Mathematics, BA (Boston)

The Bachelor of Arts degree requires at least 11 mathematics courses and two physics courses, in addition to the study of a foreign language. This program is appropriate for students who seek a broader liberal arts education.

Program Requirements

Complete all courses listed below unless otherwise indicated. Also complete any corequisite labs, recitations, clinicals, or tools courses where specified and complete any additional courses needed beyond specific college and major requirements to satisfy graduation credit requirements.

Universitywide Requirements

All undergraduate students are required to complete the Universitywide Requirements (https://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/).

BA Language Requirements

All BA students are required to complete the BA degree language requirements, for a total of 12 semester hours of language study or demonstrated equivalent proficiency, as described in Additional Requirements for BA students (https://catalog.northeastern.edu/undergraduate/university-academics/nupath/ba-requirements/). Successful demonstration of proficiency does not reduce total minimum semester hours of study required to earn the BA degree.

NUpath Requirements

All undergraduate students are required to complete the NUpath Requirements (https://catalog.northeastern.edu/undergraduate/university-academics/nupath/).

Mathematics Major Grade Requirement

A grade of C or higher is required in all mathematics courses numbered 3000 and below and in MATH 4000.

Mathematics Major Requirements

Code	Title	Hours
Introduction to College		
INSC 1000	Science at Northeastern	1
Experiential Learning Introduction		
EESC 2000	Professional Development for Co-op	1
Problem Solving		
MATH 1365	Introduction to Mathematical Reasoning	4
History of Mathematics		
MATH 2201	History of Mathematics	4
Calculus		
MATH 1341	Calculus 1 for Science and Engineering	4
MATH 1342	Calculus 2 for Science and Engineering	4
MATH 2321	Calculus 3 for Science and Engineering	4
Intermediate and Advanced Mathematics		
MATH 2331	Linear Algebra	4
MATH 3150	Real Analysis	4
or MATH 4565	Topology	
MATH 3175	Group Theory	4
MATH 3560	Geometry	4
or MATH 3527	Number Theory 1	
Co-op Reflections		
MATH 3000	Co-op and Experiential Learning Reflection Seminar 1	1
Mathematics Elective		
Complete one course in the following range:		4
MATH 3001 to MATH 4899		
Required Physics		
Physics 1		
Complete one of the following:		5

PHYS 1161 and PHYS 1162	Physics 1 and Lab for PHYS 1161	
PHYS 1151 and PHYS 1152 and PHYS 1153	Physics for Engineering 1 and Lab for PHYS 1151 and Interactive Learning Seminar for PHYS 1151	
Physics 2		
Complete one of the following:		5
PHYS 1165 and PHYS 1166	Physics 2 and Lab for PHYS 1165	
PHYS 1155 and PHYS 1156 and PHYS 1157	Physics for Engineering 2 and Lab for PHYS 1155 and Interactive Learning Seminar for PHYS 1155	
Capstone		
Complete one of the following:		4
MATH 4025	Applied Mathematics Capstone	
MATH 5131	Introduction to Mathematical Methods and Modeling	
MATH 4020	Research Capstone	

Upper-Division Electives

Note: Courses used as upper-division electives do not count toward the major or NUpath.

Code	Title	Hours
Complete three general electives numbered 3000 or above.		12

Writing Requirements

Code	Title	Hours
ENGW 1111	First-Year Writing	4
or ENGW 1102	First-Year Writing for Multilingual Writers	
ENGW 3307	Advanced Writing in the Sciences	4
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

NUPath Requirements

The following NUPath Requirements are met by the major:

- Engaging with the Natural and Designed World (ND)
- Conducting Formal and Quantitative Reasoning (FQ)
- Analyzing and Using Data (AD)
- Demonstrating Thought and Action in a Capstone (CE)

Other NUPath requirements may be fulfilled by electives in the program.

Mathematics Major Credit Requirement

Complete 54 semester hours in the major.

Science GPA Requirement (Mathematics)

A minimum 2.000 GPA in the following course codes is required: MATH.

Program Requirement

128 total semester hours required

Plan of Study
Sample Plans of Study
FOUR YEARS

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 1341	4	MATH 1342	4	Elective	4	Vacation	
MATH 1365	4	PHYS 1165	4	Elective	4		
Elective	4	PHYS 1166	1				
PHYS 1161	4	Elective	4				

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
PHYS 1162	1	ENGW 1111	4				
MATH 1000	1						
	18		**17**		**8**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2321	4	MATH 2201	4	Math Elective	4	Co-op	0
MATH 2331	4	Elective	4	Elective	4		
Elective	4	Elective	4				
Foreign language core course	4	Foreign language core course	4				
		EESC 2000	1				
	16		**17**		**8**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	ENGW 3315	4	MATH elective	4	Co-op	0
		MATH 3175	4	Elective	4		
		Foreign language core course	4				
		MATH 3560 or 3527	4				
		MATH 3000	1				
	0		**17**		**8**		**0**

Year 4

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	MATH 3150	4	Upper-division elective	4	Co-op	0
		Elective	4	Upper-division elective	4		
		Elective	4				
		Upper-division elective	4				
	0		**16**		**8**		**0**

Total Hours: 133

FIVE YEARS, THREE CO-OPS IN SPRING/SUMMER FIRST HALF

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
PHYS 1161	4	MATH 1342	4	Vacation		Vacation	
PHYS 1162	1	PHYS 1165	4				
MATH 1365	4	PHYS 1166	1				
MATH 1341	4	ENGW 1111	4				
MATH 1000	1	Elective	4				
Elective	4						
	18		**17**		**0**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2321	4	Co-op	0	Co-op	0	Vacation	
MATH 2331	4						
Elective	4						
Foreign language core course	4						
EESC 2000	1						
	17		**0**		**0**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2201	4	Co-op	0	Co-op	0	MATH elective	4
Elective	4					Elective	4

	Hours
Elective	4
Foreign language core course	4
MATH 3000	1

	17		0		0		8

Year 4

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
ENGW 3315	4	Co-op	0	Co-op	0	Elective	4
MATH 3560 or 3527	4					Elective	4
Foreign language core course	4						
Elective	4						
	16		0		0		8

Year 5

Fall	Hours	Spring	Hours
MATH 3150	4	MATH 3175	4
MATH elective	4	MATH 4025	4
Elective	4	Upper-division elective	4
Upper-division elective	4	Upper-division elective	4
	16		16

Total Hours: 133

FIVE YEARS, THREE CO-OPS IN SUMMER SECOND HALF/FALL

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 1341	4	MATH 1342	4	Vacation		Vacation	
MATH 1365	4	PHYS 1165	4				
Elective	4	PHYS 1166	1				
PHYS 1161	4	Elective	4				
PHYS 1162	1	ENGW 1111	4				
MATH 1000	1						
	18		17		0		0

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2321	4	MATH 2201	4	Vacation		Co-op	0
MATH 2331	4	Elective	4				
Elective	4	Elective	4				
Foreign language core course	4	Foreign language core course	4				
		EESC 2000	1				
	16		17		0		0

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	MATH 3560 or 3527	4	MATH elective	4	Co-op	0
		ENGW 3315	4	Elective	4		
		Foreign language core course	4				
		Elective	4				
		MATH 3000	1				
	0		17		8		0

Year 4

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op	0	MATH 3150	4	Upper-division elective	4	Co-op	0

	Hours		Hours		Hours		Hours
		Elective	4	Upper-division elective	4		
		Elective	4				
		Upper-division elective	4				
	0		**16**		**8**		**0**

Year 5

Fall	Hours	Spring	Hours
Co-op	0	MATH 3175	4
		MATH elective	4
		MATH 4025	4
		Elective	4
	0		**16**

Total Hours: 133

FIVE YEARS, THREE CO-OPS IN SPRING/SUMMER FIRST HALF

Year 1

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
PHYS 1161	4	MATH 1342	4	Vacation		Vacation	
PHYS 1162	1	PHYS 1165	4				
MATH 1365	4	PHYS 1166	1				
MATH 1341	4	ENGW 1111	4				
MATH 1000	1	Elective	4				
Elective	4						
	18		**17**		**0**		**0**

Year 2

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2321	4	Co-op	0	Co-op	0	Vacation	
MATH 2331	4						
Elective	4						
Foreign language core course	4						
EESC 2000	1						
	17		**0**		**0**		**0**

Year 3

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2201	4	Co-op	0	Co-op	0	MATH elective	4
Elective	4					Elective	4
Elective	4						
Foreign language core course	4						
MATH 3000	1						
	17		**0**		**0**		**8**

Year 4

Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
ENGW 3315	4	Co-op	0	Co-op	0	Elective	4
MATH 3560 or 3527	4					Elective	4
Foreign language core course	4						
Elective	4						
	16		**0**		**0**		**8**

Year 5

Fall	Hours	Spring	Hours
MATH 3150	4	MATH 3175	4
MATH elective	4	MATH 4025	4

Elective	4	Upper-division elective	4
Upper-division elective	4	Upper-division elective	4
	16		**16**

Total Hours: 133