

Course Outline

1. Course Number and Name: Bus3104, Statistics and Quantitative Methods

Credits: 3 hours

Prerequisites: Successful completion of Introductory and/or Intermediate Algebra courses is recommended before taking Statistics.

2. Course Description: This course is an introduction to the field of statistics. It is grounded in practical applications to business and economic decision making. It provides the essential mathematical fundamentals for effective statistical reasoning. Knowledge of algebra but no calculus is assumed. Through the selected text, *Essentials of Statistics for Business and Economics, 5th edition*, by Anderson, Sweeney and Williams, together with the use of Microsoft Office Excel 2007 for computational purposes, the course includes a substantial amount of practical, hands-on practice in real-world data analysis and exploitation.

3. Course Objectives: The text defines statistics as the art and science of collecting, analyzing, presenting and interpreting data. A *statistic* is a measurement drawn from a sample (subset of a population). For example, a predicted final vote determined by an "exit poll" in an election is a *statistic*. The subject of statistics addresses a wide range of strategies for making objective decisions using data. Our understanding of the world is derived from a mixture of factual and subjective data which we must somehow interpret. The data available to us are usually incomplete and of variable quality. Statistics gives us an objective, quantitative, and principled way to make decisions using imperfect data. Most importantly, it enables us to estimate the quality of these decisions numerically so that both potential risks and rewards can be realistically assessed. It is the goal of this course to empower students by endowing them with a practical set of statistical decision-making skills that they can immediately use in the real world.

4. Course Learning Outcomes:

At the end of this course, the student will be able to:

1. Suggest various methods for presenting qualitative and quantitative data
2. Calculate measures of central tendency, measures of dispersion, and measures of linear association, and explain how these are used by the decision-maker
3. Represent the possible outcomes of an event in terms of a Venn Diagram
4. Compute the expected value, variance, and standard deviation of a random variable, and explain what these tell the decision-maker about the data
5. Solve problems using a continuous probability distribution
6. Infer population parameters from sample statistics
7. Perform interval estimates using the normal and t distributions
8. Conduct a hypothesis test, and explain how to interpret the results
9. Use data to create and apply regression models to help make decisions
10. Use regression output to objectively evaluate conclusions drawn from data

5. Course Concepts:

- (1) Formats, organizational prototypes, templates and conventions used in the presentation of data
- (2) Measures of central tendency, variation, and correlation
- (3) Probability and Discrete Probability Distributions
- (4) Continuous Probability Distributions, Sampling
- (5) Sampling Distributions, Interval Estimates
- (6) Hypothesis Testing
- (7) ANOVA
- (8) Linear Regression Modeling

6. Required Textbook:

Anderson, David R., Sweeney, Dennis J., Williams, Thomas A., Essentials of Statistics for Business and Economics, 5th edition, Thomson South-Western Publishers, 2011. ISBN-13:978-0-324-65321-2.

7. Required Software

Microsoft Excel 2007

8. Recommended Reading: Students should be aware of this website:

<http://www.khanacademy.org>

Khan Academy contains a vast repository of (free) short tutorial videos that are excellent for “brushing up” on unfamiliar or forgotten topics.

8. Additional Resources: Data Files CD-ROM, included with the textbook. There is also an instructor provided data set, called **ELOAD.CSV** located in Assignments.

9. Course Metrics: The U.S. Department of Education requires colleges and universities to estimate the amount of hours and minutes students and instructors are engaged in preparing for and participating in coursework. Click the link below, save it to your hard drive and title it “Econ100, Metrics.” Upon completion of each session, record the amount of time you took to prepare and complete coursework in that session. At the end of the course, e-mail the completed form to registrar@yorktownuniversity.edu. And you may try clicking “submit” on the form and send it to Yorktown University’s registrar automatically. Just in case, do both.

http://www.yorktownuniversity.edu/cf_forms/form_metrics_student.cfm