Tan Tao University – School of Engineering

Syllabus

Course code/name: CS441 – Data Visualization

Semester: Spring 2023

Program type: Undergraduate

Credits: 3

Instructor: Dr. Nguyen Xuan Ha
Lectures: Monday, Thursday: 9:30 PM
Office hours: by appointment

1. INTRODUCTION

Data visualization is the presentation of data in a graphical format. It plays an important role in the representation of both small and large-scale data.

The main goal of this course is to give you skills to leverage data to reveal valuable insights of data by extracting information, better understanding the data, and making effective decisions. Different visualization libraries such as Matplotlib, Seaborn, ggplot, Plotly, Folium etc are introduced in the course.

2. PREREQUITIES

MATH101, MATH 201, MATH110, CS111, CS332

3. LEARNING OUTCOME

By the end of this course, students will

- Create a visualization to present the data using different libraries such as Matplotlib, Seaborn, ggplot, Plotly, Folium;
- Identify the best charts for particular problems;
- Present the data in a form that makes sense to people;
- Explain the data based on the visualized charts/graphs;
- Analyze, critique, and revise data visualizations.

4. BOOKS/MATERIALS

There is no required textbook for this course. Several recommended books will be recommended in the lectures.

5. ASSESSMENT

- Homework 30%;
- Midterm projects 30%;
- Final Projects 40%

6. COURSE OUTLINE

Week no.	*Topic*
1	***Introductions*** - *Introduction to the course* - *Introduction to Data Visualization* - *Lab*
2	***Introduction to Matplotlib 1*** - *Lab*
3	***Introduction to Matplotlib 2*** - *Lab*
4	***Introduction to Seaborn 1*** - *Lab*
5	***Introduction to Seaborn 1*** - *Lab*
6	***Storytelling with Data 1*** - *Lab*
7	***Storytelling with Data 2*** - *Lab*
8	***Mid-term Project Presentations***
9	***How to select the best visualization charts/graphs*** - *Lab*
10	***Color and Size in Visualization*** - *Lab*
11	***Interaction Techniques 1*** - *Lab*
12	***Interaction Techniques 2*** - *Lab*
13	***Dashboard 1*** - *Lab*
14	***Dashboard 2*** - *Lab*
15	***Final Project Presentations***

7. Grading reference

TTU percentages	Letter Grade	GPA
97-100	A+	4.0
93-96	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0
80-82	B-	2.7
TTU percentages	Letter Grade	GPA
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
60-69	D	1.0
0-59	F	0.0

- The minimal passing grade is C for all students.

Full name of course lecturer: Nguyen Xuan Ha

Signature: _____

Full name of department head: Cao Tien Dung

Signature: _____

Registrar: Nguyen Thanh Dien

Signature: _____

Date: _____