



2021 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