

ARTIFICIAL INTELLIGENCE ENGINEERING, B.S.

Seven Penn State campuses are scheduled for closure after Spring 2027: DuBois, Fayette, New Kensington, Mont Alto, Shenango, Wilkes-Barre, and York. New students are not being admitted at these campuses.

Begin Campus: Any Penn State Campus

End Campus: University Park

Degree Requirements

For the Bachelor of Science degree in Artificial Intelligence Engineering, a minimum of 126 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	102-103

21 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GN courses, 6 credits of GQ courses, 9 credits of GWS courses. The remaining 24 General Education credits must be distinct from the Requirements for the Major.

Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<https://senate.psu.edu/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>).

Code	Title	Credits
Prescribed Courses		
A-I 100	Artificial Intelligence: Automated Thinking to Augment Human Intellect	3
A-I 341W	Responsible Artificial Intelligence	3
A-I 375	Knowledge Representation and Inference	3
A-I 410	AI Systems and Tools	3
AIE 489W	Artificial Intelligence Engineering Project Design	3
<i>Prescribed Courses: Require a grade of C or better</i>		
A-I 305	Algorithmic Foundations for Artificial Intelligence	3
A-I 370	Problem Formulation and Automated Problem Solving	3
AIE 355	Optimization for Machine Learning	3
CMPSC 360	Discrete Mathematics for Computer Science	3
EE 456	Introduction to Neural Networks	3
ENGL 202C	Effective Writing: Technical Writing	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 225	Mathematical Foundations for Machine Learning	4
PHYS 211	General Physics: Mechanics	4
PHYS 212	General Physics: Electricity and Magnetism	4
STAT 401	Experimental Methods	3

Additional Courses

Additional Courses: Require a grade of C or better

CMPSC 131 or CMPSC 121 & DS 120	Programming and Computation I: Fundamentals Introduction to Programming Techniques and Scripting for Data Sciences	3-4
CMPSC 132 or CMPSC 122	Programming and Computation II: Data Structures Intermediate Programming	3
CMPSC 448 or CMPSC 445	Machine Learning and Algorithmic AI Applied Machine Learning in Data Science	3
Select 3 credits from the following:		3
CAS 100A	Effective Speech	
CAS 100B	Effective Speech	
CAS 138T	Rhetoric and Civic Life II	
Select 3 credits from the following:		3
ENGL 15	Rhetoric and Composition	
ENGL 30H	Honors Rhetoric and Composition	
ENGL 137H	Rhetoric and Civic Life I	

Supporting Courses and Related Areas

Select 27 credits from the approved Technical Elective Course List, with at least 15 credits at the 400-level	27
Select 3 credits from approved list of non-technical (department list) electives	3
Select 1 credit of First-Year Seminar	1

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (<https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/>) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- **Arts (GA):** 3 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 3 credits
- **Social and Behavioral Sciences (GS):** 3 credits
- **Natural Sciences (GN):** 3 credits

Integrative Studies

- **Inter-Domain Courses (Inter-Domain):** 6 credits

Exploration

- **GN**, may be completed with Inter-Domain courses: 3 credits
- **GA, GH, GN, GS, Inter-Domain courses.** This may include 3 credits of World Language course work beyond the 12th credit level or the

requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<https://senate.psu.edu/students/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/>)). For more information, check the Suggested Academic Plan for your intended program.