



Bachelor of Science/2014-2016 MATHEMATICS

ADMISSION REQUIREMENTS:

- 1) Completion of the General Education Common Core, plus an additional 13 credit hours which must include Calculus I
- 2) A cumulative GPA of at least 2.50.

GENERAL EDUCATION (39 CR) SEE PAGES 25-28.

Area I. Communications (9 cr)

Area II. Mathematics (3 cr)

Area III. Laboratory Sciences (8 cr)

Area IV. Social/Behavioral Sciences (6-9 cr)

Area V. Humanities and Fine Arts (6-9 cr)

HUM 100 FYE: History and Culture of Northern New Mexico (3)
Additional FYE courses

Area VI. Library Technology (1 cr)

LT 101 Library Research Skills (1)

Area VII. Foreign Language (3 cr)

PROGRAM REQUIREMENTS (37 CR)

Required Supporting Courses in Physics and Chemistry (8 cr)

CHEM 121/L General Chemistry I with Lab (4)
and
CHEM 122/L General Chemistry II with Lab (4)

or
PHYS 121/L Applied Physics I with Lab (4)
and
PHYS 122/L Applied Physics II with Lab (4)

or
CHEM 121/L General Chemistry I with Lab (4)
and
PHYS 121/L Applied Physics I with Lab (4)

Required supporting course in Computer Science (4 cr)

EECE 152L Computer Programming (4)

CORE CURRICULUM (25 CR)

MATH 162 Calculus I (4)
MATH 163 Calculus II (4)
MATH 264 Calculus III (4)

MATH	375	Numerical Computing (3) (WIC)
<i>or</i>		
MATH	275	Intro to Numerical Computing (3)

MATH	314	Linear Algebra with Applications (3)
<i>or</i>		
MATH	294	Intro to Linear Algebra with Applications (3)

MATH	316	Applied Ordinary Differential Equations (3)
<i>or</i>		
MATH	296	Intro to Applied Ordinary Differential Equations (3)

MATH	401	Advanced Calculus I (4)
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MAJOR (24 CR)

Applied Mathematics (21 cr)

MATH	311	Vector Analysis (3)
MATH	312	Partial Differential Equations for Engineering (3)
MATH	313	Complex Variables for Engineering (3)
MATH	327	Discrete Structures (3)
MATH	345	Elements of Applied Statistics and Probability Theory (3)
MATH	395	Practicum in Mathematics (3)
MATH	466	Mathematical Methods in Science and Engineering (3)

Choose one of the following (3):

MATH	402	Advanced Calculus II (3)
MATH	441	Probability (3)
MATH	464	Applied Matrix Theory (3)

CONCENTRATIONS

Along with your major, you may complete a concentration if you wish. For the BS in Mathematics, we suggest one of the following four concentrations.

General Engineering (21 cr)

ME	202	Engineering Statics (3)
ME	302	Mechanics of Materials (3)
EECE	203L	Circuit Analysis I (3)
ME	160L	General Engineering Design I (3)
ME	301	Thermodynamics (3)
ME	306	Dynamics (3)
ME	317	Fluid Mechanics (3)

Information Technology (22 cr)

EECE	132	Computer Networks I (3)
IT	210	Information Technology Systems (4)
EECE	231	Intermediate Programming (3)
IT	250	Introduction to Databases (3)
EECE	330	Computer Networks II (3)
EECE	342	Wireless and Mobil Computing (3)
EECE	440	Advanced Computer Networks (3)

Chemistry (19 cr)

CHEM	121/L	General Chemistry I with Lab (4) *
CHEM	122/L	General Chemistry II with Lab (4) *

CHEM 301/L Organic Chemistry I with Lab (4)
CHEM 302/L Organic Chemistry II with Lab (4)
CHEM 311 Physical Chemistry (3)

**No course can count more than once toward a degree at Northern. If you pursue this concentration, you will not have taken CHEM 121/L and 122/L as part of the "supporting courses" on page 114.*

Physics (20 cr)

PHYS 215/L Engineering Physics with Lab (4)
PHYS 262/L General Physics with Lab (4)
PHYS 331 Thermodynamics and Statistical Methods (3)
PHYS 302 Optics (3)
PHYS 330 Introduction to Modern Physics (3)
PHYS 405 Electricity and Magnetism (3)

Should you choose not to pursue a concentration, you must complete enough approved upper-division (300 or above) math, chemistry, engineering, or physics courses in order to fulfill our requirement of at least 40 cr of upper-division coursework.

In order to fulfill the graduation requirement of 128 credits for the program, you will have to enroll in an additional 6-28 credits of approved electives depending on whether a concentration area is chosen.