MATHEMATICS (FOUNDATIONS) - BACHELOR OF SCIENCE

The concentration in Foundations draws on courses from mathematics and philosophy to provide a close look at the underlying logical and philosophical issues in mathematics.

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 & Technical Communication	
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
Area III/IV: Laboratory Sciences and Social/Behavioral Sciences		*10-11*
Area III: Laboratory Science Course (4 credits) [2]		
Area IV: Social/Behavioral Sciences Course (3 credits) [2]		
Either an Area III/IV: Laboratory Sciences Course or Social/Behavioral Science 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
Viewing a Wider World [3]		**3**
Departmental/College Requirements		
MATH 1531	Introduction to Higher Mathematics	3
MATH 2415	Introduction to Linear Algebra	3
MATH 2530G	Calculus III	3
MATH 331	Introduction to Modern Algebra	3
or MATH 332	Introduction to Analysis	
MATH 411V	Great Theorems in Mathematics	3
MATH 452	Foundations of Geometry	3
MATH 454	Logic and Set Theory	3
Departmental Electives [4]		
Select at least 9 additional upper-division credits of approved courses prefixed MATH or STAT (at least 3 must be 400-level), excluding the following:		9
MATH 300	Readings	
MATH 313	Fundamentals of Algebra and Geometry I	
MATH 400	Undergraduate Research	
MATH 459	Survey of Geometry	
STAT 400	Undergraduate Research	
Non-Departmental Requirements (in addition to Gen.Ed/VWW) [5]		**13**
C S 172	Computer Science I	
PHIL 312	Formal Logic	
Select two courses from the following, including at least one of PHIL 316:		
PHIL 316	Philosophy of Mathematics	
PHIL 350	Epistemology	
PHIL 351	Philosophy of Science	
Second Language Requirement: (not required)		
Electives, to bring the total credits to 120 [6]		**40**
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 (http://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 (http://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext) section of the catalog for a full list of courses. This course must come from outside the college. Note that one of the VWW requirements will be satisfied using the 9 hour rule with the PHIL courses that are required for the degree.

4

MATH 401 Special Topics must be approved by the department for credit towards the major.

5

A grade of C- or better must be earned.

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 in Mathematics with a Concentration in Foundations 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		
Fall		**Credits**
ENGL 1110G	Composition I (C- or better)	4
MATH 1511G	Calculus and Analytic Geometry I (C- or better) [1]	4
Area III: Laboratory Science Course [2]		4
C S 172	Computer Science I (C- or better)	4
	Credits	**16**
Spring		
Choose one from the following:		3
ENGL 2130G	Advanced Composition	
ENGL 2210G	Professional & Technical Communication	
ENGL 2215G	Advanced Technical and Professional Communication	
Either an Area III/IV: Laboratory Science Course or Social/Behavioral Sciences Course [2]		3-4
MATH 1521G	Calculus and Analytic Geometry II (C- or better)	4
Elective Course [3]		3
	Credits	**13-14**
Second Year		
Fall		
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 V: Humanities Course [2]		3
Elective Course [3]		3
MATH 2415	Introduction to Linear Algebra (C- or better)	3
MATH 2530G	Calculus III (C- or better)	3
	Credits	**15**
Spring		
Area IV: Social/Behavioral Sciences Course [2]		3
Area VI: Creative and Fine Arts Course [2]		3
PHIL 312	Formal Logic	3
MATH 1531	Introduction to Higher Mathematics	3
MATH/STAT Elective Course - 300-level of higher (C- or better) [4]		3
	Credits	**15**
Third Year		
Fall		
Upper level Philosophy course [8]		3
VWW - Viewing a Wider World Course [5]		3
MATH 331 or MATH 332	Introduction to Modern Algebra (C- or better) [7] or Introduction to Analysis	3
MATH/STAT Elective Course - 300-level of higher (C- or better) [4]		3
Elective Course [3]		3
	Credits	**15**
Spring		
Elective Course, - Upper Division [3]		3
MATH 452 or MATH 454	Foundations of Geometry or Logic and Set Theory	3
PHIL 316	Philosophy of Mathematics	3
MATH/STAT Elective Course - 400-level (C- or better) [6]		3
Elective Course - Upper Division [3]		3
	Credits	**15**
Fourth Year		
Fall		
MATH 411V	Great Theorems in Mathematics	3
Elective Course [3]		3
Elective Course [3]		3
Elective Course - Upper Division [3]		3
Elective Course - Upper Division [3]		3
	Credits	**15**
Spring		
MATH 454 or MATH 452	Logic and Set Theory or Foundations of Geometry	3
Elective Course [3]		3
Elective Course - Upper Division [3]		3
Elective Course - Upper Division [3]		3
Elective Course [3]		4
	Credits	**16**
	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 (http://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-level courses that cannot be taken to fulfill this requirement: MATH 300 Readings and MATH 313 Fundamentals of Algebra and Geometry I.

5

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

6

MATH/STAT 400-level courses that cannot be taken to fulfill this requirement: MATH 400 Undergraduate Research, MATH 459 Survey of Geometry, STAT 400 Undergraduate Research.

7

MATH 331 Introduction to Modern Algebra is only offered in the Fall semesters. However,MATH 332 Introduction to Analysis is taught in the Spring and may be used as a substitute.

8

Choose from PHIL 316 Philosophy of Mathematics, PHIL 350 Epistemology or PHIL 351 Philosophy of Science.