

Interdisciplinary Applied Data Science (Minor)

The Undergraduate Minor of Interdisciplinary Applied Data Science is a 15 credit credential that offers a path towards developing essential skills in data science with depth in interdisciplinary content. Students who pursue this minor will have the opportunity to learn from data science instructors and practitioners, and interdisciplinary faculty in industry and academia, alongside their peers from various colleges. Students will pursue courses in data management, communication, applications, ethics, humanities, and sciences, among other electives and focus areas of choice.

Contact

Data Science Academy

datascienceacademy@ncsu.edu

Plan Requirements

Required Courses

Code	Title	Hours
Required DSC Courses: Six credits, at least one course from each category		6
Categories and Corresponding Category Numbers (in parentheses)		
	Data Management & Analysis (1)	
	Data Communication (2)	
	Ethics, Policy, & Privacy (3)	
	Machine Learning and AI (4)	
	Electives or Internships & Capstones (5)	
Course Options and Corresponding Category Numbers		
DSC 201	Introduction to R/Python for Data Science ⁽¹⁾	
DSC 202	Introduction to Data Visualization ⁽²⁾	
DSC 205	Data Communication ⁽²⁾	
DSA 220	Introduction to AI Ethics ^{(3), (4)}	
DSC 225	Data Science for Social Good ⁽³⁾	
DSC 235	Introduction to Data Science for Cybersecurity ⁽³⁾	
DSA 240	Measuring Success ^{(1), (3)}	
DSC 405	Data Wrangling and Web Scraping ⁽¹⁾	
DSC 406	Exploratory Data Analysis for Big Data ⁽¹⁾	
DSC 410	Data Internship Preparation for Social Impact ⁽⁵⁾	
DSC 412	Exploring Machine Learning ⁽⁴⁾	
DSC 295	Introductory Special Topics in Data Science ^{See semesterly list of special topics courses accepted within a category}	
DSC 495	Special Topics in Data Science ^{See semesterly list of special topics courses accepted within a category}	
DSC 595	Graduate Special Topics in Data Science ^{See semesterly list of special topics courses accepted within a category}	

Courses not used for a category requirement may be applied to fulfill "Electives or Internships & Capstones (5)"

Required Depth Courses **9**

Up to 3 of the following: Humanities and Social Sciences Analytics

COM 327	Critical Analysis of Communication Media
PA 311	Public Policy Analysis and Evaluation
SW 307	Social Welfare Policy: Analysis and Advocacy
ENG 506	Verbal Data Analysis
SOC 429	Quantitative Data Analysis in Sociology
SOC 320	Survey Design
Up to 3 of the following: Natural Resources Analytics	
ET 310	Environmental Monitoring and Analysis
FOR 353	GIS and Remote Sensing for Environmental Analysis and Assessment
FOR 374	Forest Measurement, Modeling, and Inventory
FW 453	Principles of Wildlife Science
PSE 476	Environmental Life Cycle Analysis
Up to 2 of the following (or MAE 420 and 2 others): Engineering Analytics	
MAE 420	Dynamic Analysis of Human Movement
ISE 361	Deterministic Models in Industrial Engineering
ISE 419	Database Applications in Industrial & Systems Engineering
ISE 435	Python Programming for Industrial & Systems Engineers
ISE 437	Data Analytics for Industrial Engineering
ISE 447	Applications of Data Science in Healthcare
ECE 411	Introduction to Machine Learning
Up to 3 of the following: Analytical Sciences	
CH 315	Quantitative Analysis
MA 326	Mathematical Foundations of Data Science I
MA 402	Mathematics of Scientific Computing
MEA 462	Observational Methods and Data Analysis in Marine Physics
ST 430	Introduction to Regression Analysis
ST 442	Introduction to Data Science
ST 445	Introduction to Statistical Computing and Data Management
ST 446	Intermediate SAS Programming with Applications
ST 452	Statistical Learning and Data Analytics
ST 453	Advanced Computing for Statistical Reasoning
Up to 3 of the following: Business & Management Analytics	
BUS 428	Financial Analytics
BUS 429	Financial Modeling
BUS 470	Operations Modeling and Analysis
BUS 476	Decision Modeling and Analysis
BUS 458	Analytics: From Data to Decisions
MIE 437	People Analytics
Up to 3 of the following: Education and Learning Analytics	
TDE 385	Robotics Education
EMS 480	Teaching Mathematics with Technology
ECI 586	Introduction to Learning Analytics
ECI 587	Machine Learning in Education
ECI 588	Text Mining in Education
ECI 589	Social Network Analysis in Education
Up to 1 of the following: Additional Options	
BAE 555	R Coding for Data Management and Analysis

CSC 110	Computer Science Principles - The Beauty and Joy of Computing
CSC 111	Introduction to Computing: Python
CSC 113	Introduction to Computing - MATLAB
CSC 116	Introduction to Computing - Java
DAN 330	Introduction to Laban Movement Analysis and Bartenieff Fundamentals
PHI 227	Data Ethics
PP 232	Big Data in Your Pocket: Call it a Smartphone
TE 440	Textile Information Systems Design

NOTE 1: Certain courses may have prerequisites and some courses may not be offered every semester. Please check the university catalog to plan accordingly and/or contact the Minor Coordinator in the DSA.

NOTE 2: Students must be classified as seniors to pursue the 500-level ECI courses.

NOTE 3: For Applied Mathematics, Mathematics, and Statistics majors, only Free Electives and Advised Electives (as indicated on the respective degree audits) may be applied towards both the respective Majors and the Data Science minor.

NOTE 4: Students pursuing multiple Data Science Academy credentials must have at least 2 distinct 1-credit DSC courses and 2 distinct 3-credit depth courses between any two (8 distinct credits total).