

# Data Science and Biochemistry, BS

The Data Science and Biochemistry Major combines computer science, biochemistry, biology, information science, mathematics, and statistics into an integrated curriculum. The program engages students in rigorous course work designed to prepare students to interpret the ever-expanding knowledge base.

## 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.

## University-Wide Requirements

All undergraduate students are required to complete the University-Wide 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>).

## Data Science Requirements

Code	Title	Hours
<b>Computer Science Overview</b>		
CS 1200	Leadership Skill Development	1
CS 1210	Professional Development for CCIS Co-op	1
<b>Discrete Structures</b>		
A grade of C– or higher is required:		
CS 1800 and CS 1802	Discrete Structures and Seminar for CS 1800	5
<b>Computer Science Foundations</b>		
A grade of C– or higher is required:		
CS 2500 and CS 2501	Fundamentals of Computer Science 1 and Lab for CS 2500	5
CS 2510 and CS 2511	Fundamentals of Computer Science 2 and Lab for CS 2510	5
CS 3200	Database Design	4
CS 3500	Object-Oriented Design	4
<b>Data Science Foundations</b>		
DS 4100	Data Collection, Integration, and Analysis	4
DS 4200	Information Presentation and Visualization	4
DS 4300	Large-Scale Information Storage and Retrieval	4
DS 4400	Machine Learning and Data Mining 1	4
<b>Data Science Upper-Division Elective</b>		
Complete one of the following, not taken to fulfill previous requirements:		4
CS 2500 or higher, except CS 5010		
IS 2000 or higher, except IS 4900		
DS 2000 or higher, except DS 4900		

## Supporting Courses for Data Science

THTR 1170	The Eloquent Presenter	1
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## Statistics Foundations

Complete one of the following:		4
ENVR 2500 and ENVR 2501	Biostatistics and Lab for ENVR 2500	
MATH 3081	Probability and Statistics	

## Computer Science Writing Requirement

Code	Title	Hours
<b>College Writing</b>		
ENGW 1111 or ENGW 1102	First-Year Writing or First-Year Writing for Multilingual Writers	4
<b>Advanced Writing in the Disciplines</b>		
ENGW 3302 or ENGW 3315	Advanced Writing in the Technical Professions or Interdisciplinary Advanced Writing in the Disciplines	4

## Biochemistry Requirements

Code	Title	Hours
<b>Biology Foundations</b>		
BIOL 1107 and BIOL 1108	Foundations of Biology and Lab for BIOL 1107	5
BIOL 2299	Inquiries in Biological Sciences	4
BIOL 2301 and BIOL 2302	Genetics and Molecular Biology and Lab for BIOL 2301	5
BIOL 2309	Biology Project Lab	4
<b>Chemistry Foundations</b>		
CHEM 1211 and CHEM 1212	General Chemistry 1 and Lab for CHEM 1211	5
CHEM 1214 and CHEM 1215	General Chemistry 2 and Lab for CHEM 1214	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
<b>Mathematics Foundations</b>		
MATH 1341	Calculus 1 for Science and Engineering	4
MATH 1342	Calculus 2 for Science and Engineering	4
<b>Biochemistry Foundations</b>		
BIOL 3611 and BIOL 3612	Biochemistry and Lab for BIOL 3611	5
CHEM 2331 and CHEM 2332 or CHEM 4620	Bioanalytical Chemistry and Lab for CHEM 2331 or Introduction to Protein Chemistry	4-5

## Integrative Requirement

Code	Title	Hours
<b>Integrative Courses</b>		
BINF 6308	Bioinformatics Computational Methods 1	4

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BINF 6309	Bioinformatics Computational Methods 2	4
Complete one of the following:		4
BIOL 4701	Biology Capstone	
CHEM 4750	Senior Research	
DS 4900	Data Science Senior Project	

**Required General Electives**

Code	Title	Hours
Complete three general electives.		12

**Major GPA Requirement**

Minimum 2.000 GPA required in all CS, IS, and DS courses

**Program Requirement**

136 total semester hours required