

Design and Mathematics, BS (Boston)

The combined major in design and mathematics integrates the study of mathematics as the language of science and technology with the practice of understanding humans, their surrounding contexts and systems, and designing alternative futures. Students are provided a rich source of methods for analyzing and solving problems encountered in the physical world to enhance the human understanding and experience of complex and vital knowledge.

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/>).

NUPath Requirements

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

NUPath requirements Creative Expression/Innovation (EI), Interpreting Culture (IC), Formal and Quantitative Reasoning (FQ), Analyzing and Using Data (AD), Societies and Institutions (SI), and Ethical Reasoning (ER) are met through the major course requirements.

NUPath requirements Natural and Designed World (ND) and Differences and Diversity (DD) must be met through electives.

Design Requirements

Code	Title	Hours
Art + Design or Mathematics at Northeastern		
ARTF 1000 or INSC 1000	Art and Design at Northeastern Science at Northeastern	1
Art + Design Fundamentals Required		
ARTF 1220	Elements of Visual Composition (with optional ARTF 1221)	2
Art + Design Fundamentals Elective		
Complete 6 semester hours of the following:		6
ARTF 1200	Representational Drawing	
ARTF 1210	Abstract Drawing	
ARTF 1230 and ARTF 1231	Making with Form and Materials and Making with Form and Materials Tools	
ARTF 1240 and ARTF 1241	Making with Video, Sound, and Animation and Making with Video, Sound, and Animation Tools	
ARTF 1250 and ARTF 1251	Designing Interactive Experiences and Designing Interactive Experiences Tools	
Design Required		
ARTG 1001 and ARTG 1002	Design Perspectives: An Introduction to Design in the World and Seminar for Design Perspectives	4
ARTG 1270 and ARTG 1271	Design: Process + Practices and Studio for Design: Process + Practices	4
ARTG 1290 and ARTG 1291	Typographic Systems and Studio for Typographic Systems	4
Design Elective		
Complete 4 semester hours of ARTG courses as long as prerequisites have been met and it has not used to fulfill other requirements of the program. ARTG 2262 and ARTG 2263 are recommended. ¹		4
Art + Design History Elective		
Complete 4 semester hours of ARTH courses. ARTH 1001 Visual Intelligence and ARTH 1002 Seminar in Visual Intelligence are recommended.		4
Art + Design Elective		
Complete 4 semester hours of ARTD, ARTE, ARTF, ARTG, ARTH, ARTS, EXRE, or GAME course for which prerequisites have been met and it has not used to fulfill other requirements of the program.		4

If ARTG 5000 Topics in Design (or any other topics course in the subjects listed above) is completed more than once, the additional completions may be allowed toward the electives.

Degree Project

ARTG 4550	Design Degree Project	4
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¹ For students interested in the PlusOne in Information Design and Data Visualization, speak with an advisor about an alternative course option to Prototyping with Code (ARTG 2262) and Lab for ARTG 2262 (ARTG 2263).

Design Option

Code	Title	Hours
Complete one of the following options:		8
Creative Fabrication		
ARTG 2810	Creative Fabrication Design Principles	
ARTG 3810	Topics in Creative Fabrication Inquiry	
Experience Design		
ARTG 3462	Experience Design Principles	
ARTG 3464	Topics In Experience Design Inquiry	
Graphic Design		
ARTG 2252	Graphic Design Principles	
ARTG 3452	Topics In Graphic Design Inquiry	
Information Design		
ARTG 2242	Information Design Principles	
ARTG 3444	Topics in Information Design Inquiry	
Interaction Design		
ARTG 2400	Interaction Design Principles (with optional ARTG 2401)	
ARTG 3400	Topics In Interaction Design Inquiry	

Mathematics Requirements

Code	Title	Hours
Experiential Learning Introduction		
EESC 2000	Professional Development for Co-op	1
or EEAM 2000	Professional Development for Co-op	
Required Mathematics		
MATH 1341	Calculus 1 for Science and Engineering	4
MATH 1342	Calculus 2 for Science and Engineering	4
MATH 1365	Introduction to Mathematical Reasoning	4
MATH 2321	Calculus 3 for Science and Engineering	4
MATH 2331	Linear Algebra	4
MATH 2341	Differential Equations and Linear Algebra for Engineering	4
MATH 3081	Probability and Statistics	4
Mathematics Electives		
Complete two courses in the following range:		8
MATH 3001 to MATH 4999		

Integrative Requirement

Code	Title	Hours
The following course is already required in the major:		
ARTG 4550	Design Degree Project	

Writing Requirements

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

or ENGW 3307	Advanced Writing in the Sciences
or ENGW 3314	Advanced Writing in the Arts, Media, and Design

Combined Major Credit Requirement

Complete 80 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 Plan of Study

FOUR YEARS, TWO CO-OPS IN SPRING/SUMMER FIRST HALF

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
ARTF 1000 or MATH 1000		1 MATH 1342		4 ARTF 1220 (with optional ARTF 1221)		2 A+D fundamentals elective	2
ARTG 1001 and ARTG 1002		4 ARTG 1270 and ARTG 1271		4 A+D fundamentals elective		2 A+D fundamentals elective	2
MATH 1365		4 ARTG 1290 and ARTG 1291		4 Elective		4 Elective	4
MATH 1341		4 EEAM 2000		1			
ENGW 1111		4 Elective		4			
	17		17		8		8
Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2321		4 Co-op		0 Co-op		0 Elective	4
MATH 2341		4				Elective	4
Design option level 1		4					
A+D history elective		4					
EESC 2000 (For COS students)		1					
	17		0		0		8
Year 3							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
MATH 2331		4 Co-op		0 Co-op		0 Elective	4
Design option level 2		4				Elective	4
Math elective		4					
Elective		4					
	16		0		0		8
Year 4							
Fall	Hours	Spring	Hours				
MATH 3081		4 ARTG 4550		4			
Design elective		4 A+D elective		4			
Mathematics advanced elective		4 Mathematics elective/capstone		4			
Elective		4 Elective		4			
	16		16				

Total Hours: 131