

# Interoperable Web GIS Solutions with Open Source Software

Schedule – Monday October 17<sup>th</sup> 2016 - 9:00 am to 5:00 pm

## Welcome and Introduction

- Personal Introductions
- Class Goals and Schedule Overview
- Class Materials (copy materials and data)

## Building a basic Web Map Solution

### The Parts of an interoperable Web GIS

- A Web GIS viewer – OpenLayers
- Creating our own Maps with MapServer - the Map Rendering Engine
- PostgreSQL & PostGIS – The Spatial Database

## Installing MapServer for Windows (MS4W) + OpenLayers

- Including basic libraries, Apache, PHP and more
- Configuration (Apache Aliases and web directory, PHP)

## Break 10:00 am

## OpenLayers (OL) + Exercises

### About OpenLayers

- What it can do
- Resources and examples OL 2 + 3

### OpenLayers Exercises

- Creating a web page with OL embedded
- Creating a map using *commercial* layers
- Adding an existing WMS layer to an OL map
- Review exercise solutions

## Lunch 12:00 - 1:00 pm

## MapServer + Exercises

### Creating your own map with MapServer

- Map file syntax and map file reference
- Editing a map file & viewing the output with shp2img
- Using symbols, classes, and setting max/min scale
- Tools to create map files

### MapServer Templates

- Map templates - a simple way of embedding your map
- Query templates & Replacement variables

### MapServer Exercises

- Adding your own data (shape files, raster layers, tiled layers) & labels and symbols
- Review exercise solutions

## Break 3:30 pm

## Publishing WMS with MapServer and visualization in OpenLayers

### Exercises with Web Map Services (WMS)

- Publish your own WMS & visualization in OpenLayers
- Identify feature and other examples
- Review exercise solutions

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## PostgreSQL and PostGIS

### When to use a database vs. files

### Installation and basic usage + exercises

Installation of PostgreSQL and PostGIS

Using the command line: basic spatial queries in psql

Using pgAdmin - managing the database

Utilities for import and export of shape files and tables

### Importing data into PostGIS - exercises

Importing shape files (counties2008.shp)

Import of a text file (create table in db, using the *copy* command to load data)

How to create spatial data from a regular table

Export of PostGIS data to a shape file

Review exercise solutions

## Break 10:00 am

## Putting it all together - MapServer, PostGIS and OpenLayers

### Exercises

Adding a PostGIS layer to a map file

Review exercise solutions

### Functionality and Examples

Analysis – PostGIS

Dynamic maps with MapServer and PostGIS

## Lunch 12:00 - 1:00 pm

## Extending GIS capabilities of an Interoperable System

### Additional Components

Map tile caching solutions

Mapping frameworks

## Break 3:30 pm

## Free Discussion and Questions and Feedback

### Participants Questions

What was helpful - what was not?

What did you like - what did you not like?