

Artificial Intelligence and Design, BS (Boston)

The Bachelor of Science in Artificial Intelligence and Design integrates a technical degree with a practice-based discipline that poses important questions about—and provides significant answers to—how we live. Students study the collection, manipulation, storage, retrieval, and computational analysis of data in its various forms including numeric, textual, image, and video data. Information designers visualize concepts and data to enhance human understanding of complex and vital knowledge. Their work has an enlightening or instructive intent and is based on factual content.

Program Requirements

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/>).

NUpath Requirements

All undergraduate students are required to complete the NUpath Requirements (<https://catalog.northeastern.edu/undergraduate/university-academics/general-education-requirements/#nupathtext>).

Artificial Intelligence Requirements

Code	Title	Hours
Computer Science Overview		
Must be taken in alignment with your home college:		
CS 1200 or ARTF 1000 or INPR 1000	First Year Seminar Art and Design at Northeastern First-Year Interdisciplinary Seminar	1
CS 1210 or EEAM 2000	Professional Development for Khoury Co-op Professional Development for Co-op	1
Fundamental Courses		
All students can take a self-assessment to attempt to place out of CS 2000 and CS 2001. Students who place out of CS 2000 and CS 2001 will instead substitute 4-5 semester hours of CS, CY, or DS coursework at the 3000 level or higher not otherwise required in the degree.		
CS 1800	Discrete Structures	4
CS 2000 and CS 2001	Introduction to Program Design and Implementation and Lab for CS 2000	5
CS 2100 and CS 2101	Program Design and Implementation 1 and Lab for CS 2100	5
CS 3200	Introduction to Databases	4
DS 3500	Advanced Programming with Data	4
Artificial Intelligence Foundations		
DS 3000	Mathematical Foundations of Artificial Intelligence	4
DS 4300	Large-Scale Information Storage and Retrieval	4
DS 4400	Machine Learning	4
Khoury Approved Elective		
With advisor approval, directed study, research, project study, and appropriate graduate-level courses may also be taken as upper-division electives.		
Complete 4 semester hours from the following:		4
CS 2300 or higher, except CS 5010		
CY 2000 or higher, except CY 4930		
DS 2500 or higher, except DS 4900		
EECE 2160	Embedded Design: Enabling Robotics	
EECE 2322	Fundamentals of Digital Design and Computer Organization	
MKTG 4606	Digital, Analytics, Technology, and Automation Research Practicum	

Design Requirements

Code	Title	Hours
Art + Design Fundamentals Required		
ARTF 1220	Elements of Visual Composition	2
Art + Design Fundamentals Electives		
Complete 6 semester hours from the following:		6
ARTF 1200	Representational Drawing	
ARTF 1210	Abstract Drawing	
ARTF 1230	Making with Form and Materials	
ARTF 1240	Making with Video, Sound, and Animation	
ARTF 1250	Designing Interactive Experiences	
Design Required		
ARTG 1001 and ARTG 1002	Design Perspectives: An Introduction to Design in the World and Seminar for Design Perspectives	4
ARTG 1270 and ARTG 1271	Design: Process + Practices and Studio for Design: Process + Practices	4
ARTG 1290 and ARTG 1291	Typographic Systems and Studio for Typographic Systems	4
Design Elective		
Complete 4 semester hours of ARTG courses, as long as prerequisites have been met and course has not been used to fulfill other requirements of the program.		4
Art + Design History Elective		
Complete 4 semester hours of ARTH courses.		4
Art + Design Elective		
Complete 4 semester hours of ARTD, ARTE, ARTG, ARTH, ARTS, or GAME courses as long as prerequisites have been met.		4
Degree Capstone Project		
ARTG 4550	Design Degree Project	4

Design Option

Code	Title	Hours
Complete one of the following options (information design is recommended):		8
Creative Fabrication		
ARTG 2810	Creative Fabrication Design Principles	
ARTG 3810	Topics in Creative Fabrication Inquiry	
Experience Design Option		
ARTG 3462	Experience Design Principles	
ARTG 3464	Topics In Experience Design Inquiry	
Graphic Design Option		
ARTG 2252	Graphic Design Principles	
ARTG 3452	Topics In Graphic Design Inquiry	
Information Design Option		
ARTG 2242	Information Design Principles	
ARTG 3444	Topics in Information Design Inquiry ¹	
Interaction Design Option		
ARTG 2400	Interaction Design Principles (with optional ARTG 2401)	
ARTG 3400	Topics In Interaction Design Inquiry	

¹ Instead of Topics in Information Design Inquiry (ARTG 3444), Information Design Studio 1: Principles (ARTG 5100) is recommended for students considering the PlusOne in Information Design and Data Visualization.

Integrative Requirements

Code	Title	Hours
ARTG 5330	Visualization Technologies 1: Fundamentals ¹	4
or ARTG 5150	Information Visualization Principles and Practices	
DS 4200	Information Presentation and Visualization	4

¹ For students who choose Information Visualization Principles and Practices (ARTG 5150), concurrent registration in Information Design Critique Seminar (ARTG 5151) is recommended. It is suggested students consult with their academic advisor.

Supporting Courses

Code	Title	Hours
Mathematics		
ECON 2350	Statistics for Economists	4
MATH 1341	Calculus 1 for Science and Engineering	4
Computing and Social Issues		
Complete one of the following:		4
AFCS 2600	Issues in Race, Science, and Technology	
CY 4170	The Law, Ethics, and Policy of Data and Digital Technologies	
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights	
DS 1300	Knowledge in a Digital World	
or PHIL 1300	Knowledge in a Digital World	
HIST 2220	History of Technology	
INSH 2102	Bostonography: The City through Data, Texts, Maps, and Networks	
JRNL 3700	Data Storytelling	
PHIL 1145	Technology and Human Values	
SOCL 1280	The Twenty-First-Century Workplace	
SOCL 2485	Environment, Technology, and Society	
SOCL 4528	Technology and Society	

Writing Requirements

Code	Title	Hours
College Writing		
ENGW 1111	First-Year Writing	4
Advanced Writing in the Disciplines		
ENGW 3302	Advanced Writing in the Technical Professions	4
or ENGW 3314	Advanced Writing in the Arts, Media, and Design	
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

Required General Electives

Code	Title	Hours
Complete 20 semester hours of general electives.		20

NUpath Requirements Satisfied

- Advanced Writing in the Disciplines
- Analyzing and Using Data
- Conducting Formal and Quantitative Reasoning
- Demonstrating Thought and Action in a Capstone
- Engaging with the Natural and Designed World
- Exploring Creative Expression and Innovation
- Writing in the First Year
- Writing-Intensive in the Major

Integrating Knowledge and Skills Through Experience is satisfied through co-op.

Program Requirement

130 total semester hours required