2022 Harris Math Camp
Math Camp Syllabus

Week 1

Day 1
- Why and what kind of math do we need for public policy analysis?
- Basic Algebra Review
  - Exponents, Fractions, Simplifying Expressions
- Linear Functions

Day 2
- Graphing Linear Functions
  - More applications of linear functions
- Types of Functions
  - Quadratic Functions
  - Exponential and Logarithmic Functions

Day 3
- Solving and graphing non-linear equations

Day 4
- System of Equations (Graphing and Translating from English)
- Inverse and Piecewise Functions
  - Domain and Range

Day 5
- Summation Notation
- Absolute Values and Inequalities
Week 2

Day 1
- Review of Week 1
- Introduction to Derivatives:
  - Graphical Examples
  - Product, Quotient Rules

Day 2
- Chain Rule
- Partial Derivatives
- Interpreting Derivatives with Applications

Day 3
- Unconstrained Optimization
- First and Second Order Conditions

Day 4
- Optimization Word Problems
  - Application: Profit Maximization
  - Application: Cost Minimization
Week 3

Day 1
- Review of Unconstrained Optimization
- Modeling Constraint Equations
  - Graphing Constraint Equations
- Intro to Constrained Optimization

Day 2
- Constrained Optimization
  - Substitution Method only
- Applications of Constrained Optimization

Day 3
- Integration
  - Definite and Indefinite Integration
- U-Substitution

Day 4
- Applications of Integration
- Review of Calculus Concepts

Day 5
- Final Review