

APPLIED DATA SCIENCE, BS

Contact

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<https://ischool.syr.edu/academics/applied-data-analytics-bachelors-degree/>

Introduction

The School of Information Studies offers a Bachelor of Science (BS) in Applied Data Science. As data and technology become increasingly fundamental to how businesses operate, understanding how to derive, communicate, and apply data-driven insights to organizational problems is an in-demand skill set that will give you an advantage over other graduates in your field.

Every industry and profession needs graduates who can use data to deepen their knowledge, further their research, and make better business decisions. That is why our BS in Applied Data Science is so popular with our students, our faculty, and our corporate partners. It is a program with a strong emphasis on the applications of data science to enterprise operations and processes, particularly in the areas of data capture, management, analysis and communication for decision making.

Student Learning Outcomes

In addition to the comprehensive iSchool Bachelor of Science learning outcomes students are expected to achieve in the course of earning their Bachelor's degree, students in the Applied Data Analytics major at the iSchool are also expected to achieve the following learning outcomes:

1. Use data-driven approaches (e.g., visual, quantitative, qualitative, and computational) to generate insight from data, across a range of contexts (e.g., societal, business, political).
2. Examine how individuals, organizations and society are created and impacted by data and machine learning models.
3. Utilize data science development tools to support the full analytics life cycle.

iSchool Bachelor of Science Degree Requirements- Applied Data Science

The BS degree in Applied Data Science requires 120 credits, distributed as indicated below.

Code	Title	Credits
Applied Data Science Curriculum		
<i>Applied Data Science Primary Core</i>		
Students who transfer into the iSchool as an IUT or add an iSchool major after their first year of study, are not required to take IST101.		
IST 101	First-Year Forum	1
IST 195	Information Technologies	3
IST 343	Data in Society	3
IST 344	Information Reporting and Presentation	3
IST 356	Programming Techniques for Data Analytics	3

IST 359	Introduction to Database Management Systems	3
IST 387	Introduction to Applied Data Science	3
IST 414	Data-Driven Inquiry	3

Analytical Course Electives

Select nine credits of the following: 9

IST 407	Data Mining
IST 418	Big Data Analytics
IST 421	Information Visualization
IST 469	Advanced Big Data Management

Concentrations and Electives

Students must complete five additional iSchool courses to fulfill their ADS elective requirement. Students in this program are not required to complete a concentration but may choose to do so. Completing a concentration allows students to select course work that matches their professional interests and planned career paths.

When choosing iSchool electives, students may complete one iSchool concentration or obtain a minor outside the iSchool that leverages the use of analytics (e.g., Sport Analytics, Business Analytics, Computer Science, Applied Statistics, Economics). Students who choose to obtain a minor (or double major) outside the iSchool can petition to count two advanced analytical focused courses as part of their 15 credit iSchool electives.

Students may petition the Undergraduate Program Director to approve three courses to be considered a concentration in an area of interest that is not shown in the official list of concentrations. These three courses must provide depth in an area of study.

Courses cannot be used to satisfy a core requirement, concentration, and an IST elective. Students who choose to pursue a concentration can select from one of the following below. Please note that each concentration has one or more required courses.

Students must declare their concentration in the spring semester of Sophomore year.

University Wide Requirements

The iSchool participates in students' knowledge and skill development through the Shared Competencies, Syracuse University's institutional learning goals that highlight the knowledge and skills students can expect to gain through their major courses, liberal arts requirements and co-curricular activities.

Full list of Shared Competencies. (https://effectiveness.syr.edu/shared-competencies/?_gl=1*2s1pxp*_gcl_au*MTA1MDAwMTg2NS4xNzQ5MDQ1NDcz*_ga*1NjU0Nzlx)

All incoming and external transfer students are required to take FYS101, a 1-credit course.

FYS 101	First Year Seminar	1
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IDEA

All incoming and transfer students are required to take a 3-credit IDEA course that can be selected from the approved IDEA Course Requirement list. 3

IST courses appearing on the approved IDEA course requirement list below may be taken to fulfill both the IDEA requirement and/or a core or concentration requirement.

You can find the full list of approved IDEA courses here. (<https://coursecatalog.syracuse.edu/undergraduate/university-requirements/idea-course-requirement/>)

Skills Electives

Programming Skills

Students are required to complete one computer programming course listed below. Students can also petition another programming course to count towards the Programming Skills, which should be filed and approved prior to registration.

IST 256	Introduction to Python for the Information Profession	3
IST 356	Programming Techniques for Data Analytics	3
IST 387	Introduction to Applied Data Science	3

Communication Skills

Students are required to take 12 credits in communications skills, including IST 344, as well as one course from each of the three categories below:

WRT 105	Studio 1: Practices of Academic Writing	12
or WRT 109	Studio 1: Practices of Academic Writing (Honors)	
WRT 205	Studio 2: Critical Research and Writing	
or WRT 209	Studio 2: Critical Research and Writing (Honors)	
WRT 303	Advanced Writing Studio: Research and Writing	
or WRT 307	Advanced Writing Studio: Professional Writing	

Quantitative Skills

Students are required to attain minimum competence in mathematics by completing the quantitative skills requirement of the Liberal Art Core curriculum of the College of Arts and Sciences.

Find the Quantitative Skills Requirements here. (<https://coursecatalog.syracuse.edu/undergraduate/arts-sciences/liberal-arts-core/quantitative-skills/>)

All ADA majors are required to attain minimum competence in mathematics. Students should take the following:

MAT 121	Probability and Statistics for the Liberal Arts I	6-8
& MAT 122	and Probability and Statistics for the Liberal Arts II	
MAT 221	Elementary Probability and Statistics I	
& MAT 222	and Elementary Probability and Statistics II	

Arts & Sciences Divisional Requirements

Students are required to take three courses in each of the three divisions of the Arts and Sciences-Natural Sciences and Mathematics, Social Sciences, and Humanities. In addition, three courses in any of the divisions must be completed to fulfill this requirement.

Students are required to complete a minimum of 60 credits of coursework in the College of Arts & Sciences. Courses from Communication Skills, Quantitative Skills and A&S Divisional Requirements will all count towards the A&S minimum credit requirement. Additional A&S courses will be required to reach the 60 credit minimum requirement.

General Electives

Students need 120 credits to graduate from Syracuse University. If 21-24 after meeting all program and University requirements, the student is still lacking to meet the 120 credits needed for graduation, students can take any undergraduate Syracuse University course to reach the graduation credits total. Students can concentrate on a minor, a dual degree, a combined degree, an internship experience, or study abroad to reach the minimum of 120 credits required for graduation.

Courses appearing on the approved IDEA course requirement list may be taken to fulfill both requirements: General elective and IDEA.

Total Credits **134-139**

Digital Retail Strategies Concentration

Students who pursue the 18-credit Digital Retail Strategies concentration will be required to take three RMT courses and one additional IST elective, as RMT classes do not count towards the 15 credit IST elective requirement.

Code	Title	Credits
Required		
IST 195	Information Technologies	3
RMT 301	Retailing Fundamentals	3
RMT 407	Retail Buying and Planning	3
RMT 457	Electronic Retailing and Marketing	3
Concentration Electives		
Select two of the following:		6
IST 263	Introduction to Front-End Web Development	
IST 486	Social Media in the Organization	
IST 353	Graphic Design for the Web	
IST 487	The Impact & Analytics of Social Media Network Influence	
Total Credits		18

Information Security Management Concentration

Code	Title	Credits
Required		
IST 323	Introduction to Information Security	3
Concentration Electives		
Select two of the following:		6
IST 336	Leading Issues in Information Security	
IST 342	Information Security Policy	
IST 402	Digital Forensics	
IST 425	Enterprise Risk Management	
IST 431	Security in a Networked Environment	
IST 476	Applied Information Security	
Total Credits		9

Innovation, Design, and Startups Concentration

All three IDS courses below are required.

Code	Title	Credits
IDS 301	What's the Big Idea?: Technology Innovation	3
IDS 302	Idea2Startup	3
IDS 403	iLaunchPad	1-6
Total Credits		7-12

Network and Cloud Computing Concentration

Code	Title	Credits
Required		
IST 233	Introduction to Networks and Cloud Computing	3
Concentration Electives		
Select two of the following:		6
IST 346	Information Technology Management and Administration	
IST 408	Blockchain Management	
IST 431	Security in a Networked Environment	

IST 452	Advanced Computer Networking	
Total Credits		9

Project Management Concentration

Code	Title	Credits
Required		
IST 345	Managing Information Systems Projects	3
Concentration Electives		
Select two of the following:		6
IST 352	Information Analysis of Organizational Systems	
IST 425	Enterprise Risk Management	
IST 442	Agile Project Management Methodologies	
IST 456	Information Policies and Decision Making	
Total Credits		9

Web Design and Management Concentration

Code	Title	Credits
Required		
IST 263	Introduction to Front-End Web Development	3
Concentration Electives		
Select two of the following:		6
IST 341	Human-Centered Design	
IST 349	Human Computer Interaction	
IST 363	Advanced Front End Web Design	
IST 486	Social Media in the Organization	
IST 353	Graphic Design for the Web	
IST 487	The Impact & Analytics of Social Media Network Influence	
Total Credits		9

International Experience

Students will be required to complete one international experience to graduate with their iSchool undergraduate degree. iSchool Immersion courses that require domestic travel do not fulfill this requirement. Students can fulfill their international requirement in one of the following ways:

- Semester abroad
- University exchange
- Short term abroad program
- International Internship
- Coursework (6 credits from approved list)
- Approved international component - by petition

Undergraduate University Requirements

The following requirements and experiences apply to all Syracuse University Undergraduate matriculated degree programs.

- IDEA Course Requirement (<https://coursecatalog.syracuse.edu/undergraduate/idea-course-requirement/>)
- First Year Seminar (<https://coursecatalog.syracuse.edu/undergraduate/courses/fys/>)