



# 2020 Harris Math Camp

## Coding Camp Syllabus

### **Lecture 1**

- Why learn to code?
- Key functions and concepts:
  - `install.packages()`, `library()`

### **Lecture 2**

- Loading data and basic manipulations
- Key functions and concepts:
  - `read_*()`, `select()`, `mutate()`, `filter()`, `arrange()`

### **Lecture 3**

- Data types, vectors, vectorized functions and base R
- Key functions and concepts:
  - `sum()`, `mean()`, `rep()`, `paste0()`, `[,]`, `$`, binary operators

### **Lecture 4**

- Summarizing and analyzing data
- Key functions and concepts:
  - `group_by()`, `summarize()`

### **Lecture 5**

- Conditional statements
- Key functions and concepts:
  - `if(){}`, `ifelse()`, boolean operators

### **Lecture 6**

- Visualizing data
- Key functions and concepts:
  - `ggplot()`, `geom_point()`, `geom_line()`, `geom_col()`, grammar of graphics