Title: Fundamentals of Geographic Information

Critical Resources: an internet connected computer, a zip tool, a basic image viewing tool like MS paint or Adobe Photoshop.

Purpose:

The purpose of this lab will be for you gain knowledge on the mechanics of how geographic maps work as communication devices and to understand basic principles of geographic information as represented in paper maps.

Learning Objectives – After completing the lab, you will know:

- The various components that make up a map and how they function
- How to intelligently read maps and use the information contained in maps to derive basic geographic facts

Deliverables:

A write-up of your response to the instruction questions.
Name your write-up using this convention before posting:

Instructions:
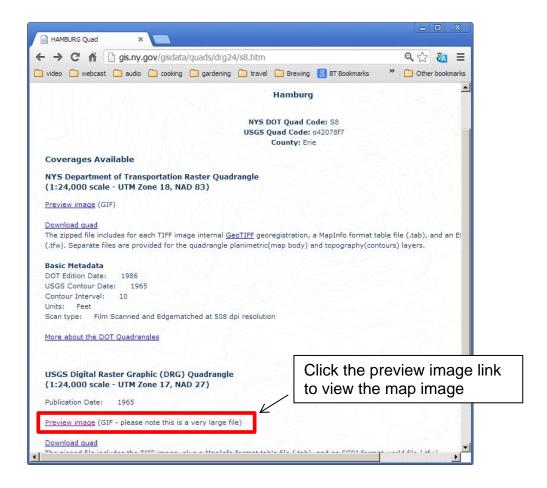
Task 1 – Basic Map Reading and Interpretation

For this task, go to this website:

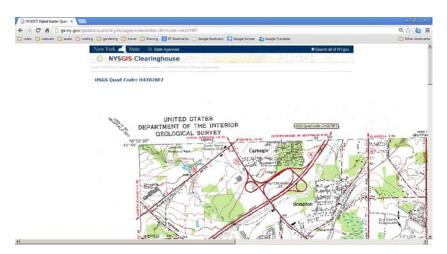http://gis.ny.gov/gisdata/quads/drg24/index_usgscode.htm

Select one of the 1:24000 scale maps from the list by clicking on one of the links provided on this webpage.

Ideally, find a map from your hometown (if applicable and/or available), or from some other part of NYS of interest to you.

After selecting a map and going to the webpage of the map, click the link that says **Preview Image** under the USGS Digital Raster Graphic (DRG) Quadrangle section of the webpage. The preview image link within The USGS Digital Raster Graphic (DRG) Quadrangle section of the web page is located toward the bottom of the webpage. See image below as a representative guide to helping you find the preview image link.

After clicking the preview image link, you should see an image like this:

Use the scroll bars of your web browser to move around the image.
Use your map image to answer the following questions:

1. What is title of the map?
2. What is the scale of the map?

3. How is scale represented on the map?
4. Is this a small or large scale map?
5. What is the name of the map's projection?
6. What projection surface is being used for the maps' projection?
7. What tradeoffs are made in representing the area being mapped because of the specific projection used on the map?
8. Is this a reference or thematic map?
9. What coordinate systems are used on the map? (hint – there are three)
10. What map adjoins your map to the south east?

Extra credit (cannot make lab grade exceed 100 points)

Approximately how many miles would 6 inches on the map be?

Task 2 – Comparing two maps.

For this task, go to this website:

http://gis.ny.gov/gisdata/quads/drg250/index_usgscode.htm

Select one of the 1:250000 scale maps from the list by clicking on one of the links provided on this webpage. If possible (but not a requirement), try and find a map that generally covers the same area as the map you used in task 1.

After selecting a map and going to the webpage of the map, click the link that says **Download image.** See image below as a representative guide to helping you find the Download image link.

Down the image and unzip the file. It is assumed you know how to unzip a file. Open the .tiff file contained in the zip and answer the following questions.

Write a 30-50 word description of the major differences between the maps in terms of generalization, detail, and purposes you think each map would be good for and not. For this last item, you can use a table to display your comparisons. Also record the name and scale of the map you used as a comparison with the map from task one.

Task 3 (Grad Students required to complete this task, Undergraduates can do for extra credit, cannot make lab grade exceed 100) – Thinking About Spatial Thinking - Spatialization

In this task, you will write a short essay related to Spatial Thinking

The NRC reading from week one discussed the ideas of *Spatialization* or "thinking with or through the medium of space in the abstract (p30)". For example, using the metaphor of a landscape to understand how US states are related to one another in terms of census data (see Figure 2.5, p 33). For this task, write a 1 page[1] essay where you discuss a problem or question that could be addressed or understood through spatialization or spatial metaphor. There are no right or wrong responses to this essay. Rather, I am looking to see if you understand how the idea of spatialization can be applied to problem solving.

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[1] 1 Page = 1" margins, 1.5"line spacing, 12pnt font

Grading Criteria (i.e., what am I looking for)

Criteria				
Excellent (A and A-)	*Good (B+, B, B-)*	*Satisfactory (C+, C, C-)*	*Unsatisfactory (D)*	*Poor (F)*
90-100 points	**80-89 points**	**70-79 points**	**60-69 points**	**<60 points**
Tasks 1 and 2: Task 1 answers a succinct and to the point. Task 2 short essay is clear and focused – reader gets a clear indication of what the differences between the maps are in terms of generalization, detail, and purpose. Minimal to no spelling, and/or grammar errors with writing. All assignment directions are followed correctly as specified in the instructions.	Tasks 1 and 2: Task 1 answers are somewhat clear and not completely focused or are very long. Task 2 short essay demonstrate that the student has somewhat carefully and thoughtfully reviewed differences between the maps are in terms of generalization, detail, and purpose. Some spelling and/or grammar errors with writing. Most assignment directions are followed correctly as specified in the instructions.	Tasks 1 and 2: Task 1 answers are very unclear and unfocused. Task 2 short essay demonstrate that it is apparent that the student has not carefully and thoughtfully reviewed differences between the maps are in terms of generalization, detail, and purpose. Many spelling and/or grammar errors with writing. Many assignment directions were not followed correctly.	Tasks 1 and 2: Task 1 completely unclear. Task 2 short essay demonstrate that the student has not reviewed differences between the maps are in terms of generalization, detail, and purpose at all. Many assignment directions were not followed correctly.	Task 1 and 2 essays are completely incoherent. Completely incoherent writing - spelling and/or grammar errors with writing make it impossible to understand what was submitted. Evidence of plagiarism. Assignment directions not followed at all.