making it one of the oldest and most established programs in the state of Pennsylvania.

The Bachelor of Science Degree (B.S.) in Computer Information Systems (CIS) was established in 1985 to better serve the needs of those students interested in the application of computing in the business and management domains.

The newly established Bachelor of Science Degree (B.S.) in Information Technology (IT) will enroll its first students in Fall 2016, and this program will focus on applying technology to solve problems within organizations.

Additionally, since 1990 the department has offered a Master of Science (M.S.) degree program in Software Engineering (SE). This program has attracted experienced software developers as well as students coming directly out of undergraduate programs. A Combined Baccalaureate/Masters Degree Program provides a means for qualified undergraduate students to earn both B.S and M.S. degrees in five years.

Undergraduate Curricula

The Computer Science, Computer Information Systems and Information Technology programs share a common core of introductory courses during the first year of study. These courses prepare students in the underlying foundation concepts and skills of the computing discipline. All three programs culminate during the senior year in the Computer Projects course, when students undertake a project in collaboration with a faculty advisor. In addition to developing the artifacts of the project, students must also satisfy significant reporting requirements as a means of honing their communication skills. Students are further encouraged to pursue internship and undergraduate research opportunities.

The Computer Science major is accredited by ABET (http://www.abet.org), the recognized accrediting body for college and university programs in applied science, computing, engineering and technology. It is the only such accredited Computer Science degree program in Northeastern Pennsylvania, and Scranton is one of just twenty schools in the state of Pennsylvania with such an accredited computing program.

Related Programs

The undergraduate program in Computer Engineering (CE), offered through the department of Physics/ECE, requires 26 credits of course work in our department.

Proficiencies

Students gain experience utilizing a variety of languages (including Java, Python, C/C++, PHP, LISP and assembler) and systems (including MS Windows, OS X, UNIX, Linux, FreeBSD and Linux). Students have the opportunity to explore the application of TCP/IP, Web servers (including Apache and Tomcat), database management systems (including MySQL and PostgreSQL), JDBC, Java Servlets and various wireless technologies. Projects involving software development for mobile devices have involved students with Android and Apple iOS. This variety provides valuable and marketable expertise to augment the theory and conceptual understanding emphasized in coursework.

Facilities

In addition to the general computing resources available to all University students, the Department of Computing Sciences provides a variety of computing resources dedicated to the support of programs in computing. Laboratories on the first floor of the Loyola Science Center, near faculty offices, provide reconfigurable space for these resources, most of which are accessible from both on and off campus locations. The department is a member of the MSDN® Academic Alliance (MSDNAA), which offers a wide range of Microsoft software development tools (including Visual Studio .NET).

Graduates

Graduates of our programs experience great success in securing professional employment in the discipline and in completing graduate study. Recent employers include Lockheed Martin, New York Times, Metropolitan Life, Microsoft and TMG Health, with graduates earning competitive starting salaries. Alumni have completed advanced degrees at Carnegie Mellon, Drexel, Harvard, Iowa State, Lehigh, Penn, Rensselaer, UConn, UMass, Yale and other schools.

The more than 1,000 accomplished alumni of these programs attest to the stability, relevance and quality of the educational experience here. Students are not only well prepared to enter their profession, but are also ready to evolve with and contribute to the discipline and the world as they learn throughout their careers.
COMPUTER SCIENCE MAJOR

This program’s focus is on mastering the underlying concepts of computing with an emphasis on software engineering. The program is supplemented by courses in mathematics and the natural sciences and prepares students for advanced study and wide-ranging professional careers in computing, including software development.

MINOR: To minor in Computer Science, the student must take a minimum of 20 credits including CMPS 134, Math 142, CMPS 144, CMPS 240, and at least two of CMPS 250, 260, 311, 341, 344, 350, 352, 354, 355, 356, 358, 360, 362, 364, 370, 372, 374, 376, or 384.

INFORMATION TECHNOLOGY SYSTEMS MAJOR

This program focuses on the development of information systems and is supplemented by courses from the Kania School of Management. The program prepares students to be information systems professionals capable of configuring and developing software applications. Graduates are qualified to pursue advanced degrees in computing or an M.B.A.

MINOR: To minor in Computer Information Systems, the student must take a minimum of 18 credits including CMPS 134, CMPS 136 or 144, CMPS 130, CMPS 331 and two of Math 142, CMPS 202 or 312, CMPS 240, 311, 340, 356, or 376.

INFORMATION TECHNOLOGY MAJOR

This program provides students with knowledge and abilities that prepare them for careers in Information Technology (IT) and for continued professional development. The IT professional understands, evaluates, applies, and manages the structure with pervasive topics, such as security, spanning natural sciences and mathematics and the theoretical foundations, such as security, spanning natural sciences and mathematics.

The major courses follow a well-defined prerequisite structure with pervasive topics, such as security, spanning multiple courses. A noteworthy aspect of the program is that the Cognitive Area requires both breadth and depth of study in relevant areas, and also provides an opportunity for the completion of a related minor. A capstone course in the senior year requires each student to complete a project under the direction of a faculty member. Opportunities exist for internship and practice.

1- The selection of a First Year Seminar is likely to fulfill requirements for both the First Year Seminar and a General Education Requirement. Thus, the First Year Seminar will not add to the total credits for the semester. Talk with your advisor if you have any questions.

2- Computer Science majors must complete at least 12 credits of science courses, including a two-semester sequence in a laboratory science for science or engineering majors. Qualifying sequences include 104-141, 105-141, 112-140, 113-141, 113-142, and 114-142. (Other sequences require approval of the department.) The remaining credits must be approved by departmentally approved courses that enhance the student’s ability to apply the scientific method.

3- Major electives in Computer Science must be chosen from CMPS 341, 354, 355, 356, 358, 360, 362, 364, 370, 372, 374, 384, 393, 440 and 481.

4- Either a mathematics course at the 300 level or above or a science course approved by the department.

5- a or STAT 251


* Recommendations include BIO 110-111, CHEM 110-111, PHYS 110-121

** Recommendations include ECON 153, ECON 154, SOCI 210, PSYC 110

COMPUTER INFORMATION SYSTEMS MAJOR

To minor in Computer Information Systems, the student must take a minimum of 20 credits including CMPS 134, Math 142, CMPS 144, CMPS 240, and at least two of CMPS 250, 260, 311, 341, 344, 350, 352, 354, 355, 356, 358, 360, 362, 364, 370, 372, 374, 376, or 384.

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At least two courses from one of the areas below, and at least one course from one of the other areas. Alternatives must be approved by the student’s departmental Academic Advisor.

- Accounting (ACC 253 - Financial Accounting, ACC 254 - Managerial Accounting)
- Art (ART 112 - Color and Design)
- Communication (COMM 214 - Small Group Communication, COMM 332 (Organization Communication)

FINANCES: (FIN 251 - Introduction to Finance)

Health Administration (HADM 111 - Introduction to Health Administration, HADM 112 - Health Systems, HADM 211 - Health Administration)

Marketing (MKT 301 - Principles of Marketing)

Management (MGT 251 - Legal Environment of Business, MGT 351 - Principles of Management I, MGT 352 - Principles of Management II)

Mathematical and Theoretical Foundations (CMPS 260 - Theoretical Foundations of Computer Science, MATH 114 - Calculus I, MATH 116 - Cryptography)

Psychology (PSY 236 - Learning, Perception, PSY 236 - Industrial/Organizational Psychology)

Writing (WRTC 211 - Writing for the Workplace)