CIS C280: DATA VISUALIZATION

Item	Value
Curriculum Committee Approval Date	03/22/2024
Top Code	070800 - Computer Infrastructure and Support
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

Students will explore the topics, tools, and techniques of data visualization and their application across different industries. The practical application of data visualization will be experienced through hands-on projects and technical assignments using a variety of data visualization tools and techniques. In addition, careers and emerging trends in the field will also be presented and evaluated. ADVISORY: CIS C111, CIS C240, and CIS C250. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Present data in a visual manner that highlights key insights and trends.
2. Create data visualization solutions for different business intelligence target audiences and situations.
3. Evaluate, critique, and present data visualizations.

Course Objectives

- 1. Define the fundamental principles and theories behind data visualization.
- 2. Demonstrate the use of various data visualization tools and software.
- 3. Explain how to analyze datasets effectively to identify key insights and trends that can be effectively communicated through visualization techniques.
- 4. Share knowledge of design principles and techniques specific to data visualization, including color theory, typography, layout, and visual hierarchy.
- 5. Describe the principles behind interactive visualizations and create interactive dashboards and visualizations that can be used to engage and inform audiences.
- 6. Illustrate how to use data visualization as a storytelling tool, effectively conveying narratives and insights derived from data to diverse audiences.
- 7. Explore ethical considerations related to data visualization, including accuracy, bias, and privacy concerns, and share best practices for maintaining data integrity.
- 8. Exhibit methods to apply data visualization techniques to real-world datasets, including business analytics, to solve practical problems and make informed decisions.
- 9. Share ways to critically evaluate visualizations, to provide constructive feedback to peers and refine one's own work based on feedback received.
- 10. Aid in the enhancement of communication skills for the effective presentation of findings and insights derived from data visualizations.

Lecture Content

Introduction to data visualization strategies The neuroscience of data visualization Audience data consumption and information literacy Data visualization tools Infographic tools Data visualization portfolio Presenting data visualizations

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)

Instructional Techniques

This course will utilize a combination of lecture, hands-on guided laboratory assignments, classroom/discussion student interactions, problem solving, quizzes, tests, and troubleshooting assignments to achieve the goals and objectives of this course. All instructional methods are consistent across all modalities.

Reading Assignments

1. Articles and periodicals related to data visualization techniques and tools 2. Articles related to the neuroscience of data visualization 3. Articles related to and data consumption behaviors

Writing Assignments

Portfolio project Presentations using data visualization tools Course reflections

Out-of-class Assignments

Comparing and contrasting data visualization types Audience assessment assignments Data visualization assignment Assessment of populations and data consumption behaviors Data visualization with technical tools Developing infographics

Demonstration of Critical Thinking

Students will provide critical feedback for other's projects and well-known data visualization techniques discussed in class.

Required Writing, Problem Solving, Skills Demonstration

Skills will be demonstrated during presentations throughout the course. Presentations include PowerPoint slides, data visualization, and infographics created by individual and student teams, presentations, and other visual demonstration of the materials they have created.

Eligible Disciplines

Computer information systems (computer network installation, microcomputer ...: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience. Computer service technology: Any bachelor's degree and two

years of professional experience, or any associate degree and six years of professional experience.

Other Resources

1. Coastline Library 2. OER - Open Educational Resources