School of Public Policy and Governance, University of Toronto

Mathematics/Statistics Review
September 2nd to 5th, 2008

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Class Schedule: Tuesday to Friday from 1 p.m. to 5 p.m.
Location: Room 150, Canadiana Building

Description and Objectives

The central objective of this course is to provide students with a review (or preview) of tools relevant to course work in the upcoming year. The subjects covered specifically target PPG1002 and PPG1004.

Reference Materials

The main references materials are the textbooks for PPG 1002H: Microeconomics for Public Policy and PPG1004H: Quantitative Methods for Policy Analysis:

> Hal R. Varian, "Intermediate Microeconomics: A Modern Approach," Seventh Edition, 2006, W.W. Norton and Company.
>
> Ashenfelter, Orley, Phillip B. Levine and David J. Zimmerman, 2003. Statistics and Econometrics., John Wiley & Sons.

The book by Varian, in particular, includes a mathematical appendix that you may want to review. As we move into the Statistics section of the course, you may want to review the first two chapters of *Statistics and Econometrics*.

Software

During the review, I will present a brief introduction to Microsoft Excel and STATA.

You can purchase a one-year license for STATA/IC 10 (intercooled STATA, version 10) for US$105 or a perpetual license for US$165 through STATA's course GradPlan here:
http://www.stata.com/order/new/edu/gradplans/cgpcampus-order.html

Problem Sets

In each class meeting, I will hand out a problem set that you should attempt before our next meeting. Although the problems sets are optional, completing them will help highlight concepts that you may want to spend more time on. It will also serve as good practice and preparation for the upcoming semester.

Outline

A. Mathematics Review

1. Arithmetic Operations
2. Fractions
3. Exponents
4. Equations and Inequalities
5. Functions
    a. Linear Functions
    b. Absolute Function
    c. Logarithm Function
    d. Parabolic Function
6. Derivatives
7. Partial Derivatives
8. Maximization/Minimization
9. Level Sets (i.e. Indifference Curves)

B. Introduction to Statistics

1. Definition of Statistics
2. Measures of Central Tendency
3. Percentiles/quartiles
4. Measures of Variability
5. Histogram/Relative Frequency
6. Chebyshev's Theorem
7. Basic Probability Theory
8. Introduction to Excel and STATA