



Statistical Consulting Center

Department of Statistics – Franklin College of Arts and Sciences

UNIVERSITY OF GEORGIA

SCC Seminar on Data Analysis

Working with Factors in R

Model parameterizations, contrasts, inferences on means, etc.

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Categorical variables in statistics and data science are often called classification variables or **factors**, especially when they are used as explanatory variables in statistical models. Such variables are ubiquitous and understanding them is fundamental to the practice of statistics. However, factors present some tricky issues, especially in R where the `factor` object class can be quite confusing. And models with explanatory factors should be analyzed differently than those with only continuous covariates (e.g., multiple linear regression). This talk will present an introduction to factors in R and will address several questions.

In R, do you understand the `factor` class? What are factor levels vs. labels, and what are ordered factors? Do you know how to use contrasts (i.e., contrast matrices) in R to induce different parameterizations of a model? Do you know how to do inference on a family of means or contrasts among means while controlling a combined error rate? Do you know how to specify and test custom contrasts? How about orthogonal polynomial contrasts? Do you know the difference between Type I, II, III tests? Or the difference between joint, marginal and raw means? What are simple effects vs. main effects? What are `lsmeans` and `emmeans`?

If these questions pique your interest, this talk is for you.

Monday, April 12, 2021, 3:00pm-4:30pm

Zoom info: [clickable link](#)

Meeting ID: 919 0563 9942, Passcode: 781092

Note that there is online companion material for this talk:

- Links to two companion videos:
 - https://kaltura.uga.edu/media/t/1_cka61gmn (Basics)
 - https://kaltura.uga.edu/media/t/1_nkujgc63 (Contrasts & Parameterizations)
- Link to `factors.R`, an R script discussed in the talk and videos:
 - <https://tinyurl.com/2m65myr5>