

Geography 485L/585L - Introductions & Course Outline

Introductions

- Who am I?
- Who are you?
- What brought you here?

We will be working on answering these questions during the first class collaboratory from 5:00-6:15 on Wednesday

Syllabus

Outline

- Instructor
- Description & Objectives
- Class format
- Class Readings
- Evaluation & Grading
- Topics
- Communication

Instructor

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Description & Objectives

- The basic concepts behind web mapping technologies that enable the delivery of maps and mapped data through web browsers
- The Open Standards that facilitate the exchange of map images and geospatial data over the internet
- The use of published standards-based services in desktop mapping applications that implement those standards
- The deployment of standards-based geospatial map and data services that other systems and users may make use of

Class Format

- Online Lecture & in-person collaboratory in each class week
- Focus on hands-on experience with standards, technologies, and capabilities
- Exploratory and problem-based
- Cumulative

Class Readings

- The class readings are a combination of conceptual outlines and reference materials

HTML Manual of Style: A Clear, Concise Reference for Hypertext Markup Language (including HTML5), Fourth Edition (4th Edition). Larry Aronson. Addison-Wesley Professional. 2010.

Beginning Google Maps API 3. Gabriel Svennerberg. Apress. 2010.

OpenLayers 2.10 Beginner's Guide. Erik Hazzard. Packt Publishing. 2011.

Optional *Designing with Web Standards (3rd Edition)*. Jeffrey Zeldman & Ethan Marcotte. New Riders Press. 2009.

Evaluation and Grading

Class Grade =

- Weekly Web Portfolio Milestones (including peer review when required)
- “Deep Dive” Assignments
- Exams

Evaluation and Grading

13 Weekly Portfolio Milestones - 40 points at mid-term review, 40 points at final review

4 “Deep Dive” Assignments

- 25 points/assignment (100 pts total)
- Focussed on small project
- Reinforcing lab activities
- Added to your portfolio and added to your portfolio score

Evaluation and Grading

2 Exams

- 100 Points each
- Midterm Exam - Take Home - due 3/12
- Final Exam - Take Home - due 5/14
- Focus on *concepts* and *technical implementation*

Evaluation and Grading

- A: 360 - 400 points
- B: 320 - 359.9 points
- C: 280 - 319.9 points
- D: 240 - 279.9 points
- F: < 240 points

Class Topics

- Internet Mapping Clients: Basic HTML, Javascript, CSS; Google Maps API; OpenLayers javascript library
- Geospatial Services Oriented Architectures (SOA)
- Open Standards: Open Geospatial Consortium (OGC - [WMS](#), [WFS](#), [WCS](#), [KML](#)); Extensible Markup Language ([XML](#))
- Desktop client use of Open Standards
- Data sharing/publication using Open Standards

Basics

Outline

- What is Internet Mapping?
- Definitions
- Tools

What is Internet Mapping

Extended Desktop Mapping Use of open standards based remote data and map services in desktop applications

Geospatial Data Sharing Establishing open standards based services to share geospatial data and mapping capabilities over the Internet

Web-client Mapping The delivery of mapping and geospatial data tools through web browsers, again based upon open standards

Definitions

Internet The global computer network of computers that typically connect with each other over TCP/IP

World Wide Web The subset of applications that are run over the Internet, typically using the HTTP protocol in combination with data (HTML, XML, XHTML), presentation (CSS), and behavior (JavaScript) components

Mapping The generation of cartographic products that include map images (pictures of geospatial data) and other elements (e.g. legends, tools, scale information, north-arrow)

Definitions

Analysis The development of models (statistical and otherwise) that enable the exploration of geospatial data and testing of hypotheses using those data

Open Standards While the definition varies from one organization to the next, Open Standards are often characterized by the following:

- Developed through a public process by a national or international standards group
- May be implemented royalty-free

Definitions

Interoperability Ability of systems to share data and information with each other

COTS Commercial Off-the-Shelf Software. Applications that are “purchased” from vendors, often with license terms that restrict the use the software to the specific platform for which it is licensed. Often comes with implicit or explicit technical support

Open Source Software licensed under terms that are consistent with the Open Source definition, which includes access to source code, and freedom to modify and redistribute

Definitions

Data Actual values associated with geographic locations. For example - numeric elevation values associated with locations within a Digital Elevation Model.

Metadata Data about a particular data product or service. Metadata provide critical documentation that supports the discovery and use of data products and data and mapping services

Tools

Server Platform Linux server with GeoServer, Apache, GDAL and Proj libraries

Operating System (one of the following) Microsoft Windows Vista or 7

Mac OS 10.6 or above

Linux (*speak to Dr. Benedict*)

Geographic Information System (GIS) Quantum GIS (platform specific [download](#))

ArcGIS 10 (*optional* - request free student version installation CD from Dr. Benedict - *Windows Only*)

Tools

Geographic Data Processing/Analysis (one of the following) FWTools (*Windows & Linux* - [free download](#))

GDAL and related frameworks (*Mac* - the current “GDAL Complete” convenience package available [here](#))

Text Editor Notepad (*Windows* - included with operating system)

Notepad++ (*Windows* - [free download](#))

TextEdit (*Mac* - included with operating system)

TextWrangler (*Mac* - [free download](#))

Tools

Secure File Transfer Protocol Client WinSCP (*Windows* - [free download](#))

Fugu (*Mac* - [free download](#))

Secure Shell (SSH) Client PuTTY (*Windows* - [free download](#))

Terminal (*Mac* - included with operating system)

Web Browser (at least one of the following) Firefox (*All Operating Systems* - [free download](#))

Chrome (*All Operating Systems* - [free download](#))

Communication

This is the first iteration with the class as a hybrid course, so the most productive communication model will evolve over the semester, but I commit to the following:

- I will respond to email questions within ~24 hours
- I will share responses to common questions with the rest of the class through the online discussion board

I also *strongly* encourage that questions be submitted through the discussion board so that other students can both *learn from* and *contribute to* the answers provided.