FINA 7A97 - Quantitative Methods in Finance (Review of Math and Stats)

Location: Melcher Hall, Room 210B
Time: 11:00 AM to 2:00 PM (some days TBA).
Online Notes and Other Material: www.bauer.uh.edu/rsusmel /phd/summercourse.htm

Objective
This is an intensive 30-hour course offered before the start of the Fall semester, primarily for entering doctoral students. This course introduces the new Ph.D. and MSF-Q students useful mathematical and statistical tools used in Business and Economics. It will be taught Monday through Friday for 3 hours a day, for two consecutive weeks.

Class Organization
This Summer Course will be divided in two parts: Review of Mathematics (six days) and Review of Statistics (four days).

● **Mathematics** (6 days)
Matrix Algebra
Differential Calculus: univariate and bivariate
Optimization: Extreme values and constrained optimitization
Integration: Univariate, Multivariate and Numerical Integration
Difference and Differential Equations
Introduction to Stochastic Differential Equations
Dynamic Optimization

Reference books
Mathematical Methods for Economics (2nd Edition), by Michael W. Klein, Addison Wesley (2002).
Fundamental Methods of Mathematical Economics, by Alpha C. Chiang, cGraw Hill (1984).
Note: The first four chapters of Klein's book will be assumed to be known by all students. Many parts of the book, like unconstrained univariate optimization, will be assigned and not covered.

● **Statistics** (4 days)
Fundamentals of probability theory
Random variables
Distribution functions and moments
Important univariate distributions
Joint distributions
Sampling distributions
Parametric point estimation

Reference books
Statistical Methods In Econometrics, by Ramu Ramanathan, Academic Press (1993).
Econometric Analysis (2nd or later editions), by William H. Greene, Prentice Hall.
Note: Greene's book has a nice review of the statistical principles that will be covered in this class. It is the book used in the first Quantitative Methods class offered at the Bauer College.