

# SECURITY AND RISK ANALYSIS, B.S. (INFORMATION SCIENCES AND TECHNOLOGY)

**Begin Campus:** Abington, Altoona, Berks, Beaver, Brandywine, DuBois, Erie, Fayette, Greater Allegheny, Harrisburg, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, University Park, Wilkes-Barre, Scranton, York

**End Campus:** University Park

## Program Description

*Not all options are available at every campus. Contact the campus you are interested in attending to determine which options are offered.*

The Bachelor of Science in Security and Risk Analysis (SRA) in the College of Information Sciences and Technology responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management.

SRA program prepares students with core competence in four knowledge areas:

1. understanding the fundamentals of security, risk, analytic methods and decision support for the purpose of recognizing, articulating, and addressing analytic needs;
2. understanding the roles of data and analytics in various security domains and organizational contexts;
3. applying data analytics, methods, and tools (structured analytics; data gathering and manipulation; visual analytics; analytic judgements and presentation) to derive and communicate insights and actionable knowledge;
4. the legal, ethical, and professional issues within which analytics of security and risk are conducted.

Students may specialize in risk domains ranging from national security to community emergency preparedness and response. The SRA program positions our students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation.

SRA majors will choose one of the following options:

### Intelligence Analysis and Modeling Option

*Available at the following campuses: University Park*

This option focuses on developing a more thorough knowledge of the strategic and tactical levels of intelligence collection, analysis, and decision-making. This includes examining the foundations of decision analysis, economic theory, statistics, data mining, and knowledge management, as well as the security-specific contexts in which such knowledge is applied.

### Information and Cyber Security Option

*Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus*

This option includes a set of courses that provides an understanding of the theories, skills, and technologies associated with network security, cyber threat defense, information warfare, and critical infrastructure protection across multiple venues.

## What is Security and Risk Analysis?

Security and risk analysis is a field that explores the integrated processes conducted to provide decision-makers with the information needed to understand factors that can negatively influence operations and outcomes, and make informed judgments concerning the extent of actions needed to reduce vulnerabilities, protect resources, and optimize investments. Security and risk analysis is a field of practice with two blended concentration areas: 1) security, which seeks to identify, understand, and analyze critical local, national and international security issues, and 2) risk, which includes risk assessment, risk characterization, risk communication, risk management, and the formulation of risk policy. In practice, the issues and processes for conducting of security and risk analytics are neither separate nor sequential. To be effective, the issues of security and risk must be addressed concurrently and synergistically.

MORE INFORMATION ABOUT SECURITY AND RISK ANALYSIS (<https://ist.psu.edu/students/undergrad/majors/sra>)

### You Might Like This Program If...

- You want to protect people, information, and assets from manmade and natural threats.
- You want to understand the role of data in protecting individuals, organizations and our nation.
- You are mission oriented, a good critical thinker and wish to put your problem-solving skills to work to make the world a safer place.
- You want to make informed strategic decisions that help to defend critical infrastructures that supports our daily lives.

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY SECURITY AND RISK ANALYSIS ([https://issuu.com/istpsu/docs/sra\\_major](https://issuu.com/istpsu/docs/sra_major))

## Entrance to Major

### University Park

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

### First-Year Students Entering Summer 2019, Fall 2019, Spring 2020

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- 40-70 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better: IST 140 or CMPSC 101 or CMPSC 121, IST 210, SRA 111, SRA 211
- earned a minimum of 3.00 cumulative GPA

## Students Who Entered Prior to Summer 2019

Students who entered the University during Summer 2018, Fall 2018, and Spring 2019 should view the administrative enrollment controls in the archived 2018-19 Undergraduate Bulletin (<http://bulletins.psu.edu/archive/2018-19/undergraduate/general-information/academic-information/#administrativeenrollmentcontrolstext>). Students who entered the University prior to the summer 2018 semester should view the administrative enrollment controls for the semester that they entered the university (<http://advising.psu.edu/entrance-major-requirements>) on the Academic Advising Portal.

## World Campus

### Direct Admission to the Major

Incoming first-year students who meet the program admission requirements are admitted directly into the major. Admission restrictions may apply for change-of-major and/or change-of-campus students.

For more information about the admission process for this major, please send a request to the college, campus, or program contact (listed in the Contact tab).

## Entrance to the Integrated Undergraduate-Graduate (IUG) Program

The Integrated Undergraduate Graduate (IUG) program is available for strong undergraduate students who wish to pursue a bachelor's and master's degree in a shorter period of time than would be necessary if the degrees were pursued separately. Security and Risk Analysis undergraduates may apply for admission to the SRABS/ISTMS IUG program as early as the end of their sophomore year but no later than the end of their junior year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in the SRABS undergraduate degree program.
2. Must have completed 60 credits of an SRABS undergraduate degree program.
3. Must apply to the IUG program by the end of their junior year.
4. Must apply to and be accepted without reservation into the Graduate School and M.S. program in IST. Students must complete the Graduate School application (<http://www.gradschool.psu.edu/apply>).
5. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
6. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
7. Must present two letters of recommendation from faculty members. (Note: For Schreyer Honors College students, these can be the same two letters required by the Schreyer Honors College.)
8. Must meet with both the Director of Undergraduate Academic Affairs and the Graduate Program Coordinator to declare interest and receive information about the IUG program.

For Schreyer Honors College students, students admitted to the IUG program may double-count a maximum of 12 credits toward their graduate and undergraduate degrees in Information Sciences and Technology. Thesis or scholarly paper credits may not double-count.

## Degree Requirements

For the Bachelor of Science degree in Security and Risk Analysis, a minimum of 120 credits is required:

Requirement	Credits
General Education	45
Electives	5-13
Requirements for the Major	77-85

**15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses; 6 credits of GS courses; and 3 credits of GWS courses.**

### General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (<http://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program>) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

### Foundations (grade of C or better is required.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

### Knowledge Domains

- **Arts (GA):** 6 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 6 credits
- **Social and Behavioral Sciences (GS):** 6 credits
- **Natural Sciences (GN):** 9 credits

### Integrative Studies (may also complete a Knowledge Domain requirement)

- **Inter-Domain or Approved Linked Courses:** 6 credits

## University Degree Requirements

### First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

### Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

### Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

### Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

### Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

### Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

### Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

### Common Requirements for the Major (All Options)

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 110	Information, People and Technology	3
IST 210	Organization of Data	3
IST 432	Legal and Regulatory Environment of Information Science and Technology	3
IST 495	Internship	1
SRA 111	Introduction to Security and Risk Analysis	3
SRA 211	Threat of Terrorism and Crime	3
SRA 221	Overview of Information Security	3
SRA 231	Decision Theory and Analysis	3
STAT 200	Elementary Statistics	4
<b>Additional Courses</b>		
ENGL 202C or ENGL 202D	Effective Writing: Technical Writing Effective Writing: Business Writing	3
PSYCH 100 or SOC 5	Introductory Psychology Social Problems	3
Select one of the following:		3
AGBM 101	Economic Principles of Agribusiness Decision Making	
ECON 102	Introductory Microeconomic Analysis and Policy	
ECON 104	Introductory Macroeconomic Analysis and Policy	

Select one of the following: 3-5

MATH 22	College Algebra II and Analytic Geometry
MATH 26	Plane Trigonometry
MATH 40	Algebra, Trigonometry, and Analytic Geometry
MATH 41	Trigonometry and Analytic Geometry
MATH 110	Techniques of Calculus I
MATH 140	Calculus With Analytic Geometry I

Select one of the following: 3

GEOG 128	Geography of International Affairs
PLSC 1	American Politics: Principles, Processes and Powers
PLSC 14	International Relations

*Additional Courses: Require a grade of C or better*

SRA 365 or STAT 460	Statistics for Security and Risk Analysis Intermediate Applied Statistics	3
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Select one of the following: 3

IST 140	Introduction to Application Development
CMPC 101	Introduction to C++ Programming
CMPC 121	Introduction to Programming Techniques

### Requirements for the Option

Select an option 30-36

### Requirements for the Option

#### Intelligence Analysis and Modeling Option (36 credits)

*Available at the following campuses: University Park*

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 452	Legal and Regulatory Environment of Privacy and Security	3
SRA 268	Visual Analytics	3
SRA 311W	Risk Analysis in a Security Context	3
SRA 421	The Intelligence Environment	3
SRA 433	Deception and Counterdeception	3
SRA 440W	Security and Risk Analysis Capstone Course	3
SRA 468	Visual Analytics for Security Intelligence	3

### Supporting Courses and Related Areas

Select 15 credits from College-approved list (at least 3 credits must be at the 400-level) 15

### Information and Cyber Security Option (30 credits)

*Available at the following campuses: Altoona, Berks, Harrisburg, University Park, World Campus*

Code	Title	Credits
<b>Prescribed Courses</b>		
<i>Prescribed Courses: Require a grade of C or better</i>		
IST 220	Networking and Telecommunications	3
IST 451	Network Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3
SRA 311	Risk Analysis in a Security Context	3

### Additional Courses

*Additional Courses: Require a grade of C or better*

IST 440	Information Sciences and Technology Integration and Problem Solving	3
or SRA 440W	Security and Risk Analysis Capstone Course	

**Supporting Courses and Related Areas**

Select 12 credits from College-approved list (at least 3 credits must be at the 400-level) 12

## Integrated B.S. in Security and Risk Analysis / M.S. in Informatics

Available at the following campuses: *University Park*

The College of Information Sciences and Technology offers an integrated B.S./M.S. (IUG) program designed to allow academically superior students in the Security and Risk Analysis major to obtain both the Bachelor's in Security and Risk Analysis and the M.S. degree in Informatics in a shorter period of time than would be necessary if the degrees were pursued separately. The first two to three years of undergraduate coursework follow the same undergraduate curriculum that other students follow in the Security and Risk Analysis major. Interested students may apply for admission to the IUG program no earlier than February 15 of their sophomore year and no later than February 15 of their junior year after completing a minimum of 60 credits. If admitted to the IUG, the final years of study include two graduate courses, IST 504 in the fall and IST 505 in the spring, plus six credits of research methods courses, twelve to fifteen credits of graduate specialty courses, and three to six credits of graduate thesis (IST 600) or scholarly paper (IST 594). Details are provided in the Sample Sequence of Graduate Coursework.

(Note: For Schreyer Honors College students, those who complete the graduate thesis for the Master's requirement may use the graduate thesis, itself, to fulfill the undergraduate honors thesis requirement, as well. Honors students who opt for the Master's scholarly paper must also complete an undergraduate honors thesis.)

The integrated B.S. in Security and Risk Analysis / M.S. in Informatics (IUG) degree meets the needs of the most academically talented students in the Security and Risk Analysis undergraduate major. A proportion of these successful students wish to pursue graduate studies sometime after graduation. Offering the IUG benefits these students by offering an accelerated path to a graduate degree. Additionally, the IUG program can provide these students with a more cohesive program of study with opportunities to engage in more comprehensive research leading to both the bachelor's and master's degree.

For the B.S. in Security and Risk Analysis / M.S. in Informatics IUG program, a minimum of 120 credits is required for the bachelor's degree and 30 credits for the M.S. degree. Students admitted to the IUG program may double-count a maximum of 12 credits to their graduate and undergraduate degrees. The required 6 credits of IST 504 and IST 505 will apply to both the graduate program and the undergraduate program. Students may choose an additional 6 credits to double-count for both the undergraduate and graduate degrees from the following:

Code	Title	Credits
SRA 433	Deception and Counterdeception	3
SRA 468	Visual Analytics for Security Intelligence	3
SRA 471	Informatics, Risk, and the Post-Modern World	3
IST 451	Network Security	3

IST 452	Legal and Regulatory Environment of Privacy and Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3

Graduate thesis or scholarly paper credits may not double-count.

The objectives of the Integrated Undergraduate Graduate Program include:

1. To offer highly qualified students the opportunity to earn two degrees in less time than it would take to do two sequential degrees. In particular, IUG students may count up to 12 credits towards both their B.S. and M.S. degree requirements.
2. To permit coherent planning of studies through the graduate degree, with advising informed by not only the requirements of the baccalaureate program, but also the longer-range goals of the graduate degree.
3. To introduce undergraduate students to the rigors of both graduate study and graduate faculty.
4. To make the resources of the Graduate School available to IUG students.
5. To allow students with IUG status to benefit from their association with graduate students whose level of work and whose intensity of interest and commitment parallel their own.

### Admission Requirements

To initiate the application process, students must submit a College of IST Integrated Undergraduate-Graduate (IUG) Plan of Study, a transcript, and two letters of recommendation (both from faculty members) to the IST Graduate Programs Office. The IUG Coordinator in Graduate Programs will help undergraduate candidates determine a proposed sequence of courses that will prepare them for their application to the Integrated Undergraduate-Graduate (IUG) degree program. Acceptance into the IST IUG program will be determined by the Graduate Recruitment Committee.

Security and Risk Analysis undergraduate majors may apply for admission no earlier than February 15 of their sophomore year and no later than February 15 of their junior year after completing a minimum of 60 credits, if they meet the following admission requirements:

1. Must be enrolled in the SRABS undergraduate degree program.
2. Must have completed 60 credits of an SRABS undergraduate degree program.
3. Must have an overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
4. Must meet with the Graduate Program IUG Coordinator to declare interest and receive information about the IUG program.
5. Must present an approved plan of study. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
6. Must acquire two letters of recommendation from faculty members.
7. Must apply to and be accepted without reservation into the Graduate School and M.S. program in Informatics. Students must complete the Graduate School application (<http://www.gradschool.psu.edu/> apply).
8. Must apply to the IUG program by February 15 of their junior year.

In addition, applicants must apply to and be admitted to the Graduate School of the Pennsylvania State University at the time of their application to the IUG degree program.

These admission standards are high, as it is thought the program will only be appropriate for students with high levels of academic skills. The program area does have discretion in admitting Security and Risk Analysis majors into the integrated program, and extenuating circumstances can always be considered in terms of possible admission. Individuals who are unable to be admitted into the integrated program of study can apply for regular admission to the graduate program when they complete their undergraduate program of study.

## Sample Sequence of Graduate Coursework in Addition to Undergraduate Courses

Students admitted to the IUG program may double-count a maximum of 12 credits toward their graduate and undergraduate degrees in Information Sciences and Technology. In their senior year, IUG students will take 6 credits of specified graduate work, courses IST 504 and IST 505, and 6 credits of methods courses. These 6 credits of IST 504 and IST 505 will apply to both the graduate program and the undergraduate IST/SRA support option requirement. In their super senior year, students may choose an additional 6 credits to double-count for both the undergraduate and graduate degrees. These courses must be at the 400-level or above. Students may choose any 400-level undergraduate option course that they are using to fulfill an undergraduate option requirement and apply the credits to both the undergraduate option requirement and the graduate specialty course requirement:

Code	Title	Credits
SRA 433	Deception and Counterdeception	3
SRA 468	Visual Analytics for Security Intelligence	3
SRA 471	Informatics, Risk, and the Post-Modern World	3
IST 451	Network Security	3
IST 452	Legal and Regulatory Environment of Privacy and Security	3
IST 454	Computer and Cyber Forensics	3
IST 456	Information Security Management	3

Credits associated with the culminating research thesis or scholarly paper, i.e., IST 600 or IST 594, respectively, may not be double-counted. However, for Schreyer Honors College students who choose the research thesis option, the Master's research thesis deliverable, itself, may double-count for the undergraduate thesis deliverable requirement.

### First Year

Fall	Credits Spring	Credits
IST 504 <sup>1</sup>	3 IST 505 <sup>1</sup>	3
Methods course <sup>2</sup>	3 Methods course <sup>2</sup>	3
IST 600 or 594 (or Grad Specialty Course) <sup>3,5</sup>	3 IST 600 or 594 <sup>3</sup>	3
	9	9

### Second Year

Fall	Credits Spring	Credits
Grad Specialty Course <sup>4</sup>	3 Grad Specialty Course <sup>5</sup>	3
Grad Specialty Course <sup>4</sup>	3 Grad Specialty Course <sup>5</sup>	3
	6	6

Total Credits 30

- <sup>1</sup> These courses will double-count in the student's undergraduate support of option area. Although IST 505 is an optional course for Master's students in the Informatics program, it is a required course for students in the IUG; because IUG students will benefit from additional coursework on research paper writing.
- <sup>2</sup> Choose graduate level methods course after consultation with the student's faculty adviser.
- <sup>3</sup> Students who choose to do a research thesis for their culminating experience must take 6 credits of IST 600. Students who choose to do a scholarly paper for their culminating experience may take either 3 or 6 credits of IST 594. Honor students in the IUG degree must choose the research thesis option and take 6 credits of IST 600, in order for their Master's research thesis to count for their undergraduate honors thesis requirement.
- <sup>4</sup> Choose from approved list of 400-level required option courses in the student's undergraduate major. These courses will double-count in the student's graduate and undergraduate programs.
- <sup>5</sup> Choose any 400 or 500 level course that contributes to the student's chosen area of specialty, such that the total number of credits at the 500 level or above equals at least 18. Total number of graduate specialty credits will vary according to the number of credits taken for the culminating experience (i.e., IST 600 or IST 594), such that the total number of credits toward the MS requirements equals 30.

The total resulting credits will be a minimum of 150 credits, with 120 credits completed for the undergraduate SRA degree. Twelve graduate credits will be completed in the senior year, and the remaining 18 graduate credits will be completed in the super senior year.

If for any reason a student admitted to the B.S./M.S. program is unable to complete the requirement for the Master of Science degree program in Informatics, the student will be permitted to receive the SRA bachelor's degree assuming all degree requirements have been satisfactorily completed.

Student performance will be monitored on an on-going basis by the student's adviser and Graduate Programs. Students admitted to the integrated program must maintain a minimum cumulative GPA of a 3.3 overall and a minimum 3.0 GPA in all courses used toward the M.S. degree in order to maintain good academic standing and meet graduation requirements. (See information on Grade-Point Average in the Graduate Education Policies (<http://gradschool.psu.edu/graduate-education-policies>) section of the Graduate School's website) For SHC students in the IUG program, students must maintain a minimum cumulative GPA of 3.4 overall and a minimum 3.0 GPA in all courses used toward the M.S. degree in order to maintain good academic standing and meet graduation requirements. Successful completion of a Schreyer Scholar's Master's thesis will be accepted as completion of the honors thesis requirement.

## Integrated Undergraduate-Graduate (IUG) Degree Program B.S. in Security and Risk Analysis and Master of International Affairs (M.I.A.)

*Available at the following campuses: University Park*

The integrated undergraduate-graduate (IUG) degree program (B.S. in Security and Risk Analysis/M.I.A. in International Affairs) provides an opportunity for strong students in these majors to complete a master's degree with 5 total years of study.

Persistent advanced threats to cyber networks; transnational threats such as climate, migration, poverty, and energy sustainability; hybrid-war strategies; and non-state actors' seeking to cause chaos by compromising cyber-space create an evolving international threat environment that challenges the balance between security and privacy and requires experience in intelligence analysis and knowledge of threats and vulnerabilities pertaining to cybersecurity. Identifying and mitigating the prevalent threats and vulnerabilities associated with the new age requires critical thinkers who are the product of interdisciplinary education. Collaboration between the College of Information Sciences and Technology (IST) and the School of International Affairs (SIA) positions Penn State to provide a program that prepares the next generation to prepare for, respond to, mitigate, and recover from the threats posed by this dynamic international environment.

## Admission Requirements

The number of openings in the integrated B.S./M.I.A. program is limited. Admission will be selective based on specific criteria set by the School of International Affairs. Students shall be admitted to an IUG program no earlier than the beginning of the third semester of undergraduate study at Penn State (regardless of transfer or AP credits accumulated prior to enrollment) and no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree, as specified in the proposed IUG plan of study. Specific requirements:

1. Must be enrolled in the Security and Risk Analysis B.S. program.
2. Must apply to and be accepted into The Graduate School and the M.I.A. program in the School of International Affairs. Students must complete the Graduate School application. All applicants will submit one letter of recommendation and a personal statement addressing their reasons for pursuing a graduate degree in international affairs and discussing their plans and goals.
3. Although the program has no fixed minimum grade point average, an applicant is generally expected to have a minimum overall GPA of 3.5 (on a 4.0 scale) in undergraduate coursework and a minimum GPA of 3.5 in all coursework completed for the major.
4. Must include a plan of study identifying undergraduate credits to be applied to the M.I.A. degree elective requirements. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser.
5. Must provide written endorsement from the Associate Dean of the College of Information Sciences and Technology.

## M.I.A. Requirements for the Integrated B.S./M.I.A.

Students must fulfill all requirements for each degree in order to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the B.S. in Security and Risk Analysis are listed in the Undergraduate Bulletin. Degree requirements for the M.I.A. degree are listed in the Master's Degree Requirements section above. If students accepted into the IUG program are unable to complete the M.I.A. degree, they are still eligible to receive their undergraduate degree if all the undergraduate degree requirements have been satisfied. Students must sequence their courses so all undergraduate degree requirements are fulfilled before taking courses to count towards the graduate degree.

Up to 12 credits may be double-counted towards the degree requirements for both the graduate and undergraduate degrees; a minimum of 50% of the double-counted courses must be at the 500 or 800 level. Credits associated with the culminating experience for the graduate degree cannot be double-counted.

The list of courses that can double-count for both the undergraduate and graduate degrees includes: SRA 421, SRA 433, SRA 440W, SRA 468, INTAF 801, INTAF 802, and INTAF 804.

## Program Learning Objectives

### Knowledge/Application:

1. Understand and apply the interdisciplinary, theoretical knowledge of the information sciences or security sciences.
  - a. Define and explain the core concepts, principles, processes, and theories within the academic majors of IST and/or SRA.
  - b. Apply the core concepts of the academic majors of IST and/or SRA to real-world problems.

### Problem-Solving:

1. Understand, apply and adapt various problem solving strategies, using appropriate technology and methods.
  - a. Identify information problems and/or opportunities in terms of the human, informational and technology dimensions.
  - b. Analyze issues surrounding the problem and/or opportunity in terms of the human, informational, and technology dimensions; and determine the requirements appropriate to understanding the situation.
  - c. Design systems, architectures, processes, components, or programs to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world).
  - d. Deploy up-to-date and appropriate techniques, methodologies, and/or tools necessary for understanding opportunities and constraints and/or the optimal design, implementation and continuance of an information based solution.
  - e. Evaluate the success of systems, architecture, processes, components, or programs intended to meet desired needs of the human context at varying levels of analysis (e.g., individual, group, organization, society, and/or world).

### Communication (Individual and Team):

1. Communicate and work effectively (both individually and in teams) with a range of perspectives and audiences through a variety of media.
  - a. Participate effectively on teams in order to accomplish a common goal.
  - b. Communicate effectively with a range of audiences, formally or informally, through writing and the spoken word.
  - c. Seek out, analyze, and incorporate diverse ideas and broader perspectives represented in the diversity of people.
  - d. Make respectful and inclusive choices in interacting with customers, peers, supervisors, and/or subordinates with a diversity of identity characteristics (e.g., age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, gender identify, or veteran status).

### Professional Responsibilities:

1. Understand professional responsibilities in terms of the ethical, legal, security and social aspects of any given problem and its solution.
  - a. Demonstrate an understanding of the cognitive, social, legal, ethical, diversity, and security perspectives surrounding a given problem.

- b. Assess the impact of information, computing and technology on individuals, groups, organizations, society, and the world for the purpose of making informed decisions from a sociological, governmental, legal, and/or security perspective.

#### Lifelong Learning:

1. Commit to the continuous acquisition of relevant knowledge for professional development by self-teaching and/or on-going education and learning.
  - a. Employ information-seeking strategies and self-directed learning in pursuit of current knowledge.
  - b. Enroll in professional development and tutoring opportunities.

## Academic Advising

The objectives of the university's academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee's unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy>)

### University Park

#### Office of Undergraduate Academic Advising

E103 Westgate Building  
University Park, PA 16802  
814-865-8947  
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### Altoona

#### David Barnes

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### Berks

#### Tricia Clark

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### Harrisburg

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## World Campus

#### Undergraduate Academic Advising

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## Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2019-20 academic year. To access previous years' suggested academic plans, please visit the archive (<http://bulletins.psu.edu/undergraduate/archive>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

## Intelligence Analysis and Modeling

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

Fall	Credits Spring	Credits
SRA 111 <sup>*#</sup>	3 SRA 211 <sup>*#</sup>	3
IST 110 <sup>*#</sup>	3 CAS 100 <sup>‡</sup>	3
ENGL 15, 30, or ESL 15 <sup>‡</sup>	3 ECON 102, 104, or AGBM 101	3
IST 140, CMPSC 101, or CMPSC 121 <sup>*#</sup>	3 MATH 22, 26, 40, 41, 110, or 140	3-5
General Education Course (GN, GA, GH, or GHW)	3 General Education Course (GN, GA, GH, or GHW)	3
	15	15-17

#### Second Year

Fall	Credits Spring	Credits
SRA 221 <sup>*</sup>	3 SRA 231 <sup>*</sup>	3
STAT 200 <sup>‡</sup>	4 PSYCH 100 or SOC 5	3
SRA 268 <sup>*</sup>	3 IST 210 <sup>*</sup>	3
PLSC 1, 14, or GEOG 128	3 US or IL or Elective	3
Supporting Course	3 Supporting Course	3
	16	15

#### Third Year

Fall	Credits Spring	Credits
SRA 311 <sup>*</sup>	3 SRA 468 <sup>*</sup>	3
SRA 365 or STAT 460 <sup>*</sup>	3 ENGL 202C or 202D <sup>‡</sup>	3
US or IL or Elective	3 IST 432 <sup>*</sup>	3
Supporting Course	3 General Education Course (GN, GA, GH, or GHW)	3
General Education Course (GN, GA, GH, or GHW)	3 General Education Course (GN, GA, GH, or GHW)	3
	15	15

**Fourth Year**

Fall	Credits Spring	Credits
IST 452*	3 SRA 433*	3
SRA 421*	3 SRA 440W*	3
400 Level Support of Option	3 Support of Option	3
General Education Course (GN, GA, GH, or GHW)	3 General Education Course (GN, GA, GH, or GHW)	3
General Education Course (GN, GA, GH, or GHW)	3 Elective	1
	15	13
Total Credits 119-121		

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL/CAS 137 in the fall semester and ENGL/CAS 138 in the spring semester. These courses carry the GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits.

**Advising Note:**

- 1 credit of IST 495 is required. A grade of C or better is required for this course.

**Information and Cyber Security Option, University Park Campus**

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**First Year**

Fall	Credits Spring	Credits
SRA 111*#	3 SRA 211*#	3
IST 110*#	3 CAS 100‡	3

ENGL 15, 30, or ESL 15 <sup>‡</sup>	3 ECON 102	3
IST 140 or CMPSC 101*#	3 World Language Level 2	4
World Language Level 1	4 General Education Course (GN)	3
	16	16

**Second Year**

Fall	Credits Spring	Credits
SRA 221*	3 SRA 231*	3
STAT 200 <sup>‡</sup>	4 PSYCH 100 or SOC 5	3
World Language Level 3	4 IST 210*	3
IST 220*	3 General Education Course (GN)	3
	Elective	1
	14	13

**Third Year**

Fall	Credits Spring	Credits
SRA 311*	3 ENGL 202C or 202D <sup>‡</sup>	3
SRA 365 or STAT 460*	3 IST 432*	3
GEOG 40, PLSC 1, or PLSC 14	3 IST 451*	3
International Course (IL)	3 Support of Option	3
General Education Course (GA)	3 General Education Course (GA)	3
	15	15

**Fourth Year**

Fall	Credits Spring	Credits
IST 456*	3 IST 440 or 440*	3
General Education Course (GH)	3 IST 454*	3
Support of Option	3 Support of Option 400 Level	3
General Education Course (GHW)	3 General Education Course (GH) or US Culture or Elective	3
General Education Course (GN)	3 International Course (IL)	3
	15	15
Total Credits 119		

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy University Requirements (United States and International Cultures).

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GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH,



GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of 'C' or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL/CAS 137 in the fall semester and ENGL/CAS 138 in the spring semester. These courses carry the GWS designation and replace both ENGL 30 and CAS 100. Each course is 3 credits.

#### Advising Note:

- 1 credit of IST 495 is required. A grade of C or better is required for this course.

## Career Paths

The Security and Risk Analysis program responds to the expanding need for a highly trained analytic workforce to address a wide range of security and risk domains including national/homeland security, emergency and disaster management, law and crime, as well as enterprise risk management. The SRA degree prepares students to be future leaders to address the current and emerging security and risk challenges that face individuals, organizations and our nation. IST's Office of Career Solutions helps students navigate internship and career development through coaching, workshops, interview preparation, resume reviews, career fairs, job postings, and networking opportunities.

## Careers

Security and Risk Analysis students may specialize in risk domains ranging from national security to community emergency preparedness and response. Because our courses blend technical knowledge with skills in communication and business, a Security and Risk Analysis degree allows students to pursue opportunities in intelligence, counterterrorism, computer forensics, and a number of other growing careers. SRA graduates work in a variety of fields, including defense, business, and emergency management; and many graduates go on to work for government intelligence agencies like the CIA, FBI, and NSA.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE SECURITY AND RISK ANALYSIS PROGRAM (<https://www.ist.psu.edu/students/careers>)

## Opportunities for Graduate Studies

With a focus on problem solving, critical thinking and the presentation of analytic findings, the SRA program is a great stepping-stone to graduate education and higher learning. Many SRA graduates will go on to pursue graduate degrees in fields like law, cyber security, and data science. The foundational skills obtained in the SRA degree directly apply to graduate education.

## Contact

### University Park

OFFICE OF THE ASSOCIATE DEAN FOR GRADUATE AND UNDERGRADUATE STUDIES  
E397F Westgate Building  
University Park, PA 16802  
814-863-3450  
[programs@ist.psu.edu](mailto:programs@ist.psu.edu)

[https://ist.psu.edu/directory/office/grad\\_undergrad\\_studies](https://ist.psu.edu/directory/office/grad_undergrad_studies)

### Altoona

DIVISION OF BUSINESS, ENGINEERING, AND INFORMATION SCIENCES AND TECHNOLOGY  
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<http://altoona.psu.edu/academics/bachelors-degrees/security-risk-analysis/request-information>

### Berks

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### Harrisburg

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<http://harrisburg.psu.edu/business-administration/information-sciences-technology-security-risk-analysis/bachelor-science-security-risk-analysis>

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<https://www.worldcampus.psu.edu/degrees-and-certificates/security-and-risk-analysis-bachelors/overview>