DATA SCIENCE (BS)

CIP: 11.1099

Program Description
Data Science at NYU Shanghai is designed to create data-driven leaders with a global perspective, a broad education, and the capacity to think creatively. Data science involves using computerized methods to analyze massive amounts of data and to extract knowledge from them. Data science addresses a wide range of data types, including scientific and economic numerical data, textual data, and image and video data. This new discipline draws from methodologies and tools in several well-established fields, including computer science, statistics, applied mathematics, and economics. Data science has applications in just about every academic discipline, including sociology, political science, digital humanities, linguistics, finance, marketing, urban informatics, medical informatics, genomics, image content analysis, and all branches of engineering and the physical sciences. The importance of data science is expected to accelerate in the coming years, as data from the web, mobile sensors, smartphones, and Internet-connected instruments continues to grow.

Students who complete the major will not only have expertise in computer programming, statistics, and data mining, but also know how to combine these tools to solve contemporary problems in a discipline of their choice, including the social science, physical science, and engineering disciplines. Upon graduation, data science majors have numerous career paths. Data Science majors can go on to graduate school in data science, computer science, social science, business, finance, medicine, law, linguistics, education, and so on. Outside of academia, there are also myriad career paths. Not only can graduates pursue careers with traditional data-driven computer-science companies and startups such as Google, Facebook, Amazon, and Microsoft, but also they can also be valuable to companies in the transportation, energy, medical, and financial sectors. Graduates can also pursue careers in the public sector, including urban planning, law enforcement, and education.

Admissions
New York University’s Office of Undergraduate Admissions supports the application process for all undergraduate programs at NYU. For additional information about undergraduate admissions, including application requirements, see How to Apply (https://www.nyu.edu/admissions/undergraduate-admissions/how-to-apply.html).

Program Requirements

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<tr>
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<td>Social and Cultural Foundations</td>
<td>CCSF-SHU 101L Global Perspectives on Society</td>
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<td>Interdisciplinary Perspectives on China (Two Courses)</td>
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<td>Writing</td>
<td>WRIT-SHU 102 Writing as Inquiry</td>
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<td>WRIT-SHU 201 Perspectives on the Humanities</td>
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<td>Honors Theory of Probability</td>
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<td>CSCI-SHU 210</td>
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<td>DATS-SHU 240</td>
<td>Introduction to Optimization and Mathematical Programming</td>
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<td>CSCI-SHU 213</td>
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<td>DATS-SHU 420</td>
<td>Data Science Senior Project</td>
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Data Science Concentrations

Finance

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<td>Microeconomics</td>
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<td>BUSF-SHU 202</td>
<td>Foundations of Finance</td>
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<td>BUSF-SHU 250</td>
<td>Principles of Financial Accounting</td>
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Marketing

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<td>Foundations of Finance</td>
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<td>MKTG-SHU 1</td>
<td>Introduction to Marketing</td>
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Genomics

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<td>BIOL-SHU 22</td>
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Mathematics

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Artificial Intelligence

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<td>CSCI-SHU 375</td>
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<td>CSCI-SHU 376</td>
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<td>DATS-SHU 200</td>
<td>Topics in Machine Learning</td>
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Psychology

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<td>PSYC-SHU 352</td>
<td>Psychology of Human Sexuality</td>
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<td>SOCS-SHU 334</td>
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<td>SOCS-SHU 350</td>
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Sample Plan of Study

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<td>MATH-SHU 131</td>
<td>Calculus</td>
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<td>Introduction to Computer Programming</td>
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<td>Language Course</td>
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<td>MATH-SHU 235</td>
<td>Probability and Statistics</td>
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<tr>
<td>CSCI-SHU 101 or CSCI-SHU 210</td>
<td>Introduction to Computer and Data Science or Data Structures</td>
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### Learning Outcomes

Upon successful completion of this program, students will:

1. Develop the logical and mathematical capability to identify and analyze problems.
2. Develop proficiency in programming in a general purpose, high level programming language.
3. Have a sound understanding of the field of data science, and the ability to analyze, model and visualize data using some of its main methods to gain insights and make decisions.
4. Be able to combine mathematics, computer programming and data science tools to solve contemporary problems in a specialty area within data science such as biology, finance.