Data Science Minor

**Department of Accounting and Computer Information Systems**  
**Department Chair:** Lisa Bain  
**Computer Information Systems Program Faculty:** **Professor** Bain; **Associate Professors** Hayden  
  
Students must consult with their assigned advisor before they will be able to register for courses. A graded writing assignment is required in **every** course.

Course Requirements

A minor in data science consists of a minimum of 24 credit hours (**six** courses), as follows:

Courses

|  |  |  |  |
| --- | --- | --- | --- |
| MATH 177 | Quantitative Business Analysis I | 4 | F, Sp, Su |
| OR |  |  |  |
| MATH 212 | Calculus I | 4 | F, Sp, Su |
| MATH 248 | Business Statistics I | 4 | F, Sp, Su |
| OR  MATH 240 | Statistical Methods I | 4 | F, Sp, Su |
|  |  |  |  |
| CIS 252 | Introduction to Information Systems | 4 | F, Sp, Su |
| CIS 301 | Introduction to Computer Programming | 4 | F, Sp |
| OR  CSCI 157 | Introduction to Algorithmic Thinking in Python | 4 | F, Sp |
| CIS 470 | Introduction to Data Science | 4 | F |
| CIS 472 | Data Visualization | 4 | As needed |

Total Credit Hours: 24

Prerequisite: Major in computer information systems and completion of at least 60 college credits.

Offered: Fall, Spring, Summer.

CIS 470 - Introduction to Data Science (4)

Domain knowledge in mathematics, statistics, machine learning and databases that pertains to specific data and information extraction are introduced. Students use these tools to solve unstructured problems.

Prerequisite: CIS 252 or CIS 352, CIS 301 or CSCI 157 and MATH 248 or MATH 240, or consent of department chair.

Offered: Fall.

CIS 472 - Data Visualization (4)

This course introduces algorithms and techniques for effective data visualizations based on data science principles, graphic and communication design, visual art, perceptual and cognitive science. Data visualization tools are introduced.

Prerequisite: CIS 252 or CIS 352, CIS 301 or CSCI 157 and MATH 248 or MATH 240, or consent of department chair.

Offered: As needed.

CIS 490 - Directed Study (4)

Designed to be a substitute for a traditional course under the instruction of a faculty member.

Prerequisite: Consent of instructor, department chair and dean.

Offered: As needed.

CIS 491 - Independent Study I (4)

This course emphasizes the development of research for students admitted to the computer information systems honors program. The research topic is selected and conducted under the mentorship of a faculty advisor.

Prerequisite: Admission to the CIS honors program and consent of instructor, department chair and dean.

Offered: As needed.

CIS 492 - Independent Study II (4)

This course continues the development of research begun in CIS 491. The honors research is completed under the consultation of a faculty advisor. A research paper and presentation are required.

Prerequisite: CIS 491 and consent of instructor, department chair and dean.

Offered: As needed.

CIS 535 - Data Management (3)

Various techniques are explored for the management of the design and development of database systems. Issues in the creation and use of logical data models, database administration, and concurrent processing are explored.

Prerequisite: Graduate status and senior standing or consent of department chair.

Offered: As needed.

CIS 541 - Legal Aspects of Information Technology (3)

The legal environment within which an organization must conduct its electronic commerce is reviewed. Legal liability for data transmission and exchange is also explored.

Prerequisite: Graduate status and senior standing or consent of department chair.

Offered: As needed.

CIS 542 - Electronic Commerce (3)

The systems and management challenges and the opportunities and successful strategies required to develop and maintain electronic commerce are examined. Marketing, strategy, infrastructure design, and server management are also covered.

Prerequisite: Graduate status and senior standing or consent of department chair.

Offered: As needed.

CIS 543 - Decision Support Systems (3)

The decision-making process is examined, with emphasis on dealing with incomplete and inexact data, including unstructured environments. The use of data management, modeling, and simulation are explored.

Prerequisite: Graduate status and senior standing or consent of department chair.

Offered: As needed.