OSU College of Earth, Ocean, and Atmospheric Sciences

GEOG 371: Web Mapping

Course Introduction

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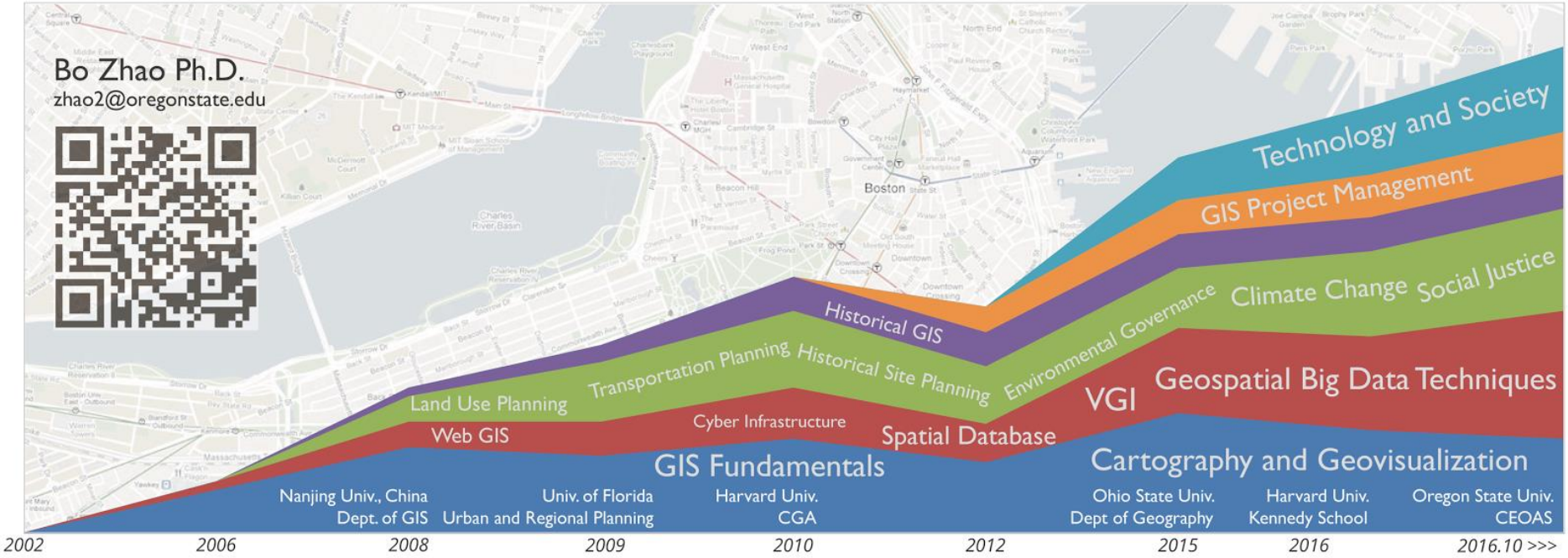
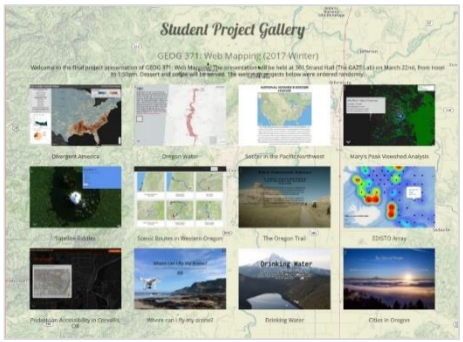


Teaching:

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

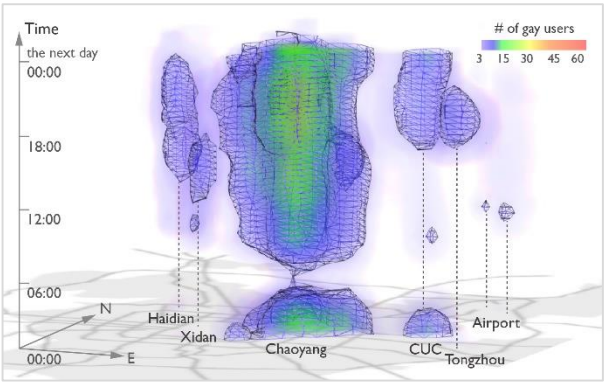
- Geog 370: Cartography
- Geog 3/571: Web Mapping
- Geog 4/572: Geovisual Analytics



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 concepts and techniques of web programming, digital storytelling, online project management, and web-based cartographic principles for developing, evaluating, and using web maps.

To promote the equal access to web mapping technology, we ensure all the web mapping applications from course materials can be opened, debugged or further developed in either Windows or Mac OSX operating systems, and all the relevant software or services are either open source or free.

This course is comprised of two major components, including lectures and lab exercises.

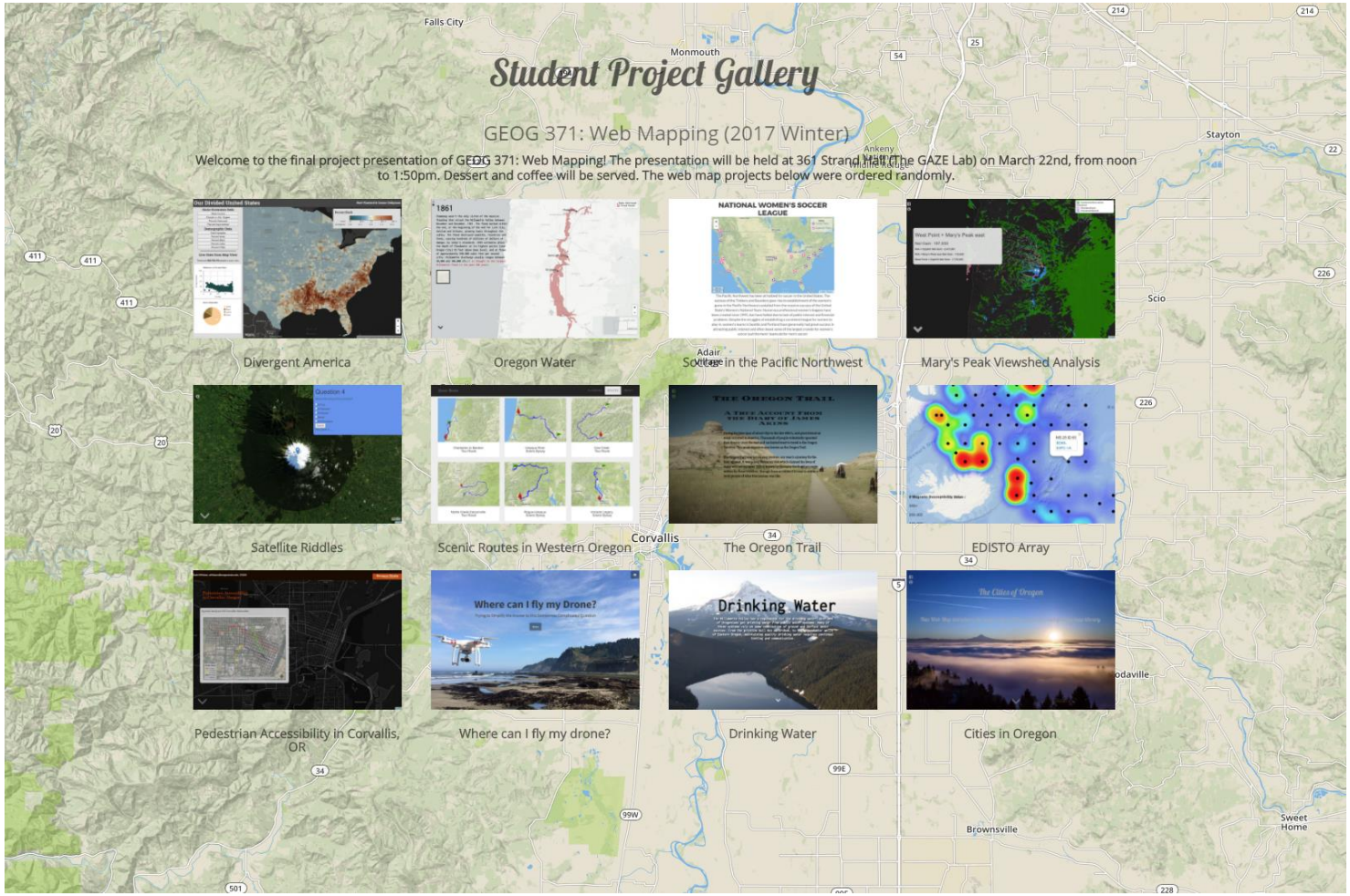
- The lectures focus on the theories and principles behind web mapping, including system architecture, responsive user graphic design, map design and geo-narrative.
- The lab exercises focus on practical skills for web programming, 2d and 3d web mapping, web mapping services, and digital storytelling.

In addition, there will be random quizzes focusing on prior lecture materials, a mid-term focusing on basic concepts and web programming techniques.

Although there is no final exam, but each student is expected to design a web map and deploy it to an openly accessible server (e.g., GitHub). From this course, 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.

- **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/

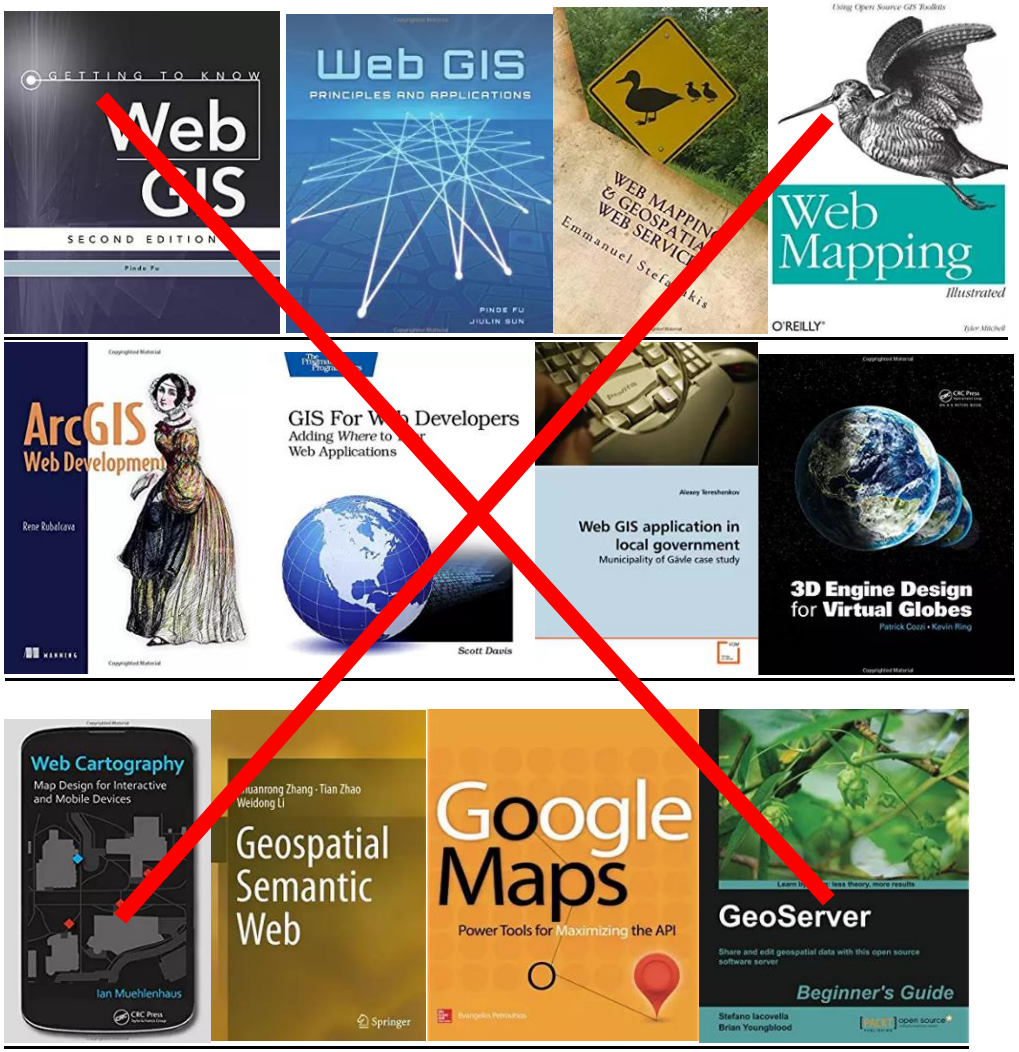
Instructor:	Bo Zhao, zhao2@oregonstate.edu
Office Hour:	TBD or by appointment @ Strand Ag. Hall 347A
Web site:	https://github.com/jakobzhao/geog371
Text:	Required readings will be available on the course website.
Credits:	4
Meeting:	Lecture: MWF 0900 - 0950 @Wilkinson 210; Lab: Th 0800 - 1150 @ Wilkinson 210.
Prerequisites:	GEOG 201 [C-]
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 (M)	Lecture (F)	Reading
Wk 00	Intro to the Course	Internet Fundamentals	Lab 1: Project Management for Web Mapping	Intro to Web Mapping	Markdown, Links and Command Lines
Wk 01	Web Programming Basics I: HTML 5 and CSS	System Architecture for Web Mapping	Lab 2: Web Programming Basics II: Javascript	Web Programming Basics III: JQuery	HTML, CSS and Javascript
Wk 02	MLK Day	Web Programming Basics III: Debugging	Lab 3: Web Map Design	Spatial Data for Web Mapping	Leaflet and GeoJson
Wk 03	Map Client I: Basics and Geographic Features	Map Client II: Map Events and Mashup	Lab 3: Cont'd	Map Client III: Web Map Interaction	GeoServer Documentation
Wk 04	Map Server I: Intro to GeoServer	Map Server II: Styling	Lab 4: Web Map Services and Basemap	Map Server III: Web Map Services	Bing Map Tile, WFS and WMS
Wk 05	Map Server IV: Base Map Design using Mapbox	Map Server V: Map Tiles	Lab 4: Cont'd	Midterm Exam	Bootstrap Documentation
Wk 06	Map Design I: Web Template and Framework	Map Design II: Bootstrap	Lab 5: Story Map	Storytelling with Web Map I	Web Map Design Principles
Wk 07	Storytelling with Web Map II, cont'd with the last lecture	Map Design III: User Friendly Design Principles	Lab 5: Cont'd	Real-Time Mapping: TweetMap	Server Side JavaScript
Wk 08	HeatMap	Map Design IV: Map Critiques	Lab 6: Thematic Map on a Virtual Globe	3D Web Mapping I: Basics	Cesium Documentation
Wk 09	3D Web Mapping II: Build a Virtual Environment	3D Web Mapping III: Thematic Map on a Virtual Globe	Final Project Discussion and Preparation	Emerging Topics on Web Mapping	Elwood et al. (2012), Sui and Zhao (2015)
Wk 10	Final Project Discussion and Preparation	Final Project Discussion and Preparation	Final Project Discussion and Preparation	Final Project Presentation - Strand Ag Hall (GAZE) TBD	N/A

Grading

Item	Description	% of final grade
Attendance and Quizzes	Attendance; and 3-6 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 write a report about an existing web map application, and make a presentation about it. This final project is mainly evaluated by both the presentation and the report.	12
TOTAL		100

Any questions?