

COMPUTER SCIENCE + EDUCATION: LEARNING SCIENCES, BS

for the degree of Bachelor of Science Major in Computer Science + Education,
Learning Sciences concentration

The **Computer Science + Education, BS** is sponsored jointly by the Department of Computer Science and the Department of Curriculum & Instruction. The major in Computer Science and Education is a flexible program for undergraduate students who plan to pursue careers in either field and offers two foci of concentration.

The Learning Sciences concentration focuses on how technology can be designed and developed to further education. Social media, virtual and augmented reality, data analytics, mobile and wearable devices have created an opportunity to transform teaching and learning in both formal and informal contexts. This degree will prepare students for advanced study at the graduate level, as well as immediate entry into the workforce at software companies, publishers, school districts, game design companies, and research non-profits.

To graduate from the Computer Science and Education curriculum, a student must complete all courses with a traditional letter grade.

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Code	Title	Hours
Orientation Seminar		
EDUC 101	Education Orientation Seminar	1

The following degree requirements also meet general education course requirements and must be selected from the campus General Education (<https://courses.illinois.edu/>) course list.

Code	Title	Hours
General Education Requirements		
Composition		
	Composition I	4-6
	Advanced Composition	3-4
Quantitative Reasoning		
	See Computer Science Core and Mathematical Foundations for specific requirement.	
Natural Sciences and Technology		
	From approved campus list	6
Humanities and the Arts		
	From approved campus list	6
Social and Behavioral Sciences		
	From approved campus list	6
Cultural Studies		
	Western Culture(s) from approved campus list	3

U.S. Minority Culture(s) from approved campus list	3
Non-Western Culture(s) from approved campus list	3

Language other than English

Three years of one language other than English in high school or competition of the third semester of college-level language	0-12
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Computer Science Core Requirements (fulfills Quantitative Reasoning)

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
CS 374	Introduction to Algorithms & Models of Computation	4

Choose 1 from:		8-9
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CS 233 & CS 341	Computer Architecture and System Programming	
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OR

CS 340 & Two CS 4XX	Introduction to Computer Systems and Any two (2) 400-level CS courses	
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Choose 1 from:		3
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CS 357	Numerical Methods I	
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CS 421	Programming Languages & Compilers	
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Mathematical Foundations (fulfills Quantitative Reasoning)

CS 361	Probability & Statistics for Computer Science	3
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MATH 220 or MATH 221	Calculus I	4-5
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MATH 231	Calculus II	3
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Choose 1 from:		2-3
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MATH 225	Introductory Matrix Theory	
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MATH 227	Linear Algebra for Data Science	
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MATH 257	Linear Algebra with Computational Applications	
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Concentration

Students must complete 36-39 credit hours within one of the following areas of concentration: 1) Learning Science or 2) Secondary Education.	36-39
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Electives

Electives	0-8
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Total Hours	120
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Code	Title	Hours
College of Education Foundations		
EPOL 201 or EPOL 202	Foundations of Education or Foundations of Education-ACP	3-4
Choose 3 from:		9-10
CI 415	Language Varieties, Cultures and Learning	
EPOL 310	Race and Cultural Diversity	
EPSY 201	Educational Psychology	
EPSY 236	Child Development in Education	
EPSY 400	Psychology of Learning in Education	
SPED 117	The Culture of Disability	

Learning Sciences Core

CI 210	Introduction to Digital Learning Environments	3
CI 489	Educational Technology Capstone Course	3
Choose 1 from:		3
BCOG 100	Introduction to the Brain and Cognitive Science	
EPSY 408	Learning and Human Development with Educational Technology	
PSYC 224	Cognitive Psych	
PSYC 248	Learning and Memory	
PSYC 414	Brain, Learning, and Memory	
Choose 2 from:		6
CI 424	Child Development & Technology	
CI 482	Social Learning and Multimedia	
EPSY 405	Personality and Soc Dev	
EPSY 407	Adult Learning and Development	
EPSY 490	Developments in Educational Psychology (Learning in Everyday Contexts)	
Choose 3 from:		9
CI 437	Educational Game Design	
CI 438	Computer Programming and the Classroom	
CI 439	Critiques of Educational Technology	
CI 499	Issues and Development in Education (Attention, Learning, and New Technology)	
CI 499	Issues and Development in Education (Designing Learning Spaces)	
Total Hours		36-38

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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. EPOL 202 will satisfy a College of Education Foundations requirement and the Campus General Education Advanced Composition requirement. If EPOL 202 is not selected, a separate Advanced Composition course must be taken.

Students must fulfill their Language Other Than English requirement by successfully completing a third 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	Second Semester	Hours
EDUC 101		1 CI 210	3
CS 124		3 Composition I or General Education course	4
MATH 220 or 221		4 CS 128	3

Composition I or General Education course	4	CS 173	3
Language Other Than English (3rd level) or General Education course	4	General Education course	3
		16	16

Second Year

First Semester	Hours	Second Semester	Hours
CS 222		1 CS 233 or 340	4
CS 225		4 MATH 257, 227, or 225	3
MATH 231		3 EPOL 201 or 202 (EPOL 202 recommended)	3
General Education course	3	General Education course	3
College of Education Foundations course	3	College of Education Foundations course	3
		14	16

Third Year

First Semester	Hours	Second Semester	Hours
CS 341 (or CS 400-level course)		4 CS 374	4
CS 361		3 Learning Sciences Core course	3
Learning Sciences Core course	3	Learning Science Core course	3
General Education course	3	Elective course (or CS 400-level course)	3
General Education course	3		
		16	13

Fourth Year

First Semester	Hours	Second Semester	Hours
CS 357 or 421		3 CI 489	3
Learning Sciences Core course	3	Learning Sciences Core course	3
College of Education Foundations course	3	Learning Sciences Core course	3
General Education course	3	Elective course	3
Elective course	3	Elective course	2
		15	14

Total Hours 120

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College of Education

Education Building
1310 S. Sixth Street, Champaign, IL 61820
College of Education website (<https://education.illinois.edu/>)

Department of Curriculum & Instruction

306 Education Building
Department of Curriculum & Instruction email (ci@education.illinois.edu)
217-244-8286
Department of Curriculum & Instruction website (<https://education.illinois.edu/ci/>)
Department of Curriculum & Instruction faculty (<https://education.illinois.edu/faculty-finder/?dept=Curriculum%20Instruction>)

Office of Undergraduate Programs

110 Education Building
Student Academic Affairs email (saa@education.illinois.edu)
217-333-2800
Admissions & Academics website (<https://education.illinois.edu/programs/undergrad/>)
Student Academic Affairs website (<https://education.illinois.edu/student-resources/undergraduate/undergraduate-advising-support/>)

Department of Computer Science

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Department of Computer Science website (<https://cs.illinois.edu/>)
Department of Computer Science faculty (<https://cs.illinois.edu/about/people/department-faculty/>)
Computer Science + Education website (<https://cs.illinois.edu/academics/undergraduate/degree-program-options/cs-x-degree-programs/computer-science-education/>)