BAUER
COLLEGE OF BUSINESS
UNIVERSITY of HOUSTON

MIS 7397

Data Visualization

Fall 2024

About the Instructor:

Cheng Wang (cwang97@bauer.uh.edu)
Professor of Practice

Class Time: Synchronous 6:00 PM to 9:00 PM Wednesday

Instructional Assistant: Ravipalli, Navateja
Email: nravipal@CougarNet.UH.EDU

Course Learning Management Systems and Support

- Canvas (submission of Assignments, Project, and Presentation)
- Email: Please include MIS 7397 in the subject line, email the TA (nravipal@CougarNet.UH.EDU) your question, and copy the course instructor.
- Office Hour:
  - Cheng – TBD
  - Navateja – TBD

Prerequisites

- There is no prerequisite for this course.

Course Description

This course covers the visual analytics using the most popular software in industry – Tableau Desktop. Visual analytics is both an art and science of representing data graphically to help to understand massive amount of data. It requires no background in mathematics nor any programming experience. The data visualization allows us to uncover the patterns, both expected and unexpected, to facilitate the business decisions. This course will provide an overview of best

visualization practices through targeted reading, experiential learning, group projects, and assignments.

STUDENT LEARNING OBJECTIVES

The overarching objective of this course is to introduce the state-of-the-art data visualization techniques. Through this course, students will learn how to analyze their own data and clearly communicate the results. Specifically,

- Students will be able to use visual analytics for basic data preparation, data exploration, and analysis.
- Students will be able to create maps and interactive dashboards.
- Students will be able to conduct time-series analysis, deviation analysis, distribution analysis, geospatial analysis, and network analysis using Tableau.
- Students will be able to conduct a complete visual analytics project and report the results.

TEXTBOOK   Required textbook: None

Reference book:

Title: Visual Analytics with Tableau

Author: Alexander Loth

Publisher: Wiley

Edition: 1st Edition

ISBN: 9781119560203 54000

SOFTWARE REQUIREMENT (FREE)

- Tableau Software (Students can get a free copy of Tableau at https://www.tableau.com/academic/students with Activation code on Canvas). The instructor will provide the instruction to install the latest version of Tableau Desktop during the first week of the class.

CLASS FORMAT

This class will mainly use asynchronous online teaching format. At the same time, we will also hold synchronous lectures using Zoom. We will switch between synchronous and asynchronous sessions as needed and in response to contingencies and situations that might arise. For the students who are not able to attend the synchronous lectures, the recording of the lectures will also be provided. Course contents will be delivered online through the Canvas course system. On the course site, you will access online lessons, course materials, and additional resources. We will also hold online office hours to answer questions and exam reviews.

Please note: It is your responsibility to keep track of course materials available dates, homework dates, exam and review section dates, and project due dates.

ASSESSMENT

- In-class Quiz   20%
- Team Assignment   10%
- In-class Group Exercise   10%
- Group Project 1   30%
- Group Project 2   30%

IN-CLASS GROUP EXERCISE

We will have a team-based exercise during the course. You will need to conduct a team-based exercise within 75 minutes along with your teammates. Please submit your Tableau file (twbx file) along with the recommendation and suggestion in a word document.

IN-CLASS QUIZ

We will conduct a quiz during our class by using the Canvas. The format is based on the multiple choice.

GROUP PROJECT

This group project component is designed to deepen the student's ability to apply various visual analytics skills and knowledge. There are two projects in this course. In these projects, you are expected to gain valuable practical experience by applying the visual analytics techniques.

These are largely self-directed projects, where the instructor's role is to provide guidance and suggestions to each team. For both projects, you will be expected to submit a group project presentation (60% of project score) and group project report (40% of project score).

Project Presentation

Each team should prepare a team presentation to describe the results of your project. Your project presentation duration should be no longer than 15 minutes. Please record your group presentation and share the recording with the instructor using OneDrive.

Rating Dimension:

I. Clear Background Information (20%);

II. Creativity of the topic (10%);

III. Appropriate Techniques (30%);

IV. Convincing Results/Recommendations (20%);

V. Presentation (20%);

Project Report

Project report should be no more than 10 pages in total. You should include: Team number, team members, executive summary (1 page), background introduction, analysis, findings and discussion.

PEER EVALUATION

As the course emphasizes the team-based learning, we will have a lot of the team activities. To ensure every team member contribute the fair amount of time and effort to the group, we will conduct the peer evaluations near the end of the course. Peer evaluation is going to affect your group exercise and project score. The peer evaluation result is strictly confidential, which is only shared between the individual student and the instructor. Please write your truthful and objective comments to your peers. The instructor will adjust your score related to the team activities based on the feedback from peer evaluation. If you choose not to submit the peer evaluation form, I will think that you value team members' contribution equally.

COURSE SCHEDULE (tentative and subject to change)

Important: If necessary, this syllabus will be modified or updated. Any modifications to the syllabus will be posted on the course site.

Week	Date	Topics	Assignments
1	Aug 19 - Aug 23	Introduction and Course Set-up	
2	Aug 26 - Aug 30	Basic Functions of Tableau	
3	Sep 2 -Sep 6	Basic Functions of Tableau	
4	Sep 9 - Sep 13	Basic Functions of Tableau	Assignment 1
5	Sep 16 - Sep 20	Quiz 1 Tableau Map and Dashboard	
6	Sep 23 - Sep 27	Data Visualization Team Exercise	
7	Sep 30- Oct 4	Background Images & Visual Perception – Pre-attentive Attribute	
8	Oct 7 -Oct 11	**Group Project 1 Presentation**	
9	Oct 14 - Oct 18	Time Series Analysis Deviation Analysis	
10	Oct 21 - Oct 25	Distribution Analysis Geospatial Analysis	
11	Oct 28 - Nov 1	Network Analysis Animated Map in Tableau	Assignment 2
12	Nov 4 - Nov 8	Word Cloud in Tableau	
13	Nov 11 - Nov 15	Quiz 2 Course Project Preparation	
14	Nov 18 - Nov 22	**Group Project 2 Presentation**	