COMPUTER SCIENCE + CROP SCIENCES, BS

for the degree of Bachelor of Science Major in Computer Science + Crop Sciences

Computer Science + Crop Sciences (CS+CPSC) is a first-of-its-kind partnership between The Grainger College of Engineering's Department of Computer Science and the Department of Crop Sciences in the College of Agricultural, Consumer and Environmental Sciences.

Our growing population and changing climate demand out-of-the-box, multidisciplinary thinkers who can handle increasingly rich data sets. CS+CPSC students fill this crucial gap in the agriculture sector, combining a strong technical background with crop sciences expertise powerful enough to change the world.

Students will be among the first to analyze robotics-enabled soil and field measurements, predict weather and climate impacts on food supplies, and accelerate plant improvement through the simultaneous analysis of genetics, environment, and management.

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Please see the Computer Science advisor in 1210 Siebel Center, as well as the Crop Sciences advisor in AE-116 Turner Hall.

To graduate from the Computer Science and Crop Sciences curriculum, a student must complete the following courses, all of which must be taken for a traditional letter grade.

Graduation Requirements
Minimum hours required for graduation: 126 hours.

University Requirements
Minimum of 40 hours of upper-division coursework, generally at the 300 and 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
Humanities & the Arts (6 hours)		6
Natural Sciences & Technology (6 hours)		6
fulfilled by CPSC 112 and any other course approved as Natural Sciences & Technology		
Social & Behavioral Sciences (6 hours)		6
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)		6-8
fulfilled by CS 124, CS 128, CS 225; and MATH 220 or MATH 221; and MATH 231		
Language Requirement (Completion of the third semester or equivalent of a language other than English is required)		0-15

Code	Title	Hours
Department Foundation		
Communication Option:		3 or 6
CMN 101	Public Speaking	
ALEC 115	Let's Talk about Food, Agriculture, and the Environment	
CMN 111 & CMN 112	Oral & Written Comm I and Oral & Written Comm II	
ACES 101		2
Crop Sciences Core		
CPSC 102	Foundational Skills in Crop Sciences	2
CPSC 112	Introduction to Crop Sciences	4
CPSC 212	Introduction to Plant Protection	4
CPSC 393	Crop Sciences Internship	3
or CPSC 395	Undergrad Research or Thesis	
CPSC 498	Crop Sci Professional Develpmt	1
Computer Science Core		
CS 100	Computer Science Orientation (recommended)	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
CS 374	Introduction to Algorithms & Models of Computation	4
CS 421	Programming Languages & Compilers	3
Computer Science Technical Track		
Choose from the following options:		
CS 233 & CS 341	Computer Architecture and System Programming	
OR		
CS 340	Introduction to Computer Systems	3
& Any two (2) 400-level CS courses except CS 491		
Mathematical Foundations		
MATH 220	Calculus	4 or 5
or MATH 221	Calculus I	
MATH 225	Introductory Matrix Theory	2-4
or MATH 257	Linear Algebra with Computational Applications	
or MATH 415	Applied Linear Algebra	
or MATH 416	Abstract Linear Algebra	

Code	Title	Hours
MATH 231	Calculus II	3
CS 361	Probability & Statistics for Computer Science	3
Foundational Data Analytics		
CPSC 440	Applied Statistical Methods I	4
CPSC 444	Introduction to Spatial Analytics	4
Crop Sciences Electives		
At least one 3-hour 400-level CPSC/HORT/PLPA course		3
Any CPSC/HORT/PLPA course except CPSC 241		3

Code	Title	Hours
Total Hours		**126**

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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.

Students must fulfill their Language Other Than English requirement by successfully completing a third level of a language other than English. CPSC 112 will count as one of the natural sciences and technology general education requirements. 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
CS 100	1	CS 128	3
CS 124	3	CS 173	3
MATH 220 or 221	4	MATH 231	3
CPSC 102	2	CPSC 112	4
Composition I or Communication Option	3	Communication Option or Composition I	4
ACES 101	2		
	15		**17**

Second Year

First Semester	Hours	Second Semester	Hours
CS 222	1	CPSC 212	4
CS 225	4	CS 233 or 340	3
General Education course	3	Language Other than English (3rd level)	4
Free Elective course	3	General Education course	3
Free Elective course	3	Free Elective course	2
	14		**16**

Third Year

First Semester	Hours	Second Semester	Hours
MATH 225, 257, 415, or 416	2	CS 374	4
General Education course	3	CS 361	3
CS 341 (or CS 4XX course except CS 491)	4	CS 4XX	3
CPSC 393 or 395	3	Free Elective Course or CS 4XX course except CS 491	3
CPSC 440	4	General Education course	3
		General Education course	3
	16		**16**

Fourth Year

First Semester	Hours	Second Semester	Hours
CS 421	3	General Education course	3
CPSC 498	1	General Education course	3
CPSC 444	4	Any CPSC/HORT/PLPA course (except CPSC 241)	3
General Education course	3	Free Elective course	3
General Education course	3	Free Elective course	3
CPSC, PLPA or HORT 4XX Elective Course	3		
	17		**15**

Total Hours 126

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Computer Science component:

1. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Apply computer science theory and software development fundamentals to produce computing-based solutions.

Crop Sciences component:

1. Demonstrate knowledge in the key subject matter areas of applied plant biology; crop growth and development; crop management and protection; and soil science.
2. Demonstrate an ability to identify a problem and develop solutions using quantitative reasoning skills for analysis of biological data.
3. Demonstrate oral and written communication skills necessary to listen and make effective arguments, to share applied scientific concepts with the public, and to make use of a broad variety of media.
4. Demonstrate an ability to lead and function in multidisciplinary teams.
5. Demonstrate the ability to perform self-guided discovery in agricultural sciences, practicing skills of engagement to enhance intellectual curiosity.

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Crop Sciences

Crop Sciences website (https://cropsciences.illinois.edu/)
AW-101 Turner Hall
MC-046
1102 S. Goodwin Ave.
Urbana, IL 61801
(217) 333-3420
cropsciences@illinois.edu

College of Agricultural, Consumer & Environmental Sciences

College of Agricultural, Consumer & Environmental Sciences website (https://aces.illinois.edu/)

ACES Office of Academic Programs

128 Mumford Hall
1301 West Gregory Drive
Urbana, IL 61801
217-333-3380
aces-academics@illinois.edu

Advising

Advising Website (https://cropsciences.illinois.edu/about/contact-us/#paragraph--604)
(217) 333-3570
Undergraduate Advising Email: ugrad@cropsciences.illinois.edu
Graduate Advising Email: grad@cropsciences.illinois.edu

Admissions

ACES Undergraduate Admissions (https://aces.illinois.edu/admissions/)
University of Illinois Urbana-Champaign Undergrad Admissions (https://www.admissions.illinois.edu/)
University of Illinois Urbana-Champaign Graduate Admissions (https://grad.illinois.edu/)
(217) 333-3380
visitACES@illinois.edu