

Biology and Public Health, BS (Boston)

The biology and public health combined major offers students an opportunity to obtain a comprehensive understanding of biological sciences within the broader context of population health and healthcare systems. Successful students develop a strong foundation in fundamental biological principles including cell biology, genetics, molecular biology, and evolution while simultaneously gaining expertise in healthcare systems, community health, policy, epidemiology, and social science approaches to health. The program's interdisciplinary structure allows students to explore specialized areas through electives that bridge both fields and include global health, environmental health, health law, and healthcare administration and management. Through research opportunities and coursework that examine healthcare delivery at local and global scales, students may gain analytical skills to explore biological processes from molecular to population levels and be equipped to address complex health challenges through both scientific inquiry and public health intervention strategies.

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/>).

Biology Requirements

Code	Title	Hours
Biology Core Courses		
BIOL 1111 and BIOL 1112	General Biology 1 and Lab for BIOL 1111	5
BIOL 1113 and BIOL 1114	General Biology 2 and Lab for BIOL 1113	5
BIOL 2301 and BIOL 2302	Genetics and Molecular Biology and Lab for BIOL 2301	5
BIOL 2309	Biology Project Lab	4
BIOL 3611 and BIOL 3612	Biochemistry and Lab for BIOL 3611	5
Intermediate/Advanced Biology		
Complete two courses from the following:		8-10
BIOL 2327 to BIOL 3999		
BIOL 4705 to BIOL 4990		
EEMB 2302 to EEMB 2400		
EEMB 3455 to EEMB 3466		
EEMB 5130		
Supporting Courses for Biology		
<i>Chemistry</i>		
CHEM 1161 and CHEM 1162 and CHEM 1163	General Chemistry for Science Majors and Lab for CHEM 1161 and Recitation for CHEM 1161	5
CHEM 2311 and CHEM 2312	Organic Chemistry 1 and Lab for CHEM 2311	5
CHEM 2313 and CHEM 2314	Organic Chemistry 2 and Lab for CHEM 2313	5
<i>Math</i>		
MATH 1341	Calculus 1 for Science and Engineering	4
<i>Physics</i>		
PHYS 1145 and PHYS 1146	Physics for Life Sciences 1 and Lab for PHYS 1145	5

Public Health Requirements

Code	Title	Hours
Public Health Core		
PHTH 1260 or PHTH 1261	The U.S. Healthcare System Comparative Healthcare Systems	4
PHTH 2300 or PHTH 2301	Communication Skills for the Health Professions Communication Skills for the Health Professions—Global	4
PHTH 2350 or PHTH 2351	Community and Public Health Community and Public Health - Global	4
PHTH 2515	Healthcare Policy and Administration	4
PHTH 4120	Global Perspectives on Discrimination and Health	4
PHTH 4202	Principles of Epidemiology in Medicine and Public Health	4
PHTH 4540	Health Education and Program Planning	4
Psychology Requirement		4
PSYC 1101	Foundations of Psychology	4
Public Health Social Science Requirements		
<i>Introductory Course</i>		
Complete one of the following:		4
ANTH 1101	Peoples and Cultures	
COMM 1225	Communication Theory	
ECON 1115 and ECON 1125	Principles of Macroeconomics and Recitation for ECON 1115	
ECON 1116 and ECON 1126	Principles of Microeconomics and Recitation for ECON 1116	
ENGL 1300	Introduction to Health and Humanities	
HUSV 1101	Social Change and Human Services	
INTL 1101	Globalization and International Affairs	
PHIL 1101	Introduction to Philosophy	
POLS 1160	International Relations	
SOCL 1101	Introduction to Sociology	
<i>Upper-Level Course</i>		
Complete one of the following (categories provided for reference):		3-4
Society and Behavior		
ANTH 3441	Medical Anthropology	
COMM 3201	Health Communication	
COMM 4102	Health Communication Campaigns	
CRIM 3040	Psychology of Crime	
HLTH 5280	The (in)Visibility of (dis)Ability in Society	
PHIL 1165	Moral and Social Problems in Healthcare	
PHTH 2616	Rural Health: An Interdisciplinary Seminar	
PHTH 5222	Health Advocacy	
PSYC 1214	The Moral Mind: The Science Underlying Ethical Decision-Making and Virtuous Character	
PSYC 3402	Social Psychology	
PSYC 3404	Developmental Psychology	
PSYC 3450	Learning and Motivation	
SOCL 2303	Gender and Reproductive Justice	
SOCL 2358 or SOCL 2359	Current Issues in Cities and Suburbs Current Issues in Cities and Suburbs Abroad	
SOCL 3241	Violence and Society	
SOCL 3441	Sociology of Health and Illness	
SOCL 4520	Race, Class, and Gender	
WMNS 1101	Sex, Gender, and Popular Culture	
Globalization and Global Health		

AFCS 1270 or PHTH 1270	Introduction to Global Health
AFCS 3424	Epidemiology of Pandemic Diseases and Health Disparities in the African Diaspora
ECON 3404	International Food Policy
HIST 2233	The History of Medicine in North America
INNO 2206	Global Social Enterprise
INTL 3200 or INTL 3201	Cities in a Global Context Cities in a Global Context (Abroad)
INTL 3400	International Conflict and Negotiation
POLS 3487	Politics of Developing Nations
Environmental Health and Climate Change	
COMM 3500	Environmental Issues, Communication, and the Media
ECON 3423	Environmental Economics
ENVR 1110	Global Climate Change
INTL 5100 or PPUA 5100	Climate and Development Climate and Development
PHTH 2414	Environmental Health
PPUA 5238	Climate Change and Global Urbanization
SOCL 1246	Environment and Society
SOCL 2485	Environment, Technology, and Society
SUST 2820	Climate Change, Health, and Resilience
Law, Policy, and Human Rights	
CRIM 1400	Human Trafficking
ECON 3424	Law and Economics
HIST 3344	The History of Western Public Health
INMI 1877	Race, Public Health, and Storytelling
INTL 2480	Women and World Politics
LPSC 2301	Introduction to Law, Policy, and Society
PHIL 2155	Human Rights
PHIL 2301	Philosophical Problems of Law and Justice
PHIL 2303	Social and Political Philosophy
PHIL 2325	Ancient Philosophy and Political Thought
PHIL 3065	Bioethics in the Age of Big Data
PHIL 5001	Global Justice
PHIL 5002	Ethics and Public Policy
POLS 2345	Urban Policies and Politics
POLS 3307	Public Policy and Administration
Healthcare Administration and Management	
ECON 1230	Healthcare and Medical Economics
ECON 3291	Development Economics
ECON 3413	Health Economics and Healthcare Policy
MGMT 3340	Healthcare Management, Innovation, and Design
ORGB 3201	Organizational Behavior
PHTH 4511	Healthcare Management
PHTH 5232	Evaluating Healthcare Quality
PHTH 5234	Economic Perspectives on Health Policy

Integrative Requirements

Code	Title	Hours
Integrative Courses		
Complete two of the following (integrated courses may not be used to fulfill any other requirements in the major):		7-9
BIOL 2327	Human Parasitology	
BIOL 3419	Engaging with Genomics: Ethics Law and Policy	

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BIOL 3421 and BIOL 3422	Microbiology and Lab for BIOL 3421
BIOL 5535	Expanding Frontiers: Vector-Borne Diseases
BIOL 5573	Medical Microbiology
BIOL 5593	Cell and Molecular Biology of Aging
EEMB 3466	Disease Ecology
EEMB 5130	Population Dynamics
PHIL 3065	Bioethics in the Age of Big Data
PHTH 3717	Infectious Disease: Past, Present, Future
PHTH 5230	Global Health

Capstone Requirement

Code	Title	Hours
Capstone		
Complete one of the following:		1-4
BIOL 4701	Biology Capstone	
BIOL 4900	Biology Research Capstone (must be concurrent with BIOL 4991 or BIOL 4994, which may be used toward Intermediate/Advanced Biology)	
BIOL 4971	Junior/Senior Honors Project 2	
HINF 5301	Evaluating Health Technologies	
HSCI 4720	Health Science Capstone—Service ¹	
HSCI 4730	Health Science Capstone—Research ¹	
HSCI 4740	Health Science Capstone Seminar	
HSCI 4970 and HSCI 4971	Junior/Senior Honors Project 1 and Junior/Senior Honors Project 2 ²	
PHTH 4515	Critical Issues in Health and Public Health Policy	
PHTH 4602	Private Guns, Public Health	
PHTH 4616	Addressing Rural Health Inequities	
PHTH 4717	Advancing Health Justice Through the Law	
PHTH 4818	Let's Talk About Sex: Exploring Key Topics and Current Issues in Sexual and Reproductive Health	
PHTH 5214	Environmental Health	
PHTH 5230	Global Health	
PHTH 5236	Food, Nutrition, and Health	
PHTH 5560	Public and Community Health Program Evaluation	
PHTH 5603	Qualitative Methods	

¹ Students must complete 0-semester-hour Capstone Project Design and Planning (HSCI 4700) as prerequisite.

² Junior/Senior Honors Project 1 (HSCI 4970) will count as a 4-semester-hour general elective.

Supporting Courses

Code	Title	Hours
Introduction to College		
INSC 1000 or HSCI 1000	Science at Northeastern College: An Introduction	1
Professional Development for Co-op		
EESC 2000 or HSCI 2000	Professional Development for Co-op Professional Development for Bouvé Co-op	1
Biostatistics		
ENVR 2500 and ENVR 2501 or PHTH 2210	Biostatistics and Lab for ENVR 2500 Foundations of Biostatistics	4-5

Writing Requirements

Code	Title	Hours
ENGW 1111	First-Year Writing	4
ENGW 3307	Advanced Writing in the Sciences	4
or ENGW 3306	Advanced Writing in the Health Professions	
or ENGW 3315	Interdisciplinary Advanced Writing in the Disciplines	

General Electives

Complete any remaining semester hours after major and NUpath courses to reach the minimum semester-hour program requirement.

Major Requirements

A grade of C or higher is required for [the public health core](#), [psychology requirement](#), [public health social science requirement](#), and [HSCI and PHTH capstone courses](#). [Students who take HSCI 1000 and HSCI 2000 must achieve a C or higher.](#)

Minimum 2.000 GPA required in all BIOC, BIOL, CHEM, EEMB, ENVR, MATH, and PHYS courses.

NUpath Requirements Satisfied

- Advanced Writing in the Disciplines
- Analyzing and Using Data
- Conducting Formal and Quantitative Reasoning
- Demonstrating Thought and Action in a Capstone
- Exploring Creative Expression and Innovation
- Engaging with Differences and Diversity
- Engaging with the Natural and Designed World
- Integrating Knowledge and Skills Through Experience
- Interpreting Culture
- Understanding Societies and Institutions
- Writing in the First Year
- Writing-Intensive in the Major

Program Requirement

128 total semester hours required

Plan of Study

Sample Plan of Study

FOUR YEARS, ONE CO-OP IN SPRING/SUMMER SESSION A

Year 1							
Fall	Hours	Spring	Hours	Summer Session A	Hours		
INSC 1000 or HSCI 1000	1	CHEM 2311	4	BIOL 2301	4		
BIOL 1111	4	CHEM 2312	1	BIOL 2302	1		
BIOL 1112	1	BIOL 1113	4	Ethical reasoning NUpath course	4		
CHEM 1161	4	BIOL 1114	1				
CHEM 1162	1	ENGW 1111	4				
MATH 1341	4	PSYC 1101	4				
PHTH 1260 or 1261	4						
		19			18	9	
Year 2							
Fall	Hours	Spring	Hours	Summer Session A	Hours	Summer Session B	Hours
BIOL 2309	4	Co-op		Co-op	0	Public health social science introductory course	4
EESC 2000 or HSCI 2000	1					PHTH 2300	4
CHEM 2313	4						
CHEM 2314	1						
PHTH 2350 or 2351	4						

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Biostatistics course	4-5							
	18-19		0		0			8
Year 3								
Fall	Hours	Spring	Hours	Summer Session A	Hours	Summer Session B	Hours	
BIOL 3611		4 Co-op		Co-op		0 Intermediate/advanced biology course		4-5
BIOL 3612		1		NUpath advanced writing in the disciplines course		4 PHTH 4202		4
PHYS 1145		4						
PHYS 1146		1						
PHTH 2515		4						
General elective		4						
	18		0		4			8-9
Year 4								
Fall	Hours	Spring	Hours					
PHTH 4540		4 Biology/public health integrative course		3-5				
Biology/public health integrative course		3-5 PHTH 4120		4				
Public health social science upper-level course		3-4 Capstone course		3-4				
General elective		4 Intermediate/advanced biology course		4-5				
	14-17		14-18					

Total Hours: 130-139