ARTIFICIAL INTELLIGENCE - BACHELOR OF SCIENCE

The Bachelor of Science in Artificial Intelligence (AI) is rigorously focused on educating the student in the fundamental disciplines of AI. It will prepare computing and IT professionals who are capable of leading technological, methodological, and policy changes in industry and government, both locally and nationally, with an emphasis on the development and application of AI technologies.

General Requirements Exception

A grade of at least C- must be earned in each of the courses taken to satisfy the departmental and non-departmental requirements. No course may be counted as satisfying both a departmental and a non-departmental requirement. No course taken to satisfy either a departmental or a non-departmental requirement may be taken S/U.

Requirements

Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 120 credits with 48 credits in courses numbered 300/3000 or above. Developmental coursework will not count towards the degree requirements and/or elective credits but may be needed in order to take the necessary English and Mathematics coursework.

Prefix	Title	Credits
General Education Requirement		
Area I: Communications [1]		*9-10*
English Composition - Level 1 [2]		
ENGL 1110G	Composition I	
or ENGL 1110H	Composition I Honors	
or ENGL 1110M	Composition I	
English Composition - Level 2		
ENGL 2210G	Professional and Technical Communication	
or ENGL 2210H	Professional and Technical Communication	
or ENGL 2210M	Professional and Technical Communication for Multilingual Students	
Oral Communication		
Choose one from the following:		3
COMM 1115G	Introduction to Communication	
COMM 1130G	Public Speaking	
HNRS 2175G	Introduction to Communication Honors	
Area II: Mathematics [3]		*3-4*
MATH 1511G	Calculus and Analytic Geometry I	4
or MATH 1430G	Applications of Calculus I	
or MATH 1511H	Calculus and Analytic Geometry I Honors	
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences		*10-11*
Area III: Laboratory Sciences [2]		
Area IV: Social & Behavioral Sciences [2]		
Either an Area III/IV: Laboratory Sciences Course or Social/Behavioral Sciences [2]		
Area V: Humanities [2]		*3*
Area VI: Creative and Fine Arts [2]		*3*
General Education Elective [2]		*3-4*
Viewing a Wider World [4]		**6**
Departmental Requirements		**47**
CSCI 1720	Computer Science I	
CSCI 2210	Object-Oriented Programming	
CSCI 2220	Introduction to Data Structures and Algorithms	
CSCI 2310	Discrete Mathematics for Computer Science	
CSCI 2410	Practical Programming	
CSCI 3410	Introduction to Intelligent Agents Using Science Fiction	
CSCI 3710	Software Development	
CSCI 3720	Data Structures and Algorithms	
CSCI 4110	Computing Ethics and Social Implications of Computing	
CSCI 4980	Senior Project [5]	
or CSCI 4999	Senior Thesis	
CSCI 4405	Artificial Intelligence I	
CSCI 4140	Database Management Systems I	
CSCI 4420	Applied Machine Learning I	
CSCI 4415	Introduction to Data Mining	
Additional Selective Requirements		
Select one of the following		*3*
CSCI 4435	Text Mining and Natural Language Processing	
CSCI 4440	Generative Artificial Intelligence	
Select 9 credits from the following		*9*
CSCI 4425	Introduction to Deep Learning	
CSCI 4430	Graph Data Mining	
CSCI 4265	Modern Web Technologies	
CSCI 4255	Digital Game Design	
CSCI 4270	Principles of Virtual Reality	
CSCI 4250	Human-Centered Computing	
Select 9 credits from the following: [5]		*9*
CSCI 4225	Introduction to Cryptography	
CSCI 4230	Architectural Concepts I	
CSCI 4410	Computer Graphics I	
CSCI 4996	Special Topics	
CSCI 4996	Special Topics [6]	
CSCI 4205	Computer Security	
CSCI 4130	Linux System Administration	
CSCI 4260	Visual Programming	
CSCI 4245	Computer Networks I	
CSCI 4305	Bioinformatics	
CSCI 4310	Bioinformatics Programming	
CSCI 4215	Parallel Programming	
CSCI 4220	Cloud and Edge Computing	
SOCI 4150	Networked and Connected	
SOCI 4155	Textual Analysis of Digital and Social Media	
SOCI 4160	Visualizing Social Life	
E E 406	Quantum Computing	
E E 408	Noncooperative Game Theory	
E E 444	Advanced Image Processing	
E E 446	Digital Image Processing	
E E 465	Machine Learning I	
I E 425	Supply Chain Modeling and Analysis	
I E 467	Discrete-Event Simulation Modeling	
ICT 439	Advanced Digital Forensics and Incident Response	
ICT 450	Ethical Hacking	
M E 486	Introduction to Robotics	
BCIS 482	Management of Information Security	

BCIS 461	Business Analytics I	
BCIS 466	Business Analytics II	
PSYC 2220	Cognitive Psychology	
PSYC 2250	Brain and Behavior	
PSYC 320	Learning	
PSYC 380	Perception	
PSYC 383	Memory	
PSYC 430	Human-Computer Psychology	
PSYC 442	Thinking	
Non-Departmental Requirements (in addition to Gen.Ed/VWW)		**3**
Select one from the following:		
MATH 1350G	Introduction to Statistics	
MATH 2350G	Statistical Methods	
A ST 311	Statistical Applications	
STAT 3110	Statistics for Engineers and Scientists	
STAT 4210	Probability: Theory and Applications	
Second Language Requirements: (not required)		
Electives, to bring the total credits to 120 [7]		**5**
Total Credits		**120-124**

1. Students with Area I transfer credits may sometimes complete this requirement with 9 credits
2. See the General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/) section of the catalog for a full list of courses
3. Either MATH 1430G Applications of Calculus I or MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisites needed to enter either first.
4. See the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses.
5. The current CSCI 4110 Computing Ethics and Social Implications of Computingcourse will need to be developed to become a full course for the need of this program.
6. The project or thesis must be related to AI.
7. A course can satisfy only one requirement. Courses outside of the department might require additional pre-requisites.
8. Must be taken for 3 credits to count as a course.
9. Elective credit may vary based on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The amount indicated in the requirements list is the amount needed to bring the total to 120 credits and may appear in variable form based on the degree. However students may end up needing to complete more or less on a case-by-case basis and students should discuss elective requirements with their advisor.

Second Language Requirement

For the Bachelor of Science in Artificial Intelligence, there is no second language requirement for the degree.

A Suggested Plan of Study for Students

This roadmap assumes student placement in MATH 1220G College Algebra and ENGL 1110G Composition I . The contents and order of this roadmap may vary depending on initial student placement in Mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring semester and may be subject to modification or change.

Freshman		**Credits**
CSCI 1720	Computer Science I	4
CSCI 2210	Object-Oriented Programming	4
CSCI 2220	Introduction to Data Structures and Algorithms	4
MATH 1430G or MATH 1511G	Applications of Calculus I [1] or Calculus and Analytic Geometry I	3
ENGL 1110G or ENGL 1110H or ENGL 1110M	Composition I or Composition I Honors or Composition I	4
Area III: Laboratory Science Course [2]		3
Area IV: Social/ Behavioral Sciences Course [2]		3
Area V: Humanities Courses [2]		3
Electives as needed to meet the minimum credit requirement for financial aid [6]		2
	Credits	**30**
Sophomore		
CSCI 2310	Discrete Mathematics for Computer Science	4
CSCI 2410	Practical Programming	2
CSCI 3710	Software Development	4
CSCI 3410	Introduction to Intelligent Agents Using Science Fiction	3
ENGL 2210G or ENGL 2210H or ENGL 2210M	Professional and Technical Communication or Professional and Technical Communication or Professional and Technical Communication for Multilingual Students	3
Area III or IV [2]		3
Viewing the Wider World [3]		3
Select one from the following:		3
CSCI 4435	Text Mining and Natural Language Processing	
CSCI 4440	Generative Artificial Intelligence	
Elective credits if needed for financial aid requirements [6]		5
	Credits	**30**
Junior		
CSCI 3720	Data Structures and Algorithms	4
CSCI 4405	Artificial Intelligence I	3
CSCI 4140	Database Management Systems I	3
Elective Courses from List 1 or 2 [4]		9
Area 6: Humanities [2]		3
Non-Departmental Requirement in addition to Gen. Ed/WWW [5]		3
Viewing a Wider World [3]		3
Elective credits if needed for financial aid requirements [6]		2
	Credits	**30**
Senior		
CSCI 4980 or CSCI 4999	Senior Project or Senior Thesis	4
CSCI 4420	Applied Machine Learning I	3
CSCI 4415	Introduction to Data Mining	3
Elective Courses from List 1 and 2 [4]		9
Upper division electives to bring total upper division to 48 [3]		4
Electives as needed to meet minimum credit requirements [6]		6
CSCI 4110	Computing Ethics and Social Implications of Computing	1
	Credits	**30**
	Total Credits	**120**

[1] MATH 1430G Applications of Calculus I or MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisites needed to enter this course.

[2] See the list of General Education (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/) section of the catalog for a full list of courses

[3] See the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses

[4] See list of Computer Science electives (https://catalogs.nmsu.edu/nmsu/arts-sciences/computer-science/computer-science-bachelor-science/#requirementstext) in Degree Requirement Section. Students are encouraged to consider elective courses that concentrate on a certain topic.

[5] **Non-Departmental Requirement: one of the following**

- MATH 1350G Introduction to Statistics
- MATH 2350G Statistical Methods
- A ST 311 Statistical Applications
- STAT 3110 Statistics for Engineers and Scientists
- STAT 4210 Probability: Theory and Applications

[6] *Elective credit may vary based on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The amount indicated in the requirements list is the amount needed to bring the total to 120 credits and may appear in variable form based on the degree. However students may end up needing to complete more or less on a case-by-case basis and students should discuss elective requirements with their advisor.*

Students are encouraged to consult with their advisor regarding the possibility of enrolling in the combined BS+MS accelerated program (MAP) in Computer Science.