# 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 | |

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|---|---|
| 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).