MIS 7397

Business Intelligence and Visual Analytics (3 Credits)

Fall 2022

ABOUT THE INSTRUCTOR:

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Area Coordinator in Supply Chain Management

INSTRUCTION MODE Asynchronous Online (with synchronous lectures)

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: 978111956020354000

SOFTWARE REQUIREMENT (FREE)

- Tableau Software (Students can get a free copy of Tableau at http://origin-www.tableau.com/academic/students). The instructor will provide the instruction to install the latest version of Tableau Desktop before the start 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 Blackboard 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 15%
- Assignment 10%
- In-class Group Exercise 15%
- 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 Blackboard. 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 the first project, the instructor will assign the same dataset to all the student's group, while in the second project, students are free to choose any dataset of your preference. 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)

Week	Date	Topics	Assignments
1	Aug 23 - Aug 27	Introduction and Course Set-up	
2	Aug 30 - Sep 3	Basic Functions of Tableau	
3	Sep 7 -Sep 10	Basic Functions of Tableau	
4	Sep 13 - Sep 17	Basic Functions of Tableau	Assignment 1
5	Sep 20 - Sep 24	**Quiz 1** Tableau Map and Dashboard	
6	Sep 27 - Oct 1	**Data Visualization Team Exercise** Visual Perception – Pre-attentive Attribute	
7	Oct 4 - Oct 8	**Guest Lecture 1** **Group Project 1 Presentation**	
8	Oct 11 -Oct 15	Time Series Analysis	
9	Oct 18 - Oct 22	Deviation Analysis Distribution Analysis	

10	Oct 25 - Oct 29	Geospatial Analysis Network Analysis	
11	Nov 1 - Nov 5	Animated Map in Tableau Word Cloud in Tableau	Assignment 2
12	Nov 8 - Nov 12	**Guest Lecture 2**	
13	Nov 15 - Nov 19	**Quiz 2**	
14	Nov 22 - Nov 23	Course Project Preparation Thanksgiving Holiday	
15	Nov 29 - Dec 3	**Group Project 2 Presentation**	