Course Syllabus

INST 462 - Introduction to Data Visualization

Syllabus

- **Course name:** INST 462 - Introduction to Data Visualization
- **Term:** Fall 2018
- **Instructor:** Dr. Jennifer Golbeck, Professor of Information Studies, **jgolbeck@umd.edu (mailto:jgolbeck@umd.edu)**
- TA: Venkata Sai Pramod Chundury **pchundur@umd.edu (mailto:pchundur@umd.edu)**
- **Textbook:** Tamara Munzner, *Visualization Analysis and Design* (VAD), CRC press, 2014. (http://www.cs.ubc.ca/~tmm/vadbook/)

TA office hours

Monday: 2 PM - 4 PM (Hornbake 4120J)
Thursday: 10 AM - 12 PM (Hornbake 0215B)

Introduction

- *Data visualization* is the graphical representation of data to aid understanding, and is the key to analyzing big data for fields such as science, engineering, medicine, and the humanities. This undergraduate course is an introduction to data visualization, where you will learn how to design, build, and evaluate visualizations for different types of data, disciplines, and domains. The course has a strong emphasis on design and practical applications of data visualization. The format for the course will be lectures by the instructor, practical design exercises, group discussions, as well as a set of practical assignments throughout the course. The grading will be based on participation in class and seven assignments.

Student Learning Outcomes

- Upon successful completion of the course, students will be able to:
- Articulate human, visual, and interactive design issues for creating effective visualizations.
- Use existing visualization tools and techniques to analyze basic datasets.
- Apply existing techniques from scalar, volume, multidimensional, textual, graph-based, tree-based, and temporal visualization to actual problems and data.
- Evaluate a visualization solution based on quantitative metrics such as time and error, as well as more complex and qualitative metrics.
- Articulate issues and techniques for applying visualization to domains such as medicine, finance, science, engineering, the humanities, policy, and government.

Grading

- The course outcomes will be assessed through the following mechanisms:
- **Homework assignments** practical assignments on data visualization, including visual and interactive design, cognition, and data transformation.
- **Labs** Labs are online and have required activities with due dates. Your participation is required.

- **Quizzes** these are lightweight and designed to easily confirm that you have watched the lectures each week.
- **Mini Projects** - these are basically like big homework assignments to integrate what you have learned

Final grades will be assigned based on your weighted average in the class using the following categories:

A+ More than 97.0*

A 93.0 - 96.9

A- 90.0 - 92.9

B+ 87.0 - 89.9

B 83.0 - 86.9

B- 80.0 - 82.9

C+ 77.0 - 79.9

C 73.0 - 76.9

C- 70.0 - 72.9

D+ 67.0 - 69.9

D 63.0 - 66.9

D- 60.0 - 62.9

F Less than 60

* Note: To receive an A+ you must have demonstrated significant contributions to the class in addition to achieving this numeric grade.

Homework Assignments

Weekly assignments where students work on practical visualization problems will be a major part of the course. The goal is to expose the student to as many practical visualization techniques and problems as possible.

Detailed Schedule

- See Canvas for a detailed weekly schedule.

Regrading

-The TA is not authorized to re-grade anything. All requests for clarification, re-grades, etc must come to the professor
-You may not re-do an assignment after it is graded to try to earn back missed points.
-We will only consider re-grade requests for factual errors (e.g. the TA deducted points for missing axis labels when you actually had axis labels). We will not consider them for subjective disagreements (e.g. you lost points for not being creative and you think you really were creative)
-If you submit a re-grade request based on what you think is a factual error, I will review it and consider it. You will either see your grade updated or not. I will not provide you with a long discussion of the reason since these factual disputes should be incredibly straightforward.
-The TA provides detailed explanations about why you lost points in the comments for each assignment. We will not provide deeper explanation than that as a way for you to challenge your grade. I have explicitly told the TA that this kind of re-grade discussion is not appropriate for office hours or email and that all requests for it should be directed to me. If you don't understand a concept (e.g. "I don't understand what constitutes a 'creative' visualization), we are happy to discuss and explain that outside the context of an assignment. We will not regrade your assignment because you did not understand what that meant when you turned it in. If you do not understand a concept for the assignment, the time to ask is before you turned it in. Please come to office hours or email to ask about the concept any time, but not in the context of asking for a re-grade.

Extensions

If you have to miss a deadline, you should inform the instructor as soon as possible, indicating when you will submit your work. The instructor will try to accommodate your needs. You should use this clause only for extraordinary personal reasons (e.g., personal illness, death in the family, etc.), not because you are busy with other classes, have a career fair to attend, etc. The general policy is that late work will be deducted 20% of its total grade per calendar day, starting on the same day it is due. It is at the instructor's discretion to accept late work and assign late penalties.

There are absolutely no extensions or re-dos on quizzes.

University Policies

For university course policies, review **go.umd.edu/ug-policy (http://go.umd.edu/ug-policy)**

Course Summary:

Date	Details	
Mon Sep 2, 2019	**Assignment 1: Career Visualization (https://myelms.umd.edu**	due by 11:59pm

Date	Details	
	/courses/1268105/assignments/4961923)	
Sun Sep 8, 2019	Assignment: Basic Visualization Design (https://myelms.umd.edu/courses/1268105/assignments/4961924)	due by 11:59pm
	Week 1 Lab: Find a good visualization (https://myelms.umd.edu/courses/1268105/assignments/4961921)	due by 11:59pm
	Week 1 Lab: Introduction (https://myelms.umd.edu/courses/1268105/assignments/4961920)	due by 11:59pm
	Week 1 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961905)	due by 11:59pm
	Week 2 Lab: Excel (https://myelms.umd.edu/courses/1268105/assignments/4961919)	due by 11:59pm
	Week 2 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961908)	due by 11:59pm
Sun Sep 15, 2019	Week 3 Lab: Tasks (https://myelms.umd.edu/courses/1268105/assignments/4961915)	due by 11:59pm
	Week 3 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961903)	due by 11:59pm
Sun Sep 22, 2019	Week 4 Lab: Channels (https://myelms.umd.edu/courses/1268105/assignments/4961934)	due by 11:59pm
	Week 4 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961899)	due by 11:59pm
Sun Sep 29, 2019	Assignment: Visualization Identification and Critique (https://myelms.umd.edu/courses/1268105/assignments/4961929)	due by 11:59pm
	Mini Project: Visualization Evaluation (https://myelms.umd.edu/courses/1268105/assignments/4961932)	due by 11:59pm
	Week 5 Lab: Color (https://myelms.umd.edu/courses/1268105/assignments/4961916)	due by 11:59pm
	Week 5 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961900)	due by 11:59pm
Sun Oct 6, 2019	Assignment: Tableau (https://myelms.umd.edu/courses/1268105/assignments/4961928)	due by 11:59pm
	Week 6 Lab: Exercise 1 (https://myelms.umd.edu/courses/1268105/assignments/4961914)	due by 11:59pm
	Week 6 Lab: Exercise 2 (https://myelms.umd.edu/courses/1268105/assignments/4961913)	due by 11:59pm

Date	Details	
	Week 6 Lab: Exercise 3 (https://myelms.umd.edu/courses/1268105/assignments/4961912)	due by 11:59pm
	Week 6 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961898)	due by 11:59pm
Sun Oct 13, 2019	Week 7 Lab: Bad Visualizations (https://myelms.umd.edu/courses/1268105/assignments/4961911)	due by 11:59pm
	Week 7 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961897)	due by 11:59pm
	Week 8: Review Exercise (https://myelms.umd.edu/courses/1268105/assignments/4961935)	due by 11:59pm
Sun Oct 20, 2019	Mini Project: Exploratory Data Analysis (https://myelms.umd.edu/courses/1268105/assignments/4961931)	due by 11:59pm
Sun Oct 27, 2019	Assignment: Personal Network Visualization (https://myelms.umd.edu/courses/1268105/assignments/4961927)	due by 11:59pm
	Week 9 Lab 1: Export Gephi Visualization (https://myelms.umd.edu/courses/1268105/assignments/4961918)	due by 11:59pm
	Week 9 Lab 2: Gephi Visualization 2 (https://myelms.umd.edu/courses/1268105/assignments/4961917)	due by 11:59pm
	Week 9 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961904)	due by 11:59pm
Sun Nov 3, 2019	Week 10 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961907)	due by 11:59pm
Sun Nov 10, 2019	Assignment: Data Comic (https://myelms.umd.edu/courses/1268105/assignments/4961926)	due by 11:59pm
	Week 11 Lab: Exercise 1 Wordle (https://myelms.umd.edu/courses/1268105/assignments/4961910)	due by 11:59pm
	Week 11 Lab: Exercise 2 Wordtree (https://myelms.umd.edu/courses/1268105/assignments/4961909)	due by 11:59pm
	Week 11 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961901)	due by 11:59pm
Sun Nov 24, 2019	Week 13 Exercise: Sampling (https://myelms.umd.edu/courses/1268105/assignments/4961933)	due by 11:59pm
	Week 13 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961902)	due by 11:59pm
Wed Dec 4, 2019	Assignment: BS Inventory (https://myelms.umd.edu/courses	due by 11:59pm

Date	Details	
	/1268105/assignments/4961925)	
	Mini Project: Bus Schedule (https://myelms.umd.edu/courses/1268105/assignments/4961930)	due by 11:59pm
	Week 14 Quiz (https://myelms.umd.edu/courses/1268105/assignments/4961906)	due by 11:59pm
	Week 14: Calling BS (https://myelms.umd.edu/courses/1268105/assignments/4961922)	due by 11:59pm