Information Sciences and Technology Programs
“In today’s global environment, the study of IST is about educating the next generation of leaders in this digital world. By working on real-world problems in industry, government, and nongovernment organizations, IST graduates can understand how people, technology, and information unite to solve problems. Our IST graduates are motivated by the interdependence between the human enterprise and vast flows of information with which they engage, whether they are designing and implementing health care solutions in rural Africa, repairing computers damaged by hurricanes on the U.S. Gulf coast, or protecting sensitive computer networks from intrusion.

“Regardless of your level of experience or education, our goal is to provide you with skills you can immediately use across a variety of fields and industries. As you look to advance your current career or explore new career opportunities, I invite you to consider Penn State’s online degrees and certificates in information sciences and technology.”

—Dr. Peter Forster
Assistant Dean for Online Programs and Professional Education
College of Information Sciences and Technology
Penn State’s online information sciences and technology (IST) programs combine IT and management knowledge that you can apply to any industry. You receive the high-quality education that Penn State is known for, delivered conveniently online so that you can take courses anytime, anywhere—allowing you to continue to meet your personal and professional commitments while gaining knowledge that you can immediately apply to your current job.

**Degrees:**
- Master of Professional Studies in Information Sciences
- Bachelor of Science in Information Sciences and Technology
- Bachelor of Science in Security and Risk Analysis
- Associate in Science in Information Sciences and Technology

**Certificates:**
- Postbaccalaureate Certificate in Information Systems Security
- Undergraduate Certificate in Security and Risk Analysis
- Undergraduate Certificate in Information Sciences and Technology

**Minors:**
- Information Sciences and Technology Minor
- Security and Risk Analysis Minor

The IST portfolio is designed so that many of the credits you earn in the minors or undergraduate certificate programs or the associate degree in IST can be applied toward the bachelor’s degree if you choose to continue your education. Entry into the bachelor’s or associate degree, however, isn’t contingent on completing the certificate or minor. The same holds true for the bachelor’s degree; you are not required to complete the associate degree before enrolling in the bachelor’s program.

**Penn State on Your Résumé**
No matter which program you choose, your courses will be taught by Penn State faculty. You’ll receive the same support that students have in our traditional IST programs, and the credentials you earn will be the same as those earned from one of Penn State’s other colleges or campuses.
Master of Professional Studies in Information Sciences—Cybersecurity and Information Assurance Option

Cybersecurity and information assurance are redefining how we do business at all levels of corporations and governments. Insider threats, cyber espionage, and threats to our national infrastructure from rogue organizations demand highly trained and capable individuals with the skills to recognize and prevent these crimes.

The knowledge and skills that you can acquire in the Master of Professional Studies in Information Sciences (MPS in IS)—Cybersecurity and Information Assurance Option program have broad government and industry application. Key concepts, such as identifying and mitigating the insider threat or using structured analytics to improve situational awareness, are critical to ensuring information confidentiality, integrity, and accessibility. The online MPS in IS degree is designed to improve the knowledge and skills of cybersecurity specialists, whether they are managing medical records, conducting information operations against rogue nations, or mitigating a network intrusion at a major financial center.

As a graduate, you may work in various occupations, such as:

- intel analysis
- information assurance engineering
- computer systems security analysis
- information security/digital forensics
- systems integration
- security analysis
- security administration
- security architecture
The MPS in IS is a 33-credit degree program that you can complete in 24 months or less, on a part-time basis. The course work provides in-depth exploration into the nature of information and networks, recognizing the threat posed by cyber-space, and preventing unwanted intrusions, corruption, and unexpected losses from natural or man-made disasters.

Course Work

In addition to the core courses, you must complete 12 required credits and 9 elective credits to satisfy the requirements for the degree.

The cybersecurity and information assurance courses include:

- IST 456—Information Security Management (3 credits)
- IST 555—Intelligent Agents and Distributed Decision Making (3 credits)
- IST 815—Information Security and Assurance (3 credits)
- IST 885—Introduction to Multisensor Data Fusion (3 credits)

The National Security Agency and the Department of Homeland Security have designated Penn State as a National Center of Academic Excellence in Information Assurance Education. The designation demonstrates Penn State’s commitment to academic excellence in information security and assurance education.

Postbaccalaureate Certificate in Information Systems Security

This 15-credit certificate can provide a more in-depth knowledge about information security. You will study the principles, models, tools, and applications in information security, focusing on network security, security and risk management, digital forensics, crisis and disaster management, and web security and privacy.

Find a complete list of the courses on the website.
As the IT field continues to change and evolve, it takes more than just experience to open doors to new opportunities. You need a respected education from an accredited university. If you want to move ahead in your current position—or change fields altogether—and improve your earning potential, getting a BS in IST is a great way to prepare for that next step. And with Penn State on your résumé, you can be confident that employers will give you a second look.

The BS in IST is designed to provide you with the skill set you need for a successful career in the global marketplace. The program can help you enhance your knowledge of core information technologies and prepare you to apply that knowledge in a practical setting. Through a combination of independent study and team projects with fellow students, you can expand your knowledge about the use of information technologies and how those technologies support organizational functions, project management, teamwork, problem solving, and presentation skills.
Penn State’s 125-credit BS in IST is designed to prepare you to use information technology to realize a variety of system-based goals (e.g., reliability, accessibility, and efficiency, etc.). The degree focuses on developing the skill set needed for integrating information technology into different systems to maximize and enhance system performance. The emphasis is on providing you with the frameworks you need to use information technology as a system attribute as well as a set of application-oriented experiences and skills. The Integration and Application option is more of a balanced blend of technology and “people” skills.

In addition to program-specific General Education and elective courses, you must complete the following courses to satisfy the requirements for the degree:

**CMPSC 101**—Introduction to C++ Programming (3 credits)

**IST 110**—Information, People, and Technology (3 credits)

**IST 210**—Organization of Data (4 credits)

**IST 220**—Networking and Telecommunications (3 credits)

**IST 230**—Language, Logic, and Discrete Mathematics (3 credits)

**IST 240**—Introduction to Computer Languages (3 credits)

**IST 301**—Information and Organizations (3 credits)

**IST 302**—IT Project Management (3 credits)

**IST 331**—Organization and Design of Information Systems: User and System Principles (3 credits)

**IST 420**—Fundamentals of Systems and Enterprise Integration (3 credits)

**IST 421**—Advanced Enterprise Integration: Technologies and Applications (3 credits)

**IST 440W**—Information Sciences and Technology Integration and Problem Solving (3 credits)

**IST 495‡**—Internship (1 credit)

**STAT 200**—Elementary Statistics (4 credits)

‡Internships provide valuable experience for students; however, we realize that situations vary, and some students, due to work or other commitments, are unable to adjust their schedules. You are encouraged to contact your adviser to make arrangements for suitable activities in lieu of an internship.
Bachelor of Science in Security and Risk Analysis—Information and Cyber Security

“The security and effective operation of U.S. critical infrastructure—including energy, banking and finance, transportation, communication, and the Defense Industrial Base—rely on cyberspace, industrial control systems, and information technology that may be vulnerable to disruption or exploitation.”

—Department of Defense Strategy for Operating in Cyberspace

As a leader in new technologies, corporate innovation, global finance and trade, and defense, the United States is an attractive target for criminals and foreign entities that use cyberspace to gather information and pursue illicit activities. This threat will increase. As the use of technology becomes more prolific, the need for cyber security increases, and with it, the need for cyber security professionals who can recognize threats and address vulnerabilities that exist today and others that may be on the horizon.

Our online bachelor of science program is designed to provide you with a skill set that is in increasing demand in the global marketplace. The program prepares you to apply the skills you learn—today—in almost any industry.
Curriculum

The BS in SRA is intended to familiarize you with the general frameworks and theories of information security and related risk analyses. The courses were designed to introduce you to the tools and skills needed for assuring information confidentiality and integrity (e.g., social, economic, technology-related, and policy issues), as well as the strengths and weaknesses of various methods for assessing and mitigating associated risk and vulnerabilities.

In addition to program-specific General Education and elective courses, you must complete the following courses to satisfy the requirements for this degree:

**SRA 111**—Introduction to Security and Risk Analysis (3 credits)

**SRA 211**—Threat of Terrorism and Crime (3 credits)

**SRA 221**—Overview of Information Security (3 credits)

**SRA 231**—Decision Theory and Analysis (3 credits)

**SRA 311**—Risk Management: Assessment and Mitigation (3 credits)

You will also be required to complete:

**CMPSC 101**—Introduction to C++ Programming (3 credits)

**IST 110**—Information, People, and Technology (3 credits)

**IST 210**—Organization of Data (4 credits)

**IST 432**—Legal and Regulatory Environment of Information Science and Technology (3 credits)

**IST 440W**—Information Sciences and Technology Integration and Problem Solving (3 credits)

**IST 495†**—Internship (1 credit)

**STAT 200**—Elementary Statistics (4 credits)

**STAT 460**—Intermediate Applied Statistics (3 credits)

†Internships provide valuable experience for students; however, we realize that situations vary, and some students, due to work or other commitments, are unable to adjust their schedules. You are encouraged to contact your adviser to make arrangements for suitable activities in lieu of an internship.
Change is certain in the IT industry. As technologies are replaced by newer ones, working professionals are no longer being asked to just get the latest certifications or learn the latest information technologies. Today’s IT professionals are required to know how to manage those changing technologies.

Technology leaders need a well-rounded, respected education and reputable credentials to set themselves apart. And there’s never been a better time to get those credentials than now.

Penn State’s associate degree in information sciences and technology (IST) helps you respond to those changing industry needs. It also keeps the needs of the working adult learner in mind by offering convenience and flexibility, and excellent student services and technical support are just some of the benefits you’ll enjoy as a Penn State online student.

The online associate degree in IST is structured to prepare graduates for excellent employment opportunities in the broad disciplines of information science and technology. It is ideal for working IT professionals with little or no formal background in IT and for IT novices who want to pursue a career in technology management.
Curriculum

The online 60-credit degree program can prepare you for positions ranging from computer support specialist or network administrator, to application programmer or information support specialist. You can also learn to manage others and gain experience in the nontechnical aspects of organizations.

**IST 110**—Information, People, and Technology (3 credits)

**IST 111S**—Seminar in Information Sciences and Technology (1 credit)

**IST 210**—Organization of Data (4 credits)

**IST 220**—Networking and Telecommunications (3 credits)

**IST 250**—New Media and the Web (3 credits)

**IST 260W**—Introduction to Systems Analysis and Design (3 credits)

**IST 295A**—Distributed Team Project (1 credit)

or

**IST 295B**—IST Internship (1 credit)

As part of the associate degree in IST, you may choose from one of the following three options, allowing you a level of specialization in areas that may be of interest to you. They may be used as preparation for further study if you choose to continue on and obtain your bachelor’s degree. Visit the website to learn more about the requirements for each option.

**Generalized Business Option**

This option, requiring 15 credits to complete, allows you to specialize in the general business areas of accounting, marketing, and management. It is designed to provide the foundational aspects of the business environment and to prepare you for additional employment opportunities or re-entry into the work place.

**Individualized Option**

The 15-credit individualized option was developed as a way for you to use a variety of courses to meet the degree requirements while providing you with more specific specialization to meet your professional objectives. Be sure to work with your academic adviser to make sure that the courses you want will apply to the degree.

**Baccalaureate Option**

If you choose to go on and pursue your bachelor’s degree in IST after successfully completing your associate degree in IST, most of the credits you earned in the associate degree will count toward meeting many of the degree requirements for the BS in IST. You should contact your adviser for additional information and to discuss the bachelor’s degree in more detail.
Undergraduate Certificate in Security and Risk Analysis

The four-course, 12-credit SRA certificate covers information systems, information assurance (both digital and physical security), and intelligence analysis. Topics include social and legal issues related to security—particularly identity theft and social engineering—plus risk analysis and risk mitigation, crime intelligence and forensics, and information warfare and assurance.

Undergraduate Certificate in Information Sciences and Technology

Prepare for an entry-level position in IT with this 13-credit online certificate covering data organization, the networking and telecommunications industries, new media, and how the web uses emerging technologies. You can also learn how IT issues relate to broader business strategies.

Many of the credits you earn by successfully completing the SRA certificate or the IST certificate may apply to the requirements for Penn State’s Associate in Science in IST, the BS in IST, or the BS in Security and Risk Analysis.

www.worldcampus.psu.edu/InfoSci
SRA and IST Minors

The IST and SRA minors are open to interested undergraduate World Campus students who meet the prerequisites, and would be a beneficial addition to almost any major.

The Information Sciences and Technology minor was designed to prepare you for the practical application of information sciences and related technologies.

The Security and Risk Analysis minor is intended to familiarize you with the framework and theories that define security and related risk analysis.
Why Penn State?

Penn State has been serving students for more than 100 years through distance education and more than 15 years through online learning; we’ve used that experience to develop a nationally recognized support system for students who are geographically removed from campus.

➤ **A Quality, Respected Education**

Since its founding in 1855, Penn State has established itself as one of the most trusted and respected universities in the nation. Through education, research, and outreach, Penn State continues to respond to the changing economic and social needs of the Commonwealth, the nation, and the world. Our faculty and course designers develop our degrees and certificates specifically for the online adult learner, and you can expect our high-quality courses to fit into your busy schedule, providing immediate value to your career.

➤ **A Reputation of Excellence**

Penn State is regionally accredited by The Middle States Association of Colleges and Schools, with an outstanding reputation in research and teaching. The credits, transcripts, and diploma you earn with Penn State’s online programs will be identical to those received from any Penn State campus.

➤ **Learner and Technical Support, Service**

Without having to set foot on campus, you will have access to many of the same support services that residential students enjoy. Course scheduling and registration are available through the World Campus Student Services, and World Campus HelpDesk personnel are available to offer you technical support.

➤ **Library Services**

You will have access to one of the leading university research libraries in North America—the Penn State University Libraries system, which holds more than 7.3 million volumes and 105,000 serials. You can search the online catalog and review databases as if you were sitting at a terminal in any Penn State library.

[www.worldcampus.psu.edu/InfoSci](http://www.worldcampus.psu.edu/InfoSci)
Begin Your Application Today

To begin taking courses, you need to submit the online application form for the program of your choice. To start the application process, visit www.worldcampus.psu.edu, choose your program of interest, and click on “Apply Now.”

**To apply to the undergraduate certificates, associate degree, or bachelor’s degree programs, you need to:**
- complete the World Campus online application form
- be a high school graduate or have completed the GED

**To apply to the postbaccalaureate certificate or master’s degree program, you must submit the following:**
- completed World Campus online application
- a one- to two-page personal statement of relevant experience and goals
- three letters of reference
- official (GRE) or the Graduate Management Admissions Test (GMAT)*
- TOEFL or IELTS score (if applicable)
- official transcripts
- current résumé

*GRE or GMAT requirement may be waived if you have five or more years of relevant work experience

Note: Applicants to the postbaccalaureate certificate or master’s degree program must have received, from an accredited institution, a baccalaureate degree with requirements substantially equivalent to those at Penn State.

For more information about admission requirements, please visit the respective program websites.

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**Did you know?**

- Penn State degrees and certificates earned online are identical to those earned on campus.
- Penn State World Campus has enrolled students from all 50 states and all 7 continents.
- Our online courses involve frequent interactions between students and with instructors.
- Penn State is a provider in information security and assurance and has been designated as a National Center of Academic Excellence in Information Assurance Education by the National Security Agency and the U.S. Department of Homeland Security.
Contact Us
pennstateonline@psu.edu
www.worldcampus.psu.edu
800-252-3592 (toll free within the United States)
814-865-5403 (local and international)
814-865-3290 Fax

Student Services Hours
(inquiries and registration)
8:00 a.m.–9:30 p.m. ET Monday–Thursday
8:00 a.m.–5:00 p.m. ET Friday
Closed Saturday and Sunday

Admissions Counseling Hours
8:00 a.m.–8:00 p.m. ET Monday–Thursday
8:00 a.m.–5:00 p.m. ET Friday
Closed Saturday and Sunday

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