CVC Schedule DRAFT

## Monday

1. RStudio and Rmd
   1. ACTIVITY: Write and publish a description of some straightforward, data-oriented topic you'd like to present in class. Keep it simple. We'll do more complex things in the 2nd half of the workshop.
2. Basic R
   1. arithmetic and syntax
   2. basic data types: numeric, character, factor
   3. variable names versus strings
   4. vectors, lists, dataframes
   5. formulas
   6. NA, NaN, and NULL
3. Data Organization
   1. Table/case/variable/row/column
   2. Why Common excel formats violate this
   3. Brief examination of table operations:
      1. mosaic table-making operators and the formula notation
      2. mutate(), summarize(), and `group\_by()1
4. Parts of graphics
   1. Frame, Scale, Glyph, Guide, Facet
      1. Use "named" graphics at first: scatterplot, barplot
   2. Information encoding in glyphs
5. Introducing ggplot
   1. Dynamite plots
      1. give a simple dataset that can be translated into a dynamite plot
      2. show some alternatives
   2. Other geoms with other data sets
   3. mPlot() and mBar()
6. Graph to data:
   1. Figure out what the glyph-ready data looks like
7. Data to graph
   1. Draw this graph
   2. Data that's not yet ready. Identify what you need to do to get it in shape.
8. The idea of a backstory
   1. Show sort of data that underlies the dynamite plot
   2. Something that involves a join.
9. summarize()
10. mutate() and common sorts of operations
    1. ratios, rates
    2. ???
11. filter()
12. group\_by() these operations (using groupwise properties)
13. Report on your mini-case (first 6 people or groups @ 5 minutes)

## Tuesday

1. Sources of data, and how to get it in to R
   1. Files, URLs, CSV, Workspaces,
   2. From Excel
2. Identifying sources of data from your mini-case study
   1. Work in groups?
3. Join operation
4. Report on your mini-case (second 6 people or groups @ 5 minutes)

## Wednesday

### Morning

### Afternoon

## Thursday

## Friday

## Notes

The first 2.5 days includes:

* an introduction to using R for handling data and graphics
* deconstructing graphs to the underlying data
* constructing graphics from data
* data wrangling: operations to get data in the right form for graphics

The second 2.5 days includes:

* quick review of the first half of workshop
* one-on-one or small group (by discipline) development of case studies.
* summarizing data with models
* data cleaning
* data web-scraping basics
* programming in R (as needed)