MATHEMATICS (APPLIED MATHEMATICS) - BACHELOR OF SCIENCE

The Applied Mathematics concentration is intended to prepare students planning a mathematically oriented career upon graduation. The coursework in this concentration provides a foundation in mathematics important in many scientific and engineering applications.

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		
Area I: Communications		
English Composition - Level 1		
ENGL 1110G	Composition I	4
or ENGL 1110H	Composition I Honors	
or ENGL 1110M	Composition I	
English Composition - Level 2		
Choose one from the following:		3
ENGL 2130G	Advanced Composition	
ENGL 2210G	Professional and Technical Communication	
or ENGL 2210H	Professional and Technical Communication	
or ENGL 2210M	Professional and Technical Communication for Multilingual Students	
ENGL 2215G	Advanced Technical and Professional Communication	
Oral Communication		
Choose one from the following:		3
ACOM 1130G	Effective Leadership and Communication in Agriculture	
COMM 1115G	Introduction to Communication	
COMM 1130G	Public Speaking	
HNRS 2175G	Introduction to Communication Honors	
Area II: Mathematics		
MATH 1511G	Calculus and Analytic Geometry I (Departmental/College Requirement) [1]	4
or MATH 1511H	Calculus and Analytic Geometry I Honors	
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences		*10-11*
Area III: Laboratory Sciences Course (4 credits) [2]		
Area IV: Social/Behavioral Sciences Course (3 credits) [2]		
Either an Area III/IV: Laboratory Sciences or Social/Behavioral Sciences Course (4 credits or 3 credits) [2]		
Area V: Humanities [2]		*3*
Area VI: Creative and Fine Arts [2]		*3*
General Education Elective		
MATH 1521G	Calculus and Analytic Geometry II (Departmental/College Requirement)	4
or MATH 1521H	Calculus and Analytic Geometry II Honors	
Viewing a Wider World [3]		**6**
Departmental/College Requirements		
MATH 1531	Introduction to Higher Mathematics	3
MATH 2415	Introduction to Linear Algebra	3
MATH 2530G	Calculus III	3
MATH 3140	Introduction to Numerical Methods	3
MATH 3160	Introduction to Ordinary Differential Equations	3
MATH 4210	Complex Variables	3
MATH 4220	Fourier Series and Boundary Value Problems	3
STAT 3110	Statistics for Engineers and Scientists	3
STAT 4210	Probability: Theory and Applications	3
Departmental Electives		
Select at least 6 credits of approved additional upper-division courses prefixed MATH or STAT (one must be 400-level), excluding the following:		6
MATH 3997	Directed Readings	
MATH 4991	Undergraduate Research	
MATH 4997	Directed Reading	
STAT 400	Undergraduate Research	
Non-Departmental Requirements (in addition to Gen.Ed/VWW)		
CSCI 1720	Computer Science I (C- or better)	4
Select a minimum of 9 credit hours of electives to form a coherent cluster in an applied area from the following: [4]		9
Examples of acceptable clusters:		
Signals		
E E 320	Signals and Systems I	
E E 395	Introduction to Digital Signal Processing	
E E 496	Introduction to Communication Systems	
Structures		
PHYS 1310G	Calculus -Based Physics I [5]	
C E 233	Mechanics-Statics	
C E 315	Structural Analysis	
Operations Research		
I E 311	Engineering Data Analysis	
I E 365	Quality Control	
I E 413	Engineering Operations Research I	
I E 423	Engineering Operations Research II	
I E 460	Evaluation of Engineering Data	
Algorithm Theory		
CSCI 2220	Introduction to Data Structures and Algorithms	
CSCI 3730	Compilers and Automata Theory	
CSCI 3720	Data Structures and Algorithms	
Bioinformatics		
BIOL 2110G	Principles of Biology: Cellular and Molecular Biology [5]	
BIOL 2110L	Principles of Biology: Cellular and Molecular Biology Laboratory [5]	
CSCI 4305	Bioinformatics	
Choose one from the following:		
CSCI 2220	Introduction to Data Structures and Algorithms	
CSCI 3730	Compilers and Automata Theory	
CSCI 3710	Software Development	
CSCI 3720	Data Structures and Algorithms	
Computer Systems		
CSCI 2210	Object-Oriented Programming	
or CSCI 2220	Introduction to Data Structures and Algorithms	
CSCI 3710	Software Development	
CSCI 3730	Compilers and Automata Theory	
CSCI 4120	Operating Systems I	

CSCI 4405	Artificial Intelligence I	
CSCI 4410	Computer Graphics I	
CSCI 4140	Database Management Systems I	
CSCI 4245	Computer Networks I	
CSCI 4250	Human-Centered Computing	
Second Language Requirement: (not required)		
Electives, to bring the total credits to 120 [6]		**34**
9-15 credits must be Upper-Division		
Total Credits		**120-121**

1 MATH 1511G Calculus and Analytic Geometry I is required for the degree but students may need to take any prerequisites needed to enter MATH 1511G first.

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 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 A grade of C- or better must be earned. Students may propose clusters subject to departmental approval. A cluster must contain CSCI 1720 Computer Science I. A major or minor in any of the following fields (along with CSCI 1720 Computer Science I) will also fulfill the Cluster Electives requirement: Computer Science, Physics, Biology, Chemistry and Biochemistry, Chemical Engineering, Engineering Physics, Electrical and Computer Engineering, Industrial Engineering, Mechanical Engineering, Civil Engineering, Economics and Finance.

5 If these courses are selected, they could count towards the General Education Area III requirement.

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.

Second Language Requirement

For the Bachelor of Science with a major in Mathematics with a Concentration in Applied Mathematics, there is no second language requirement for the degree.