

# INFORMATION SYSTEMS, B.S.

**Begin Campus:** Any Penn State Campus

**End Campus:** Harrisburg

## Program Description

The B.S. in Information Systems is a STEM-designated program that equips students with information systems competencies and business knowledge required to plan for, design, implement, and manage digital assets to support business operations and management of organizations. Students are empowered with digital and analytics capabilities required to leverage current and emerging technologies to help organizations achieve their strategic business objectives.

The B.S. in Information Systems builds on the business common core, which includes coursework in accounting, marketing, management, finance, and supply chain management in order to enable students to excel in future careers such as IT Consultant, Data Analyst (Data Analytics), Applications Developer, and Information Security Specialist. In addition, students in the major have the option of taking nine credits of supporting work in three specialty areas: (1) systems design; (2) data and business analytics; and (3) computing security.

## What is Information Systems?

Information systems is the application of business intelligence, and design and development to resolve problems. The program is designed to help create the next generation of IS professionals who become experts in developing, applying, modifying, and strategizing technology to support IT-enabled change in organizations and achieve strategic objectives. This degree will prepare students to work with other business professionals to create platforms that integrate digital technologies to improve business processes and managerial decision making.

## You Might Like This Program If...

- Your career interests intersect at business and technology.
- You are passionate about creating high-tech solutions to organizational and societal challenges.
- You are interested in application development and programming.
- You are curious about using business analytic methods to support business operations and management decision making.
- You are interested in leveraging current and emerging technologies to improve business processes and facilitate business transformation.

## Entrance to Major

Entry to the Information Systems major requires the completion of 8 entry-to-major courses: ACCTG 211, ECON 102, ENGL 15 or ENGL 30H or ESL 15, FIN 301, MATH 110 or MATH 140, MGMT 301, MKTG 301, SCM 200 or STAT 200; and a 2.00 or higher cumulative grade-point average.

Additional information about this major is available in the office of the Director of Undergraduate Studies, School of Business Administration at Penn State Harrisburg.

## Degree Requirements

**For the Bachelor of Science degree in Information Systems, a minimum of 121 credits is required:**

Requirement	Credits
General Education	45
Requirements for the Major	94

**18 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS courses; 3 credits of GS courses; 6 credits of GQ courses.**

Consistent with Senate policy, at least 24 credits of coursework in the major and the capstone course must be completed at the Capital College to earn the degree.

Senate Policy 83-80.5 stipulates that the college dean and program faculty may require up to 24 credits of coursework in the major to be taken in the college where the degree is earned. Based on this policy, the School of Business Administration has set the following credit earning limitations for INFSY\_BS majors:

1. Twenty-one credits of 300/400 level prescribed and additional courses in the major field must be completed at Harrisburg.
2. Six additional credits of 300/400 level supporting courses must also be completed at Harrisburg. See the Information Systems Suggested Academic Plan for details.

## 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 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
<b>Prescribed Courses</b>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
BA 364Y	International Business and Society	3
BA 462	Business Strategy	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
ECON 104	Introductory Macroeconomic Analysis and Policy	3
FIN 301	Corporation Finance	3
MGMT 301	Basic Management Concepts	3
MKTG 301	Principles of Marketing	3
SCM 301	Supply Chain Management	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CAS 100	Effective Speech	3
ENGL 202D	Effective Writing: Business Writing	3
IST 140	Introduction to Application Development	3
MIS 301	Business Analytics	3
MIS 307	Object-Oriented Programming and Application Development	3
MIS 390	Information Systems Management and Applications	3
MIS 420	Business Process Management	3
MIS 431	Business Data Management	3
MIS 446	Information Technology and Business Strategy	3
MIS 450	System Design Project	3
MIS 495	Internship	3

## Additional Courses

BA 241 & BA 242 or BA 243	Legal Environment of Business and Social and Ethical Environment of Business Social, Legal, and Ethical Environment of Business	4
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*Additional Courses: Require a grade of C or better*

MATH 110 or MATH 140	Techniques of Calculus I Calculus With Analytic Geometry I	4
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MIS 204 or MIS 250	Introduction to Management Information Systems Introduction to Problem Solving with Spreadsheet Analysis and Information Systems Management	3
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SCM 200 or STAT 200	Introduction to Statistics for Business Elementary Statistics	4
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Select 3 credits from the following: 3

ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ESL 15	ESL Composition for American Academic Communication II	

Select 9 credits from one of the following three areas of concentration A, B, C, or D. At least one course must be at the 400-level: 9

#### A. Systems Design Concentration

MGMT 410	Project Management	
MIS 391		
MIS 413	Interface design for Information Systems Applications	
MIS 461	Web Technologies	
MIS 466	Business Programming for the WEB	
MIS 489	Seminar in Information Systems	

#### B. Data and Business Analytics Concentration

MIS 315	Python Programming	
DS 200	Introduction to Data Sciences	
STAT 184	Introduction to R	
STAT 380	Data Science Through Statistical Reasoning and Computation	
MIS 441	Business Intelligence for Decision Making	
MIS 461	Web Technologies	

#### C. Computing Security Concentration

IST 454	Computer and Cyber Forensics	
MIS 448	Business Telecommunications	
SRA 111	Introduction to Security and Risk Analysis	
SRA 221	Overview of Information Security	
SRA 472	Integration of Privacy and Security	

#### D. Individualized Concentration

Course selections completed in consultation with an adviser

#### Supporting Courses and Related Areas

Select 6 credits from 200-400 level business courses from: ACCTG, BA, ECON, FIN, MGMT, MIS, MKTG, or SCM in consultation with an academic adviser and in support of the student's interests 6

## 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 (<https://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 and Inter-Domain courses do not meet this requirement.)

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

### Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

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

### Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

### Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 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 (<https://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.

## Integrated B.S. in Information Systems and M.S. in Information Systems

Requirements for the Integrated B.S. in Information Systems and M.S. in Information Systems can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/information-systems/#integratedundergradgradprogramstext>).

## Integrated B.S. in Information Systems and M.B.A. in Business Administration

Requirements for the Integrated B.S. in Information Systems and M.B.A. in Business Administration can be found in the Graduate Bulletin (<https://bulletins.psu.edu/graduate/programs/majors/business-administration-capital/#integratedundergradgradprogramstext>).

## Learning Outcomes

Student graduates of our baccalaureate degree programs should be:

1. Effective communicators.
  - a. Present verbally, thoughts and ideas in a way that can be clearly understood by a target audience.
  - b. Convey ideas in a clear, coherent manner in written communication.
2. Ethical and socially responsible.
  - a. Be competent in analyzing social and ethical decision making issues in organizations.
3. Critical thinkers.
  - a. Be able to think and identify multiple dimensions of company issues and performances and make an assessment of company performances in achieving financial and strategic objectives, tracking their achievements, and giving management of companies a more complete and balanced view of how the organization is performing.
4. Competent in the Information Systems Discipline.
  - a. Demonstrate knowledge in technologies that support the information environment.
  - b. Demonstrate knowledge in business/organizational procedures that are supported by technology.
  - c. Demonstrate general skills and abilities that promote good communication, problem-solving and analytical abilities as well as the ability to work in a collaborative environment.
  - d. Demonstrate skills to participate in and lead multidisciplinary teams in the development, implementation and management of information technology solutions.

## 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 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/>)

## Harrisburg

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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 2023-24 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contains suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

## Information Systems, B.S. at Harrisburg 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
ENGL 15, 15S, 30T, or ESL 15 <sup>†‡</sup>	3 CAS 100A or 100S <sup>†</sup>	3
MATH 110 or 140 <sup>#†</sup>	4 STAT 200 or SCM 200 <sup>#</sup>	4
ECON 102 <sup>#†</sup>	3 MGMT 301 <sup>#</sup>	3
General Education Course	3 General Education Course	3
General Education Course	1.5 General Education Course	3
	<b>14.5</b>	<b>16</b>

**Second Year**

Fall	Credits Spring	Credits
ACCTG 211 <sup>#</sup>	4 FIN 301 <sup>#</sup>	3
MKTG 301 <sup>#</sup>	3 IST 140, CMPSC 101, or CMPSC 121	3
MIS 250 or 204	3 ENGL 202D <sup>†</sup>	3
General Education Course	3 General Education Course	3
General Education Course	3 MIS 390 <sup>*</sup>	3
<b>16</b>		<b>15</b>

**Third Year**

Fall	Credits Spring	Credits Summer	Credits
BA 241	2 SCM 301	3 MIS 495 <sup>*</sup>	3
BA 242	2 Concentration (Systems Design, Data and Business Analytics, Computing Security or Individualized) <sup>*</sup>	3	
ECON 104	3 MIS 420 <sup>*</sup>	3	
MIS 301 <sup>*</sup>	3 General Education Course	3	
MIS 307 <sup>*</sup>	3 General Education Course	3	
General Education Course	1.5		
<b>14.5</b>		<b>15</b>	<b>3</b>

**Fourth Year**

Fall	Credits Spring	Credits
BA 364Y	3 BA 462	3
Concentration (Systems Design, Data and Business Analytics, Computing Security or Individualized) <sup>*</sup>	3 MIS 450 <sup>*</sup>	3
MIS 431 <sup>*</sup>	3 Concentration (Systems Design, Data and Business Analytics, Computing Security or Individualized) <sup>*</sup>	3
MIS 446 <sup>*</sup>	3 200-400 level Business courses in	3

	consultation with adviser
200-400 level Business courses in consultation with adviser	3
<b>15</b>	
<b>12</b>	
<b>Total Credits 121</b>	

- \* 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

- <sup>1</sup> Systems Design Concentration: MGMT 410; MIS 391; MIS 413; MIS 461; MIS 466; MIS 489  
<sup>2</sup> Data and Business Analytics Concentration: MIS 315; DS 200; STAT 184; STAT 380; MIS 441; MIS 461  
<sup>3</sup> Computing Security Concentration: SRA 111; SRA 221; SRA 472; IST 454; MIS 448  
<sup>4</sup> Individualized Concentration: Course selections completed in consultation with an adviser

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity 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.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

**Advising Notes:**

- 30 Credits of GA, GH, GHW, GN, GS to include 6 Integrative Studies credits.
- 15 Credits of GWS, and GQ require a grade of "C" or better.
- Courses required for the major must generally be taken within 10 years of entrance to the major.
- Students must complete a 3-credit course in "United States Cultures (US)" and a 3-credit course in "International Cultures (IL)." BA 364 (US/IL) may be used to meet either the IL or US requirement but may be used to fulfill only 3 of the 6 credit requirement.
- Students in the Information Systems (INFSY\_BS) major are expected to complete 24 credits of upper-level course work in the major at Penn State Harrisburg. This is in compliance with Faculty Senate Policy 83-80.5.

**Career Paths**

The B.S. in Information Systems prepares students to meet the rising demand for well-educated IS professionals in business, education,

healthcare, and government. Salaries for IS graduates are higher than typical business majors and even higher for those who complete an internship.

## Careers

There is an ongoing shortage of people who have both the IT skills and the business acumen to create a competitive advantage in the global marketplace. A recent report from the 2022 Association of Information Systems IS Job Index (<https://isjobindex.com/>) indicates that the IS job market is flourishing. This same report shows the national placement rate is 81%. The most popular jobs are in data analytics, consulting, application development, information security analyst, and systems analyst.

Employers of recent IS graduates include Capital Blue Cross, CGI Federal, Deloitte, Ernst and Young, Highmark Health, RPI Consultants, Lockheed Martin, Select Medical, Shell, and Universal Health Services.

MORE INFORMATION ABOUT POTENTIAL CAREER OPTIONS FOR GRADUATES OF THE INFORMATION SYSTEMS PROGRAM (<https://isjobindex.com/>)

## Opportunities for Graduate Studies

Penn State Harrisburg's MS in Information Systems is STEM-designated degree program designed to meet the increasing need for technically grounded, upper-level information resources managers within business organizations. A limited number of academically superior B.S. in Information Systems candidates are provided the opportunity to enroll in an integrated, continuous program of study leading to both the Bachelor of Science in Information Systems and the Master of Science in Information Systems in five years.

MORE INFORMATION ABOUT OPPORTUNITIES FOR GRADUATE STUDIES (<https://harrisburg.psu.edu/business-administration/information-systems/master-science-information-systems/>)

## Professional Resources

- Beta Gamma Sigma (<https://www.betagammastigma.org/home/>)
- Upsilon Pi Epsilon (<https://upe.acm.org/>)
- Women in Information Technology (<https://psuharrisburg.campuslabs.com/engage/organization/wit-psh/>)
- Association for Computing Machinery's Council on Women in Computing (ACM-W) (<https://women.acm.org/>)
- Women in CyberSecurity (<https://www.wicys.org/>)
- Salesforce Student User Group
- Cyber Lions (<https://psuharrisburg.campuslabs.com/engage/organization/cyberlions/>)

## Accreditation

The B.S. in Information Systems offered by the School of Business Administration at Penn State Harrisburg, the Capital College, is accredited by AACSB International – The Association to Advance Collegiate Schools of Business. Synonymous with the highest standards of excellence since 1916, AACSB provides quality assurance, business education intelligence, and professional development services to over 1,600 member organizations and more than 800 accredited business schools worldwide. In addition, AACSB International (AACSB) connects educators, students, and business to achieve a common goal: to create the next generation of great leaders.

MORE INFORMATION ABOUT AACSB INTERNATIONAL (<https://www.aacsb.edu/>)

## Contact

### Harrisburg

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