

DATA SCIENCE MINOR

Overview

The data science minor at Carolina is a new multidisciplinary program launched in fall 2021 and offered by the College of Arts & Sciences. The minor has been designed to introduce students from any discipline to data science methods and applications, while simultaneously providing opportunities to explore its complex interactions with modern society. To achieve these goals, the minor is structured to allow students to choose their coursework from many different departments, encouraging them to explore the use of data science within their main field of study.

To satisfy the core requirements, a student must choose one course from each of the three categories:

Data and Computational Thinking

This core requirement will provide you with an introduction to the computing tools and coding methods needed to gather, manipulate, visualize, and analyze data. Taught in Python and/or R.

Data and Statistical Thinking

This core requirement will provide you with an introduction to data-driven statistical analysis, focusing on a hands-on approach to making inferences and predictions to learn from data. Taught in Python and/or R.







Data, Culture, and Society


This core requirement focuses on the social, political, cultural, and/or ethical dimensions of data.

In addition to the program requirements listed below, students must:

- take at least nine hours of their minor "core" requirements at UNC-Chapel Hill
- earn a minimum cumulative GPA of 2.000 in the minor core requirements. Some programs may require higher standards for minor or specific courses.

For more information, please consult the degree requirements section of the catalog (<http://catalog.unc.edu/undergraduate/degree-requirements/>).

Code	Title	Hours
Core Requirements		
Data and Computational Thinking (one course)		3
COMP 110	 Introduction to Programming and Data Science ^H	
COMP 116	Introduction to Scientific Programming	
GEOG 215	 Introduction to Spatial Data Science	
POLI 281	 Data in Politics I: An Introduction	
Data and Statistical Thinking (one course)		3-4
LING 460	 Making Sense of Big Data: Textual Analysis with R	
SOCI 318	Computational Sociology	
STOR 120	 Foundations of Statistics and Data Science ^F	
Data, Culture, and Society (one course)		3
COMM ----	Algorithms and Society	
COMP 380	 Introduction to Digital Culture ^H	




ENGL ----	Data as Rhetoric	
GEOG 115	Maps: Geographic Information from Babylon to Google	
GEOG 141	 Geography for Future Leaders	
PLAN 562	Seminar on The Ethics and Politics of New Urban Analytics (Previously offered as PLAN 673)	
POLI 209	Analyzing Public Opinion ^H	
Two additional elective courses from the list below ¹		6-8
Total Hours		15-18





















^H Honors version available. An honors course fulfills the same requirements as the nonhonors version of that course. Enrollment and GPA restrictions may apply.

^F FY-Launch class sections may be available. A FY-Launch section fulfills the same requirements as a standard section of that course, but also fulfills the FY-SEMINAR/FY-LAUNCH First-Year Foundations requirement. Students can search for FY-Launch sections in ConnectCarolina using the FY-LAUNCH attribute.

¹ Core courses may not be used to satisfy elective requirements.

Elective List

Code	Title	Hours
ANTH 419	Anthropological Application of GIS	3
ANTH 726	Quantitative Methods in Archaeology	3
ANTH/LING 520	 Linguistic Phonetics	3
ASTR 502	 Modern Research in Astrophysics	3
ASTR 519	 Observational Astronomy	4
BCB/COMP 555	Bioalgorithms	3
BIOL 525 & 525L	Analysis and Interpretation of Sequence-Based Functional Genomics Experiments and Analysis and Interpretation of Sequence-Based Functional Genomics Experiments Laboratory	4
BIOL 534/ MATH 564	Mathematical Modeling in the Life Sciences	3
BIOL/MATH 553	Mathematical and Computational Models in Biology	3
BIOL 554	Introduction to Computational Neuroscience	3
BIOL/ENEC 562	Statistics for Environmental Scientists	4
BIOL/ENEC 563	Statistical Analysis in Ecology and Evolution	4
BMME/COMP 576	Mathematics for Image Computing	3
BUSI/COMP 488	Data Science in the Business World	3
CLAR 411	Archaeological Field Methods	3
COMP 210	Data Structures and Analysis	3
COMP 388	Advanced Cyberculture Studies	3
COMP 410	Data Structures	3
COMP 421	Files and Databases	3
COMP 426	Modern Web Programming	3
COMP 433	Mobile Computing Systems	3
COMP 486/ INLS 512	Applications of Natural Language Processing	3

COMP 487/ INLS 509	Information Retrieval	3	MATH 210	 Mathematical Tools for Data Science	3
COMP/BUSI 488	Data Science in the Business World	3	MATH 553	Mathematical and Computational Models in Biology	3
COMP/BCB 555	Bioalgorithms	3	MATH 560	Optimization with Applications in Machine Learning	3
COMP 560	Artificial Intelligence	3	MATH 564	Mathematical Modeling in the Life Sciences	3
COMP 562	Introduction to Machine Learning	3	MEJO 570	 Data Driven Journalism	3
COMP 572	Computational Photography	3	PHIL 353	Minds and Machines: Philosophy of Cognitive Science ^H	3
COMP 576	Mathematics for Image Computing	3	PHYS 331	Numerical Techniques for the Sciences I	4
ECON 470	 Econometrics ^H	3	PHYS 332	Numerical Techniques for the Sciences II	4
ECON 573	 Machine Learning and Econometrics	3	PLAN 372	Introduction to Urban Data Analytics	3
ECON 575	Applied Time Series Analysis and Forecasting	3	PLAN/GEOG 491	Introduction to GIS	3
ENEC 305	Data Analysis and Visualization of Social and Environmental Interactions	4	PLCY 505	 Data Science for Public Policy and Decision Making	4
ENEC/GEOG 437	 Social Vulnerability to Climate Change	3	POLI 381	Data in Politics II: Frontiers and Applications	3
ENEC/ENVR 468	Temporal GIS and Space/Time Geostatistics for the Environment and Public Health	3	PSYC 532	Quantitative Psychology ^H	3
ENEC/BIOL 562	Statistics for Environmental Scientists	4	PSYC 533	The General Linear Model in Psychology ^H	3
ENEC/BIOL 563	Statistical Analysis in Ecology and Evolution	4	PSYC 559	Applied Machine Learning in Psychology	3
ENGL 480	Digital Humanities History and Methods	3	ROML 501	Introduction to Digital Humanities for Romance Languages, Cultures and Heritage Studies	3
ENGL 482	 Metadata, Mark-up, and Mapping: Understanding the Rhetoric of Digital Humanities	3	STOR 320	 Introduction to Data Science	4
ENVR/ENEC 468	Temporal GIS and Space/Time Geostatistics for the Environment and Public Health	3	STOR 455	Methods of Data Analysis	3
EPID 600	Principles of Epidemiology for Public Health	3	STOR 535	Probability for Data Science	3
EXSS 327	 Predictive Analytics in Sport	3	STOR 538	Sports Analytics	3
GEOG 370	 Introduction to Geographic Information	3	STOR 556	Time Series Data Analysis	3
GEOG 392	 Research Methods in Geography	3	STOR 565	Machine Learning	3
GEOG 414	 Climate Change	3	STOR 572	Simulation for Analytics	3
GEOG 416	 Applied Climatology: The Impacts of Climate and Weather on Environmental and Social Systems	3	STOR 557	Advanced Methods of Data Analysis	3
GEOG/ENEC 437	 Social Vulnerability to Climate Change	3			
GEOG 446	Geography of Health Care Delivery	3			
GEOG 456	 Geovisualizing Change	3			
GEOG/PLAN 491	Introduction to GIS	3			
GEOL 520	Data Analysis in the Earth Sciences	3			
INLS 509/ COMP 487	Information Retrieval	3			
INLS 512/ COMP 486	Applications of Natural Language Processing	3			
LING 202	 Linguistic Variation and Language Change	3			
LING 203	 Language Acquisition and Development	3			
LING 333	 Human Language and Animal Communication Systems	3			
LING 401	 Language and Computers	3			
LING 422	Research Methods in Phonetics and Laboratory Phonology	3			
LING/ANTH 520	 Linguistic Phonetics	3			
LING 525	Introduction to Historical and Comparative Linguistics	3			
MASC 561	Time Series and Spatial Data Analysis	3			

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Department Programs

Major

- Statistics and Analytics Major, B.S. (<http://catalog.unc.edu/undergraduate/programs-study/statistics-analytics-majors-bs/>)

Minor

- Data Science Minor (p. 1)
- Statistics and Analytics Minor (<http://catalog.unc.edu/undergraduate/programs-study/statistics-and-analytics-minor/>)

Graduate Programs

- M.S. in Statistics and Operations Research (<http://catalog.unc.edu/graduate/schools-departments/statistics-operations-research/>)
- Ph.D. in Statistics and Operations Research (<http://catalog.unc.edu/graduate/schools-departments/statistics-operations-research/>)

Contact Information

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