OSU College of Earth, Ocean, and Atmospheric Sciences

Winter 17 - GEOG 371

GeoVisualization: Web Mapping

Course Introduction

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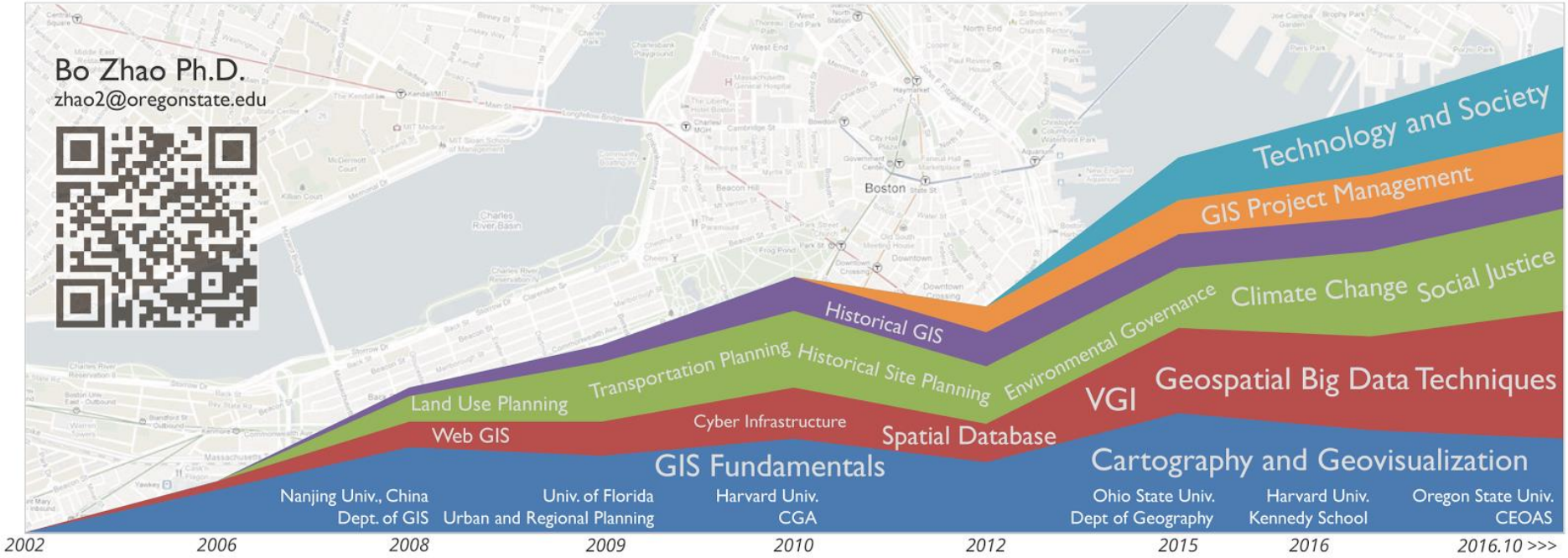
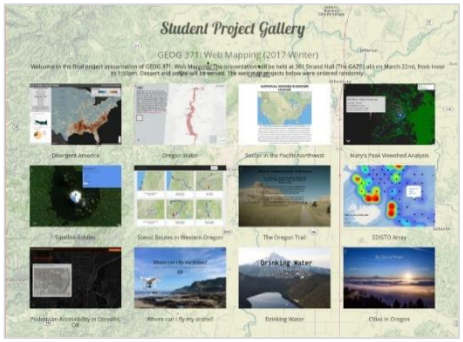


Teaching:

My goal is to help students efficiently and friendly communicate with the targeting audience using geovisualization.

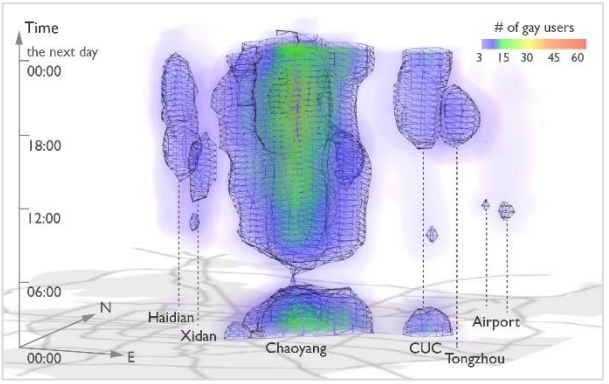
- Geog 370: Web Mapping
- Geog 3/571: Web Mapping
- Geog 4/572: Geovisual Analytics



Former Student Project Gallery

Current Research:

- Location-based Social Media; Location Spoofing
- Storymap.js – a open source map storytelling library



Visualization LGBT community in Beijing

Now, why are you here …?

So, why study Web Mapping?

This course introduces current developments in web mapping and advanced cartographic skills applied to interactive map design.

By using open sourced libraries (Leaflet, Cesium, storymap.js, Bootstrap, jQuery), free or open source software (QGIS, Webstorm), project management services (GitHub), and web mapping services (GeoServer, MapBox), students can learn both the principles of web-based cartography and the practical skills for web mapping, and develop the capabilities of map aesthetics and critique.

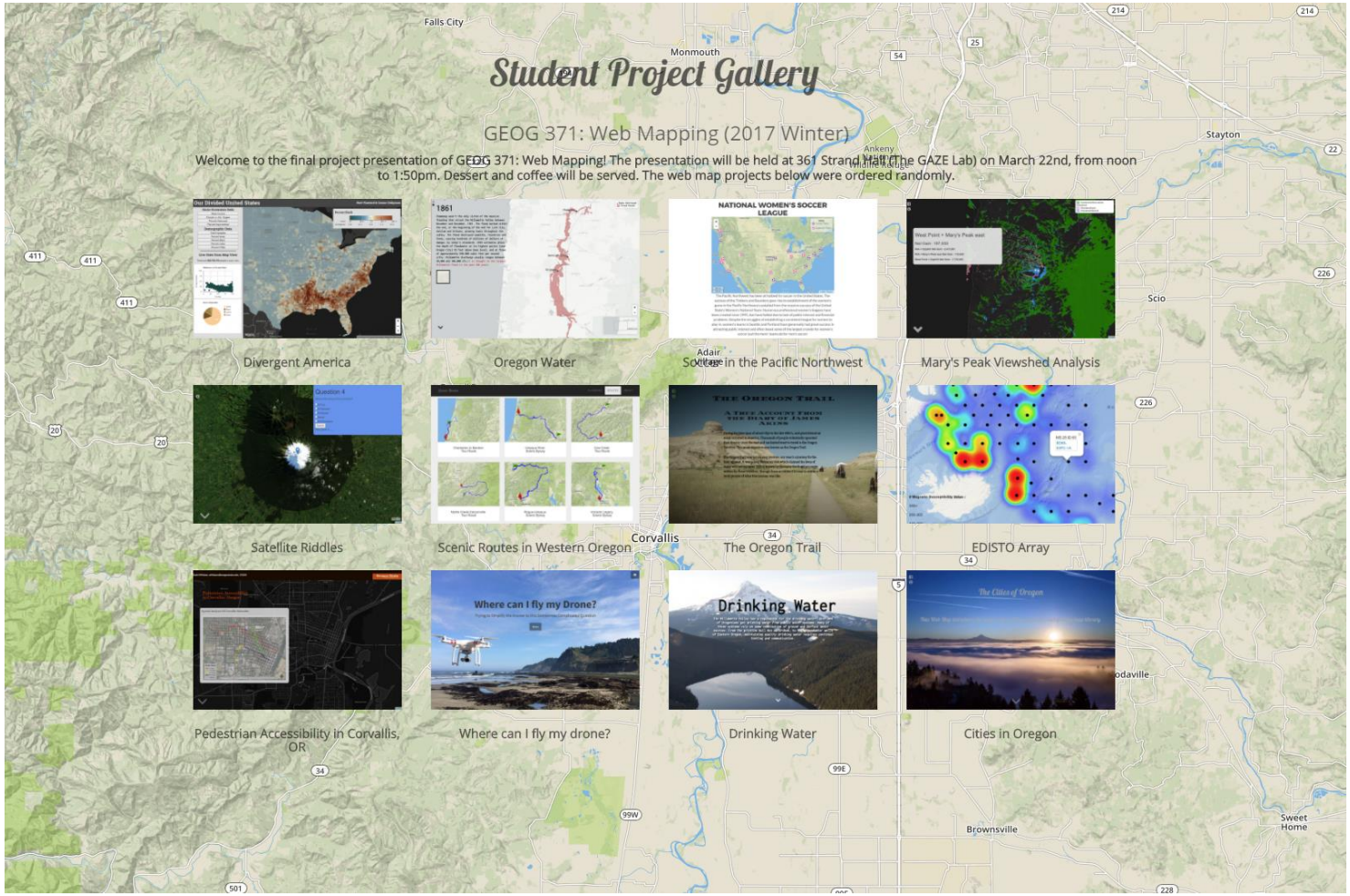
The lectures focus on the theories and principles behind web mapping, including system architecture, responsive design, user graphic design, map design and geo-narrative.

The lab exercises focus on practical skills for web programming, 2d and 3d web mapping, web mapping services, and digital storytelling. The mid-term focuses on basic concepts and web programming techniques.

There is no final exam, but each student is expected to design a web maps and deploy it to an openly accessible server.

- **Programming Languages:** Html, CSS, Javascript, Markdown and GeoJson
- **Desktop Software:** Chrome, Webstorm, Typora, QGIS, and GeoServer
- **Web Services:** GitHub, jsfiddle, Mapbox, W3Schools, and geojson.io
- **Libraries for Web Mapping:** Jquery, Bootstrap, Leaflet, Storymap.js, and Cesium

Student Project Gallery (2017 Winter)



http://geoviz.ceoas.oregonstate.edu/project_gallery/

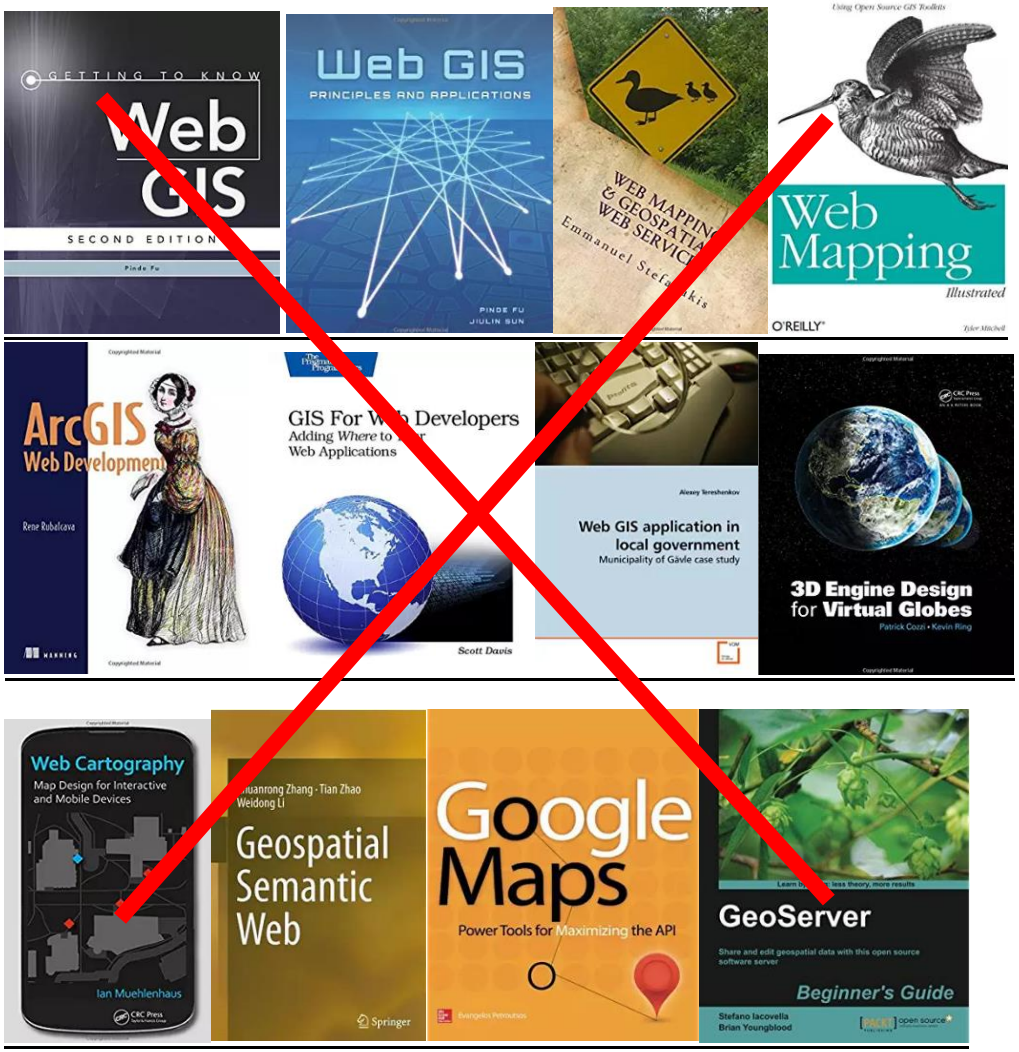
Instructor:	Bo Zhao, zhao2@oregonstate.edu
	Office: Strand Ag Hall 347
	Office Hours: 1400-1500 W or by appointment
Credits:	4
Meetings:	Lecture: MWF 1200-1250 @Wilkinson 235; Lab: Th 1000-1150 @Wilkinson 210
Prerequisites:	GEOG 201 or GEO 301
Grades:	Letter grading (A to F)

Texts

No required textbook.

Required papers and online materials will be available on the course GitHub.

Readings:



Syllabus

Week	Lecture (M)	Lecture (W)	Lab (Th)	Lecture (F)	Reading
Wk *	N/A	Intro to the course	Lab 1: Project Management	Intro to Web Mapping	Markdown, GitHub, Typora, and Webstorm.
Wk 01	Web Programming Basics I: HTML 5 and CSS	Web Mapping Architecture	Lab 2: Web Programming Basics	Lab 2: Web Programming Basics II: Javascript	HTML, CSS and Javascript
Wk 02	Spatial Data for Web Mapping	Map Client I: Basics and Geographic Features	Lab 3: Web Map Design	Map Client II: Map Events and Mashup	Leaflet and JQuery
Wk 03	Map Client III: Web Map Interaction	Map Server I: Intro to GeoServer	Lab 3: Cont'd	Map Server II: Styling	GeoServer docs
Wk 04	Map Server III: Web Map Services	Base Map and Mapbox	Lab 4: Web Map Service	Map Server IV: Map Tiles	Bing Map Tile, and GeoWebCache
Wk 05	Midterm Exam	Map Design I: Web Template and Framework	Lab 4: Cont'd	Map Design II: Bootstrap	Bootstrap docs, Kosara and Mackinlay (2013)
Wk 06	Storytelling with Web Map I	Storytelling with Web Map II	Lab 5: Story Map	Map Design III: User Friendly Design Principles	storymap.js
Wk 07	Time Series	Heat Map	Lab 5: Cont'd	Veterans Day	
Wk 08	Map Design IV: Map Critiques	3D Web Mapping I: Basics	Lab 6: Thematic Map on the Virtual Globe	3D Web Mapping II: Build a Virtual Environment	
Wk 09	3D Web Mapping III: Thematic Map on a Virtual Globe	Final Project Discussion and Preparation	Lab 6: Cont'd	Thanksgiving Break	
Wk 10	Emerging Topics on Web Mapping	Final Project Discussion and Preparation	Final Project Discussion and Preparation	Final Project Presentation	Elwood et al. (2012), Sui and Zhao (2015)

Grading

Item	Description	% of final grade
Quizzes	3 in-class and/or take-home quizzes covering topics from lecture and reading assignments.	12
Lab Assignments	6 lab assignments (9% each). We understand that many of the programming techniques discussed early in the course will be relatively new. Recognizing this, the first few assignments will contain more detailed instructions.	54
Mid-term	Evaluating your understanding about the basic concepts of web mapping programming. It is a closed book exam and will cover material presented before the midterm.	14
Final Project	Each student is required to design a web map and deploy it to a dedicated server. Each student will make a presentation to demonstrate their work. This final project is mainly evaluated by both the presentation and the quality of the web map.	20
TOTAL		100

Any questions?