

COMPUTER SCIENCE + LINGUISTICS, BSLAS

for the degree of Bachelor of Science in Liberal Arts & Sciences in Computer Science + Linguistics

Computational Linguistics is an interdisciplinary field located at the intersection between machine learning and cognitive science, between artificial intelligence and the social sciences. The CS + Linguistics program provides students a strong background in computer science alongside rigorous training in the liberal arts. Recognizing the diversity of disciplines in the contemporary world, this program offers unique opportunities for an interdisciplinary education and prepares students for both careers in emerging industries and for graduate school. The degree is grounded in theory and in practice, ensuring that students meet and exceed industry standards. It brings together faculty interested in distinct aspects of the relationship between language and computation: from studying language as a cognitive system to developing models with human-like behavior to achieving natural language understanding in machines.

for the degree of Bachelor of Science in Liberal Arts & Sciences in Computer Science + Linguistics

Please see the computer science advisor as well as the linguistics advisor.

A Major Plan of Study Form must be completed and submitted to the LAS Student Affairs Office by the beginning of the fifth semester (60-75 hours).

Graduation Requirements

Minimum hours required for graduation: 120 hours.

Minimum required major and supporting course work: Normally equates to 69 hours. At least 12 hours of 300- and 400-level course work in the major must be taken on this campus.

University Requirements

Minimum of 40 hours of upper-division coursework, generally at the 300- or 400-level. These hours can be drawn from all elements of the degree. Students should consult their academic advisor for additional guidance in fulfilling this requirement.

The university and residency requirements can be found in the Student Code (<https://studentcode.illinois.edu/article3/part8/3-801/>) (§ 3-801) and in the Academic Catalog (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

General Education Requirements

Follows the campus General Education (Gen Ed) requirements (<https://courses.illinois.edu/gened/DEFAULT/DEFAULT/>). Some Gen Ed requirements may be met by courses required and/or electives in the program.

Code	Title	Hours
	Composition I	4-6
	Advanced Composition	3
	fulfilled by LING 413	
	Humanities & the Arts (6 hours)	6
	Natural Sciences & Technology (6 hours)	6
	Social & Behavioral Sciences (6 hours)	6
	fulfilled by LING 100 and one additional Social & Behavioral Sciences course	
	Cultural Studies: Non-Western Cultures (1 course)	3
	Cultural Studies: US Minority Cultures (1 course)	3
	Cultural Studies: Western/Comparative Cultures (1 course)	3
	Quantitative Reasoning (2 courses, at least one course must be Quantitative Reasoning I)	6-10
	fulfilled by CS 124, CS 128, CS 225, MATH 220 or MATH 221, MATH 231	
	Language Requirement (Completion of the fourth semester or equivalent of a language other than English is required)	0-20

Code	Title	Hours
Orientation and Professional Development		
LAS 101	Design Your First Year Experience	1
	OR	
LAS 100 & LAS 101	Success in LAS for International Students and Design Your First Year Experience	3
	OR	
LAS 102	Transfer Advantage	1
Total Hours		1 or 3

Code	Title	Hours
Required Computer Science Coursework		
CS 100	Computer Science Orientation (recommended; CS 100 is an orientation course aimed at first-year students, so students who declare the major after the freshman year are not required to complete it.)	1
CS 124	Introduction to Computer Science I	3
CS 128	Introduction to Computer Science II	3
CS 173	Discrete Structures	3
CS 222	Software Design Lab	1
CS 225	Data Structures	4
	Choose one of the following combinations	8-11
CS 233 & CS 341	Computer Architecture and System Programming	
	OR	
CS 340	Introduction to Computer Systems & two CS courses at the 400 level above CS 403, excluding CS 421 and CS 491. The two courses chosen in consultation with an academic advisor must be distinct from all other courses used to fulfill program requirements or options.	
	Choose one of the following:	3-4
STAT 200	Statistical Analysis	
STAT 212	Biostatistics	

CS 361	Probability & Statistics for Computer Science	
CS 374	Introduction to Algorithms & Models of Computation	4
CS 421	Programming Languages & Compilers	3
Mathematics Requirements		
MATH 221 or MATH 220	Calculus I Calculus	4-5
MATH 225 or MATH 257	Introductory Matrix Theory Linear Algebra with Computational Applications	2-3
MATH 231	Calculus II	3
Required Linguistics Coursework - Minimum of 27 hours		
LING 100	Intro to Language Science	3
General Linguistics Courses - select two of the following		6
LING 301	Elements of Syntax	
LING 302	Elements of Phonology	
LING 304	Elements of Morphology	
LING 307	Elmnts Semantics & Pragmatics	
LING 401	Intro to General Phonetics	
Core Computational Linguistics Courses		
LING 413	Computational Corpus Linguistics	3
LING 414	Advanced Computational Linguistics	3
Advanced Linguistics Courses - select three of the following		9
LING 442	Computational Sociolinguistics	
LING 444	Computational Syntax	
LING 446	Fundamentals for Speech Signal Processing and Analysis	
LING 448 or CS 446	Introductory Machine Learning Machine Learning	
LING 490	Special Topics in Linguistics (Check with advisor for appropriate topics. May be repeated to meet this requirement if topics vary)	
Linguistics Research Experience		
LING 453	Capstone in Computational Linguistics	3
Total Hours		69-75

for the degree of Bachelor of Science in Liberal Arts & Sciences in Computer Science + Linguistics

Sample Sequence

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a fourth level of a language other than English. For more information see the corresponding section on the Degree and General

Education Requirements page (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

First Year

First Semester	Hours
Free Elective course	1
CS 100	1
LING 100	3
CS 124	3
Composition I or General Education course	4
Free Elective course	2
	14

Total Hours 14

First Year

Second Semester	Hours
CS 128	3
CS 173	3
200-400 level Linguistics Breadth course	3
MATH 220 or 221	4
General Education course or Composition I	3
	16

Total Hours 16

Second Year

First Semester	Hours
CS 222	1
CS 225	4
MATH 225 or 257	3
General Education course	3
Language Other Than English (3rd level)	4
	15

Total Hours 15

Second Year

Second Semester	Hours
STAT 200, 212, or CS 361	3
CS 233 or 340	3
MATH 231	3
General Education course	3
Language Other than English (4th level)	4
	16

Total Hours 16

Third Year

First Semester	Hours
CS 341 (or CS 400-level course)	4
LING 301	3
TRST 415	3
General Education course	3

General Education course	3
	16

Total Hours 16**Third Year**

Second Semester	Hours
CS 374	4
CS 400-level course or Free Elective course	3
LING 307	3
General Education course	3
General Education course	3
	16

Total Hours 16**Fourth Year**

First Semester	Hours
CS 421	3
LING 406	3
General Education course	3
Free Elective course	3
Free Elective course	2
	14

Total Hours 14**Fourth Year**

Second Semester	Hours
CS 446	3
LING 490	3
Free Elective course	3
Free Elective course	2
Free Elective course	2
	13

Total Hours 13**Total Hours: 120**

for the degree of Bachelor of Science in Liberal Arts & Sciences in Computer Science + Linguistics

for the degree of Bachelor of Science in Liberal Arts & Sciences in Computer Science + Linguistics

CS + X Degree Information (<https://cs.illinois.edu/academics/undergraduate/degree-program-options/cs-x-degree-programs/#requirements>)

CS + Linguistics Information (<https://linguistics.illinois.edu/academics/undergraduate-program/degrees-offered/cs-linguistics/>)

Linguistics Department website (<https://linguistics.illinois.edu/>)
Computer Science website (<https://cs.illinois.edu/>)

College of Liberal Arts & Sciences

Liberal Arts & Sciences website (<https://las.illinois.edu/>)

Grainger College of Engineering

Grainger College of Engineering website

Admissions

Overview of College Admissions & Requirements: Liberal Arts & Sciences (<http://catalog.illinois.edu/schools/las/academic-units/>)

Computer Science email: undergrad@cs.illinois.edu

Linguistics Advising website (<https://linguistics.illinois.edu/academics/undergraduate-program/undergraduate-advising/>)

Please see the computer science advisor as well as the linguistics advisor.

Upon completion of the CS + Linguistics degree, students will be able to:

1. Analyze linguistic problems and identify relevant computational solutions.
2. Implement efficient computational models and demonstrate their adequacy.
3. Compare and assess the predictions of linguistic theories using empirical methods.
4. Synthesize findings across types, sources, and modalities of language data.
5. Examine the linguistic, social, and cognitive contexts in which models are used.