GEO 266. GIS Analysis
FINAL PROJECT INSTRUCTIONS

Introduction

All students will be required to submit a class project demonstrating some aspect of GIS analysis. The project is intended to provide a deeper understanding of GIS through an investigation of a particular research problem. You will need to both *acquire the spatial data* and perform some type of *spatial analysis using ArcGIS* (which means you must do more than just show data layers on a map).

Project Requirements

1. Submit a **project outline**;
2. Give an **oral presentation** in class;
3. Submit pdf of presentation & final maps to instructor.

Project Proposal - Details

The project proposal is due on ***Wednesday Feb 24th***. It should include a general:

- statement of the research question you wish to answer;
- list of the GIS data you plan to use (and where it will come from);
- workflow diagram showing the step-by-step analyses and methods that you plan to use;
- list of map(s) you expect to create to show the analytical results.

**This is meant to be an outline that can change with time – it should provide the instructor with as much information as you have at this point.

Oral Presentation - Details

Presentations will be due on ***Monday March 14th***:

- include the following sections: *Project Background, Research Question, GIS Datasets, Methods, Results,* and *Conclusions*;
- include at least one map to show analytical results;
- be an on-screen presentation format (e.g. PowerPoint, Prezi, etc.)
- be thought of as a professional presentation and treated as such;
- have any planned software demos verified *ahead of time* as working properly in the classroom;
- be provided in digital format to the instructor.

Project Grading

The grade for your project will be based on the cohesiveness and logic of your research question, relevance of datasets, appropriateness of analytical methods and tools, and the quality of your class presentation and analysis outputs (i.e maps). The complexity and scope of your project will <u>not</u> be criteria for judging the quality of your work.

Tips for a Successful Project

First project rule – *keep it simple*. The focus is on *spatial analysis*, not necessarily on the results of any analysis you perform. I recommend that you use existing GIS data sources to do your project. If you

are interested in digitizing or doing a GPS survey to create your own spatial dataset, discuss with the instructor. Creating your own data is very time-consuming and will take away from other aspects of the project. A list of existing GIS data sources can be found on the course website at http://www.christinafriedle.com/gis-data-links.html

Additional Considerations

> Why is this problem important, relevant, or interesting?
> Does the necessary data exist and is it readily accessible? If not, is it easily created? What data can be used as a proxy for the "ideal" data if the ideal data is not available?
> What specific steps in ArcGIS will this project involve? What tools and functions will be used?
> How will you go about presenting the results? What maps, charts and tables will be necessary?
> Spend time on the visualization of your analytical results... the quality will be part of your grade.

Examples of Geographic Research Questions

Environmental Sciences

- Where is the best place to develop a new campground on Mt. Hood?
- Where is an environmentally-friendly site for a ski resort on Mt. Hood?
- Does road density influence species biodiversity in our national forests?

Species Habitat

- Site selection for long-term tortoise relocation in Southern Nevada
- Identifying fish species richness, diversity, and density across reef habitat types in Kona, Hawaii
- Predicting the distribution of two salamander species in the Klamath Mountains
- Determining areas of essential fish habitat in the surrounding waters of Santa Barbara Island, CA

Land-Use / Urban Planning

- Estimating property value lost to floods in the Rock Creek watershed
- Do all citizens have equal accessibility to public parks in Hillsboro and Portland?
- Do students at Rock Creek have adequate access to public Transportation?
- What is the most affordable neighborhood in Portland?

Social Services

- Locating potential areas for domestic violence shelters in Portland
- Analyzing student movement between schools in Portland
- Helping a church understand areas of need in Milwaukie, Oregon

Hard to Categorize / Interesting

- Finding the best location for a food cart in the Portland Metro Area
- Finding the weirdest neighborhood in Portland
- Where should Batman relocate the Batcave?