Concept List for Midterm

July 6, 2017

Topics Covered So Far

- **Statistical Ideas**
  - Mean
  - Variance & Standard Deviation
  - Sum of Squares
  - Randomness
    - * Random number generation
  - Factors
  - Design Matrix
  - SLR
  - MLR
  - Normal Distribution
    - * Z-Score
- **Data Management**
  - Regular Expressions (regex)
  - Date and Time Formats
  - Vectorized Cleaning
  - Read and Write Data
- **Reproducibility**
  - CLI
  - Project Setup
  - Version Control via Git / GitHub
  - Literate Programming with RMarkdown
- **Computing Theory**
  - Data Types
  - *R* Data Structures
  - Function Design
  - Recursion
  - Memoization
  - Compiler vs. Interpreter
  - Memory Usage
  - Numerical Stability
    - * `numeric` comparison
    - * `numerics` in loop index
    - * Overflows
- **Practical Implementation**
  - Debugging Errors
  - Benchmarking