COMPUTER SCIENCE - BACHELOR OF ARTS

The Bachelor of Arts in Computer Science is an open, flexible degree plan that offers the student both a rigorous undergraduate degree program in Computer Science and an extensive open credit hour allotment to pursue knowledge in other domains. It is an excellent choice to combine into a double major program, and is an option for the student who has an interest in learning both domain knowledge in some areas outside of Computer Science, and in acquiring a Computer Science background sufficient to pursue a strong technology career.

Students planning to undertake graduate work in Computer Science are encouraged to pursue the Bachelor of Science degree rather than the Bachelor of Arts degree.

General Requirements Exception

A grade of a 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 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		
Area I: Communications [1]		
English Composition - Level 1 [2]		*4*
English Composition - Level 2 [2]		
ENGL 2210G	Professional & Technical Communication	3
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]		
Choose one from the following:		3-4
MATH 1430G	Applications of Calculus I	
MATH 1511G	Calculus and Analytic Geometry I	
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences		*10-11*
Area III: Laboratory Sciences Course (4 credits) [2]		
Area IV: Social & Behavioral Sciences (3 credits) [2]		
Either an Area III/IV: Laboratory Sciences Course or Social/Behavioral Sciences Course (4 or 3 credits) [2]		
Area V: Humanities [2]		*3*
Area VI: Creative and Fine Arts [2]		*3*
General Education Elective [2]		*3-4*
Three of the six Statistics/Applied Statistics course can potentially fulfill this requirement (See below)		
Viewing a Wider World [4]		**6**
Departmental/College Requirements		
C S 172	Computer Science I	4
C S 271	Object Oriented Programming	4
C S 272	Introduction to Data Structures	4
C S 273	Machine Programming and Organization	4
C S 278	Discrete Mathematics for Computer Science	4
C S 370	Compilers and Automata Theory	4
C S 371	Software Development	4
C S 419	Computing Ethics and Social Implications of Computing	1
C S 448	Senior Project	4
or C S 449	Senior Thesis	
C S 482	Database Management Systems I	3
Computer Science Electives		
List 1:		
Select 6-7 credits from the following: [5]		6-7
C S 343	Algorithm Design & Implementation	
or C S 372	Data Structures and Algorithms	
C S 380	Introduction to Cryptography	
C S 381	Principles of Virtual Reality	
C S 382	Modern Web Technologies	
C S 383	Introduction to Deep Learning	
C S 384	Graph Data Mining	
C S 471	Programming Language Structure I	
C S 473	Architectural Concepts I	
C S 474	Operating Systems I	
C S 475	Artificial Intelligence I	
C S 476	Computer Graphics I	
C S 477	Digital Game Design	
C S 478	Computer Security	
C S 479	Special Topics [6]	
C S 480	Linux System Administration	
C S 481	Visual Programming	
C S 484	Computer Networks I	
C S 485	Human-Centered Computing	
C S 486	Bioinformatics	
C S 487	Applied Machine Learning I	
C S 488	Introduction to Data Mining	
C S 489	Bioinformatics Programming	
C S 491	Parallel Programming	
C S 496	Cloud and Edge Computing	
List 2:		
Select 6 credits from the following: [5]		6
C S 380	Introduction to Cryptography	
C S 381	Principles of Virtual Reality	
C S 382	Modern Web Technologies	
C S 383	Introduction to Deep Learning	
C S 384	Graph Data Mining	
C S 475	Artificial Intelligence I	
C S 476	Computer Graphics I	
C S 477	Digital Game Design	
C S 478	Computer Security	
C S 479	Special Topics [6]	
C S 480	Linux System Administration	
C S 481	Visual Programming	
C S 484	Computer Networks I	

C S 485	Human-Centered Computing	
C S 486	Bioinformatics	
C S 487	Applied Machine Learning I	
C S 488	Introduction to Data Mining	
C S 489	Bioinformatics Programming	
C S 491	Parallel Programming	
C S 496	Cloud and Edge Computing	
Non-departmental Requirements (in addition to Gen.Ed/VWW)		
Select two upper-division courses in any one department except Computer Science		6-8
Choose one from the following:		3
MATH 1350G	Introduction to Statistics (can count towards General Education Elective requirement)	
MATH 2350G	Statistical Methods (can count towards General Education Elective requirement)	
STAT 371	Statistics for Engineers and Scientists I	
STAT 470	Probability: Theory and Applications	
A ST 311	Statistical Applications	
Second Language Requirement: (not required)		
Electives, to bring the total credits to 120 [7]		**19-25**
Select upper division electives to bring total upper division to 48		
Total Credits		**120**

1. Students with Area I transfer credits may sometimes complete this requirement with 9 credits
2. See the General Education (http://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 (http://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses.
5. A course can satisfy only one requirement.
6. Must be taken for 3 credits to count as one course.
7. 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 Arts with a major in Computer Science, there is no second language requirement for the degree.

A Suggested Plan of Study For Students

This roadmap assumes student placement in MATH 1220G and ENGL 1110G. 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.

This roadmap adds the MATH 1511G prerequisites into the plan, MATH 1220G and MATH 1250G will not appear on the requirements tab.

Any students who test into MATH 1511G can supplement MATH 1220G and MATH 1250G with elective credits.

Freshman		**Credits**
C S 111	Computer Science Principles [1]	4
ENGL 1110G	Composition I	4
MATH 1220G	College Algebra [2]	3
COMM 1115G	Introduction to Communication	3
C S 172	Computer Science I	4
MATH 1511G or MATH 1430G	Calculus and Analytic Geometry I or Applications of Calculus I	4
Area III: Laboratory Science Course [3]		4
Area IV: Social/ Behavioral Sciences Course [3]		3
Electives as needed to meet the minimum credit requirement for financial aid [4]		1-3
	Credits	**30-32**
Sophomore		
C S 271	Object Oriented Programming	4
C S 273	Machine Programming and Organization	4
C S 272	Introduction to Data Structures	4
C S 278	Discrete Mathematics for Computer Science	4
Area V: Humanities Course [3]		3
Electives Courses as needed to meet minimum credit requirements [4]		5-6
ENGL 2210G	Professional & Technical Communication	3
Electives as needed to meet the minimum credit requirement for financial aid [4]		3
	Credits	**30-31**
Junior		
C S 370	Compilers and Automata Theory	4
C S 371	Software Development	4
Either an Area III/IV: Laboratory Science Course or Social/Behavioral Sciences Course [3]		3-4
C S elective, List 1 [5]		3
C S elective, List 1 [5]		3
Upper division Course from another department		3-4
Viewing a Wider World Course [6]		3
General Education Elective Course [3]		3-4
Select one from the following:		3
MATH 1350G	Introduction to Statistics	
MATH 2350G	Statistical Methods	
STAT 371	Statistics for Engineers and Scientists I	
STAT 470	Probability: Theory and Applications	
A ST 311	Statistical Applications	
Electives as needed to meet the minimum credit requirement for financial aid [4]		1
	Credits	**30-33**
Senior		
C S 482	Database Management Systems I	3
C S elective, List 1 [5]		3
C S elective, List 1 [5]		3
Upper division course from another department		3-4
Viewing a Wider World Course [6]		3
Area VI: Creative and Fine Arts [3]		3
C S 448 or C S 449	Senior Project or Senior Thesis	4
C S 419	Computing Ethics and Social Implications of Computing	1
Upper division electives to bring total upper division to 48 [4]		3-7

Electives as needed to meet the minimum credit requirement for financial aid [4]	4-7
Credits	**30-38**
Total Credits	**120-134**

1. Required for students who do not pass MATH 1215 Intermediate Algebra or do not pass the CS placement exam and is not counted towards graduation
2. MATH 1511G Calculus and Analytic Geometry I is the starting requirement for this degree but students may need to take MATH 1220G College Algebra and MATH 1511G Calculus and Analytic Geometry I before enrolling in it. If a student tests into MATH 1511G Calculus and Analytic Geometry I then elective credits can replace MATH 1220G College Algebra/MATH 1250G Trigonometry & Pre-Calculus in the roadmap.
3. See the General Education (http://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/) section of the catalog for a full list of courses.
4. Any course offered by the university. 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.
5. For electives see List 1 or List 2 of Computer Science electives (p. 1) in Degree Requirement Section.
6. See the Viewing a Wider World (http://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses.