**Data Visualization**

**Syllabus**

Spring 2025

Daniel Egger

**EGRMGMT 587-01**

Mondays, 6:15-9:00 pm - **Teer 115**

and

**EGRMGMT 587-02**

Tuesdays, 6:15-9:00 pm - **Schiciano A**

and

**EGRMGMT 587-03**

Asynchronous / Remote

(will be combined with 587-01 or -02 in Canvas

depending on which class has fewer in-person students)

**Required Text**

*Storytelling with Data: a data visualization guide for business professionals*

Cole Nussbaumer Knaflic (Wiley 2015)

 ISBN10: 1119002257

 ISBN13: 9781119002253

(See also [www.storytellingwithdata.com](http://www.storytellingwithdata.com))

Please buy the book rather than read a digitized copy. This is how authors make a living. *Order it immediately because we will do all the required reading in the first four weeks.*

**Introduction**

This course focuses on practical skills: designing and delivering excellent presentations for business communication.

Everyone who completes the course will be able to make beautiful and effective data visualizations and present them live with confidence. The course has no pre-requisites. All software tools used in the course are available without cost to Duke students.

*Students are not required, or expected, to have any prior software experience*.

Student assignments are graded on:

1) how well they implement the course's recommended design principles

(a design philosophy we call "Silicon Valley Minimalism" - based on Knaflic's *Storytelling with Data*)

2) how effectively they communicate, and

3) apparent effort (attention to detail, no typos, etc.)

*Number grades 2-9 in each category do not correspond to letter grades.*

All of Presentation assignments are required to be recorded as mp4 files and posted to Canvas before midnight of the day before class. Distance student work will be due Sunday night. The TAs and I will select a subset of presentations for in-class each week. All in-person students should be prepared each week for possible live presentation of their work. Distance student work will be presented as recordings.

Note that for on campus students, class attendance is mandatory - attendance will be taken - and is part of the class grade.

**Office Hours**

Egger “drop-in” office hour is on Wednesdays from 10 am to noon, in 3575 CIEMAS, no appointment required. If you wish to meet online, or need to meet at a different time, or both, please email me at: Daniel.egger@duke.edu to make an appointment.

I am happy to arrange evening office hours for online students.

**Teaching Assistants**

Xiuqi Chen -- x.chen@duke.edu

Nupur Mohapatra -- nupur.mohapatra@duke.edu

Office Hours for TAs will be arranged after the semester begins. Feel free to contact them by email at any time with questions.

**Homework, Live Presentations, and Peer Review**

There are three non-presentation Homework Assignments:

1 – Making Knaflic-style Charts

2 – Fixing Excel Designs

3 – Seaborn Introduction to Python exercise

**Live Presentations**

There will be seven (7) peer-reviewed student presentations:

1 - Powerpoint/Excel

2 - Tableau 1

3 - Tableau 2

4 - TBD (Business Model Canvas or replacement)

5 - Network Analysis with Gephi

6 - Python-based presentation

7 – Capstone Project

**Peer Reviews**

Students will have one week after each Presentation is due to post written peer critique/reviews. A minimum of six (6) critiques are required each week. Don't fall behind as we will not allow "makeup" critiques this year. We will discuss in class what makes for a useful and effective peer critique. The quality and quantity of peer critiques/reviews offered on classmates' work counts for 15% of the total course grade.

**Course Grades**

No late assignments will be accepted without prior permission. Contact the professor by email *before class time* if you have a valid reason – illness, family or work emergency – for needing an extension or needing to miss a class. Preparing for job interviews is not sufficient.

Homework 1-3 15%

Presentations 1-7 65%

Peer Reviews 15%

Attendance 5%

**Schedule**

*subject to change – check for updates on Canvas*

**Week 1**

Monday class - Wednesday, January 8

Tuesday class - Tuesday, January 14

**Week 2**

Monday class - Jan 13

Tuesday class - Jan 21

Homework 1: **Excel.** Prepare 1 Line, 2 Slope, and 1 Waterfall Chart as per Knaflic. Upload as an Excel Workbook with 4 separate worksheets.

 **Read before class: Knaflic, Introduction and**

**Chapters 1-2, pp. 1-69.**

 **No other assignment due**

**Week 3**

*no class Monday Jan 20*

Monday class - Jan 27

Tuesday class - Jan 28

  **Read before class: Knaflic, Chapters 3-4, pp. 71-126.**

Homework 2: **Excel.** Fix the four visualizations shown in class. Upload as an Excel Workbook with 4 separate worksheets.

**Week 4**

Monday class – Feb 3

Tuesday class – Feb 4

 **Read before class: Knaflic, Chapters 7-8, pp. 165-205.**

 **Chapters 5-6 recommended but not required.**

 ***We are now finished with the textbook.***

 First Live Presentation: **Powerpoint.**

 (Time Limit: 3 Minutes)

**Week 5**

Monday class - Feb 10

Tuesday class – Feb11

Begin Tableau training - watch and review relevant sections of Curt Frye's Tableau tutorial at LinkedIn Learning, free to Duke students.

<https://www.linkedin.com/learning/tableau-essential-training-2/build-powerful-and-interactive-data-with-tableau?autoAdvance=true&autoSkip=false&autoplay=true&resume=true&u=77842946>

Another excellent training resource is the Coursera *Data Visualization and Communication with Tableau* course by Egger and Schaich-Borg (which is free through the Duke portal).

**Week 6**

Monday class - Feb 17

Tuesday class - Feb 18

 Second Live Presentation: **Tableau I** (Bar Charts, Bubble Charts, etc.) (Time Limit: 3 Minutes)

**Week 7**

Monday class - Feb 24

Tuesday class - Feb 25

 Third Live Presentation: **Tableau II** (Maps, etc.)

 (Time Limit: 5 minutes)

 *This presentation may be recorded-only and lecture posted online as I may need to be out of town*

**Week 8**

Monday class – March 3

Tuesday class – March 4

 Fourth Live Presentation: **TBD**

 (Business Model Canvas or replacement)

 (Time Limit: 4 minutes)

*No class Monday March 10 or Tuesday March 11*

*Spring Break Friday March 7 to Sunday March 16*

**Week 9**

Monday class - March 17

Tuesday class - March 18

 Fifth Presentation: **Gephi** (Network Visualization)

 (Time Limit: 3 Minutes)

**Week 10**

Monday class - March 24

Tuesday class - March 25

 Homework 3: **Python** (Seaborn Library)

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**Week 11**

Monday class – March 31

Tuesday class – April 1

Sixth Presentation: **Python-based**

**Week 12**

Monday class - April 7

Tuesday class - April 8

 Final Capstone Presentation Due

 Combined Modalities

 (Time Limit: 5 Minutes)

**Week 13**

Monday class - April 14

Tuesday class - April 15

 Conclude In-class presentations

**A note on time required outside of class**

Design projects, unlike other homework, are never truly "done" - you can always make them better. That is, after all, the premise of the peer-critique method – classmates offer suggestions for improvement. *However, you do not need to spend more than 6-8 hours per week outside of class to prepare acceptable assignments.* If you find yourself spending more than 8 hours on an assignment, it may be because it turns out you enjoy this type of work and find yourself engrossed by it, *which is great*. But if you find yourself spending more than 8 hours *and you don't want to*, please talk to me, as I suspect it may be *creeping perfectionism*.

Working on design projects takes a lot of time. This type of course has no memorization, no exams, the work is pleasant, but it can take many hours -- more than you would expect! -- to make something visually truly satisfying. Art and architecture/design "studio courses" - the model that this course is based on - commonly require 10-20 hours per week of work outside of class time. But this is not my expectation, so please keep the class in perspective.

**END**