

Bus 3104
Statistics and Quantitative Methods

1. Course Number and Name: Bus 3104 Statistics and Quantitative Methods

Credits: 3 hours

2. Course Description: This course provides a conceptual yet practical introduction to the field of statistics, a branch of mathematics. It targets the analytic needs of those whose career interests fall into the broad range of business and economic subject areas. Its focus, where possible, is upon application. Nevertheless, it will provide as solid a conceptual understanding as is consistent with the minimal mathematical background required by the course. Knowledge of algebra but no calculus is assumed. Through the selected text, *ESSENTIALS OF STATISTICS FOR BUSINESS AND ECONOMICS 5e*, by Anderson, Sweeney and Williams, together with the use of Microsoft Office Excel 2007 for computational purposes, the course is able to provide a substantial amount of actual hands-on (and therefore highly practical) experience.

3. Course Objectives: A *statistic* is often simply the word chosen to denote a numerical fact. Last year's GDP is a *statistic*. The subject of statistics, however, is much more than that. The text defines statistics as the art and science of collecting, analyzing, presenting and interpreting data. The ordinary role of statistics is revealed by its utility in making decisions, often business and economic decisions, more effectively. Our understanding of the world, as well as any portion of the world which commands our particular interest, is comprised of both factual and subjective or impressionistic data. Particularly (but not exclusively) with respect to the former, that understanding depends profoundly upon our ability to gain access to the most important and potentially useful data, to subject that data to appropriate and rigorous analytic techniques, to interpret wisely the result of that work and to see that those results are insightfully and effectively brought to the attention of those in the best position to take fullest possible advantage of their value. It is the goal of this course to set students firmly on the professional path most likely to see them begin to realize and achieve these possibilities.

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
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
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
9. Interpret coefficient estimates in a linear regression
10. Use regression output to make assertions about the strength and meaning of a statistical relationship

5. Course Concepts:

- (1) The formats, organizational prototypes, templates and conventions used in the presentation of data
- (2) Measures of central tendency and dispersion
- (3) Probability and sampling
- (4) Random variables
- (5) Interval estimates
- (6) Linear regression
- (7) Hypothesis Testing

6. Required Texts and Software:

1. Anderson, David R., Sweeney, Dennis J., Williams, Thomas A., "**Essentials of STATISTICS FOR BUSINESS AND ECONOMICS 5e**". Hardcover, 672 pages. THOMSON South-Western Publishers, 2006. ISBN 13: 978-0-324-56860-8, ISBN 10: 0-324-56860-6. Includes Data Files CD-ROM.
2. Microsoft Excel 2007

7. Recommended Reading: Nothing beyond the Text

8. Additional Resources: Data Files CD-ROM, included with the text.