36-721	Fall 2015
Statistical Graphics and Visualization	6.0 units

Homework 3: Grammar of Graphics
Due Sat 9/19/15, 5pm

You will **describe two graphs** using the Grammar of Graphics (GoG)-based `ggplot2` framework. You will also have **a dataset to explore and summarize graphically** using `ggplot2` (or another GoG-based tool if you prefer).

Describe

The two graphs for you to **describe** are in the Donahue textbook,
Fundamental Statistical Concepts in Presenting Data
(PDF at `http://biostat.mc.vanderbilt.edu/wiki/Main/RafeDonahue`).

- Read p.74-79 (call center case study). Write a specification for the graphic on **p.78-79**.

- Read p.84-85 (SICU case study). Write a specification for the graphic on **p.85**.

For each graph, just list the `data`, `aes`, `stat`, `geom`, `scale`, `coord`, & `facet` that are shown. ("Roughly correct" is OK: this is for a human reader and doesn't need to run/compile.)

Explore and plot

The dataset to **explore and plot** is the `UScereal` dataset in the `MASS` R package. Remember: `install.packages('MASS')` installs it, then `library(MASS)` loads it so that `UScereal` is available as a data frame. `?UScereal` gives variable definitions.
`http://stat-computing.org/dataexpo/1993.html` has more info about this dataset.

Use `ggplot2` or another GoG-based tool to make one graph answering the Data Expo questions: "Can you get a lot of fiber without a lot of calories? Can you describe what cereals are displayed on high, low, and middle shelves?"

Submit

Please submit

- a **stand-alone image file** of your graph,

- a **three-part writeup** (GoG specification for the 1st and 2nd given graphs; and what your own graph shows about the given dataset), and

- **your code** or written instructions;

or a single combined PDF or HTML file, if using `knitr` and RMarkdown or similar.

See rubric below.

Component	Competent	Not yet competent
Description	The given graphic is correctly modeled/described in the `ggplot2` framework: `data`, `aes`, `stat`, `geom`, `scale`, `coord`, & `facet`. ('Roughly correct' is OK: this is for a human reader and needn't run/compile.)	The given graphic is not described correctly according to this framework.
Creation	Your graphic is created in `ggplot2` or another GoG-based tool. Demonstrates understanding of the framework and explicitly specifies all or most of its components.	Your graphic is not created in a GoG-based tool. Demonstrates understanding of few or none of the framework components.
Older Skills	Also meets all requirements for HW1 and HW2, including Administrivia format.	Does not meet some requirements of HW1 or HW2.