

DATA SCIENCE

for the Undergraduate Minor in Data Science

The Minor in Data Science, an interdisciplinary collaboration administered by the Department of Statistics, is designed to provide students with an understanding of data science, including statistical analysis and inference, computation, and business intelligence. A Minor in Data Science will assist students with their major field of study to better prepare them for a career in their chosen field. It will also prepare students for graduate studies in a multitude of areas where data science plays an important role. Interested students should submit the Minor Declaration Form available from the Provost's website. Advising for undergraduates interested in the Minor in Data Science is available in the Department of Statistics.

All University of Illinois Urbana-Champaign undergraduate students are eligible to earn the Minor in Data Science, except for those enrolled in a BS degree program for an X+DS major. While there are no strict prerequisites to enter the Minor, basic familiarity with computers is expected.

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To complete the Minor, students must complete three core courses plus three supporting courses which cover sufficient data science content from an approved list of courses offered from a range of disciplines. The three core courses are STAT 107, STAT 207, and CS 307. Note that students must complete one calculus course (e.g., MATH 234, MATH 220) and one linear algebra course (e.g., MATH 227, MATH 257) prior to taking CS 307.

To satisfy the completion of three supporting courses in data science, students must choose two courses from the Domain Specific Data Science group and one course from the Data Ethics group. Some courses in the two supporting groups may have prerequisites aside from the three core courses of the Minor. The lists of Supporting Courses that satisfy the Minor in Data Science are dynamic as new classes are added each year. As data science curricula across the University develop, other courses approved by the steering committee for the Minor in Data Science will be added.

Completion of the Minor in Data Science requires at least six hours of advanced (300 or 400 level) course credit distinct from credit earned for any major or another minor.

Code	Title	Hours
STAT/CS/IS 107	Data Science Discovery	4
STAT 207	Data Science Exploration	4
CS 307	Modeling and Learning in Data Science	4

Note that students must complete one calculus course (e.g., MATH 234, MATH 220) and one linear algebra course (e.g., MATH 227, MATH 257) prior to taking CS 307.

Choose 2 courses in Domain Specific Data Science 6-8

ATMS 207	Weather and Climate Data Science
CS 225	Data Structures

CS 277	Algorithms and Data Structures for Data Science
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Students may use credit from CS 225 or CS 277, but not both.

CS 416	Data Visualization
CS 441	Applied Machine Learning
GGIS 407	CyberGIS & Geospatial Data Science
IS 357	Introduction to Data Storytelling
IS 417	Data Science in the Humanities
IS 445	Data Visualization
LING 406	Introduction to Computational Linguistics
MATH 467	Mathematics for Machine Learning
STAT 432	Basics of Statistical Learning
STAT 440	Statistical Data Management
STAT 447	Data Science Programming Methods
STAT 480	Big Data Analytics

Choose 1 course in Data Ethics 3

IS 467	Ethics and Policy for Data Science
IS 477	Data Management, Curation & Reproducibility

Total Minimum Hours Required 21

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Students will:

1. Understand, explain, and utilize basic data science techniques.
2. Cultivate data science skills in a domain specific field through interdisciplinary courses.
3. Develop and apply ethical practices in data analysis.

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Department of Statistics

- Data Science Minor page (<https://stat.illinois.edu/academics/undergraduate/minors/data-science-minor/>)
- Data Science Minor email: datascienceminor@illinois.edu
- Department of Statistics website
- Department of Statistics faculty

Overview of College Admissions & Requirements

- College of Liberal Arts & Sciences Academics & Admissions (<https://las.illinois.edu/admissions/>)
- College of Liberal Arts & Sciences website (<https://las.illinois.edu/>)