2020 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