MATHEMATICS MINOR

Requirements

All coursework must be completed with a grade of C- or better. At least one MATH course 3000-level or higher or STAT course 3800 level or higher must be completed at UNO to establish residency. Three tracks are available.

The **Traditional Track** Mathematics Minor allows for the most flexibility in Upper Division courses. Several programs including Engineering, Computer Science, and Secondary Education: Math Endorsement can complete a Traditional Track Mathematics Minor with few or no additional courses.

The **Discrete Mathematics Track** Mathematics Minor bypasses MATH 1960 Calculus II and instead guides students towards courses that are relevant to their specific fields. These include Biology, Neuroscience, Philosophy, Political Science, Physics, Economics, Finance, Social Sciences, Network Sciences, Computer Science, and Engineering.

The **Cybersecurity Track** Mathematics Minor bypasses MATH 1960 Calculus II and instead guides students towards courses that are relevant to work in Cybersecurity.

Traditional Track

The Traditional Track minor in mathematics may be obtained by successful completion of 18-19 credits in mathematics courses consisting of:

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE)	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
One 3000-4000 level Math/Stat course [1,2]		3
One additional math course 1970 or above		3-4
Total Credits		**18-19**

[1] STAT 3000 does not count towards the Mathematics Minor.
[2] ECEN 3050 will count towards the Mathematics Minor for Engineering majors.

Discrete Mathematics Track

The Discrete Mathematics Track minor in mathematics may be obtained by successful completion of 17 credits in mathematics courses consisting of:

Code	Title	Credits
MATH 1940	CALCULUS FOR BIOMEDICINE	5
or MATH 1950	CALCULUS I	
MATH 2030	DISCRETE MATHEMATICS	3
MATH 3100	APPLIED COMBINATORICS	3
Select two Mathematics courses from the following:		6
MATH 3640	MODERN GEOMETRY	
MATH 4010	INTRODUCTION TO THE THEORY OF RECURSIVE FUNCTIONS	
MATH 4030	MODERN ALGEBRA	
MATH 4150	GRAPH THEORY & APPLICATIONS	
MATH 4560	NUMBER THEORY & CRYPTOGRAPHY	
MATH 4760	TOPICS IN APPLIED MATHEMATICS	
MATH 4970	SEMINAR IN APPLIED MATHEMATICS	
Total Credits		**17**

Cybersecurity Track

The Cybersecurity Track minor in mathematics may be obtained by successful completion of 17-18 credits in mathematics courses consisting of:

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 2050	APPLIED LINEAR ALGEBRA	3
MATH 2230	INTRODUCTION TO ABSTRACT MATH	3
MATH 4560	NUMBER THEORY & CRYPTOGRAPHY	3
One additional MATH/STAT course at MATH 1960 level or higher. [1]		3-4
Total Credits		**17-18**

[1] STAT 3000 does not count towards the Mathematics Minor.

If planned correctly, some disciplines require few, if any, additional math courses beyond what is required for the major. Please see suggested coursework for such majors below.

Courses marked with an asterisk* are not normally required for these programs, and are added here to achieve the Mathematics Minor.

College of Education, Health, and Human Sciences Majors

Secondary Education with Math 6-12 Endorsement

These students automatically fulfill the 20 credits required for a math minor with required coursework for the major.

Biomechanics

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 1970	CALCULUS III *	4
MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE) *	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
STAT 3800	APPLIED ENGINEERING PROBABILITY AND STATISTICS	3
Total Credits		**19**

College of Arts & Sciences Majors

Physics

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 1970	CALCULUS III	4
MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE) *	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
One 3000-4000 level MATH/STAT course *		3
Total Credits		**19**

College of Engineering Majors

Architectural

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4

MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE) [*]	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
MATH 2350	DIFFERENTIAL EQUATIONS	3
STAT 3800	APPLIED ENGINEERING PROBABILITY AND STATISTICS	3
Total Credits		**18**

Civil

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE) [*]	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
MATH 2350	DIFFERENTIAL EQUATIONS	3
STAT 3800	APPLIED ENGINEERING PROBABILITY AND STATISTICS	3
Total Credits		**18**

Computer

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 1970	CALCULUS III	4
MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE) [*]	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
One additional 3000-4000 level MATH/STAT course [*]		3
Total Credits		**19**

Electrical

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 1970	CALCULUS III	4
MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE) [*]	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
One additional 3000-4000 level MATH/STAT course [*]		3
Total Credits		**19**

Construction

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 1970	CALCULUS III	4
MATH 2030	DISCRETE MATHEMATICS (or CSCI 2030 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE) [*]	3
or MATH 2230	INTRODUCTION TO ABSTRACT MATH	
STAT 3800	APPLIED ENGINEERING PROBABILITY AND STATISTICS	3
Total Credits		**19**

Information Science and Technology Majors
Computer Science

Computer Science majors can earn a Mathematics Minor without taking any extra courses, simply by choosing cross-listed MATH/CSCI courses as part of their Computer Science Core Extension requirement. In addition to MATH 1950 and MATH 1960, all MATH/CSCI cross-listed courses qualify, but credit will not be given for both MATH 2230 and MATH 2030/CSCI 2030.

Cybersecurity

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 2050	APPLIED LINEAR ALGEBRA [*]	3
MATH 2230	INTRODUCTION TO ABSTRACT MATH	3
MATH 4560	NUMBER THEORY & CRYPTOGRAPHY	3
One additional MATH/STAT course at MATH 1960 level or higher. [*]		

Bioinformatics

Code	Title	Credits
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II [*]	3-4
or MATH 3100	APPLIED COMBINATORICS	
MATH 2030	DISCRETE MATHEMATICS	3
or CSCI 2030	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE	
MATH 4150	GRAPH THEORY & APPLICATIONS	3
One additional MATH/STAT course MATH 1970 or above [*]		3-4
Total Credits		**17-19**