Professor Notes About the "Foundational Definitions" Homework

- Make sure you follow the directions for formatting your homework found here – including (1) making sure to include and sign the "Honor Statement", using complete sentences, not double-spacing results in tables, and making sure that tables and figures are labeled and referred to as described here. Failure to do so will result in missed points on the next homework.
- In both IVPPSS questions, note the specificity in the individual (including specific information about space and time (i.e., where and when)), the use of "all" in the population and parameter, the use of summaries (mean and proportions) in the parameters and statistics, and no summary language for the variables.
- In the "Invasive Species" question, the individual is not a vessel because multiple ballast tanks were sampled from some vessels.
- Note that all "what type of variable" questions must use one of "continuous", "discrete", "nominal", or "ordinal." Including "quantitative" or "categorical" is not necessary, but is a somewhat more complete answer.
- Recall that a categorical variable with only two levels is a nominal variable. More specifically, this is a binomial variable.

Crayfish and Bass

1. The IVPPSS is as follows:
   - Individual – a Rusty Crayfish in the lake with Smallmouth Bass in 2012
   - Variable – carapace length of Rusty Crayfish
   - Population – **all** Rusty Crayfish in the lake with Smallmouth Bass in 2012
   - Parameter – mean carapace length of **all** Rusty Crayfish in the lake with Smallmouth Bass
   - Sample – 235 Rusty Crayfish in the lake with Smallmouth Bass in 2012 that were actually examined
   - Statistic – mean carapace length of 235 Rusty Crayfish in the lake with Smallmouth Bass in 2012
2. Carapace length is a continuous quantitative variable.

Transfer of Invasive Species

1. IVPPSS is ...
   - Individual – a ballast tank on an ocean-going vessel in 2001.
   - Variable – whether or not the tank contain any living organisms.
   - Population – **all** ballast tanks on ocean-going vessels in 2001.
   - Parameter – proportion of **all** ballast tanks that contained living organisms.
   - Sample – 43 ballast tanks in 2001.
   - Statistic – proportion of 43 ballast tanks that contained living organisms.
2. Whether or not the tank contains any living organisms is a nominal categorical variable.

Variable Types

1. The concentration of lead is a continuous quantitative variable.
2. The risk rating is an ordinal categorical variable.
3. The information type is a nominal categorical variable.
4. The Koppen scheme is a nominal categorical variable (unless you "see" an order (e.g., decreasing temperature?) among the categories, in which case it would be an ordinal categorical variable).