



Department of Geography and Geoinformation Science

4400 University Drive, MS 6C3, Fairfax, Virginia 22030
Phone: 703-993-1210, Fax: 703-993-9299
Email: ggs@gmu.edu Web: ggs.gmu.edu

GG5 590

Data-Driven Storytelling (Spring 2017)

1. General Information

Instructor:	Dr. Dieter Pfoser
Where:	Fairfax Campus, Geoint Lab (Research Hall - Rm 290)
When:	Wednesday 4:30pm to 7:00pm.
Course website:	Blackboard
Credits:	3.0
Prerequisites:	None (besides eagerness to learn)

Instructor's Office Hours: Wednesday, 3:00pm-4:00pm

2. Course Objectives

"Today, the world is awash in unprecedented amounts of data and an expanding network of sources for stories and news. The open question is not whether data, computers, and algorithms can be used for data-driven storytelling, but rather how, when, where, why, and by whom.

Many datasets tell a story, but tools don't know what the story is. Here it takes a person – and analyst or communicator of information – to bring the story visually and contextually to life. This process is the focus of this course. Hopefully, what you will learn will enable you to shift from simply showing data to storytelling with data.

This is a graduate-level advanced course on the concepts and principles of **data-driven storytelling**, specifically focusing on data management, exploratory data analysis and information visualization, i.e., gathering, cleaning, organizing, analyzing, visualizing, and publishing data in the context of storytelling. The course will take a case study approach in which students explore specific challenges/cases and work towards their own project narrative, e.g., Natural disasters, travel, politics, refugee crisis, terrorism, etc. This course provides students with specific knowledge in computer and information science as related to data management, data analytics and data visualization. As part of this process, students will also obtain general skills like how to find datasets, present their findings in well-prepared PowerPoint presentations, write down their findings in an essay (article), and contribute to and lead focused discussions.

The following lists of tools/methods will be covered in the course:

- CartoDB - <https://cartodb.com>
- OpenRefine - <http://openrefine.org>
- Plotly – <http://www.plotly.com>
- Tableau – <http://www.tableau.com>
- Mapbox - <https://www.mapbox.com>

3. Course schedule

The course will be taught as a combination of lectures, topic/problem oriented discussion, and student presentation of selected research topics.

4. Textbooks

- **Storytelling with Data: A Data Visualization Guide for Business Professionals.** Cole Nussbaumer Knaflic, Wiley 2015. (online at http://gml-primo.hosted.exlibrisgroup.com/GMU:Everything:GMU_VOYAGER3876375).
- **(optional) The Data Journalism Handbook.** Jonathan Gray, Lucy Chambers, Liliana Bounegru. O'Reilly, 2012 (online at <http://datajournalismhandbook.org/1.0/en/>).
- **Instructor handouts**

5. Course outline (tentative)

In this course we will cover the following topics (please note that the topics and their order are subjected to change at the discretion of the instructor, any changes will be announced in class):

Week of	Lec. #	Topic
01/25	1	Introduction and course overview – emerging trends and challenges
02/01	2	Data Journalism
02/08	3	Data visualization primer - Cartodb – Web mapping made simple
02/15	4	<i>Mini-project 1 – Presentations</i>
02/22	5	Plotly – putting 4+5 to use
03/01	6	Data visualization basics
03/08	7	Storytelling – impressing with visualizations
03/15		SPRING BREAK
03/22	8	<i>Presentations</i>
03/29	9	Openrefine – open data, data cleaning
04/05	10	Tableau
04/12	11	<i>Instructor out of town</i>
04/19	12	Tableau (cont'd)
04/26	13	Advanced data visualization (programming stuff, e.g., Mapbox, D3, Leaflet)
05/03	14	<i>Final Project presentations</i>

6. **Attendance**

You are required to attend all class meetings. Your active participation in class is essential to the success of this course.

7. **Grades**

Each task will be given a numerical grade on a 0-100 scale. At the end of the term all the marks will be totaled as a weighted average according to the following weights:

Class participation	20%
Assignments (Mini-Projects)	40%
Project	40%

Final grades at the end of the course will be assigned using a combination of absolute achievements and relative standing in the class.

8. **Class participation**

Given that this course is a research seminar, your active participation in the class is important and will significantly impact your final grade.

9. **Presentations, Mini-Projects**

Each student is required to present the two mini-projects to the class and lead the ensuing discussion in class.

Students will be evaluated based on the quality of their results, the organization of their slide presentation, the clarity and comprehensibility of their talk as well as on the knowledge and depth of the presented material (as demonstrated during the presentation as well as during the discussion in class).

10. Project

A main goal of this course is for each student to author a data-driven story (aka report)! This means to compile, analyze and visualize datasets that relate to a specific topic, e.g., refugee crisis. Finally, the visualizations are combined in an (online) article.

The deadline for the research report, which has to be submitted to the instructor, will be announced by him. No late submissions will be accepted.

11. Course website

The course has a Blackboard website. This website will provide you a single portal through which you may obtain lecture notes, retrieve assignment data and, review links to additional materials, and receive special announcements. You are required to visit the course website **regularly**. Please notify ITU (and, if necessary, the instructor) if you encounter any problems accessing this website.

12. Electronic communication

All course related email correspondence, including submission of assignments, should be made through the course Blackboard website. Please DO NOT send emails to the instructors' @gmu.edu address.

13. Students with special needs

If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS - <http://ods.gmu.edu>. Please do not hesitate to contact me regarding your special needs if you encounter any problems.

14. Academic integrity

George Mason University is committed to the **highest standards** of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the GMU honor code (online at <http://academicintegrity.gmu.edu>).

15. General guidelines for ASSIGNMENT preparation and submission

- a. Grades of assignments will be based on:
 - **Academic merit** of your answers.
 - **Conciseness and completeness** of your answers. Please write to the point and explicitly address the question or task. Avoid using unnecessary graphics (figures, tables, graphs etc.) unless they serve a specific purpose. Make sure to use captions and to refer to the graphics you include in your written answer. Graphics without any reference or accompanying explanation will be disregarded.
 - **Organization and presentation**. Remember that your assignment report is a reflection of your thinking and learning process. Please organize your report in a logical fashion so that your answers could be easily identified. A general format for your presentation should, as a minimum, include the following components: (1) Question number, (2) Your written answer and/or description and discussion of your results, and (3) Visualization of your results, e.g. images, graphs, tables, as necessary.
- b. Please remember that your assignment is a **professional document**, and should therefore be formatted and constructed accordingly. All assignments are to be typed. Hand-written assignments will not be accepted.
- c. Submission of a hardcopy will be made in class; submission of a softcopy will be made through Blackboard.
- d. The electronic submission of your assignment report has to be in **PDF format**.
- e. If more than one file is submitted, you may submit a single **ZIP** file containing all the assignment files.
- f. Each assignment submission should include a cover page with the following information: assignment title, assignment number, student name, and submission date.
- g. Please make sure you have a backup of all the materials you submit.

16. Other useful campus resources:

- a. The writing center: A114 Robinson Hall; (703) 993-1200; <http://writingcenter.gmu.edu>
- b. The University libraries “ask a librarian”; <http://library.gmu.edu/mudge/IM/IMRef.html>
- c. Counseling and Psychological Services (CAPS): (703) 993-2380; <http://caps.gmu.edu>

Disclaimer: Any typographical errors in this Course Outline are subject to change and will be announced in class. The date of the final examination is set by the Registrar and takes precedence over the final examination date reported by the instructor.

Note: Recording is permitted only with the prior written consent of the professor or if recording is part of an approved accommodation plan.