MATHEMATICS (PROBABILITY AND STATISTICS) - BACHELOR OF SCIENCE

The concentration in Probability and Statistics provides students with a strong background in mathematical, probabilistic, and statistical analysis. Students also develop skills in the analysis of problems that arise in science, engineering, and other areas. The program provides a path to graduate studies or a career in industry.

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		
English Composition - Level 1		
ENGL 1110G	Composition I	4
English Composition - Level 2		
Choose one from the following:		3
ENGL 2130G	Advanced Composition	
ENGL 2210G	Professional and Technical Communication Honors	
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 Course 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 3120	Introduction to Analysis	3
MATH 3140	Introduction to Numerical Methods	3
STAT 3110	Statistics for Engineers and Scientists	3
STAT 4210	Probability: Theory and Applications	3
STAT 4220	Statistics: Theory and Applications	3
Departmental Electives		
Select at least 9 additional upper-division credits of approved courses prefixed MATH or STAT (at least 3 credits must be 400/4000-level), excluding the following:		9
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) [4]		
Select one course from the following:		3
C S 153	Python Programming I	
C S 158	R Programming I	
Additional Requirements		
Select one option from the following:		6
OPTION 1		
A ST 465	Statistical Analysis I	
A ST 466	Statistical Analysis II	
OPTION 2		
I E 311	Engineering Data Analysis	
Select one course from the following:		
I E 365	Quality Control	
I E 460	Evaluation of Engineering Data	
I E 466	Reliability	
Second Language Requirement: (not required)		
Electives, to bring the total credits to 120 [5]		**38**
12 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.
5. 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 should also consult their advisor about choosing the courses A ST 503 SAS Basics and A ST 505 Statistical Inference I as electives.

Second Language Requirement

For the Bachelor of Science in Mathematics with a Concentration in Statistics there is no second language requirement.

A Suggested Plan of Study for Students

This roadmap assumes student placement in MATH 1511G Calculus and Analytic Geometry I 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.

Some students may be able to bypass one or more courses in the calculus sequence MATH 1511G - MATH 1521G - MATH 2530G. The calculus sequence, Introduction to Higher Mathematics, and Linear Algebra provide knowledge that is basic to further work, and students are advised to complete them or their equivalent as early as possible.

First Year		Credits
ENGL 1110G	Composition I	4
MATH 1511G or MATH 1511H	Calculus and Analytic Geometry I [1] or Calculus and Analytic Geometry I Honors	4
Area III: Laboratory Science Course [2]		4
Choose one from the following:		3
C S 153	Python Programming I	
C S 158	R Programming I	
Choose one from the following:		3
ENGL 2130G	Advanced Composition	
ENGL 2210G	Professional and Technical Communication Honors	
ENGL 2215G	Advanced Technical and Professional Communication	
Area VI: Creative and Fine Arts Course [2]		3
MATH 1521G or MATH 1521H	Calculus and Analytic Geometry II or Calculus and Analytic Geometry II Honors	4
Area V: Humanities Course [2]		3
Elective Course [3]		3
	Credits	**31**
Second Year		
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	
Elective Course(s) [3]		9
Area IV: Social/Behavioral Sciences Course [2]		3
MATH 2415	Introduction to Linear Algebra	3
MATH 2530G	Calculus III	3
Either an Area III/IV: Laboratory Science Course or Social/Behavioral Sciences Course [2]		3-4
STAT 3110	Statistics for Engineers and Scientists	3
MATH 3140	Introduction to Numerical Methods	3
	Credits	**30-31**
Third Year		
MATH 1531	Introduction to Higher Mathematics	3
STAT 4210	Probability: Theory and Applications	3
Elective Course(s) [3]		9
Elective Course - Upper Division [3]		6
STAT 4220	Statistics: Theory and Applications	3
MATH 3120	Introduction to Analysis	3
VWW - Viewing a Wider World [5]		3
	Credits	**30**
Fourth Year		
MATH/STAT Elective Course: 400/4000-level [6]		3
OPTION Course		6
VWW - Viewing a Wider World [5]		3
Elective Course - Upper Division [3]		6
MATH/STAT Elective Course: 300/4000- level or higher (C- or better) [4,6]		6
Elective Course(s) [3,6]		5
	Credits	**29**
	Total Credits	**120-121**

1. Math Placement: MATH 1511G Calculus and Analytic Geometry I is the starting Math course for the degree, however, students may need to complete any prerequisites prior to enrolling into this course.
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. 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.
4. MATH/STAT 300/3000-level or higher courses that cannot be taken to fulfill this req MATH 4991 Undergraduate Research, and STAT 400 Undergraduate Research.
5. See the Viewing a Wider World (https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section for a full list of courses.
6. MATH/STAT 400/4000-level courses that cannot be taken to fulfill this requirement: MATH 4991 Undergraduate Research, MATH 4997 Directed Reading, STAT 400 Undergraduate Research.