

The Geospatial Revolution

—

how and why maps became a central part of our lives (even if you don't think so)

Arts & Sciences 138., Freshman Seminar**

Quarter, 2 credits

The class meets once every week for 1 hour and 48 minutes.

Day/Time Room

Instructor

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Office Hours

Tuesdays/1-3pm

Course Description

Geographic information technologies such as online maps, GPS, smartphones, digital globes, and location based social media are increasingly becoming part of our daily lives. Some call this the “Geospatial Revolution” but what is this revolution all about? How does it work? What does it mean to you and me? We will look into examples of these technologies and their underlying theory through readings, videos, and practical exercises. The goal of this seminar is to provide students with an introduction to the increasing presence of spatial technology in our daily lives, both as scholars and private citizens, and to the many possible issues and implications of these technologies on society.

Texts

The readings consist of articles from scientific journals, selected to be very accessible to a broader audience, usually short and of overview or review character. Students will typically have one article to read as preparation for each class. In some cases a video will complement the reading. During the class we will discuss the reading and make sure to identify some main points. After most classes you will submit a short commentary (100-200 words) on the subject to a Carmen discussion set up for each weekly topic.

Course Policies

- Attendance is mandatory. Full participation is worth 20% towards the total course credit and you have to attend at least 8 of the 10 weekly meetings to get a passing participation grade. Attendance means active participation in class discussion, not just showing up.
- Students will have 7 assignments with deliverables as specified below, each worth 10% of the total course credits. In addition, in weeks 9 and 10, students will give a 10-15 minute in-class presentation (10% of total course credit) of some particular issue of their interest that connect to the course content.

Grading

The course will be graded Satisfactory/Unsatisfactory based on completing 75% of the course work and this is distributed as 70% written/tutorial assignments, 20% participation, and 10%

presentation as specified above.

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/info_for_students/csc.asp).

Students with Disabilities

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>.

Weekly Schedule

Week 1 – The geospatial revolution -what is it?

Geospatial technologies are currently revolutionizing our workplace and everyday life—from government and business operations to leisure activities. But how are today's maps different from the ones you used in your 5th-grade geography class?

READ: Watch all three episodes of the Geospatial revolution online

DUE: Write a 300-500 word commentary on the three video episodes and submit to the Carmen discussion before next meeting. Your commentary should include: one take home lesson from each episode that answer what the geospatial revolution is AND one overall summary of how these issues relate to your private and future professional life.

Week 2 – Introduction to mapping on the web

This week we will perform some basic mapping tasks by collecting data and entering it through Google Maps and Google Earth.

HOMEWORK: Two online tutorials

DUE: Before next meeting, complete the two tutorials and submit your resulting maps to the Carmen dropbox.

Week 3 – Representing geographic knowledge

To put spatial information on a map requires abstraction, simplification, generalization, and symbolization. This week will look into the theory of spatial information representation.

READ: Lecture slides on spatial representation and visualization

DUE: Before next week's meeting, watch “The Englishman who went up a hill and came down a mountain” available through Carmen

Week 4 – Information semantics – the sorites paradox and vague geographies

READ: Fisher, P., & Wood, J. (1998). What is a Mountain? or The Englishman who went up a Boolean Geographical concept but realised it was Fuzzy. *Geography*, 83(3), 247-256.

DUE: Before next week's meeting, use Google Maps to create a map and draw an outline around the OSU campus area. Make it public and Submit a link to your map to the Carmen dropbox. Also provide a ~50 word narrative that explains how you defined the border.

Week 5 – Down to the nuts and bolts – how does it all work?

Obviously, online maps and virtual globes use all kinds of sophisticated technologies, but some of the core technologies to make it work are fairly accessible. This week we will feature a practical investigation by manipulating some online maps to show what we want them to show.

READ: Chapter 1 in the “Map Scripting” book

http://proquest.safaribooksonline.com/book/gis/9781593272715/mapping-basics/mapping_basics

DUE: Before next week's meeting, following the chapter tutorial you should create a map over your hometown and submit a link to the map to the dropbox in Carmen.

Week 6 – Maps for modeling, simulation, and games

Most of you have played Monopoly, and by doing that you have also engaged in socio-economic modeling and performed a simulation. This week we will look closer at these activities and how maps play a critical and growing role in environmental and public policy scenarios.

READ: Watch Jane McGonigal's TED talk, then read Kim, J. Y., Allen, J. P., & Lee, E. (2008). Alternate reality gaming. *Communications of the ACM*, 51(2), 36-42.

DUE: Before next week's meeting, play the “Green Revolution” game as instructed in Carmen.

Week 7 – Social implications of the geospatial revolution

The spatial traces that we all leave as part of daily activities are not only a fantastic data source for all kinds of applications, but also of concern from a privacy perspective. The social implications of the geospatial revolution opens a whole new field for investigation – computational social science - outlined in two short perspectives papers.

READ: Lazer, D., et al. (2009). Computational Social Science. *Science*, 323, 721-723. Mitchell, T. M. (2009). Mining Our Reality. *Science*, 326(5960), 1644-1645.

DUE: Write a 300-500 word summary of the two papers and submit to the Carmen discussion before next meeting. Your summary should include a key idea from each paper and a personal commentary on how you see these two perspectives fit together.

Week 8 – Volunteered geographic information - crowdsourcing

Increasingly, modern geospatial technology makes it possible for anyone to contribute with knowledge and construct maps from many small pieces of volunteered information. We look at recent examples of this phenomenon.

READ: Zook, M., Graham, M., Shelton, T., Gorman, S. (2010). "Volunteered geographic

information and crowdsourcing disaster relief: a case study of the Haitian earthquake." World Medical and Health Policy 2(2): 7-33.

DUE: Before next week's meeting, find a recent (last year) event where volunteered/crowdsourced spatial information played a role in how it unfolded. Submit to the Carmen discussion a short ~100 word summary of the role V/CGI played together with a link to a report about the event.

Week 9 – Student led presentation

This week will feature student presentations on the course subject.

Week 10 – Student led presentations

This week will feature student presentations on the course subject.