GES 778 Advanced Visualization and Presentation

Professor: Dr. Philip Bogden
Session: Spring 2017
Meeting time: Thursday, 6:15-9:00
Location: Camille Kendall Academic Center, Shady Grove Campus, Building III, Room 3212

1. Description

Web technologies are providing increasingly sophisticated environments for visualizing spatial data. This course explores advanced techniques for visualizing multivariate and multidimensional data. Topics include advanced cartographic techniques, 3D, dynamic data update, and temporal modeling.

2. Objective

Students will learn to create geospatial data-driven Web apps with modern technologies and open source software, including HTML5, JavaScript, and D3. Project-based learning will allow students to advance through the course at a pace that's tailored to their backgrounds. Although the course requires no advanced knowledge of Web technologies, students with previous programming experience will have a wider range of project options.

3. Prerequisites

The course requires some familiarity with programming. Previous familiarity with HTML5 will be helpful. Projects will involve programming in JavaScipt.

4. Organization

This course involves a mixture of lectures, short projects and a more extensive final project. In most of the classes the instructor will present a practical example, and encourage discussion with students. The students will be expected to start their own projects in class with help from the instructor, and to complete them outside of class. Students will work on their final project in small groups throughout the second half of the semester.

5. Schedule

Week	Date	Main topic	Project Milestones
1	2 Feb	Hello, World! -- Introduction, resources (Github, etc.)	
2	9 Feb	3 circles -- SVG, JavaScript, DevTools, Console, D3	Ideas

3	16 Feb	Make a map -- cartography in a browser	
4	23 Feb	Bar chart -- scales, axes, interpolators	Data source(s)
5	2 Mar	Scatterplot -- selections, interaction	
6	9 Mar	Earthquakes -- JSON, GeoJSON	Prototype #1
7	16 Mar	Bubble map	
8	23 Mar	Spring Break (no classes)	
9	30 Mar	Topology and projection	
10	6 Apr	Raster & vector -- map-tile services	Prototype #2
11	13 Apr	Color and cartography	
12	20 Apr	Transitions	
13	27 Apr	Interaction	Prototype #3
14	4 May	3-D (time permitting)	
15	11 May	Final project presentations	
16	18 May	Final exam	Presentations

6. Evaluation

- Classwork 15%
- Homework Projects 15%
- Forum Participation 10%
- Final Exam 10%
- Final Project 50%

Late Policy: No late submissions will be accepted without justification.

Forum Participation: Students should interact with each other on the forum each week with proper follow up. Forum interactions include:

- Pointing to an article or an application related to the latest lecture or current exercise.
- Helping other students that are having issues with the exercise or the final project.
- Posting tips and recommendations related to the projects.
- Posting questions about issues (e.g. I cannot open x or y) will not get the full point, unless the question is provided as a thorough analysis of the problem.

Students should post all questions to the Forum and respond to one another as soon as possible. If no students provide an answer to a challenging question, the professor will respond to the Forum within a couple days of the message being posted.

7. License

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8. Textbook & Resources

- Many Web resources & examples will be provided and discussed in class.
- “Interactive Data Visualizations for the Web” by Scott Murray (2013) -- Free online edition: http://chimera.labs.oreilly.com/books/1230000000345/index.html

9. UMBC Statement on Disabilities and Information for Obtaining Accommodations

"UMBC is committed to eliminating discriminatory obstacles that disadvantage students based on disability. Student Support Services (SSS) is the UMBC department designated to receive and maintain confidential files of disability-–related documentation, certify eligibility for services, determine reasonable accommodations, develop with each student plans for the provision of such accommodations, and serve as a liaison between faculty members and students regarding disability-– related issues."

If you require certain accommodations, please submit an application (found at http://sss.umbc.edu) and all disability documentation to Student Support Services (Math/Psych Bldg, Room 213, UMBC, 1000 Hilltop Circle, Baltimore, MD 21250) as soon as possible. Please see the application for details on appropriate documentation guidelines. For information or questions about the application, please call 410-455-2459.

Once your accommodations have been approved, you will meet with the UMBC-Shady Grove Representative, Ms. Ashley Waters (awaters@umbc.edu), who will work with you and your instructors to ensure you receive the proper accommodations. If you have any questions or concerns, please notify Ms. Waters immediately.

For students at the Shady Grove campus, the Center for Academic Success (CAS) provides additional support. CAS provides test proctoring services and can act as a liaison between students at USG and their home campus, as well as between students and their professors. For more information on the services CAS provides, please visit http://www.shadygrove.umd.edu/campus-services/cas/dss.

10. Plagiarism

Copying or using another's work in written or oral form – partial or complete – without giving credit to the other person is a serious academic offense and is taken **VERY** seriously in this class, by the Department and by the University of Maryland, Baltimore County. UMBC specifically defines plagiarism as anyone who:

"knowingly, or by carelessness or negligence, representing as one's own in any academic exercise the words, ideas, works of art or computer-generated information and images of someone else."

Any student who plagiarizes will be referred to the Department Chair and will be subject to the policies of the university. In general, the consequences of plagiarism include failing an assignment, receiving a lower course grade, and even failing a course.

Examples of plagiarism are:
Submit someone else's work as your own.
Buy a paper from a paper-mill, website or other source.
Copy sentences, phrases, paragraphs, or ideas from someone else's work, published or unpublished, without giving the original author credit.
Replace select words from a passage without giving the original author credit. ·
Copy any type of graphics, tables, graphs, or charts from someone else's work without giving the original author credit.
Piece together phrases, ideas, and sentences from a variety of sources to write an essay.
Build on someone else's idea or phrase to write your paper without giving the original author credit.

Details about avoiding plagiarism, examples, and disciplinary policies can be found at: http://aok.lib.umbc.edu/informationliteracy/plagiarism.php.