York College
Department of Business & Economics

Syllabus   **Fall 2017**

Course	Description	Credits	Hours	Division	Subject
Econ 220	Economic Statistics	3.0	3.0	Undergraduate	Economic Statistics
Section	**Code**	**Day and Time**	**Instructor**	**Classroom**	**Online Course**
VVV	39827	We 6:00PM-9:50PM	Taye Tefera ttefera@baruch.cuny.edu Office Hours: Tu 12PM-PM or by appointment	**109**	No

Pre-requisites   Knowledge of Introductory Statistics, Calculus Economics and Finance Helpful

Course Description

This course is designed for students who are interested in economics, econometrics, finance and business management. The course is also vastly useful for general business students, not just for students who major in economics and finance. Since this is a survey course, we will cover a lot of ground. We will begin with a general overview of corporate finance and then go into more details on several concepts, financial instruments and techniques used in financial decision-making.

One's opinions to the contrary notwithstanding mathematical thinking in particular statistical thinking has become the language of today's analytical economics, finance and business in general. For better or worse no other discipline has more importance than statistics of one kind or another when a given decision, whatever the decision is, if that decision involves - what decision doesn't - collecting organizing, analyzing, interpreting, forecasting and taking the informed decision. In any domain of economics, business, finance! Business and economic statistics quantifies the relationships between variables and among economic, business and policy actors. It formalizes and clarifies properties of key relationships. It allows decision makers to identify and analyze general properties that are critical to the behavior of economic systems.

Course Objectives:

- To enable students to use basic statistical tools to make practical business, economic and financial decisions.
- In addition to techniques such as sampling distributions and estimation, hypothesis testing and regression model building students are encouraged to develop intuitions for how and why the various statistical techniques work.
- To ascertain that students learn how to use and apply statistics by working with concrete examples and exercises.
- To encourage and help students use statistics to understand the structure of finance and economics.
- To explore new statistical ideas and techniques that shed light on the dynamic fields of economics and finance are explored.
- Students learn not only models and techniques but also the elements of what constitutes step by step proof of mathematical and statistical results so they understand better both the logic behind techniques used and the total structure in which the arguments are built in clear and orderly fashion.

Learning outcome

Upon completion of the course students:

- Will be able to use basic statistical tools to make practical business, economic and financial decisions.
- Will have not only basic understanding of how to use techniques such as sampling distributions and estimation, hypothesis testing and regression model building but also acquire active intuitions for how and why the various statistical techniques work.
- Can use statistics to understand the structure of finance and economics.
- Will be able to explore new statistical ideas and techniques that shed light on the dynamic fields of economics and finance are explored.
- Will know not only models and techniques but also the elements of what constitutes step by step proof of mathematical and statistical results so they understand better both the logic behind techniques used and the total structure in which the arguments are built in clear and orderly fashion.

Course Content

Topics covered will include, but will not be limited to:

- General Preview of the role of Economic and Business Statistics
- Probability Theory
- The basics of Bayesian Probability
- Regression, Model Building, and Time Series
- Hypothesis Testing
- Decision Theory

Hardware/Software/Materials Requirements: **Some**

Course Requirements:

Students are urged to read the appropriate text material prior to class. We will announce the chapters to be covered for each session in class. Homework problems will be periodically assigned to measure the comprehension of students and the degree of absorption of lecture materials.

Grading Requirements:

We will have three tests, each of which will count 20%, 20% and 40 %, respectively, towards the overall grade. Term paper will be 15% of your overall grade. The date of the final examination is set by the college, and cannot be changed to accommodate student's personal problem. College policy on academic integrity will be enforced. Please, refer to your student handbook.

Performance	
1st Test	20%
2nd Test	30%
3rd Test (Final)	40%
Class Participation	05%
Excel (If applicable)	05
Total	100%

Academic Integrity

"Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. York College students are expected to bear individual responsibility for their work and to uphold the ideal of academic integrity. Any student who attempts to compromise or devalue the academic process will be sanctioned."

Methodology:

Class sessions consist of primarily lectures and discussions but may also include videos and guest speakers.

Required Text

Business (Economic Statistics), Ronald M. Weiers. 7th Edition

Suggested Readings

Econometrics,

Newspapers: Financial Times, The Wall Street Journals, The New York Times (Particularly the Business Section)
Magazines: The Economist, Business Week, Fortune, Forbes

Books: Eugene F. Brigham, Joel F. Houston, Fundamentals of Financial Management, 9th Edition, The Dryden Press

Websites

http://finance**.yahoo.com, http:/moneycontrol.msn.com/investor, http:/Bloomberg.com/markets/wei.html, http:/oppmarketwatch.com/intel/default.asp, http:/value.line.com.**

Statistical or Financial Calculator (Necessary), Excel and other tools will be used as necessary.

This course is intensely computational in its nature. We emphasize a firm understanding of concepts as they are used in practical decision-making. Our approach in dealing with numerical problems – most statistics courses involve massive amount of numerical problems – will be 1) Using formulas, i.e, numerically, using formulas, 2) Using tables, 3) Using calculators, 4) Using excel. A calculator is as essential as the text book for this course. There are a lot of fairly priced financial calculators in the market. I suggest TI, BA2 Plus. It is the least expensive. It is also much easier to use than most other financial calculators in its category.

Course Outline

The outline below contains two parts. You are not required to do the asterisked parts. That is for your own personal reference in case you need additional understanding. You can use that part to use MIT lectures

Week	Topics	Chapters
1	Topics	Chapters
	Business and Economic Statistics: Introduction and Background	
	• Preview of Economic and Business Statistics	1
	• Visual Description of Data	2
	• Statistical Description of Data	3
	• Data Collection and Sampling Methods	4

	Set and Probability Theory (PDF) Basics of Set Theory	
2	**Probability** - Probability: Review of Basic Concepts - Discrete probability Theory - Continuous Probability Distributions *Random Variables, Probability Mass/Density Function, and Cumulative Distribution Function (*Model) (PDF)	5 6 7
3	Sampling Distributions and Estimation - Sampling Distributions *Multiple Random Variables, Bivariate Distribution, Marginal Distribution, Conditional	8

	Distribution, Independence, Multivariate Distribution (Multivariate Model) (PDF)	
4	• Estimation from Sample Data *Expectation (Moments) (PDF)	9
5	Exam 1	
6	**Hypothesis Testing** • Hypothesis Tests Involving a Sample Mean or Proportion • Hypothesis Tests Involving Two Sample Means or Proportions *Random Variable and Random Vector Transformations (Univariate and Multivariate *Models) (PDF)	10 11
7	• Analysis of Variance Tests 12 • Chi – Square Applications 13 • Nonparametric Methods 14 *Special Distributions (Discrete and Continuous) (PDF) *Graph Representation: Special Distributions (PDF)	
8	Exam 2	

9	Regression, Model Building, and Time Series
	    • Simple Linear Regression and Correlation
	    • Multiple Regression and Correlation
	
	*Random Sample, Law of Large Numbers, Central Limit Theorem (PDF)
	
	*Simulations: Magnifying Glass (PDF)
		15
		16

10	• Model Building • Models for Time Series and Forecasting *Point Estimators and Point Estimation Methods (PDF) *An Overview (PDF)	17 18
11	• Decision Theory *Interval Estimation and Confidence Intervals (PDF) *t-Student versus Standard Normal: A Graphical View (PDF) The t-Distribution versus the Normal Distribution (Java Applet)*	
12	**Special Topics** • Total Quality Management *Hypothesis Testing (PDF) *An Applied Review (PDF)	

13	Overview of Probability

14	Overview of Regressions and Decision Making *Random Sample, Law of Large Numbers, Central Limit Theorem (PDF) *Simulations: Magnifying Glass (PDF) *Point Estimators and Point Estimation Methods (PDF) *An Overview (PDF)
15	Final Exam