

College of Information Sciences and Technology

# *The Roadmap*



A Bachelor's Degree Guide  
2014 - 2015

## **Undergraduate Advising Center**

104 Information Sciences and Technology Building  
Phone: 814-865-8947; Toll Free (U.S. only): 866-225-8707  
Fax: 814-865-7490

### **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.

---

**Jeanie Peritz**, Director, Undergraduate Academic Services  
jperitz@ist.psu.edu

**Susan Agee**, Academic Adviser  
sagee@ist.psu.edu

**Sarah Milito**, Academic Adviser  
smilito@ist.psu.edu

**Lisa Lenze**, Schreyer Honors Adviser  
llenze@ist.psu.edu

**Mary Beth Rosson**, Associate Dean for Undergraduate Studies  
mrosson@ist.psu.edu

---

### **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/>)

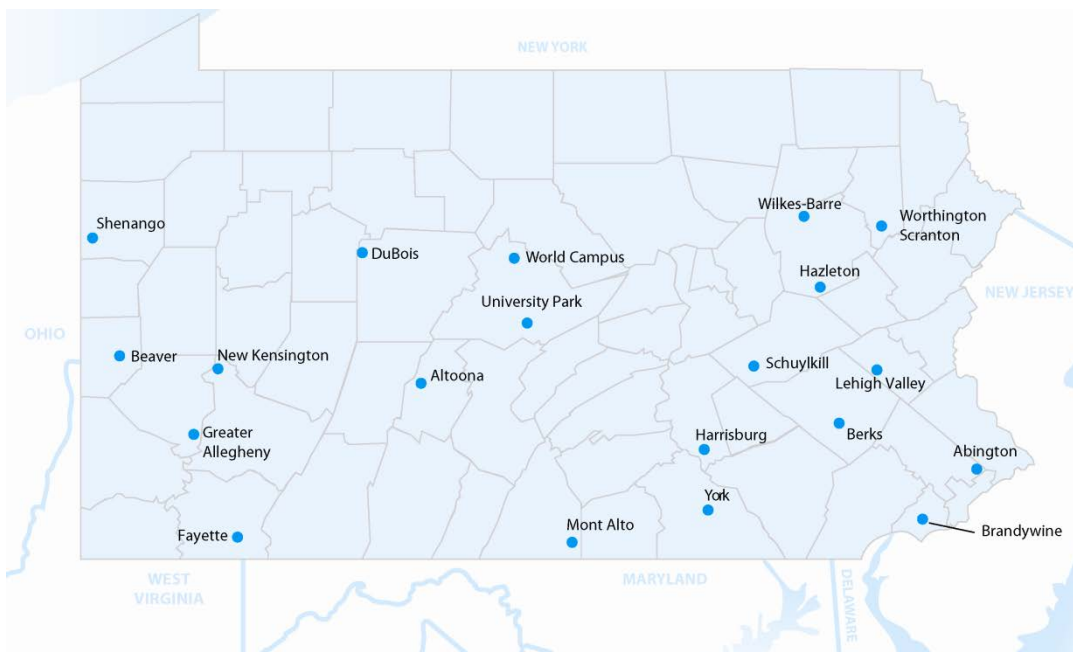
The University also offers a convenient and secure on-line method to answer many basic academic questions and to prepare you for a face-to-face visit with your academic adviser. eLion's web-based service not only gives you real-time access to academic records, but has many additional features to assist 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.

# Table of Contents

Penn State Campuses Offering IST Degrees .....	2
Information Sciences and Technology Bachelor of Science (ISTBS) Degree Options.....	3
ISTBS Major Requirements .....	4
ISTBS Courses .....	5
ISTBS Option Courses.....	10
ISTBS Support of Option Courses .....	11
Courses to Meet the Foreign Culture Requirement for the ISTBS Major .....	11
The ISTBS Major Recommended Academic Plans:	
Information Systems: Design and Development (ISDEV) .....	12
Information Technology: Integration and Application (ITINT) .....	13
Information Context: People, Organizations, and Society (ISPP) .....	14
ITINT and ICS Concurrent Majors.....	15
ISTBS with an Education Abroad Semester.....	16
Information Sciences and Technology Bachelor of Arts (ISTBA) Degree .....	17
ISTBA Major Requirements .....	18
ISTBA Courses .....	19
The ISTBA Major Recommended Academic Plan .....	20
Security and Risk Analysis Bachelor of Science (SRA) Degree Options .....	21
SRA Major Requirements .....	22
SRA Courses .....	23
Courses to Meet the International Course Requirement for the SRA Major.....	25
SRA Option Courses.....	26
SRA Support of Option Courses .....	27
The SRA Major Recommended Academic Plans:	
Intelligence Analysis and Modeling (IAM) .....	28
Information and Cyber Security (ICS) .....	29
Social Factors and Risk (SFR).....	30
IAM and ITINT Concurrent Majors.....	31
SRA with an Education Abroad Semester.....	32
Entrance to Major.....	33
Enhancing your Academic Program.....	34
General Education Notes .....	34
Your Career Roadmap: Internships for Year One, Year Two, and Year Three.....	35
Your Career Roadmap: Placement for Year Four .....	36
Semester by Semester Academic Plan (blank).....	37

***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 they 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: 7 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: 85 credits**

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

## **COMMON REQUIREMENTS FOR ALL OPTIONS: 64 credits**

### **PRESCRIBED COURSES: 27 credits**

IST 110/110S\* (3), IST 210\* (4), 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: 16 credits**

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

IST 240\* (3) or IST 242\* (3) (Sem: 1-4)

**Students in the Information Systems: Design and Development option are expected to take IST 242 prior to taking the prescribed and additional courses for that option.**

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 amount of world (foreign) language you completed in high school, results of advanced placement exams, and results of 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: 21 credits**

### **INFORMATION SYSTEMS: DESIGN AND DEVELOPMENT OPTION: 21 credits**

#### **PRESCRIBED COURSES: 3 credits**

IST 311\* (3) (Sem: 5-8)

#### **ADDITIONAL COURSES: 9 credits**

Select 3 credits from IST 261\* (3) or IST 361\* (3) (Sem: 5-8)

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: 21 credits**

#### **PRESCRIBED COURSES: 9 credits**

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

#### **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: 21 credits**

#### **PRESCRIBED COURSES: 6 credits**

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

#### **ADDITIONAL COURSES: 3 credits**

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.**

<p><b>IST 110</b> <b>IST 110(S)</b></p>	<p><b>Information, People and Technology (3)</b> 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></p>
<p><b>IST 140</b>  or <b>IST 297D</b></p>	<p><b>Introduction to Application Development (3)</b> A first course in concepts and skills for application development. Prerequisite: college algebra <b>Introduction to Application Programming (3)</b> Beginning programming principles in the context of application development. <i>IST 297D will be renamed and renumbered as IST 140 - Introduction to Application Development, effective Spring 2015.</i> Prerequisite: college algebra</p>
<p><b>IST 210</b></p>	<p><b>Organization of Data (4)</b> Introduction to the concept of databases including the storage, manipulation, evaluation, and display of data and related issues. Prerequisite: IST 110/110S</p>
<p><b>IST 220</b></p>	<p><b>Networking and Telecommunications (3)</b> Introduction to digital network topologies, transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security. Prerequisite: IST 110/110S</p>
<p><b>IST 230</b></p>	<p><b>Language, Logic, and Discrete Mathematics (3)</b> Introduction to formal languages, mathematical logic, and discrete mathematics, with applications to information sciences and technology. Prerequisite: MATH 110 or MATH 140</p>
<p><b>IST 240</b>  or <b>IST 242</b></p>	<p><b>Introduction to Computer Languages (3)</b> Introduction to the specification and application of languages and language paradigms which interact with computers. Prerequisite: CMPSC 101 or IST 140 (IST 297D) <b>Intermediate and Object-Oriented Application Development (3)</b> Intermediate application development including algorithms, data structures, and object-oriented concepts. Prerequisite: IST 140 or CMPSC 121 or IST 240</p>
<p><b>IST 301</b></p>	<p><b>Information and Organizations (3)</b> Overview of organizational structures and functions. Includes information processing and analytic perspectives of organizations. Prerequisite: IST 210, IST 220</p>
<p><b>IST 331</b></p>	<p><b>Organization and Design of Information Systems: User and System Principles (3)</b> Interdisciplinary survey of topics related to the use and usability of information systems. Prerequisite: IST 230</p>
<p><b>IST 402</b></p>	<p><b>Emerging Issues and Technologies (3)</b> 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.</p>
<p><b>IST 440W</b></p>	<p><b>Information Sciences and Technology Integration and Problem Solving (3)</b> 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.</p>
<p><b>IST 495</b></p>	<p><b>Internship (1)</b> 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.</p>

## 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.**

IST 130	<p><b>Emerging Technologies in Popular Culture (3) (GA)</b>            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></p>
IST 235	<p><b>Gender and the Global Information Technology Sector (3) (US) (WMNST 235)</b>            Integrates information technology and gender studies. Overview issues and socio-cultural shaping of gender in the IT field.</p>
IST 237	<p><b>Digital Entrepreneurship (3)</b>            Introduction to foundational concepts for starting and operating digital business, including business models, funding, strategic, operational, structural, and cultural components.</p>
IST 250	<p><b>New Media and the Web (3)</b>            Introduction to how the World Wide Web utilizes emerging technologies. Students acquire conceptual understanding of constructing Web sites.            Prerequisite: IST 110, or concurrent enrollment.</p>
IST 261	<p><b>Application Development Design Studio I (3)</b>            Introductory design and development studio course for IST and SRA students.            Prerequisite: IST 242 or approval of instructor</p>
IST 302	<p><b>IT Project Management (3)</b>            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</p>
IST 311	<p><b>Object-Oriented Design and Software Applications (3)</b>            Introduction to object-oriented applications including applications in an OOD language.            Prerequisite: IST 242 or approval of instructor</p>
IST 337	<p><b>Technologies for Digital Entrepreneurs (3)</b>            Introduction to the tools available to IT entrepreneurs considering starting-up or looking to develop new applications.</p>
IST 341	<p><b>Human Diversity in the Global Information Economy (3) (US; IL)</b>            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><b>Application Development Design Studio II (3)</b>            Second of two design and development studio courses for IST and SRA students.            Prerequisite: IST 311</p>
IST 390	<p><b>Professional Development (1)</b>            Interdisciplinary course to introduce students to the issues, concepts and skills involved in successfully transitioning into professional life.</p>
IST 411	<p><b>Distributed-Object Computing (3)</b>            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><b>The Engineering of Complex Software Systems (3)</b>            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><b>Usability Engineering (3)</b>            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>



<b>IST 420</b>	<b>Fundamentals of Systems and Enterprise Integration (3)</b> 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
<b>IST 421</b>	<b>Advanced Enterprise Integration: Technologies and Applications (3)</b> Advanced course on the integration of information technology into systems applications. Prerequisite: IST 420
<b>IST 422</b>	<b>Enterprise Architecture Foundations (3)</b> Theoretical foundations and practice of enterprise architecture. Prerequisite: IST 301
<b>IST 423</b>	<b>Enterprise Information Management and Storage Architecture (3)</b> Provide in-depth study of the concepts, issues, and technologies associated with the complex world of enterprise information and storage architecture. Prerequisite: IST 301
<b>IST 424</b>	<b>Architectural Modeling of Organizations (3)</b> Theoretical foundations and practice of enterprise modeling. Prerequisite: IST 301
<b>IST 425</b>	<b>New Venture Creation (3)</b> 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
<b>IST 426</b>	<b>Invention Commercialization (3)</b> 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
<b>IST 431</b>	<b>The Information Environment (3)</b> Survey of social environment of information technology themes: Community, sovereignty, privacy, ethics, economics, and knowledge management. Prerequisite: IST 210, IST 220
<b>IST 432</b>	<b>Legal and Regulatory Environment of Information Science and Technology (3)</b> 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
<b>IST 437</b>	<b>Digital Design &amp; Innovation (3)</b> 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
<b>IST 441</b>	<b>Information Retrieval and Organization (3)</b> 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
<b>IST 442</b>	<b>Information Technology in an International Context (3) (IL)</b> International concepts to improve strategies for the design, dissemination, and use of information technology. Prerequisite: IST 110/110S
<b>IST 443</b>	<b>Information Technology Professional Services Theory and Practice (3)</b> 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
<b>IST 444</b>	<b>Advanced IT Professional Services (3)</b> Explores advanced IT professional services topics, and the unique application of consulting methods in various industry sectors. Prerequisite: IST 443

<b>IST 445H</b>	<p><b>Globalization Trends and World Issues (3)</b>  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 courses</p>
<b>IST 446</b>	<p><b>An Introduction to Building Computer/Video Games (3)</b>  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>
<b>IST 451</b>	<p><b>Network Security (3)</b>  Fundamental issues and concepts of network security, network security technologies and protocols, and emerging technologies in network security.  Prerequisite: IST 220, SRA 221</p>
<b>IST 452</b>	<p><b>Legal and Regulatory Environment of Privacy and Security (3)</b>  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>
<b>IST 453</b>	<p><b>Legal, Regulatory, Policy Environment of Cyber Forensics (3)</b>  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>
<b>IST 454</b>	<p><b>Computer and Cyber Forensics (3)</b>  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>
<b>IST 456</b>	<p><b>Information Security Management (3)</b>  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</p>
<b>IST 489H</b>	<p><b>Research Methods for the Information Sciences and Technology (3)</b>  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</p>

## IST 297/397/497 Special Topic Courses

---

The College also offers special topics courses 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.

<b>IST 297A</b>	<b>Introduction to Analytic Techniques for Problem Solving (3)</b> Problem solving techniques using mathematical models on spreadsheets. Applications to a wide range of management, information technology and security problems. Prerequisite: MATH 022 or satisfactory performance on the mathematics placement examination <i>IST 297A is offered spring semester only.</i>
<b>IST 297B</b>	<b>Supervised Experience in Instructional Support (1)</b> Introduction to best practices in and supervision of instructional support activities such as coaching, team facilitation, grading, and learning assessment.
<b>IST 297I</b>	<b>Web Application Development (3)</b> Web application development concepts, tools, and techniques. Prerequisite: IST 140 (297D), IST 210, and IST 220
<b>IST 297K</b>	<b>New Media, Individuals, and Institutions (3)</b> Introduction to the rapidly changing world of new media, and their communicative and social impacts on individuals and institutions. Prerequisite: IST 110/110S

## 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

<b>IST 311 is a required course (3cr)</b>	
<b>IST 311</b>	<b>Object-Oriented Design and Software Applications (3)</b> Introduction to object-oriented applications including applications in an OOD language. Prerequisite: IST 242 or approval of instructor
<b>Select 3 credits from IST 261 or IST 361 (3cr)</b>	
<b>IST 261</b>	<b>Object-Oriented Design and Software Applications (3)</b> Introduction to object-oriented applications including applications in an OOD language. Prerequisite: IST 242 or approval of instructor
<b>IST 361</b>	<b>Application Development Design Studio II (3)</b> Second of two design and development studio courses for IST and SRA students. Prerequisite: IST 311
<b>Select 6 credits from IST 411, IST 412, and IST 413 (6cr)</b>	
<b>IST 411</b>	<b>Distributed-Object Computing (3)</b> 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>
<b>IST 412</b>	<b>The Engineering of Complex Software Systems (3)</b> 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>
<b>IST 413</b>	<b>Usability Engineering (3)</b> 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

<b>IST 302, 420, and 421 are required courses (9cr)</b>	
<b>IST 302</b>	<b>IT Project Management (3)</b> 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
<b>IST 420</b>	<b>Fundamentals of Systems and Enterprise Integration (3)</b> 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
<b>IST 421</b>	<b>Advanced Enterprise Integration: Technologies and Applications (3)</b> Advanced course on the integration of information technology into systems applications. Prerequisite: IST 420

### Information Context: People, Organizations, and Society

<b>IST 431 and IST 432 are required courses (6cr)</b>	
<b>IST 431</b>	<b>The Information Environment (3)</b> Survey of social environment of information technology themes: Community, sovereignty, privacy, ethics, economics, and knowledge management. Prerequisite: IST 210, IST 220
<b>IST 432</b>	<b>Legal and Regulatory Environment of Information Science and Technology (3)</b> 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
<b>Select between IST 302 and IST 413 (3cr)</b>	
<b>IST 302</b>	<b>IT Project Management (3)</b> 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
<b>IST 413</b>	<b>Usability Engineering (3)</b> 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 compliments your IST or SRA 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 complimentary 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.

## Recommended Academic Plans

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

### Information Sciences and Technology (ISTBS) Information Systems: Design and Development (ISDEV) Option Effective Summer 2014

Semester 1	Credits	Semester 2	Credits
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	3	IST 210 <i>Organization of Data</i> <b>ETM Course</b>	4
IST 140 (297D) <i>Intro to Application Development</i> or CMPSC 121 <i>Intro to Programming Techniques</i>	3	IST 242 <i>Intermediate and Object-Oriented Application Development</i>	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:	17
Summer: IST 495 Internship (1cr)			
Semester 3	Credits	Semester 4	Credits
IST 220 <i>Networking and Telecommunications</i> <b>ETM Course</b>	3	Support of Option *	3
IST 230 <i>Language, Logic and Discrete Math</i>	3	STAT 200 (GQ)	4
IST 261 <i>Application Development Design Studio I</i>	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 II</i> (used as Support of Option if IST 261 is completed)	3
IST 331 <i>Organization and Design of Information Systems</i>	3	IST 411 <i>Distributed Object Computing</i> or IST 413 <i>Usability Engineering</i>	3
Support of Option *	3	IST 301 <i>Information and Organizations</i>	3
Humanities (GH)	3	Foreign Culture	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 412 <i>The Engineering of Complex Software Systems</i> or IST 413 <i>Usability Engineering</i>	3	Support of Option *	3
Arts (GA)	3	Natural Sciences (GN)	3
Foreign Culture	3	Arts (GA)	3
Natural Sciences (GN)	3	Elective	4
Total Credits:	15	Total Credits:	16

**One internship for credit is required to complete the ISTBS degree, a maximum of three internships for credit are allowed.**

**\* Support of Option suggestion: complete both design studio courses and a third 400-level course from the ISDEV option.**

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

**Effective Summer 2014**

Semester 1	Credits	Semester 2	Credits
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	3	IST 210 <i>Organization of Data</i> <b>ETM Course</b>	4
MATH 110 or 140 (GQ)	4	Natural Sciences (GN)	3
IST 140 (297D) <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:	17
Summer: IST 495 Internship (1cr)			
Semester 3	Credits	Semester 4	Credits
IST 220 <i>Networking and Telecommunications</i> <b>ETM Course</b>	3	IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate &amp; 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	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	3	Elective	4
Arts (GA)	3	Elective	3
Total Credits:	15	Total Credits:	16

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

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

**Effective Summer 2014**

Semester 1	Credits	Semester 2	Credits
IST 110/110 S <i>Information, People and Technology</i> <b>ETM Course</b>	3	IST 210 <i>Organization of Data</i> <b>ETM Course</b>	4
MATH 110 or 140 (GQ)	4	Natural Sciences (GN)	3
IST 140 (297D) <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)	4
World (Foreign) Language 001	4	World (Foreign) Language 002	3
		ENGL 015 or ENGL 030 (GWS)	3
Total Credits:	14	Total Credits:	17
Summer: IST 495 Internship (1cr)			
Semester 3	Credits	Semester 4	Credits
IST 220 <i>Networking and Telecommunications</i> <b>ETM Course</b>	3	IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate &amp; 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> or IST 413 <i>Usability Engineering</i>	3
Support of Option	3	Support of Option	3
Humanities (GH)	3	Foreign Culture	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	3	Elective	4
Arts (GA)	3	Elective	3
Total Credits:	15	Total Credits:	16

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**



## Recommended Academic Plan - Concurrent Major

The concurrent major program allows students to earn degrees in more than one major. When completing concurrent majors, the student simultaneously completes all academic requirements for his/her majors and graduates with two degrees in the same semester. Working in conjunction with your academic adviser, this sample semester-by-semester plan can serve as a guide, but your personal plan may look different.

### Information Sciences and Technology - Information Technology: Integration and Application Security and Risk Analysis - Information and Cyber Security

#### ISTBS/ITINT and SRA/ICS Effective Summer 2014

Semester 1	Credits	Semester 2	Credits
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	3	IST 210 <i>Organization of Data</i> <b>ETM Course</b>	4
SRA 111 <i>Introduction to Security and Risk Analysis</i>	3	SRA 211 <i>Threat of Terrorism and Crime</i>	3
MATH 110 or MATH 140 (GQ)	4	IST 140 (297D) <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:	17
Summer: IST 495 Internship (1cr)			
Semester 3	Credits	Semester 4	Credits
IST 220 <i>Networking and Telecommunications</i> <b>ETM Course</b>	3	IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate &amp; Object-Oriented Application Development</i>	3
IST 230 <i>Language, Logic and Discrete Math</i> (SRA SOO)	3	ECON 102 or AG BM 101 (GS)	3
SRA 221 <i>Overview of Information Security</i>	3	STAT 200 (GQ)	4
World (Foreign) Language 003	4	PSYCH 100 or SOC 005	3
CAS 100 (GWS)	3	Natural Sciences with lab (GN)	4
Total Credits:	16	Total Credits:	17
Summer: IST 495 Internship (1cr)			
Semester 5	Credits	Semester 6	Credits
IST 301 <i>Information and Organizations</i> (SRA SOO)	3	SRA 311 <i>Risk Mgmt. Assessment and Mitigation</i>	3
IST 331 <i>Organization and Design of Info Systems</i>	3	IST 302 <i>IT Project Management</i> (SRA SOO)	3
SRA 231 <i>Decision Theory and Analysis</i>	3	IST 451 <i>Network Security</i>	3
Natural Sciences (GN)	3	SRA 497A <i>Statistical Analysis for Info Sciences</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3
Foreign Culture (SRA International Culture and GH)	3	GEOG 040 or PL SC 001 or PL SC 014 (GS)	3
Health and Physical Activity (GHA)	1.5		
Total Credits:	16.5	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
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
Foreign Culture (SRA International Culture)	3	Humanities (GH)	3
Arts (GA)	3	Health and Physical Activity (GHA)	1.5
Total Credits:	18	Total Credits:	16.5

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

## Recommended Academic Plan - Education Abroad

The college encourages students to supplement their academic curriculum with a variety of enriching experiences, like studying in another country for a semester. Below is an academic plan that includes coursework which allows students to take advantage of all Penn State has to offer. Students work with their academic adviser to ensure they are meeting their academic goals.

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

**Effective Summer 2014**

Semester 1	Credits	Semester 2	Credits
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	3	IST 210 <i>Organization of Data</i> <b>ETM Course</b>	4
MATH 110 or 140 (GQ)	4	Natural Sciences (GN)	3
IST 140 (297D) <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:	17
Summer: IST 495 Internship (1cr)			
Semester 3	Credits	Semester 4	Credits
IST 220 <i>Networking and Telecommunications</i> <b>ETM Course</b>	3	IST 240 <i>Introduction to Computer Languages</i> or IST 242 <i>Intermediate &amp; 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	3	Support of Option	3
Elective	4	Prescribed Option Course	3
Arts (GA)	3	Social/Behavioral Sciences (GS)	3
Total Credits:	16	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

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

# **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 tools 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 Plans* 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 on-line 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:** 15 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:** 17 credits

IST 110\* (3), IST 130\* (3), IST 210\* (4), 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.**

<b>IST 110/ IST 110S</b>	<b>Information, People and Technology (3)</b> 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 <b>cannot double-count as a GS.</b></i>
<b>IST 130</b>	<b>Emerging Technologies in Popular Culture (3) (GA)</b> 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 <b>cannot double-count as a GA.</b></i>
<b>IST 210</b>	<b>Organization of Data (4)</b> Introduction to concept of databases including the storage, manipulation, evaluation, and display of data and related issues. Prerequisite: IST 110/110S
<b>IST 220</b>	<b>Networking and Telecommunications (3)</b> Introduction to digital network topologies, transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security. Prerequisite: IST 110/110S
<b>IST 440W</b>	<b>IST Integration and Problem Solving (3)</b> Problem-based approach to technology integration by focusing on real-life problems faced by an organization. Prerequisite: Seventh semester standing; five common course requirements; three of the required courses in an option; ENGL 202C or 202D.
<b>IST 495</b>	<b>Internship (1)</b> Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required. Prerequisite: prior approval of proposed assignment by instructor

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.**

## Recommended Academic Plan Bachelor of Arts in Information Sciences and Technology (ISTBA)

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

Semester 1 <b>Working on Academic Proposal</b>	Credits	Semester 2 <b>Working on Academic Proposal</b>	Credits
IST 110S/110 <i>Information, People and Technology</i> <b>ETM Course</b>	3	IST 130 <i>Emerging Technologies in Popular Culture</i> <b>ETM Course</b>	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 <b>Academic Program Proposal due Dec. 1</b>	Credits	Semester 4	Credits
IST 210 <i>Organization of Data</i> <b>ETM Course</b>	4	IST 220 <i>Networking and Telecommunications</i> <b>ETM Course</b>	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:	17	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>IST 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	3
Elective	3	Elective	3
Total Credits:	15	Total Credits:	15

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

# **Security and Risk Analysis (SRA)**

## **Bachelor of Science Degree Options**

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

### **Social Factors and Risk (SFR)**

You will explore the psychological, sociological, and legal aspects of security and risk, and examine the privacy policies and legal regulations within companies and the government. In the classroom, you will work on teams in which you and your classmates role-play both terrorists and criminals, and the intelligence and security officers combating them.

## **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 on-line 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: 3 credits**

### **REQUIREMENTS FOR THE SRA MAJOR: 94 credits**

### **COMMON REQUIREMENTS FOR ALL OPTIONS: 73 credits**

#### **PRESCRIBED COURSES (39 credits)**

IST 140 (297D) or CMPSC 101\* GQ (3), SRA 111\* (3) (Sem: 1-2)

IST 110/110S\* (3) (Sem: 1-3), IST 210\* (4) (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 497A (3) (Sem: 5-6)

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)

#### **SOCIAL FACTORS AND RISK OPTION (SFR): (21 credits)**

##### **PRESCRIBED COURSES (9 credits)**

IST 452\* (3), SRA 471\* (3), SRA 472\* (3) (Sem: 5-8)

##### **SUPPORTING COURSES AND RELATED AREAS (12 credits)**

Select 12 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	<p><b>Introduction to Security and Risk Analysis (3)</b> 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 <b>cannot double-count as a GS.</b></i></p>
SRA 211	<p><b>Threat of Terrorism and Crime (3)</b> Provides overview of nature, scope, and seriousness of threats to security as a result of terrorism and crime. Prerequisite: SRA 111</p>
SRA 221	<p><b>Overview of Information Security (3)</b> 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 (297D) or CMPSC 101</p>
SRA 231	<p><b>Decision Theory and Analysis (3)</b> Provides an overview of decision theoretical and analytical concepts and tools in the security risk analysis field. Prerequisite: SRA 211, STAT 200</p>
SRA 311	<p><b>Risk Management: Assessment and Mitigation (3)</b> Assessment and mitigation of security vulnerabilities for people, organizations, industry sectors, and the nation. Prerequisite: SRA 231</p>
SRA 497A	<p><b>Statistical Analysis for Information Sciences (3)</b> Intermediate-level statistics course emphasizing understanding hypothesis testing and experimental design, a broad array of statistical techniques applied to data analysis, and computer tools to support testing and analysis; specifically applied to information sciences and technology applications. <i>Temporary substitution for STAT 460 for SRA students.</i></p>
IST 110/ IST 110S	<p><b>Information, People and Technology (3)</b> Introduction to information systems including social implications, and the creation, organization, analysis, storage, retrieval, and communication of information. <i>IST 110 is a requirement for the SRA major, and <b>cannot double-count as a GS.</b></i></p>
IST 210	<p><b>Organization of Data (4)</b> Introduction to the concept of databases including the storage, manipulation, evaluation, and display of data and related issues. Prerequisite: IST 110/110S</p>
IST 140  or IST 297D	<p><b>Introduction to Application Development (3)</b> A first course in concepts and skills for application development. Prerequisite: college algebra <b>Introduction to Application Programming (3)</b> Beginning programming principles in the context of application development. Prerequisite: college algebra <i>IST 297D will be renamed and renumbered as IST 140 - Introduction to Application Development, effective Spring 2015.</i></p>
IST 432	<p><b>Legal and Regulatory Environment of Information Science and Technology (3)</b> 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>
SRA 440W	<p><b>Security and Risk Analysis Capstone (3)</b> 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 111, SRA 211, SRA 221, SRA 231, SRA 311, ENGL 202 C/D and 7<sup>th</sup> semester standing. <i>SRA 440W is offered Spring semester only.</i></p>
IST 495	<p><b>Internship (1)</b> Supervised off-campus, nongroup instruction including field experiences, practica, or internships. Written and oral critique of activity required. Prerequisite: prior approval of proposed assignment by instructor</p>

## 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.**

<p><b>SRA 321</b></p>	<p><b>Role of Information and Intelligence (3)</b>            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.  <i>SRA 321 is offered fall semester only.</i></p>
<p><b>SRA 397E</b></p>	<p><b>Security Economics and Privacy Behaviors (3)</b>            Explore the economic incentives for security attacks and appropriate security defenses; apply methods from economic and behavioral sciences to current privacy/security challenges.  <i>SRA 397E is offered spring semester only.</i>  <i>Temporary substitution for Econ 302 for SRA students.</i></p>
<p><b>SRA 433</b></p>	<p><b>Deception and Counterdeception (3)</b>            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></p>
<p><b>SRA 468</b></p>	<p><b>Visual Analytics for Security Intelligence (3)</b>            Introduce 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></p>
<p><b>SRA 471</b></p>	<p><b>Informatics, Risk and the Post-Modern World (3)</b>            Provides in-depth study of how security informatics is influenced by the risk and post-modern culture.            Prerequisite: IST 110/110S, SRA 231.  <i>SRA 471 is offered spring semester only.</i></p>
<p><b>SRA 472</b></p>	<p><b>Integration of Privacy and Security (3)</b>            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></p>
<p><b>SRA 497C</b></p>	<p><b>Crisis Informatics (3)</b>            We will examine how technologies have played a role in saving lives; specifically technologies used toward emergency and disaster response.</p>

## Courses to Meet the International Course Requirement for the SRA Major

### What are International 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.

### What else should I know about the International Course requirement?

Students choose 6 credits from the following list.

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

3 credits may apply to general education; see your academic adviser for details.

Many courses require pre-requisites as indicated with a single asterisk (\*). Pre-requisite courses may or may not be part of the SRA degree.

**Courses taken to satisfy the SRA major requirement for GEOG/PL SC (GEOG 40 or PL SC 014) cannot be used to satisfy the International Course requirement as indicated with a double asterisk (\*\*) below.**

AFR 191 (GH;IL)	GEOG 020 (GS;US;IL)	J ST 060 (GS;IL)
AFR 192 (GH;IL)	<b>GEOG 040 (GS;IL)**</b>	
AFR 434 (IL)*	GEOG 120 (GS;US;IL)	LTNST 467 (US;IL)
AFR 440 (US;IL)*	GEOG 123 (GS;IL)	
AFR 443 (IL)*	GEOG 124 (GS;IL)	PL SC 003 (GS;IL)
AFR 454 (IL)*	GEOG 126 (GS;US;IL)	<b>PL SC 014 (GS;IL)**</b>
AFR 459 (IL)*	GEOG 128 (GS;IL)	PL SC 020 (GS;IL)
AFR 464 (IL)*		PL SC 022 (GS;IL)
	H P A 440 (US;IL)*	PL SC 060 (GS;IL)
ANTH 060 (GS;IL)		PL SC 434 (IL)*
	HIST 010 (GH; IL)	PL SC 440 (US;IL)*
ARAB 110 (GH;IL)*	HIST 011 (GH; IL)	PL SC 443 (IL)*
ARAB 165 (IL)	HIST 143 (GH;IL)	PL SC 454 (IL)*
ARAB 401 (IL)*	HIST 165 (IL)	PL SC 459 (IL)*
ARAB 402 (IL)*	HIST 175 (GH;IL)	PL SC 464 (IL)*
	HIST 178 (GH;IL)	
ASIA 100 (GH;IL)	HIST 179 (GH;IL)	RL ST 001 (GH;US;IL)
ASIA 405Y (IL)*	HIST 181 (GH;IL)	RL ST 165 (IL)
	HIST 191 (GH;IL)	
BB H 305 (IL)*	HIST 192 (GH;IL)	
BB H 440 (US;IL)*	HIST 420 (IL)*	RUS 100 (GH;IL)
	HIST 467 (US;IL)	
CAS 271 (US;IL)	HIST 473 (IL)	SOC 060 (GS;IL)
CHNS 120 (GH;IL)	INSYS 100 (GS;IL)	UKR 100 (GH;IL)
CHNS 452 (IL)*	I B 440 (US;IL)*	

## 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

<b>ECON 302</b> or <b>SRA 397E</b>	<b>Intermediate Microeconomic Analysis (3)</b> Allocation of resources and distribution of income within various market structures, with emphasis on analytical tools. Prerequisite: ECON 102 <b>Security Economics and Privacy Behaviors (3)</b> 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>
<b>SRA 321</b>	<b>Role of Information and Intelligence (3)</b> 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 <i>SRA 321 is offered fall semester only.</i>
<b>SRA 433</b>	<b>Deception and Counterdeception (3)</b> 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>
<b>SRA 468</b>	<b>Visual Analytics for Security Intelligence (3)</b> Introduce 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>

### Information and Cyber Security Option

<b>IST 220</b>	<b>Networking and Telecommunications (3)</b> Introduction to digital network topologies; transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security. Prerequisite: IST 110/110S
<b>IST 451</b>	<b>Network Security (3)</b> Fundamental issues and concepts of network security, network security technologies and protocols, and emerging technologies in network security. Prerequisite: IST 220, SRA 221
<b>IST 454</b>	<b>Computer and Cyber Forensics (3)</b> 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
<b>IST 456</b>	<b>Information Security Management (3)</b> 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

### Social Factors and Risk Option

<b>IST 452</b>	<b>Legal and Regulatory Environment of Privacy and Security (3)</b> 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
<b>SRA 471</b>	<b>Informatics, Risk, and the Post-Modern World (3)</b> Provides in-depth study of how security informatics is influenced by the risk and post-modern culture. Prerequisite: IST 110/110S, SRA 231 <i>SRA 471 is offered spring semester only.</i>
<b>SRA 472</b>	<b>Integration of Privacy and Security (3)</b> Exploration of technological, operation, 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>

## 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.

### What else should I know about Support of Option courses?

Students choose 9 or 12 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.

Please be mindful of course pre-requisites, as indicated with a single asterisk (\*) below.

**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 to satisfy a Support of Option requirement as indicated with a double asterisk (\*\*) below**

### INTELLIGENCE ANALYSIS AND MODELING (IAM) (9 credits)

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

### INFORMATION AND CYBER SECURITY (ICS) (9 credits)

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

### SOCIAL FACTORS AND RISK OPTION (SFR) (12 credits)

<b><u>e-Commerce</u></b> COMM 180 COMM 490*	<b><u>Middle Eastern Studies</u></b> ANTH 009 HIST 165 HIST 181 HIST 416 HIST 473 J ST 118	<b><u>Political Science/ Int'l Relations</u></b> HIST 020 HIST 021 HIST 452* <b><u>PL SC 001**</u></b> PL SC 002* <b><u>PL SC 014**</u></b> PL SC 410* PL SC 418* PL SC 442* PL SC 454*	PL SC 455* PL SC 458* PL SC 467* PSYCH 221*	PSYCH 270* PSYCH 445* SOC 012
<b><u>Forensics</u></b> CRIM 113 IST 453* <b><u>PSYCH 100**</u></b> PSYCH 221* PSYCH 270* PSYCH 445* SOC 012	<b><u>PL SC 014**</u></b> PL SC 439* PL SC 467*	<b><u>Pre-Law</u></b> ACCTG 211* CRIM 113 IST 453* PHIL 010 PHIL 012 <b><u>PSYCH 100**</u></b>		<b><u>Psychology</u></b> PHIL 010 <b><u>PSYCH 100**</u></b> PSYCH 221* PSYCH 270*

## Recommended Academic Plans

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

### Security and Risk Analysis Intelligence Analysis and Modeling (IAM) Option Effective Summer 2014

Semester 1	Credits	Semester 2	Credits
SRA 111 <i>Introduction to Security and Risk Analysis</i> <b>ETM Course</b>	3	SRA 211 <i>Threat of Terrorism and Crime</i> <b>ETM Course</b>	3
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	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 (297D) <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>	4
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3	Natural Science with lab (GN)	4
Total Credits:	14	Total Credits:	14
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 (GH)	3	ENGL 202C or ENGL 202D (GWS)	3
SRA 497A <i>Statistical Analysis for Info Sciences</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	3	Humanities (GH)	3
SRA 321 <i>The Role of Information and Intelligence</i>	3	Support of Option	3
Health and Physical Activity (GHA)	3	Support of Option	3
Natural Sciences (GN)	2-3	Electives	3
Total Credits:	14-15	Total Credits:	15

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

**Security and Risk Analysis  
Information and Cyber Security (ICS) Option**

**Effective Summer 2014**

Semester 1	Credits	Semester 2	Credits
SRA 111 <i>Introduction to Security and Risk Analysis</i> <b>ETM Course</b>	3	SRA 211 <i>Threat of Terrorism and Crime</i> <b>ETM Course</b>	3
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	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 (297D) <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>	4
IST 220 <i>Networking and Telecommunications</i>	3	Natural Science with lab (GN)	4
Total Credits:	14	Total Credits:	14
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 (GH)	3	ENGL 202C or ENGL 202D (GWS)	3
SRA 497A <i>Statistical Analysis for Info Sciences</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	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	3
Total Credits:	14-15	Total Credits:	15

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

**Security and Risk Analysis  
Social Factors and Risk (SFR) Option**

**Effective Summer 2014**

Semester 1	Credits	Semester 2	Credits
SRA 111 <i>Introduction to Security and Risk Analysis</i> <b>ETM Course</b>	3	SRA 211 <i>Threat of Terrorism and Crime</i> <b>ETM Course</b>	3
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	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 (297D) <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>	4
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3	Natural Science with lab (GN)	4
Total Credits:	14	Total Credits:	14
Summer: IST 495 Internship (1cr)			
Semester 5	Credits	Semester 6	Credits
SRA 311 <i>Risk Management Assessment and Mitigation</i>	3	SRA 497A <i>Statistical Analysis for Info Sciences</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3
International Course (GH)	3	SRA 471 <i>Informatics, Risk, and the Post-Modern World</i>	3
SRA 472 <i>Integration of Privacy and Security</i>	3	IST 432 <i>Legal and Regulatory Environment of IST</i>	3
Support of Option	3	ENGL 202C or ENGL 202D (GWS)	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 452 <i>Legal and Regulatory Environment of Privacy and Security</i>	3	IST 440W <i>IST Integration and Problem Solving</i>	3
International Course	3	Support of Option	3
Support of Option	3	Support of Option	3
Health and Physical Activity (GHA)	3	Humanities (GH)	3
Natural Sciences (GN)	2-3	Electives	3
Total Credits:	14-15	Total Credits:	15

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**



## Recommended Academic Plan - Concurrent Major

The concurrent major program allows students to earn degrees in more than one major. When completing concurrent majors, the student simultaneously completes all academic requirements for his/her majors and graduates with two degrees in the same semester. Completion of two majors will likely extend your graduation date. Working in conjunction with your academic adviser this sample semester-by-semester plan can serve as a guide, but your personal plan may look different.

### Security and Risk Analysis - Intelligence Analysis and Modeling (SRA/IAM) Information Sciences and Technology - Information Technology: Integration and Application (ISTBS/ITINT) Effective Summer 2014

Semester 1	Credits	Semester 2	Credits
IST 110/110S <i>Information, People and Technology</i> *	3	IST 210 <i>Organization of Data</i>	4
SRA 111 <i>Introduction to Security and Risk Analysis</i> *	3	SRA 211 <i>Threat of Terrorism and Crime</i> *	3
MATH 110 or MATH 140 (GQ)	4	IST 140 (297D) <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:	17
Summer: IST 495 Internship (1cr)			
Semester 3	Credits	Semester 4	Credits
IST 220 <i>Networking and Telecommunications</i>	3	IST 240 <i>Introduction to Computer Languages</i>	3
IST 230 <i>Language, Logic and Discrete Math</i>	3	ECON 102 (GS)	3
SRA 221 <i>Overview of Information Security</i>	3	STAT 200 (GQ)	4
World (Foreign) Language 003	4	PSYCH 100 or SOC 005	3
CAS 100 (GWS)	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 302 <i>IT Project Management</i>	3
SRA 231 <i>Decision Theory and Analysis</i>	3	SRA 311 <i>Risk Management Assessment and Mitigation</i>	3
Support of Option (IAM)	3	SRA 468 <i>Visual Analytics for Security Intelligence</i>	3
SRA 497A <i>Statistical Analysis for Information Sciences</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3	SRA 397E <i>Security Economics and Privacy Behaviors</i> or Econ 302 <i>Intermediate Microeconomic Analysis</i>	3
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3	Natural Science with lab (GN)	4
Total Credits:	15	Total Credits:	16
Summer: IST 495 Internship (1cr)			
Semester 7	Credits	Semester 8	Credits
IST 331 <i>Organization and Design of Info Systems</i>	3	IST 421 <i>Advanced Enterprise Integration</i>	3
IST 420 <i>Fundamentals of Systems and Enterprise Integration</i>	3	SRA 433 <i>Deception and Counterdeception</i>	3
SRA 321 <i>The Role of Information and Intelligence</i>	3	ENGL 202C or ENGL 202D (GWS)	3
Natural Sciences (GN)	2-3	Support of Option - IAM	3
International Course (GH) (IST Foreign Culture)	3	International Course (IST Foreign Culture)	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 9	Credits		
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		
Humanities (GH)	3		
Health and Physical Activity (GHA)	1.5		
Total Credits:	16.5		

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

**\*\*Flexibility in general education may be used to maximize your educational opportunities.  
Please check with your academic adviser or the University Bulletin for details.**

## Recommended Academic Plan - Education Abroad Semester

The college encourages students to supplement their academic curriculum with a variety of enriching experiences, like studying in another country for a semester. Below is an example of an academic plan that includes coursework which allows students to take advantage of all Penn State has to offer. Students work with their academic adviser to ensure they are meeting their academic goals.

### Security and Risk Analysis with an Education Abroad Semester Effective Summer 2014

Semester 1	Credits	Semester 2	Credits
SRA 111 <i>Introduction to Security and Risk Analysis</i> <b>ETM Course</b>	3	SRA 211 <i>Threat of Terrorism and Crime</i> <b>ETM Course</b>	3
IST 110/110S <i>Information, People and Technology</i> <b>ETM Course</b>	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 (297D) <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>	4
GEOG 040 or PL SC 001 or PL SC 014 (GS)	3	Natural Science with lab (GN)	4
Total Credits:	14	Total Credits:	14
Summer: IST 495 Internship (1cr)			
Semester 5-Education Abroad	Credits	Semester 6	Credits
Electives and Other Courses	3	IST 432 <i>Legal and Regulatory Environment of IST</i>	3
Electives and Other Courses	3	SRA 311 <i>Risk Management Assessment and Mitigation</i>	3
Electives and Other Courses	3	Prescribed Option Course	3
Humanities (GH)	3	Prescribed Option Course	3
Arts (GA)	3	Health and Physical Activity (GHA)	3
Total Credits:	15	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 497A <i>Statistical Analysis for Info Sciences</i> or STAT 460 <i>Intermediate Applied Statistics</i>	3	Support of Option	3
Support of Option or Prescribed Option Course	3	International Course	3
International Course (GH)	3	Arts (GA)	3
Natural Sciences (GN)	2-3		
Total Credits:	17-18	Total Credits:	15

**One internship for credit is required to complete degree requirements, a maximum of three internships for credit are allowed.**

## **Entrance to Major: 2014-2015 Admits**

---

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

The preferred method for moving into the ISTBS, ISTBA, or SRA major is through the entrance-to-major process (ETM) during the spring of your sophomore year (2016). Students included in the spring 2016 pool are notified by e-mail to confirm their major, option, and campus preferences through eLion.

### **ISTBS Major**

For entrance to the Bachelor of Science degree in Information Sciences and Technology, you must have attained at least a 2.00 cumulative grade-point average (CGPA) by the end of the Fall 2015 semester. A CGPA of 2.0 must be maintained through the end of the Spring 2016 semester.

A grade of C or better is required for each of the courses listed below, by the end of the Spring 2016 semester:

- IST 110/110S
- IST 210
- IST 220

### **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 2016.
3. Have attained at least a 2.00 cumulative grade point average (CGPA) by the end of the Fall 2015 semester. A CGPA of 2.0 must be maintained through the end of the Spring 2016 semester.
4. Submitted a proposal by December 1 of your sophomore year (2015). If your proposal is approved and you satisfy the above requirements, you must participate in the entrance-to-major process by indicating your preference through eLion, during the activation period in the Spring 2016 semester.

### **SRA Major**

For entrance to the Security and Risk Analysis major, you must have attained at least a 2.00 cumulative grade point average (CGPA) by the end of the Fall 2015 semester. A CGPA of 2.0 must be maintained through the end of the Spring 2016 semester.

A grade of C or better is required for each of the courses listed below by the end of the Spring 2016 semester:

- IST 110/110S
- SRA 111
- SRA 211

## **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 5<sup>th</sup> 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.

### **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 States Global Programs, 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>.

## **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](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.

## 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 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](http://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 resume 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](mailto: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 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 on-line 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](mailto: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>

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

**Not all courses are offered every semester.**

## NOTES



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 14-32

**This publication is available in alternative media on request.**

PENNSTATE



---

COLLEGE OF INFORMATION  
SCIENCES AND TECHNOLOGY

Managing Information, Powering Intelligence