

Assignment 1: GIScience (Spring 2012) (15% written)

Due: FRIDAY February 17, 2012 (by 5pm ET)

Submission method: written document by email to pfox@cs.rpi.edu and Max Cane canem@rpi.edu.

Please use the following file naming for electronic submission:

GIScience2012_A1_YOURFIRSTNAME_YOURLASTNAME.xxx

Late submission policy: first time with valid reason – no penalty, otherwise 20% of score deducted each late day

Note - Office hours: Tuesday 2-3, JRSC 1W06

Note: Your report for this assignment should be the result of your own individual work. Take care to avoid plagiarism (“copying”), including all web resources, texts, and class presentations. You may discuss the problems with other students, but do not take written notes during these discussions, and do not share your written solutions.

General assignment: Experimenting with Projections and Printing a map of the world. Please use the question numbering (1-4) below for your written responses for this assignment.

First, locate the data files for *ocean*, *world*, and *grid15* from your disk or the web and place them on your laptop. When you download from the web remember you need all 4 or 5 files relating to a specific table (i.e., .tab, .map, .id, .ind, and .dat). (At <http://escience.rpi.edu/gis/data/> these files are zipped together but the file listing may not be in alphabetical order).

For 1-2 - Open each of the Tables, *ocean.tab*, *world.tab*, and *grid15.tab*.

For 3-4 – Open congress.jpg, rpi_2000.JPG (or find one of on your own).

1. Experimenting with Projections. (4%)

Navigate to Projection menu item. You will see 2 selection boxes, one for Category and the other called Category Members. Select Projections of the World under Category and select any of the Category Members. Click OK twice and see how the projection changes the appearance of the land and grid outlines on the map.

Experiment with the various choices of projections and see how they differ. With the zoom tool (magnifying glass with + sign), zoom in on a particular part of the world to see how the projections change the appearance of the political boundaries. *Print* three maps of the world and include them in your write up.

- a. What projections did you choose and why? Min. 1-2 sentences.
- b. What properties did each of the projections conserve (or not) and state how important or not this was to your final maps. Min. 1-2 sentences.

2. Buffering and Editing the layers – e.g. pick the grid15 layer and perform some buffering operations, of your choice to produce an annotated map. Describe what you did, how you chose the buffer regions/ criteria and why. This should include if they are fixed distance or variable. Min. 3-4 sentences (3%)
3. Read in congress.jpg. Perform a registration with control points, and label them on the map. Determine the scale and orientation and reproject if needed. Describe what you did, how you chose the points and why. Min. 3-4 sentences. (4%)
4. Read in rpi_2000.JPG, perform 4-5 Heads-Up digitizations of lines, polylines and regions and label them. Describe what you did, how you chose the elements to digitize and why. Min. 3-4 sentences (4%).

All annotated maps should be handed in with/ in your written assignment.