

# BACHELOR OF SCIENCE IN ARTIFICIAL INTELLIGENCE AND COMPUTING

Program Contact: Christian Duncan (Christian.Duncan@quinnipiac.edu) 203-582-3817

The impact of artificial intelligence in the last several years is readily apparent, as people and companies across a variety of industries adopt AI tools to improve efficiency and productivity. Society needs graduates who not only have a strong understanding of how to use AI effectively, but also have a deep knowledge of its theoretical underpinnings. The Artificial Intelligence and Computing program provides students with a strong foundation in artificial intelligence, computer science and software development. Students take courses addressing the theoretical and scientific foundations of artificial intelligence, the ethical questions surrounding its creation and usage, and its applications both inside and outside of computing. In a rapidly changing field, Artificial Intelligence and Computing graduates are equipped to independently identify, learn and apply new concepts.

**The BS in Artificial Intelligence and Computing program requires a minimum of 120 credits for degree completion.**

Note: A minimum grade of C- is required for all computer science course prerequisites unless otherwise stated.

Within the policies of the School of Computing & Engineering, the Artificial Intelligence and Computing program enforces credit limits during the academic terms. Exceeding 18 credits in the fall or spring semesters, 4 credits in the January term, or 10 credits in each summer term requires the approval of the dean's office.

Please see footnotes for additional information.

Code	Title	Credits
<b>University Curriculum (<a href="https://catalog.qu.edu/academics/university-curriculum/">https://catalog.qu.edu/academics/university-curriculum/</a>)</b>		<b>46</b>
<b>AI &amp; Computing Core Requirements</b>		
CSC 110 & 110L	Programming and Problem Solving and Programming and Problem Solving Lab	4
CSC 111 & 111L	Data Structures and Abstraction and Data Structures and Abstraction Lab	4
CSC 150	AI for Everyone	3
SER 120 & 120L	Object-Oriented Design and Programming and Object-Oriented Design and Programming Lab	4
CSC 215	Algorithm Design and Analysis	3
SER 225	Introduction to Software Development	3
CSC 325	Database Systems	3
CSC 350	Artificial Intelligence	3
CSC 355	Machine Learning	3

CSC/SER Electives 200 or higher (Take 3 credits of CSC/SER elective courses numbered 200 or higher)	3
CSC/SER Electives 300 or higher (Take 6 credits of CSC/SER elective courses numbered 300 or higher)	6
Take one course from:	3
CSC 351 Natural Language Processing	
CSC 352 Generative AI	
Senior Project or Senior Thesis - Choose one pair	4-6
CSC 491 Senior Project I & CSC 492 and Senior Project II	
CSC 493 Senior Thesis I & CSC 494 and Senior Thesis II	
ENR 395 Professional Development Seminar	1
MA 285 Applied Statistics	3
<b>Origins and Applications of AI Electives (Take 6 credits from list) <sup>1</sup></b>	<b>6</b>
<b>Required courses counting toward the University Curriculum</b>	
CSC 105 Computing: Multidisciplinary Approach	
MA 141 Calculus of a Single Variable or MA 150 Calculus I	
MA 205 Introduction to Discrete Mathematics (CSC 205)	
PL 255 Ethics and Artificial Intelligence	
<b>Open Electives</b>	<b>16-18</b>
<b>Total Credits</b>	<b>118-122</b>

<sup>1</sup> Elective options are AR 271, CIS 255, EC 355, HS 292, MSS 240, PL 103, PL 235, PL 237, PS 233, STR 210, or other courses with department chair approval.

**Course plans are subject to change. Course availability, potential transfer credits, and course prerequisite completion may influence the final course schedule for each program.**

Course	Title	Credits
<b>First Year</b>		
<b>Fall Semester</b>		
CSC 110 & 110L	Programming and Problem Solving and Programming and Problem Solving Lab	4
MA 140	Pre-Calculus (UC Personal Inquiry 2)	3
FYS 101	First-Year Seminar (UC Foundations Inquiry)	3
EN 101	Introduction to College-Level Reading And Writing (UC Writing)	3
CSC 150	AI for Everyone	3
<b>Credits</b>		<b>16</b>
<b>Spring Semester</b>		
CSC 111 & 111L	Data Structures and Abstraction and Data Structures and Abstraction Lab	4
SER 120 & 120L	Object-Oriented Design and Programming and Object-Oriented Design and Programming Lab	4

MA 205	Introduction to Discrete Mathematics (CSC 205) (UC Math)	3
EN 102	Reading, Writing, & Research In College and Beyond (UC Writing 2)	3
<b>Credits</b>		<b>14</b>

**Second Year****Fall Semester**

CSC 215	Algorithm Design and Analysis	3
SER 225	Introduction to Software Development	3
CSC 105	Computing: Multidisciplinary Approach (UC Personal Inquiry 2)	3
MA 141	Calculus of a Single Variable (UC Personal Inquiry 2)	3
University Curriculum Science and Lab		4
<b>Credits</b>		<b>16</b>

**Spring Semester**

CSC 350	Artificial Intelligence	3
PL 255	Ethics and Artificial Intelligence (UC Humanities)	3
MA 285	Applied Statistics	3
University Curriculum course		3
University Curriculum course		3
<b>Credits</b>		<b>15</b>

**Third Year****Fall Semester**

CSC 325	Database Systems	3
CSC/SER 2xx Elective		3
Origins/Applications of AI Elective		3
University Curriculum course		3
Open Elective or UC Intercultural course		3
ENR 395	Professional Development Seminar	1
<b>Credits</b>		<b>16</b>

**Spring Semester**

CSC 355	Machine Learning	3
CSC/SER 3xx Elective		3
Origins/Applications of AI Elective		3
University Curriculum course		3
University Curriculum course		3
<b>Credits</b>		<b>15</b>

**Fourth Year****Fall Semester**

CSC 491 or CSC 493	Senior Project I or Senior Thesis I	1-3
CSC 351 or CSC 352	Natural Language Processing or Generative AI	3
UC Integrative Capstone		3
Open Elective		3
Open Elective		3
<b>Credits</b>		<b>13-15</b>

**Spring Semester**

CSC 492 or CSC 494	Senior Project II or Senior Thesis II	3
CSC/SER 3xx Elective		3

Open Elective	3
Open Elective	3
Open Elective	3
<b>Credits</b>	<b>15</b>
<b>Total Credits</b>	<b>120-122</b>

## Student Outcomes

Graduates of the program will have an ability to:

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 at the confluence of computer science and artificial intelligence.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing and artificial intelligence practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

## Program Educational Objectives

Within four to seven years of graduation, graduates of the Artificial Intelligence and Computing BS program are expected to:

1. Apply advanced computer science and artificial intelligence knowledge and skills.
2. Communicate complex ideas and problems to a professional audience.
3. Demonstrate ethical behavior and capacity for finding computing and AI solutions that consider both the technical and social consequences of their work.
4. Demonstrate leadership and mentorship, and contribute to their profession and community.
5. Pursue intellectual, personal, and professional development.

## Admission Requirements: School of Computing & Engineering

The requirements for admission into the undergraduate School of Computing & Engineering programs are the same as those for admission to Quinnipiac University.

Admission to the university is competitive, and applicants are expected to present a strong college prep program in high school. Prospective first-year students are strongly encouraged to file an application as early in the senior year as possible, and arrange to have first quarter grades sent from their high school counselor as soon as they are available.

For detailed admission requirements, including required documents, please visit the **Admissions** page of this catalog.