

**College of Information Sciences
and Technology**

The Roadmap

**A Bachelor's Degree Guide
2015 - 2016**

PENNSTATE



COLLEGE OF INFORMATION
SCIENCES AND TECHNOLOGY

Managing Information, Powering Intelligence

Undergraduate Advising Center

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Person-to-Person Advising

Penn State's College of Information Sciences and Technology prides itself on a personal touch in all that we do. This is particularly true of finding your way through your degree requirements, making course decisions, working out career plans, and simply figuring out what is best for you.

How to make an appointment:

Office hours are Monday through Friday, 8:00 a.m. to 5:00 p.m. To better serve you, appointments are preferred. Access the online Appointment Manager at <https://appointments.ist.psu.edu> if you are a Penn State Student; otherwise, call the advising center at 814-865-8947 to schedule an appointment.

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E-advising

Academic Advising (<http://ist.psu.edu/advising>)

The IST Advising Center provides information on IST and SRA curriculum, minors, and degree requirements.

The Office of Career Solutions and Corporate Engagement (<http://ist.psu.edu/current-students/careers>)

The IST Career Solutions office provides information and strategies for internships and professional placement.

eLion (<https://elion.psu.edu/>)

The University also offers a convenient and secure online method to answer many basic academic questions and to prepare you for a face-to-face visit with your academic adviser. eLion's web-based service not only gives you real-time access to academic records, but has many additional features to assist you in achieving your academic goals. eLion is typically operational twenty-four hours a day, seven days a week. Follow the "STUDENTS" category for information about specific features and available times.

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The Roadmap was accurate at press time.

The College of IST may make changes after the initial publication. Please check the *Current Students* web pages for the latest news, course information, and more at

<http://ist.psu.edu>

Penn State Campuses Offering College of Information Sciences and Technology Programs and Courses



Campus Colleges Offering the Bachelor of Science Degree in Information Sciences and Technology

- Penn State Abington (ISSAB)
- Penn State Berks (ISSBL)
- Penn State Harrisburg (ISSCA)
- Penn State World Campus (ISTBS)
- Penn State University Park (ISTBS)

University College (ISSCC)

- | | |
|------------------------------|---------------------------------|
| Penn State Beaver | Penn State New Kensington |
| Penn State Brandywine | Penn State Schuylkill |
| Penn State Greater Allegheny | Penn State Wilkes-Barre |
| Penn State Hazleton | Penn State Worthington Scranton |
| Penn State Lehigh Valley | Penn State York |
| Penn State Mont Alto | |

Campus Colleges Offering the Bachelor of Arts Degree in Information Sciences and Technology

- Penn State University Park (ISTBA)

Campus Colleges Offering the Bachelor of Science Degree in Security and Risk Analysis

- Penn State Altoona (SRAAL)
- Penn State Berks (SRABL)
- Penn State Harrisburg (SRACA)
- Penn State University Park (SRA)

Penn State's 2 + 2 Plan

This plan allows students the opportunity of beginning their education at one campus then transitioning to another campus to complete their degree. You can tailor your educational experience to meet your academic and personal goals.

Not all courses are offered at every campus each semester.

Check the Schedule of Courses to determine the availability of specific courses.

Information Sciences and Technology (ISTBS) Bachelor of Science Degree Options

The ISTBS major within the College of Information Sciences and Technology offers three options.

Information Systems: Design and Development (ISDEV)

In this option you will design software applications and integrate information technologies to meet a specific need and work on projects like developing applications for smartphones. If you enjoy working with unfamiliar software and computer languages, troubleshooting problems when things do not work, and thinking logically to solve complex problems, this is the option for you.

Information Technology: Integration and Application (ITINT)

This option examines how information technology can enable and support processes within and between businesses. You will analyze the needs of an organization, formulate and implement technology-based solutions, and evaluate the outcomes, working on projects like designing a software application to store genetic information used by researchers.

Information Context: People, Organizations, and Society (ISPP)

How businesses and other organizations use information technologies is the focus of this option. Did you ever wonder how Starbucks uses Twitter and other social media to promote its brand? Information Context can help you explore the possibilities. You are encouraged to think creatively and pursue opportunities that will allow you to see firsthand how people, information, and technology interact.

ISTBS Major Requirements

To earn your Bachelor of Science degree in Information Sciences and Technology, you must complete at least 125 credits. For suggestions on fulfilling your requirements, see the semester-by-semester *Recommended Academic Plans* in this book. You may wish to speak to your academic adviser because completion of some major requirements may also satisfy general education requirements. To keep track of your academic progress, check the online degree audit available through eLion. If you have any questions, make an appointment with your academic adviser.

GENERAL EDUCATION: 45 credits

Twelve of these credits are included in the requirements for the major (see below). For further details on general education requirements, please see the *University Bulletin*, online at <http://bulletins.psu.edu/bulletins/bluebook/>.

ELECTIVES: 8 credits

Depending on how you satisfy your world (foreign) language requirement, this number could change. See your academic adviser for details.

REQUIREMENTS FOR THE ISTBS MAJOR: 84 credits

This includes 12cr of General Education courses: 6cr of GQ; 3cr of GS; and 3cr of GWS courses.

COMMON REQUIREMENTS FOR ALL OPTIONS: 60 credits

PRESCRIBED COURSES: 26 credits

IST 110/110S* (3), IST 210* (3), IST 220* (3), IST 230* (3) (Sem: 1-4)

STAT 200 GQ (4) (Sem: 3-6)

IST 495* (1), (Sem: 3-8)

IST 301* (3), IST 331* (3), (Sem: 5-8)

IST 440W* (3) (Sem: 8)

ADDITIONAL COURSES: 13 credits

CMPSC 101* GQ (3), CMPSC 121* GQ (3), or IST 140* (3) (Sem: 1-4)

ECON 014 GS (3), ECON 102 GS (3), or ECON 104 GS (3) (Sem: 1-4)

ENGL 202C GWS (3) or ENGL 202D GWS (3) (Sem: 5-7)

MATH 110 GQ (4) or MATH 140 GQ (4) (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS: 21 credits

- Attainment of third-level proficiency in a single world (foreign) language (0-12 credits). The number of years of world (foreign) language you completed in high school, results of advanced placement or proficiency exams determine what level of language you will take. See your academic adviser for details.
- Select 6 credits of international courses in foreign culture from the College-approved list. (Sem: 5-8)
- Select 3 credits at the 400* level in emerging issues and technologies from the College-approved list. (Sem: 5-8)

REQUIREMENTS FOR THE ISTBS OPTIONS: 24 credits

INFORMATION SYSTEMS: DESIGN AND DEVELOPMENT OPTION: (24 credits)

PRESCRIBED COURSES: 6 credits

IST 242* (3) (Sem:1-4), IST 311* (3) (Sem: 5-8)

ADDITIONAL COURSES: 9 credits

Select 3 credits from IST 261* (3) or IST 361* (3) (Sem: 3-8)

Select 6 credits from IST 411* (3), 412* (3), or 413* (3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS: 9 credits

Select 9 credits in consultation with your academic adviser. (Sem: 5-8)

INFORMATION TECHNOLOGY: INTEGRATION AND APPLICATION OPTION: (24 credits)

PRESCRIBED COURSES: 9 credits

IST 302* (3), 420* (3) and 421* (3) (Sem: 5-8)

ADDITIONAL COURSES: 3 credits

Select 3 credits from IST 240* (3) or IST 242* (3) (Sem: 1-4)

SUPPORTING COURSES AND RELATED AREAS: 12 credits

Select 12 credits in consultation with your academic adviser. (Sem: 5-8)

INFORMATION CONTEXT: PEOPLE, ORGANIZATIONS, AND SOCIETY OPTION: (24 credits)

PRESCRIBED COURSES: 6 credits

IST 431* (3) and 432* (3) (Sem: 5-8)

ADDITIONAL COURSES: 6 credits

Select 3 credits from IST 240* (3) or IST 242* (3) (Sem: 1-4)

Select 3 credits from IST 302* (3) or 413* (3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS: 12 credits

Select 12 credits in consultation with your academic adviser. (Sem: 5-8)

The courses marked with an asterisk (*) must be completed with a grade of C or better.

ISTBS Common Required Courses

Common Required Courses are taken by all students majoring in the B.S. in Information Sciences and Technology independent of their option. **All common required courses must be completed with a grade of C or better.**

IST 110/ IST 110(S)	Information, People and Technology (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises. <i>IST 110/110S is a requirement for the ISTBS major, and cannot double-count as a GS.</i>
IST 140	Introduction to Application Development (3) A first course in concepts and skills for application development. Prerequisite: college algebra
IST 210	Organization of Data (3) Introduction to the concept of databases including the storage, manipulation, evaluation, and display of data and related issues. Prerequisite: IST 110/110S
IST 220	Networking and Telecommunications (3) Introduction to digital network topologies, transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security. Prerequisite: IST 110/110S
IST 230	Language, Logic, and Discrete Mathematics (3) Introduction to formal languages, mathematical logic, and discrete mathematics, with applications to information sciences and technology. Prerequisite: MATH 110 or MATH 140
IST 240 or IST 242	Introduction to Computer Languages (3) Introduction to the specification and application of languages and language paradigms which interact with computers. Prerequisite: CMPSC 101 or IST 140 Intermediate and Object-Oriented Application Development (3) Intermediate application development including algorithms, data structures, and object-oriented concepts. Prerequisite: IST 140 or CMPSC 121 or IST 240
IST 301	Information and Organizations (3) Overview of organizational structures and functions. Includes information processing and analytic perspectives of organizations. Prerequisite: IST 210, IST 220
IST 331	Organization and Design of Information Systems: User and System Principles (3) Interdisciplinary survey of topics related to the use and usability of information systems. Prerequisite: IST 230
IST 402	Emerging Issues and Technologies (3) Introduction to technology forecasting and analysis; overview of leading technologies in IST and how they impact information systems and users. College approved list includes: IST 441, IST 446, IST 451, IST 452, IST 453, and IST 454. Prerequisite: IST 210, IST 220 IST 402 can be taken 3 times for credit.
IST 440W	Information Sciences and Technology Integration and Problem Solving (3) Problem-based approach to technology integration by focusing on real-life problems faced by an organization. Prerequisite: ENGL 202C or ENGL 202D; seventh semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option.
IST 495	Internship (1) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. Prerequisite: prior approval of proposed assignment by instructor IST 495 can be taken 3 times for credit.

Other IST Courses

Additional courses offered by the College of Information Sciences and Technology. **Not all courses are offered every semester. Semester specific course offerings can change. Please check with your academic adviser.**

The College also offers special topic courses numbered IST 297/397/497 that take an in-depth look at a variety of topics or special areas of interest. These courses may be available for one or more semesters, and may count towards your ISTBS degree requirements. Check the IST website at <http://ist.psu.edu/current-students/featured-courses> for current offerings.

Engaged scholarship opportunities can be explored in the form of Research Projects (IST 294/494) and Independent Studies (IST 296/496) with IST faculty members. See your academic adviser for details.

IST 130	Emerging Technologies in Popular Culture (3) (GA) A survey course that explores emerging technologies used to produce and consume popular cultural artifacts. <i>Cannot be used as GA for students in the ISTBS program.</i>
IST 234	New Media, Individuals, and Institutions (3) (GS) Introduction to the rapidly changing world of new media, and their communicative and social impacts on individuals and institutions. Prerequisite: IST 110/110S
IST 235	Gender and the Global Information Technology Sector (3) (US) (WMNST 235) Integrates information technology and gender studies. Overview of issues and socio-cultural shaping of gender in the IT field.
IST 237	Digital Entrepreneurship (3) Introduction to foundational concepts for starting and operating digital business, including business models, funding, strategic, operational, structural, and cultural components.
IST 250	New Media and the Web (3) Introduction to how the World Wide Web utilizes emerging technologies. Students acquire conceptual understanding of constructing Web sites. Prerequisite: IST 110, or concurrent enrollment
IST 256	Web Application Development (3) Web application development concepts, tools, and techniques. Prerequisite: IST 250
IST 261	Application Development Design Studio I (3) Introductory design and development studio course for IST and SRA students. Prerequisite: IST 242 or approval of instructor
IST 294	Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.
IST 296	Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.
IST 297	Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.
IST 302	IT Project Management (3) Exploration and application of the basic concepts, methodologies, and tools of project management in the field of information sciences and technology. Prerequisite: IST 210, IST 220
IST 311	Object-Oriented Design and Software Applications (3) Introduction to object-oriented applications including applications in an Object Oriented Design (OOD) language or OOD languages. Prerequisite: IST 242 or CMPSC 221
IST 337	Technologies for Digital Entrepreneurs (3) Introduction to the tools available to IT entrepreneurs considering starting-up or looking to develop new applications.

Other IST Courses (continued)

IST 341	<p>Human Diversity in the Global Information Economy (3) (US; IL) Globalization, human diversity and their impacts on IT products, work, workforce, and the knowledge economy and social inclusion in general. Prerequisite: IST 110/110S</p>
IST 361	<p>Application Development Design Studio II (3) Second of two design and development studio courses for IST and SRA students. Prerequisite: IST 311</p>
IST 390	<p>Professional Development (1) Interdisciplinary course to introduce students to the issues, concepts and skills involved in successfully transitioning into professional life.</p>
IST 397	<p>Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.</p>
IST 411	<p>Distributed-Object Computing (3) Introduction to distributed-object computing and its use in client/server and real-world computing applications. Prerequisite: IST 311 <i>IST 411 is offered spring semester only.</i></p>
IST 412	<p>The Engineering of Complex Software Systems (3) Introduction to the engineering of complex software systems including software system specification, design and implementation, integration and test, and evolution. Prerequisite: IST 311 <i>IST 412 is offered fall semester only.</i></p>
IST 413	<p>Usability Engineering (3) This course addresses activities in the system development process that ensure usability. It considers the emerging concept of usability, requirements gathering and analysis, activity design, information design, interaction design, documentation design, user testing and usability evaluation. Prerequisite: IST 331</p>
IST 420	<p>Fundamentals of Systems and Enterprise Integration (3) Introductory course on integration of information technology into different venues, including the planning, development, and implementation of the integration. Prerequisite: IST 240, IST 301, IST 302</p>
IST 421	<p>Advanced Enterprise Integration: Technologies and Applications (3) Advanced course on the integration of information technology into systems applications. Prerequisite: IST 420</p>
IST 422	<p>Enterprise Architecture Foundations (3) Theoretical foundations and practice of enterprise architecture. Prerequisite: IST 301</p>
IST 423	<p>Enterprise Information Management and Storage Architecture (3) Provides in-depth study of the concepts, issues, and technologies associated with the complex world of enterprise information and storage architecture. Prerequisite: IST 301</p>
IST 424	<p>Architectural Modeling of Organizations (3) Theoretical foundations and practice of enterprise modeling. Prerequisite: IST 301</p>
IST 425	<p>New Venture Creation (3) Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and present to investors. Prerequisite: ECON 102 or ECON 104 or ECON 014; CAS 100</p>
IST 426	<p>Invention Commercialization (3) Working with Penn State inventions selected by the Intellectual Property Office, student teams define an optimum commercialization path for each technology. Prerequisite: ECON 102 or ECON 104 or ECON 014; CAS 100</p>

Other IST Courses (continued)

IST 431	<p>The Information Environment (3) Survey of social environment of information technology themes: Community, sovereignty, privacy, ethics, economics, and knowledge management. Prerequisite: IST 210, IST 220</p>
IST 432	<p>Legal and Regulatory Environment of Information Science and Technology (3) Legal environment of information technology, constitutional/political issues, intellectual property, management, e-commerce, privacy, access, computer contracting, cyberspace regulation. Prerequisite: IST 301 or SRA 231 or equivalent</p>
IST 437	<p>Digital Design & Innovation (3) This course introduces students to design thinking, user-driven innovation and user experience, and business model implementation issues for IT-driven innovation. Prerequisite: IST 237</p>
IST 441	<p>Information Retrieval and Organization (3) Introductory course for seniors and graduate students covering the practices, issues, and theoretical foundations of organizing and analyzing information and information content for the purpose of providing access to textual and non-textual information resources. Introduces students to the principles of information storage and retrieval systems and databases. Prerequisite: IST 210, IST 240</p>
IST 442	<p>Information Technology in an International Context (3) (IL) International concepts to improve strategies for the design, dissemination, and use of information technology. Prerequisite: IST 110/110S</p>
IST 443	<p>Information Technology Professional Services Theory and Practice (3) Explores and applies the basic concepts, methodologies, tools, and techniques of consulting and professional service organizations in information sciences and technology. Prerequisite: IST 210, 220; Prerequisite or concurrent: IST 302 or IST 412</p>
IST 444	<p>Advanced IT Professional Services (3) Explores advanced IT professional services topics, and the unique application of consulting methods in various industry sectors. Prerequisite: IST 443</p>
IST 445H	<p>Globalization Trends and World Issues (3) This course covers trends in globalization and their influence on U.S. policy making as well as the role of the U.S. in international issues. Prerequisite: 6 credits of honors course work</p>
IST 446	<p>An Introduction to Building Computer/Video Games (3) An interdisciplinary course that introduces students to process and techniques involved in developing a video or computer game. Prerequisite: IST 311, IST 331 or approval of program</p>
IST 451	<p>Network Security (3) Fundamental issues and concepts of network security, network security technologies and protocols, and emerging technologies in network security. Prerequisite: IST 220, SRA 221</p>
IST 452	<p>Legal and Regulatory Environment of Privacy and Security (3) Exploration of legal, regulatory, public policy, and ethical issues related to security and privacy for information technology professionals in public institutions, private enterprise, and IT services. Prerequisite: IST 432</p>
IST 453	<p>Legal, Regulatory, Policy Environment of Cyber Forensics (3) Legal, regulatory and public policy environment of computer and network forensics that constrain investigatory and monitoring activities in computer and network environments. Prerequisite: IST 110/110S and 6th-semester standing or higher.</p>
IST 454	<p>Computer and Cyber Forensics (3) Fundamental issues and concepts of computer forensics; aspects of computer and cyber crime; methods to uncover, protect, exploit, and document digital evidence; tools, techniques, and procedure to perform computer and cyber crime investigation. Prerequisite: IST 220, SRA 221</p>

Other IST Courses (continued)

IST 456	Information Security Management (3) Contemporary Security Issues; security management processes, architecture and models; risk analysis and management; security planning, analysis and safeguards; security policies development and administration; contingency planning, incidence handling and response; and security standards and certification processes. Prerequisite: IST 220, SRA 221
IST 489H	Research Methods for the Information Sciences and Technology (3) Seminar course focused on approaches to studying information and communication technologies and writing theses and other research reports. Prerequisite: IST 110, honors standing or permission of program
IST 494	Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.
IST 496	Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.
IST 497	Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.

ISTBS Option Courses

Each option in the ISTBS curriculum has 9-12 credits of prescribed coursework that distinguishes the focus of study.

All prescribed courses must be completed with a grade of C or better. Not all courses are offered every semester. Semester specific course offerings can change. Please check with your academic adviser.

Information Systems: Design and Development

IST 311 is a required course (3cr)	
IST 311	Object-Oriented Design and Software Applications (3) Introduction to object-oriented applications including applications in an OOD language. Prerequisite: IST 242 or CMPSC 221
Select 3 credits from IST 261 or IST 361 (3cr)	
IST 261	Application Development Design Studio I (3) Introductory design and development studio course for IST and SRA students. Prerequisite: IST 242
IST 361	Application Development Design Studio II (3) Second of two design and development studio courses for IST and SRA students. Prerequisite: IST 311 <i>IST 361 is offered in spring only.</i>
Select 6 credits from IST 411, IST 412, and IST 413 (6cr)	
IST 411	Distributed-Object Computing (3) Introduction to distributed-object computing and its use in client/server and real-world computing applications. Prerequisite: IST 311 <i>IST 411 is offered in spring only.</i>
IST 412	The Engineering of Complex Software Systems (3) Introduction to the engineering of complex software systems including software system specification, design and implementation, integration and test, and evolution. Prerequisite: IST 311 <i>IST 412 is offered in fall only.</i>
IST 413	Usability Engineering (3) This course addresses activities in the system development process that ensure usability. It considers the emerging concept of usability, requirements gathering and analysis, activity design, information design, interaction design, documentation design, user testing and usability evaluation. Prerequisite: IST 331

Information Technology: Integration and Application

IST 302, 420, and 421 are required courses (9cr)	
IST 302	IT Project Management (3) Exploration and application of the basic concepts, methodologies, and tools of project management in the field of information sciences and technology. Prerequisite: IST 210, IST 220
IST 420	Fundamentals of Systems and Enterprise Integration (3) Introductory course on integration of information technology into different venues, including the planning, development, and implementation of the integration. Prerequisite: IST 240, IST 301, IST 302
IST 421	Advanced Enterprise Integration: Technologies and Applications (3) Advanced course on the integration of information technology into systems applications. Prerequisite: IST 420

Information Context: People, Organizations, and Society

IST 431 and IST 432 are required courses (6cr)	
IST 431	The Information Environment (3) Survey of social environment of information technology themes: Community, sovereignty, privacy, ethics, economics, and knowledge management. Prerequisite: IST 210, IST 220
IST 432	Legal and Regulatory Environment of Information Science and Technology (3) Legal environment of information technology, constitutional/political issues, intellectual property, management, e-commerce, privacy, access, computer contracting, cyberspace regulation. Prerequisite: IST 301 or SRA 231 or equivalent
Select between IST 302 and IST 413 (3cr)	
IST 302	IT Project Management (3) Exploration and application of the basic concepts, methodologies, and tools of project management in the field of information sciences and technology. Prerequisite: IST 210, IST 220.
IST 413	Usability Engineering (3) This course addresses activities in the system development process that ensure usability. It considers the emerging concept of usability, requirements gathering and analysis, activity design, information design, interaction design, documentation design, user testing and usability evaluation. Prerequisite: IST 331 <i>IST 413 is offered in spring only.</i>

Courses to Support the ISTBS Options

What are Support of Option courses?

Support of Option selections are meant to help you acquire knowledge of an application domain (i.e., the environment in which you eventually hope to work) and to help you develop supplemental knowledge and competencies related to your option. Areas of focus could include business, manufacturing, health care, hospitality, art, telecommunications, geographic information systems, government, or anywhere else information technology is used. Students in the ***Design and Development (ISDEV)*** option are required to take 9 credits in this area, and students in the other two options ***Integration and Application (ITINT)*** and ***People, Organizations, and Society (ISPP)*** are required to complete 12 credits of Support of Option coursework.

It is recommended that you choose courses in consultation with your academic adviser.

What should I know about Support of Option courses?

- Think about how you can add value to your degree or educational experience. There are many options for you including improving your skills in another language, or completing a minor in an interest area that complements your IST coursework.
- Support of Option should NOT be a group of lower level introductory courses.
- As mentioned above, courses taken as part of a minor may be used to meet the Support of Option requirement.
- Depending on your option, you may take 9-12 credits of IST or SRA courses to meet this requirement.
- For students in ISDEV, a third prescribed course in the option (IST 411, 412, or 413) is strongly recommended as is a second design course, IST 261 or 361. Web Application Development, IST 250, can also be considered.
- For students in ITINT, courses in Enterprise Architecture (EA) (IST 422, 423, and 424) or the intercollege minor in Entrepreneurship and Innovation (ENTI) (IST 237, 337, 437) are encouraged. Other complementary courses in EA include SRA 221, SRA 468, IST 412, 432, 443, 452, and 456.

Courses to Meet the Foreign Culture Requirement for the ISTBS Major

What are Foreign Culture courses?

- These are courses that focus on a cultural aspect (e.g., history, literature, political systems, art, etc.) of other countries or geographic regions outside the borders of the United States. This requirement is separate from the college requirement for World (Foreign) Language proficiency.
- 6 credits of Foreign Culture is required for students in the ISTBS major and is separate from the United States Cultures (US) and International Cultures (IL) General Education requirement for all Penn State students. A course that fulfills the General Education International Cultures requirement will be accepted as satisfying 3 credits of the ISTBS Foreign Culture requirement.
- A course used for the ISTBS Foreign Culture requirement cannot also double count as a general education course, such as GN, GA, GH, or GS.
- An advanced search on the Schedule of Courses, using the *Additional Search Criteria*, will produce a listing of all IL courses offered for a specific semester.

How do I choose Foreign Culture courses?

- You should choose Foreign Culture courses on the basis of your interest in learning more about a particular country or region of the world. An IL course must strive to increase student knowledge of the variety of international societies and may deal to some extent with U.S. culture in its international connections. See your assigned academic adviser for more information.
- Several IST courses may be used to satisfy the Foreign Culture requirement.
 - IST 341 Human Diversity in the Global Information Economy
 - IST 442 Information Technology in an International Context
 - IST 445H Globalization Trends and World Issues

Notes

Information Sciences and Technology (ISTBA) Bachelor of Arts Degree

Information Sciences and Technology (ISTBA)

The Bachelor of Arts in Information Sciences and Technology (ISTBA) will provide students who are inherently independent and creative with new avenues of study. The ISTBA will deliver a thorough grounding in information sciences and technology but also offers the flexibility to design a curriculum of study to fit your interests and aspirations. Whether you wish to blend information sciences and technology with the arts, the humanities, or with the sciences, this degree will provide a breadth of experience that will aid in accomplishing your goals. As a B.A. student you will be equipped with core expertise and tool sets that are needed to be able to navigate through the increasingly complex technology landscape. However, the flexibility and interdisciplinary nature of the curriculum will give you the opportunity to learn how to apply IT creatively.

The BA in IST is suitable if you have a particular career goal in mind early in your academic career that integrates a variety of different disciplines with information technology.

ISTBA Major Requirements

To earn your Bachelor of Arts degree in Information Sciences and Technology, you must complete at least 125 credits. For suggestions on fulfilling your requirements, see the semester-by-semester *Recommended Academic Plan* in this book. You may wish to speak to your adviser because completion of some major requirements may also satisfy general education requirements. To keep track of your academic progress, check the online degree audit available through eLion. If you have questions, make an appointment with your academic adviser.

GENERAL EDUCATION: 45 credits. For further details on general education requirements, please see the *University Bulletin*, online at <http://bulletins.psu.edu/bulletins/bluebook/>.

ELECTIVES: 16 credits

BACHELOR OF ARTS DEGREE REQUIREMENTS: 24 credits

(3 of these 24 credits are included in the REQUIREMENTS FOR THE MAJOR, GENERAL EDUCATION, or ELECTIVES and 0-12 credits are included in ELECTIVES if world (foreign) language proficiency is demonstrated by examination.)

REQUIREMENTS FOR THE MAJOR: 41 credits

PRESCRIBED COURSES: 16 credits

IST 110* (3), IST 130* (3), IST 210* (3), IST 220* (3) (Sem: 1-4)

IST 495* (1) (Sem: 3-8)

IST 440W* (3) (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS: 24 credits

Select 24 credits of IST and IST- related courses in consultation with academic adviser. (At least 12 credits must be at the 400 level.) All supporting and related areas' courses must be completed with a grade of C or better.

Note: The courses marked with an asterisk (*) must be completed with a grade of C or better

PROPOSAL

The ISTBA requires a proposal to be submitted by **December 1** of your sophomore year. Therefore, it is important to begin work on your proposal prior to this deadline. Meeting with an IST academic adviser is critical in the early stages of your decision making process.

The proposal includes a written statement that explains your reasons for seeking the ISTBA and carefully outlines the theme or focus of your area of specialization, along with the professional, scholarly, or creative goals that you wish to achieve.

A semester-by-semester plan of the courses that will satisfy the 24 credits of required supporting coursework is also required.

Please refer to the *ISTBA Student Guide* for the Academic Program Proposal guidelines and forms. This guide can be found on the College of IST website at <http://ist.psu.edu/current-students/pdf/ISTBAStudentGuide.pdf>.

ISTBA Common Required Courses

Common required courses are taken by all students majoring in the B.A. in Information Sciences and Technology major independent of their Supporting Courses and related areas.

All core courses must be completed with a grade of C or better.

IST 110/ IST 110(S)	Information, People and Technology (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises. <i>IST 110/110S is a requirement for the ISTBA major, and cannot double-count as a GS.</i>
IST 130	Emerging Technologies in Popular Culture (3) (GA) A survey course that explores emerging technologies used to produce and consume popular cultural artifacts. <i>IST 130 is a requirement for the ISTBA major, and cannot be used as a GA.</i>
IST 210	Organization of Data (3) Introduction to the concept of databases including the storage, manipulation, evaluation, and display of data and related issues. Prerequisite: IST 110/110S
IST 220	Networking and Telecommunications (3) Introduction to digital network topologies, transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security. Prerequisite: IST 110/110S
IST 440W	Integration and Problem Solving (3) Problem-based approach to technology integration by focusing on real-life problems faced by an organization. Prerequisite: ENGL 202C or ENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option.
IST 495	Internship (1) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. Prerequisite: Prior approval of proposed assignment by instructor. IST 495 can be taken 3 times for credit.

The Bachelor of Arts degree requires 24 credits of supporting coursework; **at least 12 credits must be at the 400 level.** Additional courses in Information Sciences and Technology, along with minor courses may also be used as a base for this required body of coursework. Potential areas of focus could include, but are not limited to, the following:

- Film
- English
- Entrepreneurship
- History
- Media Studies
- Health Policy Administration
- Music Technology
- Political Science
- Pre-law

Please note there is NO guarantee students will have access to coursework in other colleges or departments. It is important that you work with your adviser and are proactive with course planning.

Notes

Security and Risk Analysis (SRA) Bachelor of Science Degree Options

The SRA major within the College of Information Sciences and Technology offers two options.

Intelligence Analysis and Modeling (IAM)

You will learn how to calculate, evaluate, and predict risk in a variety of fields, including business and national security, and work on projects like evaluating the risk of putting information on Facebook. To enter this option, you should be able to think critically and have an interest in learning how to protect vital infrastructure against subversive attacks.

Information and Cyber Security (ICS)

In this option you will learn how to deal with security and privacy concerns in all types of organizations, and make sure that computer operating systems and related products are secure. For example, you will learn how to effectively 'police' the areas of cyberspace your employer occupies to ensure that it is free from cybercrime.

SRA Major Requirements

To earn your Bachelor of Science degree in Security and Risk Analysis, you must complete at least 120 credits. For suggestions on fulfilling your requirements, see the semester-by-semester *Recommended Academic Plans* in this book. You may wish to speak to your academic adviser because completion of some major requirements may satisfy general education requirements. To keep track of your academic progress, check the online degree audit available through eLion. If you have questions, make an appointment with your academic adviser.

GENERAL EDUCATION: 45 credits

Twenty-two of these credits are included in the requirements for the major (see below). For further details on general education requirements, please see the *University Bulletin*, online at <http://bulletins.psu.edu/bulletins/bluebook>.

ELECTIVES: 4 credits

REQUIREMENTS FOR THE SRA MAJOR: 94 credits

COMMON REQUIREMENTS FOR ALL OPTIONS: 72 credits

PRESCRIBED COURSES (38 credits)

IST 140 (3) or CMPSC 101* GQ (3), SRA 111* (3) (Sem: 1-2)
IST 110/110S* (3) (Sem: 1-3), IST 210* (3) (Sem:1-4)
SRA 211* (3), SRA 221* (3), SRA 231* (3) (Sem: 2-4)
STAT 200 GQ (4) (Sem: 3-6)
IST 495* (1) (Sem: 3-8)
IST 432* (3), SRA 311* (3), STAT 460 or SRA 365 (3) (Sem: 5-6)
IST 440W* or SRA 440W* (3) (Sem: 7-8)

Note: Courses marked with an asterisk (*) must be completed with a grade of C or better.

ADDITIONAL COURSES (12 credits)

AG BM 101 GS (3) or ECON 102 GS (3) (Sem: 1-4)
PL SC 001 GS (3), PL SC 014 GS;IL (3) or GEOG 040 GS;IL (3) (Sem: 1-4)
PSYCH 100 GS (3) or SOC 005 GS (3) (Sem: 1-6)
ENGL 202C GWS (3) or ENGL 202D GWS (3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (22 credits)

- Attainment of third-level proficiency in a single world (foreign) language (0-12 credits). Proficiency must be demonstrated by either examination or course work. See the admission section of the general information in the *University Bulletin* for the placement policy for Penn State world (foreign) language courses. (Sem: 1-4)
- Select 6 credits of international courses from College approved list or other courses approved by adviser. (Sem: 5-8)
- Select 4 credits of lab lecture series (GN) in consultation with adviser. (Sem: 1-6)

REQUIREMENTS FOR THE OPTION: 21 credits.

INTELLIGENCE ANALYSIS AND MODELING OPTION (IAM): (21 credits)

PRESCRIBED COURSES (12 credits)

ECON 302* GS or SRA 397E* (3), SRA 321* (3) (Sem: 3-6),
SRA 433* (3), SRA 468* (3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits from College-approved list (Sem: 5-8)

INFORMATION AND CYBER SECURITY OPTION (ICS): (21 credits)

PRESCRIBED COURSES (12 credits)

IST 220* (3) (Sem: 1-6), IST 451* (3), IST 454* (3), IST 456* (3) (Sem: 5-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)

Select 9 credits from College-approved list (Sem: 5-8)

Note: Courses marked with an asterisk (*) must be completed with a grade of C or better.

SRA Common Required Courses

Common required courses are taken by all students majoring in the B. S. in Security and Risk Analysis major independent of their option.

All core courses must be completed with a grade of C or better.

SRA 111	Introduction to Security and Risk Analysis (3) This introductory course spans areas of security, risk, and analysis covering contexts in government agencies and business organizations. <i>SRA 111 is a requirement for the SRA major, and cannot double-count as a GS.</i>
SRA 211	Threat of Terrorism and Crime (3) Provides overview of nature, scope, and seriousness of threats to security as a result of terrorism and crime. Prerequisite: SRA 111
SRA 221	Overview of Information Security (3) Provides an understanding of the overview of information security including security architecture, access control, and Internet secure applications. Prerequisite: SRA 111, IST 110/110S, IST 140 or CMPS 101
SRA 231	Decision Theory and Analysis (3) Provides an overview of decision theoretical and analytical concepts and tools in the security risk analysis field. Prerequisite: SRA 211, STAT 200
SRA 311	Risk Analysis in a Security Context (3) Assessment and mitigation of security vulnerabilities for people, organizations, industry sectors, and the nation. Prerequisite: SRA 231
SRA 365	Statistics for Security and Risk Analysis (3) Theoretical foundations and practice of intermediate statistics. Prerequisite: STAT 200
IST 110 / IST 110(S)	Information, People and Technology (3) The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises. <i>IST 110/110S is a requirement for the ISTBS major, and cannot double-count as a GS.</i>
IST 140	Introduction to Application Development (3) A first course in concepts and skills for application development. Prerequisite: college algebra
IST 210	Organization of Data (3) Introduction to the concept of databases including the storage, manipulation, evaluation, and display of data and related issues. Prerequisite: IST 110/110S
IST 432	Legal and Regulatory Environment of Information Science and Technology (3) Legal environment of information technology, constitutional/political issues, intellectual property, management, e-commerce, privacy, access, computer contracting, cyberspace regulation. Prerequisite: IST 301 or SRA 231 or equivalent
IST 440W or SRA 440W	Information Sciences and Technology Integration and Problem Solving (3) Problem-based approach to technology integration by focusing on real-life problems faced by an organization. Prerequisite: ENGL 202C or ENGL 202D; seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option. Security and Risk Analysis Capstone Course (3) The Security and Risk Analysis Capstone course is designed to provide IST students enrolled in the SRA major to experience a semester-long security and risk problem-solving experience, providing realistic security dilemmas requiring a solution process that is well suited for teamwork and collaboration. Prerequisite: SRA 221 and SRA 311; ENGL 202C or ENGL 202D seventh-semester standing (this course is intended for seniors) and the five common course requirements plus at least three of the required courses in an option.
IST 495	Internship (1) Supervised off-campus, non-group instruction including field experiences, practica, or internships. Written and oral critique of activity required. Prerequisite: prior approval of proposed assignment by instructor. IST 495 can be taken 3 times for credit.

Other SRA Courses

Additional courses offered by the College of Information Sciences and Technology. **Not all courses are offered every semester. Semester specific offerings can change. Please check with your academic adviser.**

The College also offers special topic courses numbered SRA 297/397/497 that take an in-depth look at a variety of topics or special areas of interest. These courses may be available for one or more semesters, and may count towards your SRA degree requirements. Check the IST website at <http://ist.psu.edu/current-students/featured-courses> for current offerings.

Engaged scholarship opportunities can be explored in the form of Research Projects (SRA 294 / 494) and Independent Studies (SRA 296 / 496) with IST faculty members. See your academic adviser for details.

SRA 294/494	Research Project (1-12) Supervised student activities on research projects identified on an individual or small-group basis.
SRA 296/496	Independent Studies (1-18) Creative projects, including research and design, that are supervised on an individual basis and that fall outside the scope of formal courses.
SRA 297/397/497	Special Topics (1-9) Formal courses given infrequently to explore, in depth, a comparatively narrow subject that may be topical or of special interest.
SRA 397E	Security Economics and Privacy Behaviors (3) Explore the economic incentives for security attacks and appropriate security defenses; apply methods from economic and behavioral sciences to current privacy/security challenges. SRA 397E is offered spring semester only. <i>Temporary substitution for Econ 302 for SRA students.</i>
SRA 421	The Intelligence Environment (3) Introduces students to the architecture and policies of the U.S. Intelligence Community (IC) and examines how U.S. intelligence policies and practices relate to overall U.S. foreign policy objectives and are influenced by today's global environment and emerging technologies. The course examines the users and processes of IC, participants of Competitive Intelligence, and comparative intelligence communities. Prerequisite: SRA 111, SRA 211, SRA 231
SRA 433	Deception and Counterdeception (3) Deception tactics, technologies and procedures and approaches to counterdeception analysis. Prerequisite: SRA 211, SRA 221, SRA 231, SRA 311 <i>SRA 433 is offered spring semester only.</i>
SRA 468	Visual Analytics for Security Intelligence (3) Introduces visual analytic techniques for security informatics and intelligence. It covers analytical techniques on visualizing threats, risk, and vulnerability. Prerequisite: IST 110/110S, SRA 111 <i>SRA 468 is offered spring semester only.</i>
SRA 471	Informatics, Risk and the Post-Modern World (3) Provides in-depth study of how security informatics is influenced by risk and post-modern culture. Prerequisite: IST 110/110S, SRA 231 <i>SRA 471 is offered spring semester only.</i>
SRA 472	Integration of Privacy and Security (3) Exploration of technological, operational, organizational and regulatory issues related to maintenance of individual privacy, confidentiality of organizations, and information protection. Prerequisite: SRA 211 or SRA 221 or equivalent <i>SRA 472 is offered fall semester only.</i>
SRA 480	Crisis Informatics (3) This course studies information and communication technologies as part of emergency and disaster response, e.g. information management, coordination and communication. Prerequisite: 5th semester standing (or later) or approval of program

Courses to Meet the International Course Requirement for the SRA Major

- International courses focus on a cultural aspect (e.g., history, literature, political systems, art, etc.) of other countries or geographic regions outside the borders of the United States. This requirement is separate from the college requirement for World (Foreign) Language proficiency.
- You should choose International courses on the basis of your interest in learning more about a particular country or region of the world. An International Culture (IL) course must strive to increase student knowledge of the variety of international societies and may deal to some extent with U.S. culture in its international connections. See your assigned academic adviser for more information.
- Any IL course can be used to meet the SRA International Course requirement. An advanced search on the Schedule of Courses, using the Additional Search Criteria, will produce a listing of all IL courses offered for a specific semester.
- Six (6) credits of International courses is required for students in the SRA major and is separate from the United States Cultures (US) and International Cultures (IL) General Education requirement for all Penn State students. A course that fulfills the General Education International Cultures requirement will be accepted as satisfying 3 credits of the SRA International Courses requirement.
- Three (3) credits of International courses that are also designated as GH can be in used General Education-Humanities.

Security Certificates

As part of Penn State and the College of IST's designation as a national Center of Academic Excellence (CAE) in Information Assurance and Cyber-Defense, we are authorized to grant the following certificates to graduating students:

Certificate of Recognition

This certificate is earned by any student who graduates with a Major or Minor in SRA. It states that the recipient of the certificate earned their degree from an institution and program recognized as a Center of Academic Excellence in Information Assurance and Cyber-Defense by the National Security Agency and the US Department of Homeland Security. Certificates will be mailed to your home address upon graduation.

Certificate of Achievement

This certificate may be earned by any student who has taken all of the courses required as 'knowledge units' for the Center of Academic Excellence certification, and earned a grade of C or better in each of the courses listed below. Acknowledgment of the certificate awarding will appear on your Penn State University transcript, with the Certificate of Achievement mailed to your home address.

Both confirm that the student graduated from an institution and program whose faculty, resources, curricula, and commitment were evaluated and found to be of high quality. Both also certify that certain courses in the student's program have been examined and determined to meet or exceed the quality and content as defined by NSA/DHS for cyber security professionals.

The CAE procedures examined Penn State security policy and staffing, College of IST security faculty, ongoing security-related research, student participation in professional clubs and security competitions, and outreach to community colleges and the public at large.

The CAE Certificate of Achievement certifies that the student has taken all of the courses that satisfy the Knowledge Units requirement and are represented by the following courses.

IST 140 (3) Introduction to Application Development or CMPSC 101 (3) Introduction to C++ Programming	IST 456 (3) Information Security Management
IST 210 (3) Organization of Data	SRA 111 (3) Introduction to Security and Risk Analysis
IST 220 (3) Networking and Telecommunications	SRA 221 (3) Overview of Information Security
IST 451 (3) Network Security	STAT 200 (4) Elementary Statistics
IST 454 (3) Computer and Cyber Forensics	

The Penn State/IST designation as a Center of Academic Excellence (CAE) in Information Assurance and Cyber-Defense was effective Summer, 2014 and lasts until December, 2021.

SRA Option Courses

Each option in the SRA curriculum requires 9-12 credits of prescribed course which distinguish the focus of study. **All prescribed courses must be completed with a grade of C or better. Not all courses are offered every semester. Semester specific offerings can change. Please check with your academic adviser.**

Intelligence Analysis and Modeling Option

ECON 302 or SRA 397E	Intermediate Microeconomic Analysis (3) Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools. Prerequisite: ECON 102 Security Economics and Privacy Behaviors (3) Explore the economic incentives for security attacks and appropriate security defenses; apply methods from the economic and behavioral sciences to current privacy and security challenges. <i>SRA 397E is offered spring semester only. Temporary substitution for Econ 302 for SRA students.</i>
SRA 321 or SRA 421	Role of Information and Intelligence (3) Introduce students to the architecture and policies of the U.S. Intelligence Community (IC) and examines how U.S. intelligence policies and practices relate to overall U.S. foreign policy objectives and are influenced by today's global environment and emerging technologies. Prerequisite: SRA 111, SRA 211, SRA 231. (SRA 321 will be offered Fall 2015 semester only and will be renumbered as SRA 421 beginning Spring 2016.)
SRA 433	Deception and Counterdeception (3) Deception tactics, technologies and procedures and approaches to counterdeception analysis. Prerequisite: SRA 211, SRA 221, SRA 231, SRA 311. <i>SRA 433 is offered spring semester only.</i>
SRA 468	Visual Analytics for Security Intelligence (3) Introduce visual analytic techniques for security informatics and intelligence. It covers analytical techniques for visualizing threats, risk, and vulnerability. Prerequisite: IST 110/110S, SRA 111. <i>SRA 468 is offered spring semester only.</i>

Information and Cyber Security Option

IST 220	Networking and Telecommunications (3) Introduction to digital network topologies; transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security. Prerequisite: IST 110/110S
IST 451	Network Security (3) Fundamental issues and concepts of network security, network security technologies and protocols, and emerging technologies in network security. Prerequisite: IST 220, SRA 221
IST 454	Computer and Cyber Forensics (3) Fundamental issues and concepts of computer forensics; aspects of computer and cyber crime; methods to uncover, protect, exploit, and document digital evidence; tools, techniques, and procedure to perform computer and cyber crime investigation. Prerequisite: IST 220, SRA 221
IST 456	Information Security Management (3) Contemporary Security Issues; security management processes, architecture and models; risk analysis and management; security planning, analysis and safeguards; security policies development and administration; contingency planning, incidence handling and response; and security standards and certification processes. Prerequisite: IST 220, SRA 221

Courses to Support the SRA Options

What are the Support of Option courses?

Support of Option courses are meant to supplement knowledge in the areas of study in information assurance, intelligence analysis, and cyber forensics. These courses recognize the unique interdisciplinary training needed to prepare SRA majors for careers in analysis and assurance with these critical infrastructures.

Courses that explore the legal, regulatory, or ethical theories and environments associated with security and risk are also offered.

What else should I know about Support of Option courses?

Students choose 9 credits from the appropriate corresponding list below, depending on the option.

Not all courses are offered every semester. Check the Schedule of Courses to determine the availability of specific courses.

INTELLIGENCE ANALYSIS AND MODELING (IAM) (9 credits)

<u>Crime/Criminology</u> CRIM 012/SOC 012 CRIM 113 IST 453* PSYCH 100** PSYCH 221* PSYCH 270* PSYCH 445	<u>IST/SRA</u> IST 452* IST 453* SRA 471* SRA 472*	PL SC 014** PL SC 439* PL SC 467*	PL SC 442* PL SC 454* PL SC 455* PL SC 458* PL SC 467* PSYCH 221*	PSYCH 100* PSYCH 270 PSYCH 445 SOC 012 (CRIM 012)
<u>E-Commerce</u> ACCTG 211* COMM 490*	<u>Middle Eastern Studies</u> ANTH 009 HIST 165 HIST 181 HIST 473 J ST 118	<u>Political Science/ Int'l Relations</u> HIST 020 HIST 021 HIST 452* PL SC 001** PL SC 002* PL SC 014** PL SC 418	<u>Pre-Law</u> CRIM 113 IST 452 IST 453* PHIL 010 PHIL 012	<u>Psychology</u> PHIL 010 PSYCH 100** PSYCH 221* PSYCH 270**

INFORMATION AND CYBER SECURITY (ICS) (9 credits)

<u>Business</u> ACCTG 211* IST 301* IST 302* MGMT 100	CRIM 012/SOC12 CRIM 100 CRIM 406* CRIM 412* CRIM 425* SOC 001 SOC 405* SOC 409* SOC 416* SOC 419* SOC 422* SOC 423* SOC 424* SOC 440* SOC 457* SOC 461*	SOC 467* SOC 470* <u>Ethics</u> PHIL 103* PHIL 119 PHIL 407* PHIL 418* <u>Geography</u> GEOG 361* GEOG 362* GEOG 363* <u>Global Security</u> PL SC 007 PL SC 014** PL SC 410*	PL SC 418* PL SC 434* PL SC 440* PL SC 442* PL SC 443* PL SC 454* PL SC 455* PL SC 458* PL SC 459 PL SC 464* PL SC 467* <u>IST/SRA</u> IST 230* IST 240* IST 242* IST 402* IST 442*	IST 452* IST 453* SRA 468* SRA 471* SRA 472* <u>Military Studies</u> AIR 151 AIR 451 AIR 452 ARMY 101 NAVSC 101 NAVSC 311
<u>Communications</u> COMM 180 COMM 479* COMM 484* COMM 489W* COMM 490*				
<u>Crime/Criminology</u> PSYCH 100** PSYCH 221* PSYCH 270* PSYCH 445*				

Please be mindful of course prerequisites, as indicated with a single asterisk (*).

Courses taken to satisfy the SRA major requirements for GEOG/PL SC (GEOG 40 or PL SC 001/014) and PSYCH/SOC (PSYCH 100 or SOC 5) cannot be used as a Support of Option course as indicated with a double asterisk (**).

Recommended Academic Plans

A RECOMMENDED ACADEMIC PLAN (RAP) provides the courses a student might schedule semester by semester to pursue a particular College of IST degree and option. All of the majors and options are included in the following pages, along with a RAP for those that want to study abroad, or to complete concurrent ISTBS and SRA majors.

These RAPs are a general guide and can vary depending on option, course availability, and previous coursework. All plans take into consideration that students will follow course prerequisite requirements. Sometimes semester specific courses can change; therefore, meet with your academic adviser at least once a semester to confirm you are on track.

It is important to note that not all classes are offered every semester, so please plan accordingly.

A RAP is a tool that should be used in combination with your degree audit and in consultation with your academic adviser.

Recommended Academic Plan Notes:

- Entrance to Major courses (ETM courses). These courses are marked on each plan and must be completed with a C or better by the spring semester of your sophomore year.
- IST 495 - Internships are 1 credit and typically scheduled for the summer. One internship for credit as IST 495 is required, and students are allowed to schedule three IST 495 experiences for credit. Students will often participate in several internship opportunities; however, only one credit of IST 495 is required to graduate.
- The study of other cultures is important for both IST and SRA majors. Each major has its own 6 credit requirement and can be satisfied by any International Cultures Course (IL). IL courses can be found using the Additional Search Criteria found on the Schedule of Courses.
- Students are also required to be competent in a World Language up to the 12th credit level. This is a graduation requirement for all College of IST students and is different than the requirement Penn State has for students when they apply for initial admission to Penn State. Placement in the appropriate college course is dependent on how many units a student studied prior to their admission.

Units of Study Prior to Admission to Penn State

Fewer than two

Two or three

Four or more

Register in Penn State Language Level

Course Level 001 (4 credit)

Course Level 002 (4 credit)

Course Level 003 (4 credit)

- All students must take 3 credits of United States culture. Any course that has the US designation will count towards this requirement.
- Emerging Issues in Technology for ISTBS can be fulfilled by taking any of the following:
 - IST 402, 441, 446, 451, 452, 453, or 454.
- The ISTBS plan assumes students are ready to begin math study in Math 110. ALEKS testing determines the appropriate starting level for students and recommendations should be followed.

How to maximize your credits. (The 3/6/9 rule and what can double count!)

- Combine the US culture requirement with one of your general education requirements (GA/GH/GS).
- Courses taken for the ISTBS or SRA major requirement for Foreign Culture or International Course will also satisfy the Penn State general education International Cultures requirement for all undergraduate students.
- For SRA students: 3 credits of International Culture can also be used as 3 credits of Humanities if the course has both designations: IL and GH
- There is flexibility in general education which can be demonstrated by your academic adviser.
 - 3/6/9 for General Education – GA/GH/GS
 - Language above 12th credit level – substitute a class above the 12th credit level for any GN/GA/GH/GS.
- For ISTBS students: Courses for a minor can be used as Support of Option.
- For SRA students: Many prescribed courses for the major also count towards general education requirement as indicated on your degree audit.

**Information Sciences and Technology (ISTBS)
Information Systems: Design and Development (ISDEV)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course		3	IST 210 <i>Organization of Data</i> ETM Course		3
IST 140 <i>Intro to Application Development</i> or CMPSC 121 <i>Intro to Programming Techniques</i>		3	IST 220 <i>Networking and Telecommunications</i> ETM Course		3
MATH 110 or 140 (GQ)		4	CAS 100 (GWS)		3
World (Foreign) Language 001		4	World (Foreign) Language 002		4
			ENGL 015 or ENGL 030 (GWS)		3
Total Credits:		14	Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 242 <i>Intermediate and Object-Oriented Application Development</i>		3	IST 261 <i>Application Development Design Studio I</i> or IST 361 <i>Application Development Design Studio</i> in Semester 6		3
IST 230 <i>Language, Logic and Discrete Math</i>		3	STAT 200 (GQ)		4
Arts (GA)		3	Humanities (GH)		3
ECON 102 or ECON 104 or ECON 014 (all GS)		3	Social and Behavioral Sciences (GS)		3
World (Foreign) Language 003		4	Natural Sciences (GN)		3
Total Credits:		16	Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 311 <i>Object-Oriented Design and Software Applications</i>		3	IST 361 <i>Application Development Design Studio</i> or Support of Option if IST 261 is completed		3
IST 331 <i>Organization and Design of Information Systems</i>		3	Natural Sciences (GN)		3
Support of Option		3	IST 301 <i>Information and Organizations</i>		3
Humanities (GH)		3	Foreign Culture (IL)		3
Natural Sciences (GN)		3	ENGL 202C or ENGL 202D (GWS)		3
Total Credits:		15	Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 4xx <i>Emerging Issues and Technologies</i>		3	IST 440W <i>IST Integration and Problem Solving</i>		3
IST 412 <i>The Engineering of Complex Software Systems</i> or IST 413 <i>Usability Engineering</i>		3	Support of Option		3
Arts (GA)		3	IST 411 <i>Distributed Object Computing</i> or IST 413 <i>Usability Engineering</i>		3
Foreign Culture (IL)		3	Elective		3
Elective		3	Elective		2
Health and Physical Activity (GHA)		1.5	Health and Physical Activity (GHA)		1.5
Total Credits		16.5	Total Credits:		15.5

**Information Sciences and Technology (ISTBS)
Information Technology: Integration & Application (ITINT)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course		3	IST 210 <i>Organization of Data</i> ETM Course		3
MATH 110 or 140 (GQ)		4	Natural Sciences (GN)		3
IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>		3	ECON 102 (GS) or ECON 104 (GS) or ECON 014 (GS)		3
World (Foreign) Language 001		4	World (Foreign) Language 002		4
			ENGL 015 or ENGL 030 (GWS)		3
	Total Credits:	14		Total Credits:	16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course		3	IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
IST 230 <i>Language, Logic and Discrete Math</i>		3	STAT 200 (GQ)		4
World (Foreign) Language 003		4	CAS 100 (GWS)		3
Humanities (GH)		3	Social and Behavioral Sciences (GS)		3
Arts (GA)		3	Natural Sciences (GN)		3
	Total Credits:	16		Total Credits:	16
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>		3	IST 331 <i>Organization and Design of Information Systems</i>		3
IST 302 <i>IT Project Management</i>		3	IST 420 <i>Fundamentals of Systems and Enterprise</i>		3
Support of Option		3	Support of Option		3
Humanities (GH)		3	Foreign Culture (IL)		3
Health and Physical Activity (GHA)		3	ENGL 202C or ENGL 202D (GWS)		3
	Total Credits:	15		Total Credits:	15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 4xx <i>Emerging Issues and Technologies</i>		3	IST 440W <i>IST Integration and Problem Solving</i>		3
IST 421 <i>Advanced Enterprise Integration: Technologies and Applications</i>		3	Support of Option		3
Support of Option		3	Natural Sciences (GN)		3
Foreign Culture (IL)		3	Elective		4
Arts (GA)		3	Elective		4
	Total Credits:	15		Total Credits:	17

**Information Sciences and Technology (ISTBS)
Information Context: People, Organizations, and Society (ISPP)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course		3	IST 210 <i>Organization of Data</i> ETM Course		3
MATH 110 or 140 (GQ)		4	Natural Sciences (GN)		3
IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>		3	ECON 102 (GS) or ECON 104 (GS) or ECON 014 (GS)		3
World (Foreign) Language 001		4	World (Foreign) Language 002		4
			ENGL 015 or ENGL 030 (GWS)		3
	Total Credits:	14		Total Credits:	16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course		3	IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
IST 230 <i>Language, Logic and Discrete Math</i>		3	STAT 200 (GQ)		4
World (Foreign) Language 003		4	CAS 100 (GWS)		3
Humanities (GH)		3	Social and Behavioral Sciences (GS)		3
Arts (GA)		3	Natural Sciences (GN)		3
	Total Credits:	16		Total Credits:	16
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>		3	IST 431 <i>The Information Environment</i>		3
IST 331 <i>Organization and Design of Information Systems</i>		3	IST 302 <i>IT Project Management</i> IST 413 <i>Usability Engineering</i>		3
Support of Option		3	Support of Option		3
Humanities (GH)		3	Foreign Culture (IL)		3
Health and Physical Activity (GHA)		3	ENGL 202C or ENGL 202D (GWS)		3
	Total Credits:	15		Total Credits:	15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 4xx <i>Emerging Issues and Technologies</i>		3	IST 440W <i>IST Integration and Problem Solving</i>		3
IST 432 <i>Legal and Regulatory Environment of Information Science and Technology</i>		3	Support of Option		3
Support of Option		3	Natural Sciences (GN)		3
Foreign Culture (IL)		3	Elective		4
Arts (GA)		3	Elective		4
	Total Credits:	15		Total Credits:	17

**Information Sciences and Technology (ISTBS)
with an Education Abroad Semester**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		IST 210 <i>Organization of Data</i> ETM Course		3
MATH 110 or 140 (GQ)	4		Natural Sciences (GN)		3
IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>	3		ECON 102 (GS) or ECON 104 (GS) or ECON 014 (GS)		3
World (Foreign) Language 001	4		World (Foreign) Language 002		4
			ENGL 015 or ENGL 030 (GWS)		3
Total Credits:	14		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course	3		IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
IST 230 <i>Language, Logic and Discrete Math</i>	3		IST 301 <i>Information and Organizations</i>		3
World (Foreign) Language 003	4		CAS 100 (GWS)		3
Humanities (GH)	3		Natural Sciences (GN)		3
Arts (GA)	3		STAT 200 (GQ)		4
Total Credits:	16		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 5-Education Abroad		Credits	Semester 6		Credits
Foreign Culture	3		IST 331 <i>Organization and Design of Information Systems</i>		3
Foreign Culture	3		Prescribed Option Course		3
Elective	4		Support of Option		3
Elective	4		Prescribed Option Course		3
Arts (GA)	3		Social/Behavioral Sciences (GS)		3
Total Credits:	17		Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 4xx <i>Emerging Issues and Technologies</i>	3		IST 440W <i>IST Integration and Problem Solving</i>		3
Prescribed Option Course	3		Support of Option		3
Support of Option	3		Support of Option		3
ENGL 202C or ENGL 202D (GWS)	3		Humanities (GH)		3
Health and Physical Activity (GHA)	3		Natural Sciences (GN)		3
Total Credits:	15		Total Credits:		15

Bachelor of Arts Information Sciences and Technology (ISTBA)

This academic plan is a general guide but can vary depending on options, course availability, and previous coursework. Semester specific courses can change. This guide is a tool that should be used in combination with your degree audit and in consultation with your academic adviser.

Semester 1 Working on Academic Proposal		Credits	Semester 2 Working on Academic Proposal		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course		3	IST 130 <i>Emerging Technologies in Popular Culture</i> ETM Course		3
ENGL 015 or ENGL 030 (GWS)		3	CAS 100 (GWS)		3
World (Foreign) Language 001		4	World (Foreign) Language 002		4
Natural Sciences(GN)		3	Quantification (GQ)		3
Social & Behavioral Sciences (GS)		3	Social & Behavioral Sciences (GS)		3
Total Credits:		16	Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3 Working on Academic Proposal due December 1		Credits	Semester 4		Credits
IST 210 <i>Organization of Data</i> ETM Course		3	IST 220 <i>Networking and Telecommunications</i> ETM Course		3
World (Foreign) Language 003		4	Natural Sciences (GN)		3
Quantification (GQ)		3	Humanities (GH)		3
Natural Sciences (GN)		3	Arts (GA)		3
Humanities (GH)		3	Health and Physical Activity (GHA)		3
Total Credits:		16	Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
Supporting Course (any level)		3	Supporting Course (any level)		3
Supporting Course (any level)		3	Supporting Course (400-level)		3
Arts (GA)		3	Additional B.A. degree requirement		3
Other Cultures (IL)		3	Additional B.A. degree requirement		3
Additional B.A. degree requirement		3	Elective		3
Total Credits:		15	Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
ENGL 202 (GWS)		3	IST 440W <i>Integration and Problem Solving</i>		3
Supporting Course (any level)		3	Supporting Course (400-level)		3
Supporting Course (400-level)		3	Supporting Course (400-level)		3
Elective		3	Elective		4
Elective		3	Elective		3
Total Credits:		15	Total Credits:		16

Security and Risk Analysis (SRA) Intelligence Analysis and Modeling (IAM)

Semester 1		Credits	Semester 2		Credits
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course	3		SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		World (Foreign) Language 002		4
ENGL 015 or ENGL 030 (GWS)	3		Natural Sciences (GN)		3
World (Foreign) Language 001	4		CAS 100 (GWS)		3
IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>	3		ECON 102 (GS)		3
Total Credits:	16		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
SRA 221 <i>Overview of Information Security</i>	3		SRA 231 <i>Decision Theory and Analysis</i>		3
STAT 200 (GQ)	4		PSYCH 100 or SOC 005		3
World (Foreign) Language 003	4		IST 210 <i>Organization of Data</i>		3
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3		Natural Sciences with lab (GN)		4
Total Credits:	14		Total Credits:		13
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
SRA 311 <i>Risk Management Assessment and Mitigation</i>	3		SRA 468 <i>Visual Analytics for Security Intelligence</i>		3
International Course (IL/GH)	3		ENGL 202C or ENGL 202D (GWS)		3
SRA 365 <i>Statistics for Security and Risk Analysis</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3		SRA 433 <i>Deception and Counterdeception</i>		3
Support of Option	3		SRA 397E <i>Security Economics and Privacy Behaviors</i> or Econ 302 <i>Intermediate Microeconomic Analysis</i>		3
Arts (GA)	3		Arts (GA)		3
Total Credits:	15		Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 432 <i>Legal and Regulatory Environment of IST</i>	3		IST 440W <i>IST Integration and Problem Solving</i>		3
International Course (IL)	3		Humanities (GH)		3
SRA 421 <i>The Intelligence Environment</i>	3		Support of Option		3
Health and Physical Activity (GHA)	3		Support of Option		3
Natural Sciences (GN)	2-3		Electives		4
Total Credits:	14-15		Total Credits:		16

Security and Risk Analysis (SRA) Information and Cyber Security (ICS)

Semester 1		Credits	Semester 2		Credits
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course	3		SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		World (Foreign) Language 002		4
ENGL 015 or ENGL 030 (GWS)	3		Natural Sciences (GN)		3
World (Foreign) Language 001	4		CAS 100 (GWS)		3
IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>	3		ECON 102 (GS)		3
Total Credits:	16		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
SRA 221 <i>Overview of Information Security</i>	3		SRA 231 <i>Decision Theory and Analysis</i>		3
STAT 200 (GQ)	4		PSYCH 100 or SOC 005		3
World (Foreign) Language 003	4		IST 210 <i>Organization of Data</i>		3
IST 220 <i>Networking and Telecommunications</i>	3		Natural Sciences with lab (GN)		4
Total Credits:	14		Total Credits:		13
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
SRA 311 <i>Risk Management Assessment and Mitigation</i>	3		IST 432 <i>Legal and Regulatory Environment of IST</i>		3
International Course (IL/GH)	3		ENGL 202C or ENGL 202D (GWS)		3
SRA 365 <i>Statistics for Security and Risk Analysis</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3		IST 451 <i>Network Security</i>		3
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3		Support of Option		3
Arts (GA)	3		Arts (GA)		3
Total Credits:	15		Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 456 <i>Information Security Management</i>	3		IST 440W <i>IST Integration and Problem Solving</i>		3
International Course (IL)	3		IST 454 <i>Computer and Cyber Forensics</i>		3
Support of Option	3		Support of Option		3
Health and Physical Activity (GHA)	3		Humanities (GH)		3
Natural Sciences (GN)	2-3		Electives		4
Total Credits:	14-15		Total Credits:		16

Security and Risk Analysis with an Education Abroad Semester

Semester 1		Credits	Semester 2		Credits
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course	3		SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		World (Foreign) Language 002		4
ENGL 015 or ENGL 030 (GWS)	3		Natural Sciences (GN)		3
World (Foreign) Language 001	4		CAS 100 (GWS)		3
IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>	3		ECON 102 (GS)		3
Total Credits:	16		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
SRA 221 <i>Overview of Information Security</i>	3		SRA 231 <i>Decision Theory and Analysis</i>		3
STAT 200 (GQ)	4		PSYCH 100 or SOC 005		3
World (Foreign) Language 003	4		IST 210 <i>Organization of Data</i>		3
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3		Natural Sciences with lab (GN)		4
			Humanities (GH)		3
Total Credits:	14		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
International Course	3		IST 432 <i>Legal and Regulatory Environment of IST</i>		3
International Course	3		SRA 311 <i>Risk Management Assessment and Mitigation</i>		3
Humanities (GH)	3		Prescribed Option Course		3
Arts (GA)	3		Support of Option		3
			Health and Physical Activity (GHA)		3
Total Credits:	12		Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
ENGL 202C or ENGL 202D (GWS)	3		IST 440W <i>IST Integration and Problem Solving</i>		3
Prescribed Option Course	3		Support of Option		3
SRA 365 <i>Statistics for Security and Risk Analysis</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3		Prescribed Option Course		3
Prescribed Option Course	3		Support of Option		3
Natural Sciences (GN)	3		Arts (GA)		3
Total Credits:	15		Total Credits:		15

**ISTBS - Information Systems: Design and Development (ISDEV)
and
SRA - Information and Cyber Security (ICS)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		IST 210 <i>Organization of Data</i> ETM Course		3
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course	3		IST 140 <i>Intro to Application Development</i> or CMPSC 121 <i>Intro to Programming Techniques</i>		3
MATH 110 or 140 (GQ)	4		SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
World (Foreign) Language 001	4		ENGL 015 or ENGL 030 (GWS)		3
			World (Foreign) Language 002		4
Total Credits:	14		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course	3		IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
STAT 200 (GQ)	4		ECON 102 or AG BM 101 (GS)		3
SRA 221 <i>Overview of Information Security</i>	3		IST 230 <i>Language, Logic and Discrete Math</i>		3
World (Foreign) Language 003	4		SRA 231 <i>Decision Theory and Analysis</i>		3
CAS 100 (GWS)	3		Natural Sciences		3
			Arts (GA)		3
Total Credits:	17		Total Credits:		18
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>	3		SRA 311 <i>Risk Management: Assessment and Mitigation</i>		3
IST 331 <i>Organization and Design of Information Systems</i>	3		IST 261 <i>Application Development Design Studio I</i> or IST 361 <i>Application Development Design Studio II</i>		3
PSYCH 100 or SOC 005	3		IST 451 <i>Network Security</i>		3
SRA 365 <i>Statistics for Security and Risk Analysis</i>	3		Natural Sciences (GN/Lab)		4
IST Foreign Culture/SRA International Course (IL/GH)	3		GEOG 040 or PL SC 001 or PL SC 014 (GS)		3
IST 311 <i>Object-Oriented Design and Software Applications</i>	3		GHA		1.5
Total Credits:	18		Total Credits:		17.5
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 432 <i>Legal and Regulatory Environment of IST</i>	3		IST 440W <i>IST Integration and Problem Solving</i>		3
IST 412 <i>The Engineering of Complex Software Systems</i>	3		IST 456 <i>Information Security Management</i>		3
IST 454 <i>Computer and Cyber Forensics</i>	3		IST 411 <i>Distributed-Object Computing</i> or IST 413 <i>Usability Engineering</i>		3
ENGL 202C or ENGL 202D (GWS)	3		Natural Sciences (GN)		3
IST Foreign Culture/SRA International Course (IL/GH)	3		Humanities (GH)		3
Arts (GA)	3		Health and Physical Activity (GHA)		1.5
Total Credits:	18		Total Credits:		16.5

**ISTBS - Information Systems: Design and Development (ISDEV)
and
SRA - Intelligence Analysis and Modeling (IAM)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course		3	IST 210 <i>Organization of Data</i> ETM Course		3
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course		3	SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
MATH 110 or MATH 140 (GQ)		4	IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>		3
World (Foreign) Language 001		4	ENGL 015 or ENGL 030 (GWS)		3
			World (Foreign) Language 002		4
	Total Credits:	14		Total Credits:	16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course		3	IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
STAT 200 (GQ)		4	ECON 102 (GS)		3
SRA 221 <i>Overview of Information Security</i>		3	IST 230 <i>Language, Logic and Discrete Math</i>		3
World (Foreign) Language 003		4	SRA 231 <i>Decision Theory and Analysis</i>		3
CAS 100 (GWS)		3	Natural Sciences (GN)		3
			Arts (GA)		3
	Total Credits:	17		Total Credits:	18
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>		3	IST 311 <i>Object-Oriented Design and Software Applications</i>		3
PSYCH 100 or SOC 005		3	SRA 311 <i>Risk Management Assessment and Mitigation</i>		3
Support of Option (IAM)		3	SRA 397E <i>Security Economics and Privacy Behaviors</i> or ECON 302 <i>Intermediate Microeconomic Analysis</i>		3
SRA 365 <i>Statistics for Security and Risk Analysis</i> or STAT 460 <i>Intermediate Applied Statistics</i>		3	Natural Science with lab (GN)		4
GEOG 040 or PL SC 001 or PL SC 014 (GS)		3	Arts (GA)		3
IST 261 <i>Application Development Design Studio I</i> or IST 361 <i>Application Development Design Studio II</i>		3			
	Total Credits:	18		Total Credits:	15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 331 <i>Organization and Design of Info Systems</i>		3	IST 411 <i>Distributed-Object Computing</i> or IST 413 <i>Usability Engineering</i>		3
IST 412 <i>The Engineering of Complex Software Systems</i>		3	SRA 433 <i>Deception and Counterdeception</i>		3
SRA 421 <i>The Intelligence Environment</i>		3	ENGL 202C or ENGL 202D (GWS)		3
Natural Sciences (GN)		2-3	Support of Option - IAM		3
IST Foreign Culture/SRA International Course (IL/GH)		3	IST Foreign Culture/SRA International Course (IL/GH)		3
Health and Physical Activity (GHA)		1.5	Emerging Issues in Technology		3
	Total Credits:	15.5-16.5		Total Credits:	18
Summer: IST 495 Internship (1cr)					
IST 440W <i>IST Integration and Problem Solving</i>		3			
IST 432 <i>Legal and Regulatory Environment of IST</i>		3			
Support of Option - IAM		3			
SRA 468 <i>Visual Analytics for Security Intelligence</i>		3			
Humanities (GH)		3			
Health and Physical Activity (GHA)		1.5			
	Total Credits:	16.5			

**ISTBS - Information Technology: Integration and Application (ITINT)
and
SRA - Information and Cyber Security (ICS)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		IST 210 <i>Organization of Data</i> ETM Course		3
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course	3		IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>		3
MATH 110 or 140 (GQ)	4		SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
World (Foreign) Language 001	4		ENGL 015 or ENGL 030 (GWS)		3
			World (Foreign) Language 002		4
Total Credits:		14	Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course	3		IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
STAT 200 (GQ)	4		ECON 102 or AG BM 101 (GS)		3
SRA 221 <i>Overview of Information Security</i>	3		IST 230 <i>Language, Logic and Discrete Math</i>		3
World (Foreign) Language 003	4		SRA 231 <i>Decision Theory and Analysis</i>		3
CAS 100 (GWS)	3		Natural Sciences with lab (GN)		4
Total Credits:		17	Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>	3		SRA 311 <i>Risk Management: Assessment and Mitigation</i>		3
IST 331 <i>Organization and Design of Information Systems</i>	3		IST 302 <i>IT Project Management</i>		3
PSYCH 100 or SOC 005	3		IST 451 <i>Network Security</i>		3
Natural Sciences (GN)	2-3		SRA 365 <i>Statistical for Security and Risk Analysis</i> or STAT 460 <i>Intermediate Applied Statistics</i>		3
IST Foreign Culture/SRA International Course (IL/GH)	3		GEOG 040 or PL SC 001 or PL SC 014 (GS)		3
Health and Physical Activity (GHA)	1.5		Arts (GA)		3
Total Credits:		15.5-16.5	Total Credits:		18
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 432 <i>Legal and Regulatory Environment of IST</i>	3		IST 440W <i>IST Integration and Problem Solving</i>		3
IST 420 <i>Fundamentals of Systems and Enterprise Integration</i>	3		IST 456 <i>Information Security Management</i>		3
IST 454 <i>Computer and Cyber Forensics</i>	3		IST 421 <i>Advanced Enterprise Integration</i>		3
ENGL 202C or ENGL 202D (GWS)	3		Natural Sciences (GN)		3
IST Foreign Culture/SRA International Culture (IL/GH)	3		Humanities (GH)		3
Arts (GA)	3		Health and Physical Activity (GHA)		1.5
Total Credits:		18	Total Credits:		16.5

**ISTBS - Information Technology: Integration and Application (ITINT)
and
SRA - Intelligence Analysis and Modeling (IAM)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		IST 210 <i>Organization of Data</i> ETM Course		3
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course	3		SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
MATH 110 or MATH 140 (GQ)	4		IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>		3
World (Foreign) Language 001	4		ENGL 015 or ENGL 030 (GWS)		3
			World (Foreign) Language 002		4
Total Credits:	14		Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course	3		IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
STAT 200 (GQ)	4		ECON 102 (GS)		3
SRA 221 <i>Overview of Information Security</i>	3		IST 230 <i>Language, Logic and Discrete Math</i>		3
World (Foreign) Language 003	4		PSYCH 100 or SOC 005		3
CAS 100 (GWS)	3		Natural Sciences with lab (GN)		4
Total Credits:	17		Total Credits:		17
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>	3		SRA 311 <i>Risk Management Assessment and Mitigation</i>		3
SRA 231 <i>Decision Theory and Analysis</i>	3		SRA 468 <i>Visual Analytics for Security Intelligence</i>)		3
Support of Option (IAM)	3		SRA 397E <i>Security Economics and Privacy Behaviors</i> or ECON 302 <i>Intermediate Microeconomic Analysis</i>		3
SRA 365 <i>Statistics for Security and Risk Analysis</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3		Natural Science		3
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3		ENGL 202 or ENGL 202D (GWS)		3
Humanities (GH)	3				
Total Credits:	18		Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 331 <i>Organization and Design of Info Systems</i>	3		IST 420 <i>Fundamentals of Systems and Enterprise Integration</i>		3
IST 302 <i>IT Project Management</i>	3		SRA 433 <i>Deception and Counterdeception</i>		3
SRA 421 <i>The Intelligence Environment</i>	3		Emerging Issues in Technology		3
Natural Sciences (GN)	2-3		Support of Option - IAM		3
IST Foreign Culture/SRA International Course (IL/GH)	3		IST Foreign Culture/SRA International Course (IL/GH)		3
Health and Physical Activity (GHA)	1.5		Arts (GA)		3
Total Credits:	15.5-16.5		Total Credits:		18
Summer: IST 495 Internship (1cr)					
IST 440W <i>IST Integration and Problem Solving</i>	3				
IST 432 <i>Legal and Regulatory Environment of IST</i>	3				
Support of Option - IAM	3				
Arts (GA)	3				
IST 421 <i>Advanced Enterprise Integration</i>	3				
Health and Physical Activity (GHA)	1.5				
Total Credits:	16.5				

**ISTBS - Information Context: People, Organization, and Society (ISPP)
and
SRA - Information and Cyber Security (ICS)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course	3		IST 210 <i>Organization of Data</i> ETM Course		3
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course	3		IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>		3
MATH 110 or 140 (GQ)	4		SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
World (Foreign) Language 001	4		ENGL 015 or ENGL 030 (GWS)		3
			World (Foreign) Language 002		4
	Total Credits:	14		Total Credits:	16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course	3		IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate & Object-Oriented Application Development</i>		3
STAT 200 (GQ)	4		ECON 102 or AG BM 101 (GS)		3
SRA 221 <i>Overview of Information Security</i>	3		IST 230 <i>Language, Logic and Discrete Math</i>		3
World (Foreign) Language 003	4		SRA 231 <i>Decision Theory and Analysis</i>		3
CAS 100 (GWS)	3		Natural Sciences with lab (GN)		4
	Total Credits:	16		Total Credits:	16
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>	3		SRA 311 <i>Risk Management: Assessment and Mitigation</i>		3
IST 331 <i>Organization and Design of Information Systems</i>	3		IST 302 <i>IT Project Management</i> or IST 413 <i>Usability Engineering</i>		3
SRA 365 <i>Statistics for Security and Risk Analysis</i>	3		IST 451 <i>Network Security</i>		3
Natural Sciences (GN)	3		PSYCH 100 or SOC 005		3
IST Foreign Culture/SRA International Course (IL/GH)	3		GEOG 040 or PL SC 001 or PL SC 014 (GS)		3
Health and Physical Activity (GHA)	1.5		Arts (GA)		3
	Total Credits:	16.5		Total Credits:	18
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 432 <i>Legal and Regulatory Environment of IST</i>	3		IST 440W <i>IST Integration and Problem Solving</i>		3
IST 454 <i>Computer and Cyber Forensics</i>	3		IST 456 <i>Information Security Management</i>		3
ENGL 202C or ENGL 202D (GWS)	3		IST 431 <i>The Information Environment</i>		3
IST Foreign Culture/SRA International Course (IL/GH)	3		Natural Sciences (GN)		3
Arts (GA)	3		Humanities (GH)		3
			Health and Physical Activity (GHA)		1.5
	Total Credits:	15		Total Credits:	16.5

**ISTBS - Information Context: People, Organization, and Society (ISPP)
and
SRA - Intelligence Analysis and Modeling (IAM)**

Semester 1		Credits	Semester 2		Credits
IST 110/110S <i>Information, People and Technology</i> ETM Course		3	IST 210 <i>Organization of Data</i> ETM Course		3
SRA 111 <i>Introduction to Security and Risk Analysis</i> ETM Course		3	SRA 211 <i>Threat of Terrorism and Crime</i> ETM Course		3
MATH 110 or MATH 140 (GQ)		4	IST 140 <i>Intro to Application Development</i> or CMPSC 101 <i>Intro to C++ Programming</i>		3
World (Foreign) Language 001		4	ENGL 015 or ENGL 030 (GWS)		3
*ETM Course			World (Foreign) Language 002		4
Total Credits:		14	Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 3		Credits	Semester 4		Credits
IST 220 <i>Networking and Telecommunications</i> ETM Course		3	IST 242 <i>Intermediate & Object-Oriented Application Development</i> or IST 240 <i>Introduction to Computer Languages</i>		3
STAT 200 (GQ)		4	ECON 102 (GS)		3
SRA 221 <i>Overview of Information Security</i>		3	IST 230 <i>Language, Logic and Discrete Math</i>		3
World (Foreign) Language 003		4	PSYCH 100 or SOC 005		3
CAS 100 (GWS)		3	Natural Sciences (GN)		3
Total Credits:		17	Total Credits:		15
Summer: IST 495 Internship (1cr)					
Semester 5		Credits	Semester 6		Credits
IST 301 <i>Information and Organizations</i>		3	SRA 311 <i>Risk Management Assessment and Mitigation</i>		3
SRA 231 <i>Decision Theory and Analysis</i>		3	IST 331 <i>Organization and Design of Information Systems: User and System Principles</i>		3
Support of Option (IAM)		3	SRA 397E <i>Security Economics and Privacy Behaviors</i> or ECON 302 <i>Intermediate Microeconomic Analysis</i>		3
SRA 365 <i>Statistics for Security and Risk Analysis</i> or STAT 460 <i>Intermediate Applied Statistics</i>		3	Natural Science with lab (GN)		4
GEOG 040 or PL SC 001 or PL SC 014 (GS)		3	ENGL 202C or ENGL 202D (GWS)		3
Arts (GA)		3			
Total Credits:		18	Total Credits:		16
Summer: IST 495 Internship (1cr)					
Semester 7		Credits	Semester 8		Credits
IST 302 <i>IT Project Management</i> or IST 413 <i>IST 413 Usability Engineering</i>		3	SRA 433 <i>Deception and Counterdeception</i>		3
Support of Option - IAM		3	SRA 468 <i>Visual Analytics for Security Intelligence</i>		3
SRA 421 <i>The Intelligence Environment</i>		3	IST 431 <i>The Information Environment</i>		3
Natural Sciences (GN)		2-3	IST Foreign Culture/SRA International Course (IL/GH)		3
IST Foreign Culture/SRA International Course (IL/GH)		3	Arts (GA)		3
Health and Physical Activity (GHA)		1.5	Health and Physical Activity (GHA)		1.5
Total Credits:		15.5-16.5	Total Credits:		16.5
Summer: IST 495 Internship (1cr)					
IST 440W <i>IST Integration and Problem Solving</i>		3			
IST 432 <i>Legal and Regulatory Environment of IST</i>		3			
Support of Option - IAM		3			
Emerging Issues in Technology		3			
Humanities (GH)		3			
Total Credits:		15			

Semester-By-Semester Academic Plan

You can develop your own academic plan by using your degree audit and the Recommended Academic plan in the preceding pages for the major and option you are looking to study. Academic plans can help you anticipate the academic workload every semester, appropriately preparing you to complete prerequisite courses and assist in fulfilling your educational goals.

Major/Option: _

Minor (if applicable): _

Fall _____	Spring _____	Summer _____
Total Credits:	Total Credits:	Total Credits:
Fall _____	Spring _____	Summer _____
Total Credits:	Total Credits:	Total Credits:
Fall _____	Spring _____	Summer _____
Total Credits:	Total Credits:	Total Credits:
Fall _____	Spring _____	Summer _____
Total Credits:	Total Credits:	Total Credits:

Not all courses are offered every semester.

NOTES

Change of Major: 2015 - 2016 Admits

As a first-semester baccalaureate student you are admitted to a college in the premajor (e.g., Information Sciences and Technology, Engineering, Liberal Arts) or to the Division of Undergraduate Studies before you are admitted into a major.

ISTBS Major

To be eligible for entrance to the Information Sciences and Technology (ISTBS) major, students must:

1. Have completed the following courses with a grade of C or better in each: IST 110, IST 210, and IST 220.
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the request for a change of major is made.
3. Earned 29.1 Penn State credits.

ISTBA Major

For entrance to the Bachelor of Arts degree in Information Sciences and Technology you must complete the following:

1. Have achieved at least third semester classification and not greater than fourth semester classification while pursuing a program of study appropriate for entry to the major.
2. Have completed two of the following four courses with a grade of C or better in each: IST 110, IST 130, IST 210, and IST 220, by Spring 2017.
3. Have attained at least a 2.00 cumulative grade point average (CGPA) by the end of the Fall 2016 semester. A CGPA of 2.0 must be maintained through the end of the Spring 2017 semester.
4. Submitted a proposal by December 1 of your sophomore year (2016). If your proposal is approved and you satisfy the above requirements, you may request a change of major.

SRA Major

To be eligible for entrance to the Security and Risk Analysis (SRA) major, students must:

1. Have completed the following courses with a grade of C or better in each: IST 110, SRA 111, and SRA 211.
2. Have achieved a minimum cumulative grade point average of 2.00 prior to and through the end of the semester during which the request for a change of major is made.
3. Earned 29.1 Penn State credits.

General Education Notes

Flexibility of the Baccalaureate Degree General Education Requirements

Penn State wants students to use General Education (GE) to experiment and explore, to take academic risks, to discover things they did not know before, and to learn to do things they have not done before. To that end, the GE program extends the concept of flexibility to all aspects of the degree program.

Details can be found at http://bulletins.psu.edu/bulletins/bluebook/general_education.cfm?section=generalEd2. Students may, with the permission of their adviser and dean's representative:

1. Substitute a 200- to 499-level course in an area of GE for a course found on the GE list.
2. *Substitute a world (foreign) language after the twelfth credit level of proficiency, for 3 credits in any of the categories of GE.
3. *Substitute a third course in one of the Knowledge Domains areas of Arts, Humanities, or Social and Behavioral Sciences for a second course in one of the other areas. For example, a student might take three courses in the Arts, two courses in the Humanities, and only one course in the Social and Behavioral Sciences. This substitution is often referred to as the 9-6-3 sequence, representing the 9 credits, 6 credits, and 3 credits completed in place of the specified 6-6-6.

*Please note: The use of these two substitutions (No. 2 and No. 3 above), either alone or in combination, may not lead to the complete elimination of any area in the skills or knowledge domains categories in the student's General Education program.

Enhancing Your Academic Program

You can make the most of your time at Penn State by taking advantage of the many academic and co-curricular programs that are available. The following are but a brief list of programs and activities that will help you grow as an individual and help prepare you for what lies ahead, after college, all while having a great time in Happy Valley! Your academic adviser can help you sort out what is best for your academic and career goals.

Minors

A minor is an academic program that supplements a major. Minors require a minimum of 18 credits and typically no more than 21 credits with at least 6 credits but ordinarily not more than half of the credits at the 400 level. A minor program may consist of course work in a single area or from several disciplines.

College of IST students are encouraged to pursue minors that enhance their knowledge of a particular area of study. Some minors require that you complete specific coursework, while others have a prescribed course list to choose from. Entrance to some minors may require the completion of a number of prerequisites, including courses, portfolios, auditions, or other forms of documentation that are not included in the total requirements for the minor.

Please refer to ***Senate Policy: 59-00, Requirements for the Minor*** for additional information, or consult with your adviser if you are considering declaring a minor.

Concurrent Majors

A Concurrent Majors Program is one in which students take courses to concurrently meet the requirements of at least two majors, with graduation for all majors in the program occurring during the same semester. Requests for a concurrent major or majors can be made, at the earliest, once the student has attained 5th semester classification and been approved for their primary major. Students should meet with their assigned academic adviser to begin the concurrent major process. Further information and Student Actions items may be found at <http://ist.psu.edu/current-students/concurrent-multiple-majors>. This process can take several weeks to complete, please plan accordingly.

Recommended Academic plans for concurrent ISTBS and SRA majors can be found on pages (33-38).

Education Abroad

The College of IST has always recognized the importance of preparing students to be competitive in the global marketplace. Students who have an interest in studying abroad work closely with their academic adviser to identify degree requirements that can be met while studying internationally. Detailed information regarding Penn State's Education Abroad, including how to begin your search, can be found at <http://global/psu.edu>.

Student Organizations, Clubs, and Committees

The College of IST has several opportunities for students to develop their leadership and teamwork skills by joining one of the student organizations within the college. Examples include IST Student Government, Diversity Network, IST for the Kids, Women in IST, Game Development, SRA Club, and Red Cell Analytics Lab.

A complete list can be found on the IST website <http://ist.psu.edu/current-students/student-organizations>.

Your Career Roadmap

Internships for Year One, Year Two and Year Three

Internships are a required part of the College of IST's majors and set a student's professional development in motion. The college's requirement of taking a one-credit internship has been shown to produce a great return professionally. You will be better able to define career goals as well as create better future job opportunities. The internship experience needs to be of enough technical rigor to enable you to more accurately evaluate career choices. Completion of one internship experience for credit is required; however, it is strongly encouraged that students have multiple internship experiences prior to graduation as this increases full-time job offers and maximizes career exploration opportunities. You can also explore the idea of a co-op. This type of internship is where you have the opportunity to work with the same company for six months or more and really get to know what it is like to work in a corporate environment. Those interested in a co-op can work with the internship coordinator and their academic adviser to integrate this experience into their curriculum and graduate within four years. Please visit the IST Office of Career Solutions and Corporate Engagement website for additional information and resources: www.ist.psu.edu/current-students/careers.

Steps to Optimize Your Internship Selection:

1. Register your profile on the Compass system.
2. Make an appointment with a Career Solutions and Corporate Engagement team member to discuss your career goals.
3. Update and submit your résumé to Compass so you can view internship and co-op job postings.
4. Attend résumé seminars and workshops in your first year.
5. Attend IST professional development workshops and IST career related events.
6. Attend the **IST ProExpo** and **Future Forum** events.
7. Attend Penn State's Fall and Spring Career Days.
8. Apply for internships and co-ops.

Once you find an internship or co-op opportunity you would like to pursue:

1. Gain approval for your internship by sending an email to careers@ist.psu.edu and a team member will schedule you for IST 495 (1cr). IST 495 can only be added to your schedule by the Office of Career Solutions and Corporate Engagement.
2. Complete your registration by paying all tuition and fees.
3. Complete all requirements for a grade.

Year One

Students should get to know the IST Office of Career Solutions and Corporate Engagement and the programs and services that are available. Even though you are just beginning your academic preparation, steps should be taken to begin your search for an internship after your first year. Use the steps listed above to begin the process. Based on the academic planning of your first year's courses, you can fulfill your internship requirement the following summer. Students majoring in IST or SRA work in areas such as consulting, government, and manufacturing industries. Students can direct their internship selections by what they find of most interest in their course work. By planning to do an internship this summer, students will be at a great advantage for future internships as well as permanent job offers upon graduation.

Year Two

To better understand your academic focus, think of what general education courses would complement a specific work sector that may be found in your career path. Students majoring in IST or SRA have careers such as technology integration consultants, business analysts, intelligence analysts, and security analysts. Consequently, this summer's internship should deepen your area of academic focus and help prepare you for selecting an appropriate minor. Students should be registered on IST's job posting system – Compass.

Year Three

While choosing your Support of Option courses and gauging any interest you might have in pursuing a minor, keep in mind what career path is most exciting and aligns with your skills, knowledge, and abilities. Having completed the third year of academics, internship opportunities this year should be in the career sector in which you plan on finding future employment.

Year Four – Job Placement

Entry into successful professional placement opportunities is a direct result of your course-related knowledge and participation in internship experiences, consulting projects, corporate information sessions and field trips. The IST professional placement program is designed to maximize your career planning opportunities prior to your graduation.

College of IST students looking for full-time placement opportunities have two distinct resources to pursue. Compass is a licensed service of Symplicity© that is intended for the sole use of IST and SRA students at University Park. This service provides relevant full-time and internship positions.

The second resource is the Nittany Lion Career Network – Penn State's primary online resource which provides students university-wide with information on full-time job opportunities, information sessions, and more. Information on this service can be found on PSU's Career Services web site <http://studentaffairs.psu.edu/career/students/NLCN.shtml>.

Compass and Nittany Lion Career Network are two separate and highly valuable tools for the student seeking a professional position after graduation. Other options include using the resources offered through online job search tools, and various career fairs and information sessions.

Experience equals success. Internships, corporate interactions, and proactive job searching benefit College of IST students negotiating their first full-time corporate jobs. Our recent graduates impress even the most seasoned professionals.

Finding a full-time job involves completing a few steps. Our advice is to follow each of these to ensure you reap the rewards.

Steps to Optimize Your Professional Placement Offer(s):

1. Register on Compass (<http://ist.psu.edu/compass>).
2. Make an appointment for an individualized career counseling and planning session with IST Office of Career Solutions and Corporate Engagement to obtain assistance with post-graduation preparation. Send an email to careers@ist.psu.edu.
3. Update your résumé, noting your internship experience(s).
4. Attend IST's professional development workshops.
5. Attend corporate information/interview sessions.
6. Attend the IST ProExpo and Future Forum events.
7. Register on the Nittany Lion Career Network.
8. Attend the University's fall and spring Career Days.
9. Complete the College of IST Senior Placement Survey.

Please visit the IST Career Solutions Web Site for further information and resources:

<http://ist.psu.edu/current-students/careers>

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identity, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901; Tel. 814-865-4700/V, 814-863-1150/TTY. U. Ed. IST 15-12

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PENN STATE



COLLEGE OF INFORMATION
SCIENCES AND TECHNOLOGY

Managing Information, Powering Intelligence