Computer Science and Linguistics, BS

The computer science and linguistics combined major provides students with extensive background in the formal structures of natural (human) languages, as well as methods and applications of linguistic and psycholinguistic analyses of human language data. This is combined with an emphasis in computer science on artificial intelligence and natural language processing techniques. The major provides excellent preparation for work or more advanced degrees focusing on computational linguistics, natural language processing, speech perception, spoken language interfaces, artificial intelligence, and a wide array of related fields.

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 (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
Computer Science Overview		
Must be taken in alignment with your home college:		
CS 1200	First Year Seminar	1
CS 1210	Professional Development for Khoury Co-op	1
Computer Science Fundamental Courses		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
CS 2500 and CS 2501	Fundamentals of Computer Science 1 and Lab for CS 2500	5
CS 2510 and CS 2511	Fundamentals of Computer Science 2 and Lab for CS 2510	5
Computer Science Required Courses		
CS 3000	Algorithms and Data	4
CS 3500 and CS 3501	Object-Oriented Design and Lab for CS 3500	5
CS 3800	Theory of Computation (Integrative course)	4
CS 4100	Artificial Intelligence (Integrative course)	4
CS 4120	Natural Language Processing (Integrative course)	4
CS 4400	Programming Languages (Integrative course)	4
CS 4500 or CS 4530	Software Development Fundamentals of Software Engineering	4
Khoury Elective Courses		
With adviser approval, directed study, project study, and appropriate graduate-level courses may also be taken as upper-division electives.		
Complete 4 credits of CS, CY, DS, or IS courses that are not already required. Choose courses within the following range:		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		

Linguistics Requirements

Code	Title	Hours
Linguistics Foundations		
LING 1150	Introduction to Language and Linguistics	4

LING 2350	Linguistic Analysis (Integrative course)	4
LING 3412	Language and Culture	4
Linguistic Structure		
Complete four of the following:		16
LING 3420	Phonetics	
LING 3422	Phonology	
LING 3424	Morphology	
LING 3450	Syntax	
LING 3452	Semantics	
Laboratory/Directed Study		
Complete one of the following:		4
LING 4891	Research Seminar in Linguistics	
LING 4991	Directed Study Research	
PSYC 4610	Laboratory in Psycholinguistics	
Linguistics Seminar		
LING 4654	Seminar in Linguistics	4
or PSYC 4658	Seminar in Psycholinguistics	
Linguistics Electives		
Complete three courses not used to fulfill other degree requirements from the following options.		12
DEAF 2700	ASL Linguistics	
LING 3000 to LING 4999 [1]		

[1]   Please visit the Linguistics Courses page (http://catalog.northeastern.edu/undergraduate/science/linguistics/#coursestext) within this catalog to review the list of courses in the LING 3000 - LING 4999 range.

Supporting Courses

Code	Title	Hours
Mathematics Requirement		
MATH 1341	Calculus 1 for Science and Engineering	4
Computing and Social Issues		
Complete one of the following:		4
AFAM 2600	Issues in Race, Science, and Technology	
CY 4170	The Law, Ethics, and Policy of Data and Digital Technologies	
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights	
HIST 2220	History of Technology	
ENGL 2150	Literature and Digital Diversity	
INSH 2102	Bostonography: The City through Data, Texts, Maps, and Networks	
IS 1300	Knowledge in a Digital World	
or PHIL 1300	Knowledge in a Digital World	
PHIL 1145	Technology and Human Values	
SOCL 1280	The Twenty-First-Century Workplace	
SOCL 2485	Environment, Technology, and Society	
SOCL 4528	Computers and Society	

Writing Requirement

Code	Title	Hours
College Writing		
ENGW 1111	First-Year Writing	4
Advanced Writing in the Disciplines		
ENGW 3302	Advanced Writing in the Technical Professions	4
or ENGW 3307	Advanced Writing in the Sciences	
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Required General Electives

Code	Title	Hours
Complete 20 credits of general electives		20

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
- Interpreting Culture
- Conducting Formal and Quantitative Reasoning
- Understanding Societies and Institutions
- Analyzing and Using Data
- Engaging Difference and Diversity
- 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

133 total semester hours required

Plan of Study
Sample Plan of Study:
Four Years, One Co-op 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	CS 3000	4
CS 1800 and CS 1802	5	LING 2350	4	Elective	4	Elective	4
CS 2500 and CS 2501	5	LING Elective	4				
ENGW 1111	4	Elective	4				
LING 1150	4						
	19		**17**		**9**		**8**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
LING 3412	4	CS 1210	1	Khoury Elective	4	Co-op	
MATH 1341	4	CS 3800	4	Elective	4		
LING Structure	4	LING Structure	4				
LING Elective	4	LING Elective	4				
		Computing and Social Issues	4				
	16		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op		CS 4120	4	ENGW 3302, 3307, or 3315	4	Co-op	
		CS 4400	4	Elective	4		
		LING Structure	4				
		LING Seminar	4				
	0		**16**		**8**		**0**

Year 4

Fall	Hours	Spring	Hours
Co-op		CS 4100	4
		CS 4530	4
		LING Structure	4
		LING Lab (or directed study)	4
	0		**16**

Total Hours: 134