Instructor Name: Michael J. Mahometa

Course Name: Introduction to Data Analysis and Graphics Using R using the tidyverse

Course Description: (A brief description of the course content to be covered.) This course is intended to provide first-time users the ability to manipulate, summarize, analyze, and display various types of data in R. This course differs from the AM course, by leveraging the tools of the tidyverse (https://www.tidyverse.org) to make R more accessible. Below is a general course outline—topics may vary based on time and interest.

Day 1: Introduction and Data Manipulation
- Objects, functions, and the tools of the tidyverse
- Interacting with external data
- Recoding variables, modifying data
- Summarizing data

Day 2: Graphics in R
- Plotting with ggplot() and ggformula()
- Plots for major analyses:
  - Count data
  - Quantitative data
  - Correlated data
- Best practices for publication

Day 3: Analyses in R
- Chi-square
- T-tests
- ANOVA
  - Post-hoc investigations
- All tests have publication write-up suggestions

Day 4: Advanced Models and Programming
- Correlation and regression
- Regression with interactions
  - Post-hoc decomposition
- Mixed models
- If time allows: workflow and reproducibility