

BACHELOR OF SCIENCE IN ARTIFICIAL INTELLIGENCE

Required Courses

Code	Title	Credit Hours
Artificial Intelligence Requirements		(42)
CS 100	Introduction to the Profession	2
CS 115 & CS 116 or CS 201	Object-Oriented Programming I and Object-Oriented Programming II Accelerated Introduction to Computer Science	4
CS 330	Discrete Structures	3
CS 331	Data Structures and Algorithms	3
CS 340	Programming Paradigms and Patterns	3
CS 422 or CS 584	Data Mining Machine Learning	3
CS 425	Database Organization	3
CS 430	Introduction to Algorithms	3
CS 480	Introduction to Artificial Intelligence	3
CS 481	Artificial Intelligence Language Understanding	3
CS 485	Computers and Society	3
CS 487	Software Engineering I	3
Select one Artificial Intelligence Depth Course:		3
CS 512	Computer Vision	3
CS 522	Advanced Data Mining	3
CS 578	Interactive and Transparent Machine Learning	3
CS 583	Probabilistic Graphical Models	3
CS 584	Machine Learning	3
CS 585	Natural Language Processing	3
ECE 442	Internet of Things and Cyber Physical Systems	3
MATH 569	Statistical Learning	3
MATH 574	Bayesian Computational Statistics	3
Select one Artificial Intelligence Breadth Course:		3
COM 301	Introduction to Linguistics	3
PHIL 326	Philosophy of Language	3
PSYC 423	Learning Theory	3
PSYC 426	Cognitive Science	3
Artificial Intelligence Technical Electives		(9)
Select a minimum of nine credit hours from the following:		9
CS 350	Computer Organization and Assembly Language Programming	3
CS 351	Systems Programming	3
CS 422	Data Mining	3
CS 429	Information Retrieval	3
CS 451	Introduction to Parallel and Distributed Computing	3
CS 458	Introduction to Information Security	3
Any CS 500-level course		3
MATH 252	Introduction to Differential Equations	4
MATH 350	Introduction to Computational Mathematics	3
MATH 400	Real Analysis	3
MATH 402	Complex Analysis	3
MATH 481	Introduction to Stochastic Processes	3
MATH 483	Design and Analysis of Experiments	3
MATH 484	Regression	3

MATH 487	Mathematical Modeling II	3
Minor Requirement		(15)
Select 15 credit hours in an area outside of computer science		15
Mathematics Requirements		(23)
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 251	Multivariate and Vector Calculus	4
MATH 332	Elementary Linear Algebra	3
MATH 474	Probability and Statistics	3
or MATH 475	Probability	
MATH 476	Statistics	3
or MATH 486	Mathematical Modeling I	
Science Requirements		(11)
Select one of the following science sequences:		8
PHYS 123 & PHYS 221	General Physics I: Mechanics and General Physics II: Electricity and Magnetism	8
BIOL 107 & BIOL 109 & BIOL 115 & BIOL 117	General Biology Lectures and General Biology Laboratory and Human Biology and Human Biology Laboratory	8
Select three credit hours of science electives ¹		3
Humanities and Social Sciences Requirements		(21)
See Illinois Tech Core Curriculum, sections B and C		21
Interprofessional Projects (IPRO)		(6)
See Illinois Tech Core Curriculum, section E		6
Total Credit Hours		127

¹ Science electives (no lab required): Chosen from the natural sciences (biology, chemistry, material science, and physics), or courses marked with an (N) (natural science attribute) in the Undergraduate Bulletin. If the physics sequence is chosen, the remaining science elective cannot be a physics course. If the biology sequence is chosen, the remaining science elective cannot be a biology course.

Bachelor of Science in Artificial Intelligence Curriculum

		Year 1	
Semester 1	Credit Hours	Semester 2	Credit Hours
CS 100	2	CS 116 ¹	2
CS 115 ¹	2	MATH 152	5
MATH 151	5	PHYS 123 ²	4
Humanities 200-level Course	3	Humanities Elective (300+)	3
Social Sciences Elective	3	Social Sciences Elective (300+)	3
15		17	
		Year 2	
Semester 1	Credit Hours	Semester 2	Credit Hours
CS 330	3	CS 340	3
CS 331	3	CS 430	3
MATH 251	4	MATH 332	3
PHYS 221 ³	4	Minor Elective	3
Social Sciences Elective (300+)	3	Humanities Elective (300+)	3
17		15	
		Year 3	
Semester 1	Credit Hours	Semester 2	Credit Hours
CS 425	3	CS 481	3
CS 480	3	CS 487	3
MATH 474	3	AI Technical Elective ⁴	3
Minor Elective	3	Science Elective ⁵	3
Humanities or Social Sciences Elective	3	Minor Elective	3
		I PRO Elective I	3
15		18	
		Year 4	
Semester 1	Credit Hours	Semester 2	Credit Hours
CS 422	3	CS 485	3
AI Breadth Course ⁶	3	AI Depth Course ⁷	3
AI Technical Elective ⁴	3	AI Technical Elective ⁴	3
MATH 486	3	Minor Elective	3
Minor Elective	3	I PRO Elective II	3
15		15	

Total Credit Hours: 127

¹ CS 201 is a one-semester, accelerated course equivalent to the two-semester CS 115/CS 116 sequence.

² If completing the biology science sequence, students will take BIOL 115 and BIOL 117.

³ If completing the biology science sequence, students will take BIOL 107 and BIOL 109.

⁴ AI technical electives may be chosen from the following: CS 350, CS 351, CS 422, CS 429, CS 451, CS 458, any CS 500-level course, MATH 252, MATH 350, MATH 400, MATH 402, MATH 481, MATH 483, MATH 484, or MATH 487.

⁵ Science electives (no lab required): Chosen from the natural sciences (biology, chemistry, material science, and physics), or courses marked with an (N) (natural science attribute) in the Undergraduate Bulletin. If the physics sequence is chosen, the remaining science elective cannot be a physics course. If the biology sequence is chosen, the remaining science elective cannot be a biology course.

⁶ AI breadth course must be COM 301, PHIL 326, PHIL 342, PSYC 423, or PSYC 426.

⁷ AI depth course must be: CS 512, CS 522, CS 578, CS 583, CS 584, CS 585, ECE 442, MATH 569, or MATH 574.