The Bachelor of Science in Data Science studies the collection, manipulation, storage, retrieval, and computational analysis of data in its various forms, including numeric, textual, image, and video data from small to large volumes.

**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 Major Requirements**

**Computer Science Overview**

<table>
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<th>Course</th>
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**Computer Science Foundation Courses**
A grade of C– or higher is required in CS 2500, CS 2510, and CS 1800:

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<tr>
<td>and CS 2501</td>
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<td>Programming in C++</td>
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**Information Science Foundations**

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<td>Database Design</td>
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**Mathematics and Statistics Foundations**

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Complete one of the following:

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<td>Probability and Statistics</td>
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**Data Science Foundations**

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<td>Machine Learning and Data Mining 1</td>
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<td>Data Science Senior Project</td>
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**Data-Science-Related Electives**
Complete six courses from the categories A and B, at least three of which must be from Category B.

**Category A: Data-Science-Related Electives in Computer and Information Science**

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<td>IS 4300</td>
<td>Human Computer Interaction</td>
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<td>IS 4700</td>
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<tr>
<td>CS 4110</td>
<td>Artificial Intelligence</td>
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<td>or CS 5100</td>
<td>Foundations of Artificial Intelligence</td>
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<td>CS 4120</td>
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<td>Large-Scale Parallel Data Processing</td>
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**Category B: Data-Science-Related Electives in Other Units**

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<td>ARTG 4552</td>
<td>Information Design 2</td>
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<td>ARTG 5100</td>
<td>Information Design Studio 1: Principles</td>
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<td>ARTG 5110</td>
<td>Information Design History</td>
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<td>ARTG 5120</td>
<td>Information Design Research Methods</td>
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<td>ARTG 5330</td>
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<td>ARTG 6100</td>
<td>Information Design Studio 2: Dynamic Mapping and Models</td>
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### Data Science, BS

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<td>EECE 4542</td>
<td>Advanced Engineering Algorithms</td>
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<td>EECE 5642</td>
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<td>EECE 5644</td>
<td>Introduction to Machine Learning and Pattern Recognition</td>
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<td>Advanced Financial Strategy</td>
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<td>HINF 5101</td>
<td>Introduction to Health Informatics and Health Information Systems</td>
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<td>Personal Health Interface Design and Development</td>
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<td>HINF 5301</td>
<td>Personal Health Technologies: Field Deployment and System Evaluation</td>
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<td>IA 5010</td>
<td>Foundations of Information Assurance</td>
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<td>IA 5050</td>
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<td>IA 5200</td>
<td>Security Risk Management and Assessment</td>
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<td>IE 4615</td>
<td>Expert Systems and Neural Networks</td>
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<td>Statistics in Psychological Research</td>
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</table>

1 The statistics course options under Mathematics and Statistics Foundations are also listed here as Data-Science-Related Electives. A student is permitted to take at most one additional statistics course to see statistics from the perspective of a different department.

### Computer Science Writing Requirement

#### College Writing
- **ENGW 1111** First-Year Writing 4

#### Advanced Writing in the Disciplines
- **ENGW 3302** Advanced Writing in the Technical Professions 4
  - or **ENGW 3315** Interdisciplinary Advanced Writing in the Disciplines

### Required General Electives
Complete eight general electives. 32

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

### NUpath Requirements Satisfied
- Engaging with the Natural and Designed World

• Conducting Formal and Quantitative Reasoning
• Analyzing and Using Data
• Writing in the First Year
• Advanced Writing in the Disciplines
• Writing-Intensive in the Major
• Demonstrating Thought and Action in a Capstone

Integrating Knowledge and Skills Through Experience is satisfied through co-op.

### Program Requirement
133 total semester hours required

### Plan of Study

#### Sample Patterns:

##### Four Years, Two Co-ops

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<tr>
<th>Year 1</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer 1</th>
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### Data Science, BS

Total Hours: 134

#### Five Years, Three Co-ops in Summer 2/Fall

**Year 1**

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**Year 3**

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**Year 4**

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**Year 5**

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Total Hours: 134