

# Major in Mathematics

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## Accelerated Concentrations:

Students pursuing the Mathematics major who plan to continue on to the MAT in Secondary Education program in the Goodwin College of Education may enroll in Accelerated Concentrations for those programs. This concentration provides pathways for qualified undergraduates to move seamlessly into the MAT in Secondary Education while sharing up to 12 credits between their undergraduate and graduate work, thus saving tuition cost and time to degree. These 12 graduate credits count will towards the 120 credit hours required for the bachelor's degree, outside of the coursework required for the major in Mathematics.

## Admission to Accelerated Concentrations:

To apply for any Accelerated Concentration in Mathematics leading to a graduate degree, students must have a cumulative grade point average of 3.0 and have earned at least 60 credits toward their bachelor's degree; at least 12 of those credits must have been earned at NEIU. In addition, students must receive approval from their undergraduate advisor in Mathematics, complete the online application for the relevant graduate program and meet all admission requirements for that program. Accepted students may begin the graduate-level shared coursework once they have earned a minimum of 72 undergraduate credits, at least 12 of which were at NEIU.

## University Core Curriculum Requirements

General Education Distribution Area	Cr. Hrs.
<b>Fine Arts (FA)*</b> 2 courses, from at least two of the following areas of study: Art, CMT (Mass Media or Theatre), Music (includes Dance).	6
<b>Humanities (HU)*</b> 3 courses, from at least two of the following areas of study: CMT (Communication), English, Linguistics, Philosophy, Women's and Gender Studies, World Languages and Cultures, (Note: No more than two foreign language courses may be used to fulfill this requirement.)	9
<b>Behavioral/Social Sciences (SB)*</b> 3 courses, from at least two of the following areas of study: African & African American Studies, Anthropology, Computer Science, Economics, Geography & Environmental Studies, History, Justice Studies, Latino & Latin American Studies, Political Science, Psychology, Sociology, Social Work	9
<b>Natural Sciences (NS and NSL)**</b> 3 courses, from at least two of the following areas of study; one course must have a laboratory component (NSL): Biology, Chemistry, Earth Science, Environmental Science, Physics (Note: If an FYE ANTH that counts as Natural Science is taken, only one Biology course may be used for Natural Science).	9

## Engaged Learning Experiences

Students must complete, at Northeastern, three courses designated as Engaged Learning Experiences courses. One of the Engaged Learning Experiences courses must be at the 300-level, and one Engaged Learning Experiences course must be designated as "Boundary Crossing".

### Discipline Specific (ELE-DS)

These courses have pre-requisites that are specific courses within a program of study. Discipline Specific courses give students a deeper understanding of how knowledge is created and applied in their field.

### Boundary Crossing (ELE-X)

These are courses that cross disciplinary boundaries and/or cross boundaries through engagements outside the classroom or University allowing students to see how knowledge gained in one field might inform other fields or other aspects of society.

**Math/Quantitative Reasoning (MA)**

1 Math course, that has intermediate Algebra as prerequisite OR is a course listed on the General Education Distributive Learning List of Approved Courses. Any 3 hour college level math course, beyond Intermediate Algebra, meets this requirement.

- \* Majors in Fine Arts, Humanities or Social/Behavioral Sciences, may waive up to 6 credit hours of General Education requirements in the corresponding distribution area.
- \*\* Majors in Natural Sciences may waive up to 9 credit hours of General Education requirements in the Natural Sciences distribution area.

Students should also be aware of all other university requirements to obtain a degree - NEIU requirements (<http://catalog.neiu.edu/graduation-requirements/bachelors-degree/>)

Major in Mathematics for the Bachelor of Arts Degree

Code	Title	Hours
<b>Required Core Courses</b>		
MATH-187	Calculus I	4
MATH-202	Calculus II	4
MATH-203	Calculus III	4
MATH-253	Linear Algebra I	3
MATH-305	Probability And Statistics	4
MATH-311	Writing Intensive Program: Introduction To Advanced Mathematics	5
MATH-340	Computing For Mathematicians	4
Additional courses in mathematics concentrations (Applied & Secondary Mathematics) chosen in consultation with the appropriate departmental advisor		21
<b>Total Hours</b>		<b>49</b>

Code	Title	Hours
<b>Additional Required Courses for Concentration in Applied Mathematics</b>		
MATH-301	Ordinary Differential Equations I	4
MATH-339	Vector Calculus (Additional Required Courses for Concentration in Applied Mathematics)	4
<b>Total Hours</b>		<b>8</b>

Code	Title	Hours
<b>Additional Required Courses for Concentration in Secondary Mathematics</b>		
MATH-312	Foundations Of Geometry	3
MATH-321	History Of Mathematics	3
MATH-331	Abstract Algebra I	3
MATH-338	Introduction To Real Analysis	3
<b>Total Hours</b>		<b>12</b>

Students in the Accelerated Program must maintain a 3.0 cumulative undergraduate GPA and earn at least a "B" in all graduate-level courses taken for shared credit. The undergraduate degree must be completed within four (4) semesters of the start of the shared graduate-level courses. However, the Mathematics Department may grant an exception to this requirement under certain circumstances, and such exceptions will be considered on a case-by-case basis in consultation with the Secondary MAT program.

This sample curricular map is provided to guide you in the planning of your progression for this major. This guide should not replace regular consultations with your program advisor. For specific recommendations of courses not identified, please consult your program advisor.

Applied Mathematics major

First Year			Hours
Term 1			
MATH-173	College Algebra		4
General Education/Elective			3
General Education/Elective			3
General Education/Elective			3

General Education/Elective		3
	<b>Term Hours</b>	<b>16</b>
<b>Term 2</b>		
MATH-175	Trigonometry	3
General Education/Elective		3
General Education/Elective		3
General Education/Elective		3
General Education/Elective		3
	<b>Term Hours</b>	<b>15</b>
<b>Second Year</b>		
<b>Term 1</b>		
MATH-187	Calculus I	4
ENGL-101	Writing I	3
General Education/Elective		3
General Education/Elective		3
General Education/Elective		3
	<b>Term Hours</b>	<b>16</b>
<b>Term 2</b>		
MATH-202	Calculus II	4
MATH-311	Writing Intensive Program: Introduction To Advanced Mathematics	5
General Education/Elective		3
General Education/Elective		3
General Education/Elective		3
	<b>Term Hours</b>	<b>18</b>
<b>Third Year</b>		
<b>Term 1</b>		
MATH-203	Calculus III	4
MATH-253	Linear Algebra I	3
General Education/Elective		3
General Education/Elective		3
General Education/Elective		3
	<b>Term Hours</b>	<b>16</b>
<b>Term 2</b>		
MATH-340	Computing For Mathematicians	4
300-Level MATH Course		3
General Education/Elective		3
General Education/Elective		3
General Education/Elective		3
	<b>Term Hours</b>	<b>16</b>
<b>Fourth Year</b>		
<b>Term 1</b>		
MATH-334	Mathematical Statistics I	3
MATH-339	Vector Calculus	4
300-Level MATH Elective		3
General Education/Elective		3
General Education/Elective		3
	<b>Term Hours</b>	<b>16</b>
<b>Term 2</b>		
MATH-336	Statistical Inference	4
300-Level MATH Elective		3
300-Level MATH Elective		3
General Education/Elective		3
General Education/Elective		3
	<b>Term Hours</b>	<b>16</b>
	<b>Total Hours:</b>	<b>129</b>