Data Science and Speech-Language Pathology and Audiology, BS (Boston)

The Bachelor of Science in Data Science and Speech-Language Pathology and Audiology curriculum is designed to facilitate critical thinking, information literacy, and oral and written communication skills. In addition to courses in the basic communication sciences and disorders, courses in education, allied health, computer literacy, ethics, multicultural/diversity issues, and psychology are required. Students in the major 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. The coursework covers exploratory data analysis, data manipulation in a variety of programming languages, large-scale data storage, predictive analytics, machine learning, data mining, and information visualization and presentation. These areas of study are of particular relevance in the field of speech-language pathology and audiology due to the continued development and use of assistive technology and artificial intelligence for individuals with communication disorders.

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.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/).

NUpath Requirements

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

Data Science Requirements

Code	Title	Hours
Overview		
Must be taken in alignment with your home college:		
CS 1200	First Year Seminar	1
or SLPA 1000	College: An Introduction	
CS 1210	Professional Development for Khoury Co-op	1
or SLPA 2000	Introduction to Co-op	
Computer Science Required Courses		
All students can take a self-assessment to attempt to place out of CS 2000 and CS 2001. Students who place out of CS 2000 and CS 2001 will instead substitute 4-5 semester hours of CS, CY, or DS coursework at the 3000 level or higher not otherwise required in the degree.		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 2000 and CS 2001	Introduction to Program Design and Implementation and Lab for CS 2000	5
CS 3200	Introduction to Databases	4
Programming Sequence Pathways		
Choose one of two options:		9
Computer Science Option		
CS 2000 and CS 2001	Introduction to Program Design and Implementation and Lab for CS 2000	
CS 2100 and CS 2101	Program Design and Implementation 1 and Lab for CS 2100	
Data Science Option		
DS 2500 and DS 2501	Intermediate Programming with Data and Lab for DS 2500	
DS 3500	Advanced Programming with Data	
Data Science Foundations		
DS 3000	Foundations of Data Science	4
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
Khoury Approved Electives		
With advisor approval, directed study, research, project study, and appropriate graduate-level courses may also be taken as upper-division electives.		
Complete 4 semester hours from within the following options:		4
CS 2500 or higher, except CS 5010		
CY 2000 or higher, except CY 4930		
DS 2500 or higher, except DS 4900		
MKTG 4606	Digital, Analytics, Technology, and Automation Research Practicum	

Speech-Language Pathology and Audiology Requirements

A grade of C or higher is required in the following:

Code	Title	Hours
SLPA 1101	Bridging Minds: Introduction to Speech, Language, and Hearing Sciences	4
SLPA 1102	Language Development	4
SLPA 1103	Anatomy and Physiology of Speech and Hearing Mechanism	4
SLPA 1200	Phonetics	4
SLPA 1203	Introduction to Audiology	4
SLPA 1205	Speech and Hearing Science	4
SLPA 4500	Language Disorders across the Life Span	4
SLPA 4651	Speech Disorders across the Life Span	4
SLPA 5107	Clinical Procedures	4
SLPA 6219	Aural Rehabilitation	3

Math and Statistics Courses

A grade of C or higher is required in the following:

Code	Title	Hours
MATH 1341	Calculus 1 for Science and Engineering	4
PHTH 2210	Foundations of Biostatistics	4

Supporting Science Courses

A grade of C or higher is required in the following:

Code	Title	Hours
BIOL 2217 and BIOL 2218	Integrated Anatomy and Physiology 1 and Lab for BIOL 2217	5
PHYS 1145 and PHYS 1146	Physics for Life Sciences 1 and Lab for PHYS 1145	5

Ethics Requirement

Code	Title	Hours
PHIL 1145	Technology and Human Values	4

Integrative Requirement

Code	Title	Hours
CS 4120	Natural Language Processing	4

Writing Requirements

Code	Title	Hours
College Writing		
ENGW 1111 or ENGW 1102	First-Year Writing First-Year Writing for Multilingual Writers	4
Advanced Writing in the Disciplines		
ENGW 3302	Advanced Writing in the Technical Professions	4

or ENGW 3306	Advanced Writing in the Health Professions
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines

Required General Electives

Code	Title	Hours
Complete 12 semester hours of general electives.		12

Khoury College GPA Requirement

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

NUpath Requirements Satisfied

- Engaging with the Natural and Designed World
- Conducting Formal and Quantitative Reasoning
- Understanding Societies and Institutions
- Analyzing and Using Data
- Employing Ethical Reasoning
- 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.

Students are responsible for using the general electives in this program to complete NUpath requirements not satisfied by required courses in this program.

Program Requirement

128 total semester hours required

Plan of Study
Sample Plans of Study
Four Years, One Co-op in Spring/Summer First Half

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1200 or SLPA 1000	1	DS 2500 and DS 2501	5	DS 3000	4	Vacation	
CS 1800 and CS 1802	5	SLPA 1101	4				
CS 2000 and CS 2001	5	SLPA 1205	4				
ENGW 1111 or 1102	4	BIOL 2217 and BIOL 2218	5				
Elective	4						
	19		18		4		0

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
DS 3500	4	Co-op	0	Co-op	0	Vacation	
MATH 1341	4						
SLPA 1103	4						
SLPA 1203	4						
CS 1210 or SLPA 2000	1						
	17		0		0		0

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
PHTH 2210	4	DS 4200	4	PHIL 1145	4	Vacation	
PHYS 1145 and PHYS 1146	5	CS 3200	4	ENGW 3302, 3306, or 3315	4		
Khoury elective	4	SLPA 1200	4				

Elective		4	SLPA 1102		4		
		17			**16**	**8**	**0**

Year 4

Fall	Hours	Spring	Hours
SLPA 4500	4	DS 4300	4
SLPA 5107	4	DS 4400	4
CS 4120	4	SLPA 4651	4
Elective	4	SLPA 6219	3
	16		**15**

Total Hours: 130

FOUR YEARS, ONE CO-OP IN SUMMER SECOND HALF/FALL

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CS 1200 or SLPA 1000	1	DS 2500 and DS 2501	5	DS 3000	4	Vacation	
CS 1800 and CS 1802	5	SLPA 1101	4				
CS 2000 and CS 2001	5	SLPA 1205	4				
ENGW 1111 or 1102	4	BIOL 2217 and BIOL 2218	5				
Elective	4						
	19		**18**		**4**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
DS 3500	4	PHTH 2210	4	Vacation		Co-op	0
MATH 1341	4	PHYS 1145 and PHYS 1146	5				
SLPA 1103	4	Khoury elective	4				
SLPA 1203	4	Elective	4				
		CS 1210 or SLPA 2000	1				
	16		**18**		**0**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	DS 4200	4	PHIL 1145	4	Vacation	
		CS 3200	4	ENGW 3302, 3306, or 3315	4		
		SLPA 1200	4				
		SLPA 1102	4				
	0		**16**		**8**		**0**

Year 4

Fall	Hours	Spring	Hours
SLPA 4500	4	DS 4300	4
SLPA 5107	4	DS 4400	4
CS 4120	4	SLPA 4651	4
Elective	4	SLPA 6219	3
	16		**15**

Total Hours: 130