

# BACHELOR OF SCIENCE IN COMPUTER INFORMATION SYSTEMS

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## Required Courses

Code	Title	Credit Hours
<b>Computer Science Requirements</b>		<b>(18)</b>
CS 100	Introduction to the Profession	2
CS 115	Object-Oriented Programming I	2
CS 116	Object-Oriented Programming II	2
CS 330	Discrete Structures	3
CS 331	Data Structures and Algorithms	3
CS 350	Computer Organization and Assembly Language Programming	3
CS 351	Systems Programming	3
<b>Computer Science Technical Electives</b>		<b>(15)</b>
Select 15 credit hours <sup>1</sup>		15
<b>Computer Science Electives</b>		<b>(6)</b>
Select six credit hours		6
<b>Mathematics Requirement</b>		<b>(5)</b>
MATH 151	Calculus I	5
<b>Mathematics Elective</b>		<b>(3)</b>
Select three credit hours		3
<b>Science Requirements</b>		<b>(11)</b>
BIOL 105	Introduction to Biology	3
or BIOL 114	Introduction to Human Biology	
CHEM 124	Principles of Chemistry I with Laboratory	4
PHYS 123	General Physics I: Mechanics	4
<b>Science Elective</b>		<b>(3)</b>
Select three credit hours		3
<b>Psychology Requirements</b>		<b>(6)</b>
PSYC 221	Introduction to Psychological Science	3
PSYC 301	Industrial Psychology	3
<b>Political Science Requirement</b>		<b>(3)</b>
Select three credit hours <sup>2</sup>		3
<b>Humanities and Social Sciences Requirements</b>		<b>(21)</b>
See Illinois Tech Core Curriculum, sections B and C		21
<b>Interprofessional Projects (IPRO)</b>		<b>(6)</b>
See Illinois Tech Core Curriculum, section E		6
<b>Minor Electives</b>		<b>(15)</b>
Select 15 credit hours		15
<b>Free Electives</b>		<b>(15)</b>
Select 15 credit hours		15
<b>Total Credit Hours</b>		<b>127</b>

<sup>1</sup> Computer science technical electives are designated with a (T) in the course descriptions.

<sup>2</sup> Any 200-level political science course.

## Bachelor of Science in Computer Information Systems Curriculum

		Year 1	
Semester 1	Credit Hours	Semester 2	Credit Hours
CS 100	2	CS 116	2
CS 115	2	BIOL 105 or 114	3
MATH 151	5	Mathematics Elective	3
PSYC 221	3	Humanities or Social Sciences Elective	3
Humanities 200-level Course	3	Social Sciences Elective	3
<b>15</b>		<b>14</b>	
		Year 2	
Semester 1	Credit Hours	Semester 2	Credit Hours
CS 330	3	CS 350	3
CS 331	3	PHYS 123	4
CHEM 124	4	Minor Elective	3
Political Science Course <sup>1</sup>	3	Computer Science Elective	3
Humanities Elective (300+)	3	Computer Science Technical Elective <sup>2</sup>	3
<b>16</b>		<b>16</b>	
		Year 3	
Semester 1	Credit Hours	Semester 2	Credit Hours
CS 351	3	PSYC 301	3
Minor Elective	3	I PRO Elective I	3
Science Elective	3	Minor Elective	3
Social Sciences Elective (300+)	3	Computer Science Technical Elective <sup>2</sup>	3
Free Elective	3	Humanities Elective (300+)	3
		Free Elective	3
<b>15</b>		<b>18</b>	
		Year 4	
Semester 1	Credit Hours	Semester 2	Credit Hours
Minor Elective	3	I PRO Elective II	3
Computer Science Elective	3	Minor Elective	3
Computer Science Technical Elective <sup>2</sup>	3	Computer Science Technical Elective <sup>2</sup>	3
Computer Science Technical Elective <sup>2</sup>	3	Free Elective	3
Social Sciences Elective (300+)	3	Free Elective	3
Free Elective	3		
<b>18</b>		<b>15</b>	

**Total Credit Hours: 127**

<sup>1</sup> Any 200-level political science course

<sup>2</sup> Computer science technical electives are designated with a (T) in the course descriptions.

## Specializations in Computer Science

Students in the CIS program may elect to complete one of these specializations by choosing their computer science electives and free electives appropriately, or by taking extra classes. The student must receive department approval and notify the Office of Undergraduate Academic Affairs. A minimum of four courses are required for a specialization.

### Computer Science Honors Research

A minimum of 13 credit hours are required for this specialization.

Code	Title	Credit Hours
CS 492	Introduction to Computer Science Research	1
CS 491 or CS 497	Undergraduate Research Special Projects	6
Graduate Computer Science Electives <sup>2</sup>		6

<sup>1</sup> Students will be required to take CS 492 in their first or second year.

<sup>2</sup> Students must take at least two adviser approved 500-level computer science courses.

### Data Science

A minimum of four courses are required for this specialization.

Code	Title	Credit Hours
BUS 371	Marketing Fundamentals	3
CS 422 or CS 584	Data Mining Machine Learning	3
CS 451	Introduction to Parallel and Distributed Computing	3
MATH 481 or MATH 483	Introduction to Stochastic Processes Design and Analysis of Experiments	3

Note: MATH 481 has prerequisites of MATH 332 or MATH 333 and MATH 475; MATH 483 has a prerequisite of MATH 476.

### Distributed and Cloud Computing

A minimum of four courses are required for this specialization.

Code	Title	Credit Hours
CS 442 or CS 447	Mobile Applications Development Distributed Objects	3
CS 451	Introduction to Parallel and Distributed Computing	3
CS 455	Data Communications	3
CS 553	Cloud Computing	3

### Information and Knowledge Management Systems

A minimum of four courses are required for this specialization.

Code	Title	Credit Hours
CS 425	Database Organization	3
CS 482	Information and Knowledge Management Systems	3
Select a minimum of two courses from the following:		6
CS 422	Data Mining	3
CS 429	Information Retrieval	3
CS 481	Artificial Intelligence Language Understanding	3
CS 585	Natural Language Processing	3

## Information Security

A minimum of four courses are required for this specialization.

Code	Title	Credit Hours
CS 425	Database Organization	3
CS 458	Introduction to Information Security	3
CS 455	Data Communications	3
CS 549 or CS 558	Cryptography and Network Security Advanced Computer Security	3