The Roadmap
An Associate’s Degree Guide

2013-2014

PENNSSTATE
COLLEGE OF INFORMATION SCIENCES AND TECHNOLOGY
**Person-to-Person Advising**

The Penn State College of Information Sciences and Technology prides itself in a personal touch in all that we do. This is particularly true of finding your way through your degree and program requirements, making course decisions, working out career plans, and simply figuring out what is best for you. Don’t hesitate to seek answers to your questions from your professors or your assigned adviser.

**E-Advising**

**Academic Advising**

Information on our associate degree curriculum and requirements can be found in the University's *Bulletin* or through email with the appropriate adviser for your program. Advising contacts are listed below:

**Penn State Continuing Education at University Park**
Dana Aina - dpa2@psu.edu, 814-865-3443

**Penn State World Campus**
psuwd@psu.edu, 800-252-3592 or 814-865-5403

**eLion**
[http://elion.psu.edu/](http://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 an appointment with your 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.
Destinations

Careers ........................................................................................................................................... 2
Toolbox of Essentials: Becoming an IS/IT Professional ................................................................. 2

The Roadmap

IST Associate Degree (2IST) Options ................................................................................................. 3
2IST Requirements ............................................................................................................................. 4
Requirements for the Options ........................................................................................................... 5
Getting Your 2IST Program Started ................................................................................................ 5

The 2IST Major Recommended Academic Plans:
  Information Sciences and Technology: Baccalaureate Option................................................. 6
  Information Sciences and Technology: Generalized Business Option................................. 7
  Information Sciences and Technology: Individualized Option .................................................. 8

2IST Major and Option Courses ....................................................................................................... 9

IST Around Penn State

Penn State Campuses Offering the IST Degrees and Courses ........................................................ 10

The Roadmap was accurate at the time it was uploaded to the Internet.
Please check the IST web page for the latest news, course information and more:

www.worldcampus.psu.edu
www.outreach.psu.edu/adult-learners/
Careers

Observers of hiring trends in business, industry, and government agree: Demand is high for university graduates with the kind of knowledge, abilities, and skills IST students will have. Men and women with associate degrees in IST can expect to be competitive for positions in a wide variety of fields. Here are a few examples:

- Database Administrator
- Web Developer
- Computer Support Consultant
- Test Engineer
- Data Center Operations Support
- Information Manager or Technologist
- Local- and Wide-area Network Administrator
- Business Support System Technician
- Systems Analyst
- Media Technician
- Network Administrator
- Help Desk Analyst
- Network Support Technician
- Technical Support Specialist

Toolbox of Essentials:
Becoming an IS/IT Professional

When Penn State developed the programs for the College of Information Sciences and Technology, it listened to what abilities and knowledge industry wanted from the next generation of information sciences/information technology professionals. The University continues to tap into the latest collaborative thinking from professionals who have been tracking and distilling the trends for more than three decades. Penn State and the College of IST will help you develop these essential skills as you grow to become a well-rounded information sciences/information technology professional:

- Understanding Computer Applications Systems Management
- Information Systems Technology and Tools
- Problem Solving
- Interpersonal Relationships
- Communications
IST Associate Degree (2IST) Options

The Penn State College of Information Sciences and Technology offers you three options in our associate degree program, including one that allows you to craft a course of study that suits your individual goals and one that exposes you to business practices and principles, and one that allows an easy transition to continue with the Bachelors of Science degree.

Baccalaureate Option (2IST BACC)
(Available at these Penn State locations: the World Campus.)

This option provides maximum articulation with the baccalaureate degree. Students who complete this option will meet all lower division requirements for the baccalaureate degree. This is not the case with the remaining options, although the degree of articulation is quite high for all associate degree options.

Generalized Business Option (2IST G BUS)
(Available at these Penn State locations: Continuing Education at University Park and the World Campus.)

This option enables you to specialize in the business areas of accounting, marketing, and management.

Individualized Option (2IST INDIV)
(Available at these Penn State locations: Continuing Education at University Park and the World Campus.)

While our associate degree option in generalized business was designed with great care, you may find that it does not exactly suit your individual goals. This option requires you to work closely with an adviser to develop a plan of study that meets the dual objective of allowing a flexible academic program and providing a breadth of technical specialization.

Courses taken at another institution will be reviewed on an individual case-by-case basis for relevance to your current academic program of enrollment.
2IST Requirements

To earn your associate degree from Penn State’s College of Information Sciences and Technology, you must complete at least 60 credits. To see how this all fits together semester-by-semester, check the Recommended Academic Plans on page 6, 7 and 8. You may wish to speak with your adviser because completion of some major requirements may satisfy general education requirements. To keep track of your academic program check the online degree audit available through eLion. If you have in-depth questions, contact your adviser.

DEGREE REQUIREMENTS

For the Associate in Science degree in IST, a minimum of 60 credits is required.

GENERAL EDUCATION: 21 credits
(9-12 of these 21 credits are included in the REQUIREMENTS FOR THE MAJOR)

ELECTIVES: 2-6 credits

REQUIREMENTS FOR THE MAJOR: 45-47 credits
(This includes 9-12 credits of General Education courses, i.e., ALL options: 3 credits of GQ courses; 6 credits of GWS courses. The Baccalaureate Option also includes 3 credits of GS courses to equal a total of 12 credits that double count; the General Business Option also includes 0-3 credits of GS courses to equal 9-12 credits that double count.)

COMMON REQUIREMENTS FOR THE MAJOR (ALL OPTIONS): 30 CREDITS

**Prescribed Courses (26 credits)**


ENGL 015 GWS (3), CAS 100B GWS (3) (Sem: 1-2)

CMPS 101*GQ (3) (Sem: 1-2)

IST 260W* (3) (Sem: 3-4)

**Additional Courses (4 credits)**

ENGL 202C (3) or 202D GWS (3) (Sem: 3-4)

IST 295A* (1) or 295B* (1) (Sem: 3-4)

Notes: All the courses marked with an asterisk (*) must be completed with a grade of C or better. *IST 110 is a requirement for the 2 IST degree, and cannot double count as a GS.*

**Abbreviations:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>GA</td>
<td>General Education/Arts</td>
</tr>
<tr>
<td>GH</td>
<td>General Education/Humanities</td>
</tr>
<tr>
<td>GHA</td>
<td>General Education/Health and Physical Activity</td>
</tr>
<tr>
<td>GN</td>
<td>General Education/Natural Sciences</td>
</tr>
<tr>
<td>GQ</td>
<td>General Education/Quantification</td>
</tr>
<tr>
<td>GS</td>
<td>General Education/Social and Behavioral Sciences</td>
</tr>
<tr>
<td>GWS</td>
<td>General Education/Writing and Speaking</td>
</tr>
</tbody>
</table>
Requirements for the Options (15-17 credits)

<table>
<thead>
<tr>
<th>Baccalaureate Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>(17 credits)</td>
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<tr>
<td><strong>Prescribed Courses</strong> (13 credits)</td>
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<td></td>
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<tr>
<td><strong>Additional Courses</strong> (4 credits)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Generalized Business Option</th>
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</thead>
<tbody>
<tr>
<td>(15-16 credits)</td>
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<tr>
<td><strong>Additional Courses</strong> (15-16 credits)</td>
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<tr>
<th>Individualized Option</th>
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<tbody>
<tr>
<td>(15 credits)</td>
</tr>
<tr>
<td><strong>Supporting Courses and Related Areas</strong> (15 credits)</td>
</tr>
</tbody>
</table>

Getting Your 2 IST Program Started

Your associate degree program in Penn State’s College of Information Sciences and Technology is designed as a two-year course of study with summertime professional internships in business, industry, or the public sector. On the following pages you will find semester-by-semester plans intended as a guide for the 2IST degree, including the required internship students complete typically during the summer semester. Your plans and needs may require changes and modifications to this outline. Please stay in touch with your adviser to make the most of your IST experience.
Recommended Academic Plan

Associate in Science
Information Sciences and Technology

Baccalaureate Option

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Credits</th>
<th>Semester 2</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 110* Information, People and Technology</td>
<td>3</td>
<td>IST 210* Organization of Data</td>
<td>4</td>
</tr>
<tr>
<td>IST 111* Seminar in IST</td>
<td>1</td>
<td>IST 220* Networking and Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>IST 250* New Media and the Web</td>
<td>3</td>
<td>CAS 100 (GWS) Effective Speech</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 015 (GWS) Rhetoric and Composition</td>
<td>3</td>
<td>MATH 110 or MATH 140 (GQ) Calculus or Calc with Analytic Geometry</td>
<td>4</td>
</tr>
<tr>
<td>CMPSC 101 (GQ)* Intro to C++ Programming or IST 297D* Intro to Application Programming</td>
<td>3</td>
<td>General Education (GN) Natural Sciences</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits:</strong></td>
<td><strong>13</strong></td>
<td><strong>Total Credits:</strong></td>
<td><strong>17</strong></td>
</tr>
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</table>

**Summer: IST 295A* or IST 295B* Internship (1)**

<table>
<thead>
<tr>
<th>Semester 3</th>
<th>Credits</th>
<th>Semester 4</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 230* Language Logic and Discrete Mathematics</td>
<td>3</td>
<td>IST 260W* Intro to Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>IST 240* Introduction to Computer Languages</td>
<td>3</td>
<td>Any General Education Area GWS, GQ, GA, GH, GS, GHA</td>
<td>3</td>
</tr>
<tr>
<td>ECON 102 (GS) Microeconomic Analysis and Policy</td>
<td>3</td>
<td>STAT 200 (GQ) Elementary Statistics</td>
<td>4</td>
</tr>
<tr>
<td>General Education (GA) Arts</td>
<td>3</td>
<td>ENGL 202C or 202D (GWS) Effective Writing</td>
<td>3</td>
</tr>
<tr>
<td>General Education (GH) Humanities</td>
<td>3</td>
<td>United States Cultures (US) or International Cultures (IL)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits:</strong></td>
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<td><strong>Total Credits:</strong></td>
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**Summer: IST 295A* or IST 295B* Internship (1)**

* A grade of C or better must be earned in this course.

This academic plan is a tentative guide. NOT all courses are offered every semester. Work with your assigned adviser to determine availability of specific courses.
### Recommended Academic Plan

**Associate in Science**
**Information Sciences and Technology**

**Generalized Business Option**

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<td>3</td>
<td>Business Option Course</td>
<td>3</td>
</tr>
<tr>
<td>CMPSC 101 (GQ)* Intro to C++ Programming or IST 297D* Intro to Application Programming</td>
<td>3</td>
<td>General Education (GN) Natural Sciences</td>
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<td>3</td>
</tr>
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<td><em><em>IST 260W</em> Intro to Systems Analysis and Design</em>*</td>
<td>3</td>
<td>General Education (GS) Social and Behavioral Sciences</td>
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*A grade of C or better must be earned in this course.*

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Recommended Academic Plan

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Individualized Option

This option requires you to work closely with an adviser to choose appropriate supporting courses which allow for a flexible academic program and a breadth of technical specialization.

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<tr>
<td>Approved Supporting Course</td>
<td>3</td>
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### Summer: IST 295A* or IST 295B* Internship (1)

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2IST Major and Option Courses

Here are courses being offered to you as part of our associate degree curriculum. Not all courses are offered at every campus each semester. Check the Schedule of Courses, to determine the availability of specific courses.

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

Common Requirements for the 2IST Major

IST 110 Information, People & Technology (3)  
The use, analysis and design of information systems and technologies to organize, coordinate, and inform human enterprises.

IST 111S Seminar in Information Sciences and Technology (1)  
Introduction to academic requirements, career planning, and information literacy for students majoring in the College of Information Sciences and Technology.

IST 210 Organization of Data (4)  
Introduction to the concept of databases including the storage, manipulation, evaluation, and display of data and related issues.  
Prerequisite: IST 110

IST 220 Networking and Telecommunications (3)  
Introduction to digital network topologies; transmission media, signal modulation, digital packet switching and routing, systems integration, communications management, and security.  
Prerequisite: IST 110

IST 250 New Media and the Web (3)  
Introduction to how the World Wide Web utilizes emerging technologies. Students acquire conceptual understanding of constructing Web sites.  
Prerequisite: IST 110 or concurrent enrollment

IST 260W Introduction to Systems Analysis and Design (3)  
Introduction to systems analysis and design, stressing the process of requirements acquisition, specification, design, and implementation.  
Prerequisite: IST 110, IST 210, IST 220, and ENGL 15

IST 297D Introduction to Application Programming (3)  
The focus of the course is on beginning programming principles as experienced in the context of object-oriented application development.

IST 295A Distributed Team Project (1)  
Supervised experience in which student teams work on information system design projects gathered from industry or units within the University.  
Prerequisite: IST 110

OR

IST 295B IST Internship (1)  
150 hours minimum  
Supervised work experience where the student is employed in an information science and technology position in industry, government, or academia.  
Prerequisite: IST 110

Additional IST Courses

IST 230 Language, Logic, and Discrete Mathematics (3)  
Introduction to formal languages, mathematical logic, and discrete mathematics, with applications to information sciences and technology.  
Prerequisites: Math 110 or Math 140

IST 240 Introduction to Computer Languages (3)  
Introduction to the specification and application of languages and language paradigms which interact with computers  
Prerequisite: CMPSC 101 or IST 297D;  
 Concurrent: IST 230
Penn State Campuses Offering IST Degrees and Courses

IST Around Penn State

You may wish to consider building on your associate degree in IST by seeking a bachelor’s degree. Select the campus most convenient to you from the list below and contact the academic offices there for further information.

Locations Offering the Associate Degree Program

Penn State Beaver
Penn State Berks
Penn State Continuing Education at University Park
Penn State DuBois
Penn State Fayette

Penn State Hazleton
Penn State Lehigh Valley
Penn State Mont Alto
Penn State New Kensington
Penn State Schuylkill
Penn State Shenango

Penn State Wilkes-Barre
Penn State World Campus
Penn State Worthington Scranton
Penn State York

Locations Offering the Bachelor’s Degree Program

Penn State Abington
Penn State Beaver
Penn State Berks
Penn State Brandywine
Penn State Greater Allegheny
Penn State Harrisburg

Penn State Hazleton
Penn State Lehigh Valley
Penn State Mont Alto
Penn State New Kensington
Penn State Schuylkill
Penn State University Park

Penn State Wilkes-Barre
Penn State World Campus
Penn State Worthington Scranton
Penn State York

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