SAGRADO
Universidad del Sagrado Corazón

Syllabus

Title: Data Visualization, Simulation, and Computer Graphics

Code: CCO 260

Prerrequisite: CCO 255

CREDITS: 3 credits | 45 contact hours | 1 term

Description

This course provides the fundamentals of visual information design, data analysis, and interactive visualization practices. Students will be able to bring information to life through attractive and innovative visual representations that are in line with industry trends. Students develop their graphic design skills to create dynamic and relevant visual narratives using design software common to the field, such as Adobe Illustrator and Adobe Photoshop, among others. In this way, the course provides students with a bridge between technical digital design skills and the communication of information through collaborative projects that incorporate journalistic reporting, statistics, and data analysis. The course also offers an introduction to 2D and 3D simulation tools.

Justification

Data is one of the most valuable assets and, without a doubt, the one that has grown the most in recent decades. The collection, creation, manipulation, and analysis of information have become among the fields in highest demand and greatest relevance worldwide. Data alone does not meet the needs of our society; it is necessary to communicate the data and present it in a convenient manner. This course addresses the need for data visualization and simulation, which—in addition to presenting information—also serves to tell a story when combined with design and creativity. Students must be prepared to receive this information and translate it

into colors, graphic elements, geometric figures, and infographics; simulate data-driven events; and create visualizations that communicate information and present the message clearly, purposefully, and creatively. Within the creative development of user experiences or digital products, data visualization, simulation, and infographics are invaluable and essential skills for any creative designer.

COMPETENCIES

This course develops the following competencies in students:

- Communication
- Ethical Reflection

OBJECTIVES

By the end of the course, students will be able to:

1. Understand the relationship and relevance between design and data visualization.
2. Identify the digital tools and techniques used for effective data visualization.
3. Create digital assets based on the needs of data analysis.
4. Integrate numerical data into visual design.
5. Design visualizations for data presentation.

Content

I. Introduction
   A. Basic Concepts of Data Visualization
   B. Workflow options in the field

II. Working with Data
   A. Defining the Context of a Data Visualization
   B. Perspectives in Data Storytelling
      1. Journalistic Approach
      2. Scientific Approach

3. Social Approach
4. Artistic approach

C. Organizing and identifying relevant elements within an editorial or data analysis

III. Data visualization

A. Define the vision for a visualization project.
1. Experience
2. Tone
3. Interactivity

B. Conceptualizing and designing ideas using Adobe Illustrator or Photoshop
C. Creating visualization assets using Adobe Illustrator or Photoshop
D. Composition and production
E. Color application
F. Final Project

METHODOLOGY

The following active learning strategies are recommended:

- Discussion, forums, panel debates
- Blogs and online portfolios
- Critical analysis of readings
- Collaborative learning
- Multimedia resources

ASSESSMENT

Participation	20%
Midterm exams	40%
Oral presentations	10%
Project or (Final) Exam	30%
Total	100%

Student Learning Assessment

The institutional assessment rubric is applied to the core activity of the course.

BIBLIOGRAPHY

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You can find more information resources related to the course topics on the library's website: http://biblioteca.sagrado.edu/

Reasonable Accomodation

For detailed information on the process and required documentation, please visit the appropriate office. To ensure equal opportunity, in compliance with the ADA (1990) and the Rehabilitation Act (1973), as amended, any student who requires Reasonable Accomodation or special assistance must complete the process established by the Vice-Presidency for Academic Affairs.

ACADEMIC INTEGRITY

This policy applies to all students enrolled at the Universidad del Sagrado Corazón to take courses with or without academic credit. A breach of academic integrity is any act or omission that fails to demonstrate the honesty, transparency, and responsibility that should characterize all academic activity. Any student who violates the policy on honesty, fraud, and plagiarism is subject to the following sanctions: a grade of zero on the assessment and/or having to redo the seminar assignment; a grade of F(*) in the seminar; or suspension or expulsion, as established in the Academic Integrity Policy document effective November 2022.

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