Week 7 Project: *Lying with Maps*

In this project, you practice your *'lying with maps'* skills – using demographic data for the 48 contiguous US states (and Washington D.C.). The best way to learn how to make a meaningful map is to practice just the opposite: making a bad map that deliberately distorts the data and creates false impressions.

This project includes six complementary parts:

A literature review to learn more about the topic.
A GIS mapping task where you practice good (and bad!) map making skills.
An interpretation task where you analyze and explain your maps.
Two discussion forums to share your maps and ideas.
A project report to formalize and document your project.

This mimics the standard scientific project sequence: you investigate an issue (= background research/literature review), you conduct the analysis, you interpret and explain your analysis, and you discuss/publish your findings. Plus: you document your study.

Part 1: Literature Review – Monmonier (2005)

Read the Monmonier (2005) paper and write a ~1 page summary or synopsis of the paper, covering the following points:

1. What are the author's main points? (List at least 3 main points, with examples)
2. Why are these points important? (According to the author, with examples)
3. How do the authors arguments relate to your experience with GIS? (Provide at least 2 examples of 'lying with maps' that you have encountered so far)

Part 2: Literature Review – Jerry's Crime Mapping Tips

Read Jerry's top ten crime mapping tips and think about the following:

1. Sort Jerry's ten tips from most important to least important and explain your reasoning for your sorting.
2. Ten is obviously an arbitrary number. Add your own three tips and explain why you think these three tips should be included in a top thirteen list.

Part 3: GIS Mapping Task

Create two choropleth map of the USA (in 8.5 by 11 inch), with 2 data frames each, showing one of the following two attributes (your choice) of United States demographics:

BLACK
HISPANIC

Map 1
Map 1 shows the <u>absolute values</u> of the attribute. In one data frame you create an objective choropleth map – that is you choose a classification system and map design that shows the spatial patterns as objective as possible. The other data frame is just the opposite: here you show the same data, but using a classification system and map design that deliberately 'lies' to the map reader.

| Data Frame 1 | Attribute value (absolute values) | Objective classification/design |
| Data Frame 2 | Attribute value (absolute values) | 'Lying with Maps' classification/design |

Map 2
Map 2 will show the <u>relative values</u> of the attribute. In one data frame you create an objective choropleth map – that is you choose a classification system and map design that shows the spatial patterns as objective as possible. The other data frame is just the opposite: here you show the same data, but using a classification system and map design that deliberately 'lies' to the map reader.

| Data Frame 3 | Attribute value (as % of population) | Objective classification/design |
| Data Frame 4 | Attribute value (as % of population) | 'Lying with Maps' classification/design |

Tips and Hints
- Each data frame/map should include an appropriate legend, a useful title, and the other standard map elements.
- Remember: Your classification system includes the classification method, the number of classes, the break points, the color bar, the sorting, etc. Be sure to think about all these options when creating your classification systems.
- Refer back to Monmonier (2005) and Jerry's tips for ideas and information on how to make a good or a bad map.

One thing to consider: There are simple and blatant ways to lie with a map. For example: you can change the underlying data or 'forget' to include a legend. But that's too obvious, so try more subtle ways of lying, such as inappropriate break points, bad color ramps, etc.

Data Source: C:\GIStutorial\UnitedStates\States.shp
- Create a folder on your USB flash drive called \garp0244\lyingproject and copy the States.shp shapefile into this folder (using ArcCatalog).
- Explore the metadata in ArcCatalog.
- Explore the metadata for the shapefile C:\GIStutorial\UnitedStates\Counties.shp in ArcCatalog to get more detailed information about the feature attributes.

Part 4: Analysis/Interpretation Task

1. What classification system did you choose for your <u>objective</u> data frames? Why? Explain your reasoning.
2. What classification system did you choose for your <u>lying</u> data frames? Why? Explain your reasoning.
3. You created two maps showing (a) the attributes as absolute values and (b) the attributes normalized as percentage of population. Are there any differences in the spatial pattern? Why? Explain and interpret. What map is more meaningful?

Part 5: Discussion Forum – Mark and Jerry

Mark Monmonier and Jerry Ratcliffe raise many interesting points in their respective papers. What was the most interesting? Or what have you not thought of before reading the papers? I'm sure we all picked up on different points and issues – let's talk about those. One issue, for example, raised by Mark Monmonier is generalization in maps – that's a huge issue in map making that we often do not think about.

Part 6: Map Discussion

Post your maps in the Map Lounge by attaching a JPG or PDF version of your maps. Which attribute did you map? What was the hardest step you needed to figure out? And: how did you solve that problem?
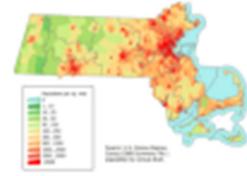
Also: explain how you lied with your maps!

Deliverables

A project report that includes the items as detailed below. Remember to add a title page and to include page numbers. *The number of pages are merely suggestions*. Some of you will write more, others will be able to condense your answers, explanations, and interpretations into less text.

- The Monmonier (2005) paper summary/synopsis (as detailed above, ~1 page)
- Your thoughts and answers regarding Jerry's Tips (as detailed above, ~1 page)
- A detailed, step-by-step description of your mapping and analysis procedure (think in terms of writing a cookbook recipe or tutorial that someone else can follow along to reproduce your map and analysis, ~1-2 pages)
- The answers to the three questions (as detailed above, ~1 page)
- Your maps, exported as a JPG images, and inserted at the end of your project report (2 pages).

➔ *Please contact me for help or clarification of this assignment or my expectations.*