

Environmental Engineering and Health Science, BSEnvE

This intercollege combined major is designed for students who would like to explore their interest in the health sciences while earning the benefit of a Bachelor of Science degree in environmental engineering. The combined major reflects the respective departmental thrusts in environmental health and sustainable resource engineering to create awareness about the complex relationship between the environment and human health, prepare professionals in this growing area capable of providing engineering solutions to current and emerging topics related to environmental engineering and health sciences, and maintain healthy environmental systems by applying and developing techniques to reduce exposure to health hazards. This program combines the content of two majors to allow students to learn the breadth and depth of the convergence between public health and environmental engineering.

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 (<http://catalog.northeastern.edu/undergraduate/university-academics/university-wide-requirements/>).

NUpath Requirements

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

Engineering Requirement

Code	Title	Hours
Required Engineering		
CIVE 2221 and CIVE 2222	Statics and Solid Mechanics and Recitation for CIVE 2221	4
CIVE 2260 and CIVE 2261	Materials for the Built Environment and Lab for CIVE 2260	5
CIVE 2331	Fluid Mechanics and Hydraulics	4
CIVE 2334	Environmental Engineering: Principles, Technology, and Sustainability	4
CIVE 3435	Environmental Pollution Fate and Transport	4
CIVE 4534 and CIVE 4535	Water Treatment Systems Design and Lab for CIVE 4534	4
CIVE 4765	Senior Design Project—Environmental	5
CIVE 5300 and CIVE 5301	Environmental Sampling and Analysis and Lab for CIVE 5300	4
GE 3300	Energy Systems: Science, Technology, and Sustainability	4
Supplemental Credit		
1 semester hour from the following course counts toward the engineering requirement:		1
CIVE 3464	Probability and Engineering Economy for Civil Engineering	
3 semester hours from the following course count toward the engineering requirement:		3
CIVE 2335	Environmental Engineering Chemistry	
3 semester hours from the following course count toward the engineering requirement:		3
CIVE 3430	Engineering Microbiology and Ecology	
2 semester hours from the following course count toward the engineering requirement:		2
GE 1501	Cornerstone of Engineering 1 ¹	
3 semester hours from the following course count toward the engineering requirement:		3
GE 1502	Cornerstone of Engineering 2 ¹	

Health Sciences Major Requirement

Code	Title	Hours
HLTH 5450 or PHTH 4202	Healthcare Research (Principles of Epidemiology in Medicine and Public Health) Principles of Epidemiology in Medicine and Public Health	4
PHTH 1260 or PHTH 1261	The American Healthcare System Comparative Healthcare Systems	4

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PHTH 2210	Foundations of Biostatistics	4
PHTH 2350 or PHTH 2351	Community and Public Health Community and Public Health - Global	4
PHTH 2414	Environmental Health	4
PHTH 2515	Healthcare Policy and Administration	4
PHTH 4120	Global Perspectives on Discrimination and Health	4
PHTH 4540	Health Education and Program Planning	4
PHTH 5214	Environmental Health	3

Supporting Courses: Mathematics/Science

Complete all Mathematics/Science courses with a minimum of 30 semester hours.²

Code	Title	Hours
Required Mathematics/Science		
CHEM 1151 and CHEM 1153	General Chemistry for Engineers and Recitation for CHEM 1151	4
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
MATH 2341	Differential Equations and Linear Algebra for Engineering	4
PHYS 1151 and PHYS 1152 and PHYS 1153	Physics for Engineering 1 and Lab for PHYS 1151 and Interactive Learning Seminar for PHYS 1151	5
Science Elective (Earth)		
Complete one of the following:		4-5
ENVR 1120	Oceans and Coasts	
ENVR 1200	Dynamic Earth	
ENVR 2200	Earth's Changing Cycles	
ENVR 3125	Global Oceanic Change	
ENVR 3200	Water Resources	
ENVR 3600	Oceanography	
ENVR 5201	Geologic Field Seminar	
Supplemental Credit		
3 semester hours from the following course count toward the mathematics/science requirement:		3
CIVE 3464	Probability and Engineering Economy for Civil Engineering	
1 semester hour from the following course counts toward the mathematics/science requirement:		1
CIVE 2335	Environmental Engineering Chemistry	
1 semester hour from the following course counts toward the mathematics/science requirement:		1
CIVE 3430	Engineering Microbiology and Ecology	
1 semester hour from the following course counts toward the mathematics/science requirement:		1
GE 1501	Cornerstone of Engineering 1 ¹	

Professional Development

Code	Title	Hours
Professional Development		
GE 1000	First-Year Seminar	1
ENCP 2000	Introduction to Engineering Co-op Education	1
ENCP 3000	Professional Issues in Engineering	1
Additional Required Courses		
1 semester hour from the following course counts toward the professional development requirement:		1
GE 1501	Cornerstone of Engineering 1 ¹	
1 semester hour from the following course counts toward the professional development requirement:		1
GE 1502	Cornerstone of Engineering 2 ¹	

Writing Requirements

Code	Title	Hours
A grade of C or higher is required:		
ENGW 1111	First-Year Writing	4
ENGW 3302 or ENGW 3315	Advanced Writing in the Technical Professions Interdisciplinary Advanced Writing in the Disciplines	4

Integrative Course

Code	Title	Hours
This course is already required above and also fulfills the integrative requirement.		
CIVE 4765	Senior Design Project—Environmental	

Engineering GPA Requirement

A minimum 2.000 GPA is required in major (CIVE) courses

Health Sciences Major Requirement

A minimum grade of C or higher is required for all HLTH and PPTH courses

Program Requirement

133 total semester hours required

¹ Students can substitute GE 1110 and GE 1111 for GE 1501 and 1502 in approved situations.

² Mathematics/Science Requirement: CHEM 1151, MATH 1341, and PHYS 1151 require a grade of C- or higher

Plan of Study

FOUR YEARS, 1 CO-OP SUMMER 2/FALL

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CHEM 1151 (ND)		4 GE 1502 (ER)		4 MATH 2321 (FQ)		4 Vacation	
CHEM 1153		0 MATH 1342 (FQ)		4 PPTH 1260 (SI)		4	
ENGW 1111 (WF)		4 PPTH 2210 (FQ, AD)		4			
GE 1000		1 PHYS 1151 (ND)		3			
GE 1501		4 PHYS 1152 (AD)		1			
MATH 1341 (FQ)		4 PHYS 1153		1			
		17			17		
						8	0
Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2221		4 CIVE 2331		4 MATH 2341		4 Co-op	
CIVE 2222		0 CIVE 2335		4 PPTH 2350 (SI)		4	
CIVE 2260		4 CIVE 3430		4			
CIVE 2261 (AD)		1 ENCP 2000		1			
CIVE 2334		4 PPTH 2414		4			
PPTH 2515		4					
		17			17		
						8	0
Year 3							
Fall	Hours	Spring	Hours	Summer 2	Hours		
Co-op		CIVE 3435		4		Vacation	
		GE 3300		4			
		HLTH 5450 or PPTH 4202 (ND, WI)		4			
		PPTH 4120 (IC, DD)		4			
		0			16		
							0
Year 4							
Fall	Hours	Spring	Hours				
CIVE 3464		4 CIVE 4765 (EI, WI, CE)		5			

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CIVE 4534 (WI)	3	CIVE 5300	2
CIVE 4535	1	CIVE 5301	2
ENCP 3000	1	PHTH 5214	3
ENGW 3302 or 3315 (WD)	4	Science Elective (Earth)	4
PHTH 4540 (WI)	4		
	17		16

Total Hours: 133

FIVE YEARS, 3 CO-OPS SUMMER 2/FALL

Year 1							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CHEM 1151 (ND)		4 GE 1502 (ER)		4 MATH 2321 (FQ)		4 Vacation	
CHEM 1153	0	MATH 1342 (FQ)		4 PHTH 1260 (SI)		4	
ENGW 1111 (WF)	4	PHTH 2210 (FQ, AD)		4			
GE 1000	1	PHYS 1151 (ND)		3			
GE 1501	4	PHYS 1152 (AD)		1			
MATH 1341 (FQ)	4	PHYS 1153		1			
	17		17		8		0
Year 2							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
CIVE 2221		4 CIVE 2331		4 MATH 2341		4 Co-op	
CIVE 2222	0	CIVE 2335		4 PHTH 2350 (SI)		4	
CIVE 2260	4	CIVE 3430		4			
CIVE 2261 (AD)	1	ENCP 2000		1			
CIVE 2334	4	PHTH 2414		4			
PHTH 2515	4						
	17		17		8		0
Year 3							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op		CIVE 3435		4 Vacation		Co-op	
		GE 3300		4			
		HLTH 5450 or PHTH 4202 (ND, WI)		4			
		PHTH 4540 (WI)		4			
	0		16		0		0
Year 4							
Fall	Hours	Spring	Hours	Summer 1	Hours	Summer 2	Hours
Co-op		CIVE 3464		4 Vacation		Co-op	
		CIVE 4534 (WI)		3			
		CIVE 4535		1			
		ENCP 3000		1			
		ENGW 3302 or 3315 (WD)		4			
		PHTH 4120 (IC, DD)		4			
	0		17		0		0
Year 5							
Fall	Hours	Spring	Hours				
Co-op		CIVE 4765 (EI, WI, CE)		5			
		CIVE 5300		2			
		CIVE 5301		2			
		PHTH 5214		3			

Science Elective (Earth) 4

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Total Hours: 133