Lecture Plan

- Chapter 3 - Presenting Data (as a map, poster, ...)
- Map design process (Layout mode)
- Use of colors, balanced layout
- Some books about maps - you’re welcome to borrow them (I especially like Making Maps)
- Look at (color brewer) http://colorbrewer2.org/
- Labeling options
- Lab: Ch 3 tutorial (1 - 48)

Map Design Process

- Determine the objectives of the map
- Who is its user or audience? (Examples?)
- What’s your goal? What needs to be communicated?
- Data layers needed for the objective?
- (Perform analysis - creates additional layers)
- Choose colors and symbols for layers to “visualize” the data
- Put layers into data frame (decide on data frame scale)
- (optional: add lat/long graticule or UTM coordinate grid)
- Decide on “physical” paper size (go to layout mode)

In Data view
- Add more map elements (depending on need of audience!):
  - north arrow
  - legend,
  - scale bar
  - scale text
  - other text
  - images

In Layout view
- layout the data frame(s) and map elements on the “physical paper” (balance elements)
- Check for readability of text (labels) - adjust size
- Print map or make pdf/jpg (File - export map)
- Let’s look a some examples of maps
Assembling a map - some tips

- Be **selective** about the amount of information
- Too many layers: visual clutter!
- Have the **important** elements stand out (via: color, size)
- Spread different layers over different data frames:
- Tell a story: Here’s the overall situation (Frame A), here’s the problem (Frame B), here’s a solution (Frame C), etc.
- Add charts, images and text to support your story
- **Do not make the reader work needlessly!**
- Provide **spatial (geographic) context**: (show roads, zoom-in from big-picture, schematics)
- Add a grid, helps if coordinates must be looked up

- Use “round” map scale (1:24,000 not 1:23,766)
- Use reasonable scale bar divisions (1 - 2 - 5, 1 - 7 - 5, 1 - 2 - 5)
- Add coordinate system info, author, date (can be very small)
- Use clear layer names (attributes) in legend: **Population in 1990** not just **POP90** (pop vs soda? pop music?)
- Legend: use nice value ranges: 100 - 120 not 102 -123
- Aim for **even distribution** of all map elements
- Zoom/pan in Data view is different from Layout view (tool bar)
Basic principles for balance

• (Disclaimer: I’m not a graphics designer!)
• Balance elements on the page:
  • aim for a even distribution (visually pleasant)
  • avoid cluttered areas
  • manage blank areas (empty or “negative” space)
• Align straight edges (data frames, text boxes, images)
Neatlines (boxes): help to convey the visual structure

Choosing colors and symbols

- Natural earth tones usually look better than clashing (loud, obtrusive) colors (exception: emphasis!)
- Mimic nature tones, such as using blue to represent water
- Use pastels or subdued colors for most of the map; use bold colors only for emphasis
- Make ramps easy to understand (single “main” color)
- Symbols: emphasis with color, size, and thickness
Compare these two maps:

- How many layers in each map?
- How is the data “within” the points and lines expressed visually?
- Contrast?
- Choice of colors?
- Labels?

Color choice - what does the map need to communicate?

- Natural: Which polygon is water?
- Distributions: Where is rainfall higher?
  Which towns have more people?
- Simple Overview
- Hi-light: Where’s the danger?


- Pastels and natural colors
- (light-dark) color ramp to indicate increasing population
- Grid with subtle color

- Color Brewer:
Labeling Options

- Dynamic labels (introduced in Chapter 2)
  - Layer property set for each layer
  - Placed automatically for an entire layer
- Graphic text
  - Simple graphics placed/edited on layout
  - Saved as part of map document
- Annotation

Dynamic labels

Graphic text (manual)

Graphic text must be placed in Layout View

Set font/size with Draw toolbar

Multi-line labels

South Dakota was admitted to the United States in 1861 following the heroic journey of Lewis and Clark up the Missouri River and over the mountains.
Lab

- Ch 3, tutorial 1 - 48
- Blackboard problems with handing in HW2?
- We’ll start mini project 1 (HW 3) on Thurs. lecture
- HW3: Graduated color, different classifications + map layout