1. Changes to Data Science course for Fall 2022 catalog

Add prerequisites:

**DATA 202 - Data Management and Visualization**

**3 Credit Hours**

Introduction to foundational concepts and techniques in the management and presentation of data for effective data-informed decision making. Explores data storage and indexing strategies, data warehousing, metadata management, visualization of time-series and geospatial data, and best practices for presenting data to inform decision making, such as heat maps and infographics.

*(RE) Prerequisite(s): COSC 102 or COSC 111, DATA 201.*

Rationale: The additional prerequisites are intended to ensure that students have sufficient computer programming experience to complete DATA 202 assignments successfully.

2. Changes to Data Science minor for Fall 2022 catalog

**Data Science Minor**

The intercollegiate Data Science minor consists of **five** courses and **14-15 17-18 hours**. The **four** core courses give students a broad background in the foundations of Data Science. The fifth course is a directed elective that allows a student to apply Data Science techniques to a specific field, to deepen their understanding of Data Science methodologies, or to gain further background in the ethical and policy considerations of Data Science, or to pursue an interdisciplinary, team-based capstone experience. In the sixth course, students pursue a capstone experience.

1. Complete four core courses:

- DATA 201 - Data Knowledge and Discovery
- DATA 202 - Data Management and Visualization
- DATA 301 - Data Stewardship and Ethics
- DATA 302 - Analytical Methods of Data Science

2. Complete one course chosen from any of the **six** lists below:
Mathematical and Statistical Foundations of Data Science:

- BAS 320 - Regression Modeling
- BAS 471 - Statistical Methods
- MATH 323 - Probability and Statistics
- MATH 371 - Numerical Algorithms
- MATH 423 - Probability
- MATH 424 - Stochastic Processes
- MATH 425 - Statistics

Methods of Data Science:

- BAS 474 - Data Mining and Business Analytics
- COSC 425 - Introduction to Machine Learning
- COSC 453 - Data Visualization
- IE 301 - Operations Research I: Deterministic Models
- IE 310 - Operations Research II: Probabilistic Models
- IE 340 - Design of Experiments
- INSC 486 - Data Analytics

Data Management and Visualization:

- ARCH 321 - Representation IV: Information Modeling
- BAS 476 - Data Engineering and Visualization
- COSC 465 - Databases and Scripting Languages
- GEOG 311 - Geovisualization and Geographic Information Science
- IARC 321 - Advanced Representation
- INDS 321 - Digital Representation and Fabrication for Industrial Design
- INSC 360 - Programming for Information Applications
- INSC 384 - Database Design
- INSC 484 - Database Applications
- INSC 489 - Information Visualization

Ethics and Policy in Data Science:
• **INSC 305 - Internet and Society**

**Data Science in Context:**

- **ACCT 481 - Accounting Analytics**
- **ANTH 446 - Archaeological Statistics**
- **ANTH 449 - Big-data Social Sciences**
- **BAS 475 - Applied Time Series and Forecasting**
- **BCMB 422 - Computational Biology and Bioinformatics**
- **CLAS 446 - Archaeological Statistics**
- **COSC 445 - Fundamentals of Digital Archeology**
- **EEB 411 - Biostatistics**
- **ECON 381 - Introduction to Econometrics**
- **ECON 481 - Elements of Economic Forecasting**
- **FWF 313 - Measurements and Sampling**
- **FWF 430 - Introduction to Geographic Information Systems (GIS) for Natural Resources**
- **GEOG 414 - Spatial Data Management for Socioeconomic and Environmental Applications**
- **IE 465 - Applied Data Science**
- **MGT 462 - Managerial Analytics**
- **MGT 465 - Workforce Analytics**
- **PLSC 461 - Statistics for Biological Research**
- **PSYC 385 - Statistics in Psychology** *

**Capstone Experience:**

**3. Complete one course:**

- **DATA 499 - Data Science Capstone**

  * Meets University General Education Requirement.

Rationale: Adding a required capstone experience will better prepare students for careers in Data Science.