

# Data Science and Business Administration, BS

The data science and business combined major integrates a technical degree with the theory and practice of management through active learning, problem-driven research, corporate partnerships, and experiential assignments. Students study the collection, manipulation, storage, retrieval, and computational analysis of data in its various forms, including numeric, textual, image, and video data from small to large volumes. This program reflects the impact of data in modern business practice.

## Program Requirements

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

## University-Wide Requirements

All undergraduate students are required to complete the University-Wide Requirements (<http://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/>).

## NUpath Requirements

All undergraduate students are required to complete the NUpath Requirements (<http://catalog.northeastern.edu/undergraduate/university-academics/nupath/>).

## Computer Science Courses

Code	Title	Hours
<b>Computer Science Overview</b>		
CS 1200	First Year Seminar	1
CS 1210	Professional Development for Khoury Co-op	1

### Programming Sequence Pathways

Choose one of the two options. 12

#### Computer Science Option

CS 2500 and CS 2501	Fundamentals of Computer Science 1 and Lab for CS 2500	
CS 2510 and CS 2511	Fundamentals of Computer Science 2 and Lab for CS 2510	
CS 3500 and CS 3501	Object-Oriented Design and Lab for CS 3500	

#### Data Science Option

DS 2000 and DS 2001	Programming with Data and Data Science Programming Practicum	
DS 2500 and DS 2501	Intermediate Programming with Data and Lab for DS 2500	
DS 3500	Advanced Programming with Data	

### Computer Science Required Courses

CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 3200	Database Design	4

### Data Science Foundations

DS 3000	Foundations of Data Science	4
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DS 4200	Information Presentation and Visualization	4
DS 4300	Large-Scale Information Storage and Retrieval	4
DS 4400	Machine Learning and Data Mining 1	4
DS 4420	Machine Learning and Data Mining 2	4

### Khoury Elective

With advisor approval, directed study, research, project study, and appropriate graduate-level courses may also be taken as upper-division electives.

Complete four credits of CS, CY, DS, or IS classes that are not already required. Choose courses within the following ranges: 4

CS 2500 or higher, except CS 5010

CY 2000 or higher, except CY 4930

DS 2500 or higher, except DS 4900

IS 2000 or higher, except IS 4900

## Business Courses

Code	Title	Hours
<b>Required Business Courses</b>		
ACCT 1201	Financial Accounting and Reporting	4
ACCT 2301	Managerial Accounting	4
FINA 2201	Financial Management	4
INTB 1203	International Business and Global Social Responsibility	4
MGSC 2301	Business Statistics	4
MKTG 2201	Introduction to Marketing	4
ORGB 3201	Organizational Behavior	4
Complete one of the following: 4		
ENTR 2301	Innovation!	
MISM 2301	Management Information Systems	
SCHM 2301	Supply Chain and Operations Management	
STRT 4501	Strategy in Action	

## Business Concentration

Complete a four-course business concentration from the following list.

- Accounting (<http://catalog.northeastern.edu/undergraduate/business/concentrations/accounting/>)
- Brand Management (<http://catalog.northeastern.edu/undergraduate/business/concentrations/brand-management/>)
- Business Analytics (<http://catalog.northeastern.edu/undergraduate/business/concentrations/business-analytics/>)
- Corporate Innovation and Venture (<http://catalog.northeastern.edu/undergraduate/business/concentrations/corporate-innovation-venture/>)
- Entrepreneurial Startups (<http://catalog.northeastern.edu/undergraduate/business/concentrations/entrepreneurial-startups/>)
- Family Business (<http://catalog.northeastern.edu/undergraduate/business/concentrations/family-business/>)
- Finance (<http://catalog.northeastern.edu/undergraduate/business/concentrations/finance/>)

- Fintech (<http://catalog.northeastern.edu/undergraduate/business/concentrations/fintech/>)
- Healthcare Management and Consulting (<http://catalog.northeastern.edu/undergraduate/business/concentrations/healthcare-management-consulting/>)
- International Business (<http://catalog.northeastern.edu/undergraduate/business/concentrations/international-business/>) (available only as a second concentration)
- Management (<http://catalog.northeastern.edu/undergraduate/business/concentrations/management/>)
- Marketing (<http://catalog.northeastern.edu/undergraduate/business/concentrations/marketing/>)
- Marketing Analytics (<http://catalog.northeastern.edu/undergraduate/business/concentrations/marketing-analytics/>)

*Note: If the Marketing Analytics concentration is selected an additional general elective is required.*

- Social Innovation and Entrepreneurship (<http://catalog.northeastern.edu/undergraduate/business/concentrations/social-innovation-entrepreneurship/>)
- Supply Chain Management (<http://catalog.northeastern.edu/undergraduate/business/concentrations/supply-chain-management/>)

### Integrative Course

Code	Title	Hours
BUSN 5001	Data-Driven and Technology-Enabled Value Creation in Digital Economy	4

### Supporting Courses

Code	Title	Hours
<b>Mathematics</b>		
MATH 1341	Calculus 1 for Science and Engineering	4
or MATH 1231	Calculus for Business and Economics	
<b>Economics</b>		
ECON 1115	Principles of Macroeconomics	4
or ECON 1116	Principles of Microeconomics	

### Computer Science Writing Requirement

Code	Title	Hours
<b>College Writing</b>		
ENGW 1111	First-Year Writing	4
<b>Advanced Writing in the Disciplines</b>		
ENGW 3302	Advanced Writing in the Technical Professions	4
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

### Required General Electives

Code	Title	Hours
	Complete 16 credits of general electives.	16

### Business Cooperative Education Requirement

Complete one six-month co-op experience.

### Khoury College GPA Requirement

Minimum 2.000 GPA required in all CS, CY, DS, and IS courses

### Business GPA Requirement

Minimum 2.000 GPA required in business courses

### NUpath Requirements Satisfied

- Engaging with the Natural and Designed World
- Ethical Reasoning
- Interpreting Culture
- Conducting Formal and Quantitative Reasoning
- Analyzing and Using Data
- Understanding Societies and Institutions
- Writing in the First Year
- Advanced Writing in the Disciplines
- Writing-Intensive in the Major
- Demonstrating Thought and Action in a Capstone

*Integrating Knowledge and Skills Through Experience* is satisfied through co-op.

### Program Requirement

130 total semester hours required

### Plan of Study

#### Sample Patterns:

#### Four Years, Two Co-ops in Summer 2/Fall

Year 1				
Fall	Hours Spring	Hours Summer 1	Hours Summer 2	Hours
CS 1200	1 CS 2510 and CS 2511	5 CS 3500 and CS 3501	5 Vacation	
CS 1800 and CS 1802	5 CS 3200	4 ACCT 2301	4	
CS 2500 and CS 2501	5 MATH 1341	4		
ACCT 1201	4 ECON 1115	4		
ENGW 1111	4			
19		17	9	0
Year 2				
Fall	Hours Spring	Hours Summer 1	Hours Summer 2	Hours
MGSC 2301	4 CS 1210	1 MKTG 2201	4 Co-op	
DS 3000	4 DS 4200	4 Elective	4	
INTB 1203	4 DS 4300	4		
Elective	4 Business concentration 1	4		
	Elective	4		
16		17	8	0
Year 3				
Fall	Hours Spring	Hours Summer 1	Hours Summer 2	Hours
Co-op	DS 4400	4 FINA 2201	4 Co-op	
	SCHM 2301	4 ORGB 3201	4	

	Business concentration 2	4		
	Khoury elective	4		
		0	16	8
<b>Year 4</b>				
<b>Fall</b>	<b>Hours Spring</b>	<b>Hours Summer 1</b>	<b>Hours</b>	
Co-op	DS 4420	4 ENGW 3302	4	
	BUSN 5001	4 Elective	4	
	Business concentration 3	4		
	Business concentration 4	4		
		0	16	8

Total Hours: 134

**Five Years, Three Co-ops in Summer 2/Fall**

<b>Year 1</b>				
<b>Fall</b>	<b>Hours Spring</b>	<b>Hours Summer 1</b>	<b>Hours Summer 2</b>	<b>Hours</b>
CS 1800 and CS 1802	5 CS 2510 and CS 2511	5 Vacation	0 Vacation	0
CS 2500 and CS 2501	5 CS 3200	4		
CS 1200	1 ACCT 1201	4		
ECON 1115	4 Elective	4		
ENGW 1111	4			
	19	17	0	0

<b>Year 2</b>				
<b>Fall</b>	<b>Hours Spring</b>	<b>Hours Summer 1</b>	<b>Hours Summer 2</b>	<b>Hours</b>
CS 3500 and CS 3501	5 FINA 2201	4 Vacation	0 Co-op	0
MATH 1341	4 INTB 1203	4		
MGSC 2301	4 DS 3000	4		
ACCT 2301	4 CS 1210	1		
	Elective	4		
	17	17	0	0

<b>Year 3</b>				
<b>Fall</b>	<b>Hours Spring</b>	<b>Hours Summer 1</b>	<b>Hours Summer 2</b>	<b>Hours</b>
Co-op	0 DS 4200	4 ORGB 3201	4 Co-op	0
	DS 4300	4 MKTG 2201	4	
	Business concentration 1	4		
	MISM 2301	4		
	0	16	8	0

<b>Year 4</b>				
<b>Fall</b>	<b>Hours Spring</b>	<b>Hours Summer 1</b>	<b>Hours Summer 2</b>	<b>Hours</b>
Co-op	0 Business concentration 2	4 ENGW 3302	4 Co-op	0
	Business concentration 3	4 Elective	4	

	Khoury elective	4		
	Elective	4		
		0	16	8
<b>Year 5</b>				
<b>Fall</b>	<b>Hours Spring</b>	<b>Hours</b>		
Co-op	0 DS 4420	4		
	SCHM 2301	4		
	BUSN 5001	4		
	Business concentration 4	4		
		0	16	

Total Hours: 134