THOMPSON RIVERS UNIVERSITY

Course Outline

Department of Economics
School of Business and Economics

ECON 2320-3
Economics and Business Statistics 1 (3,0,0)

Calendar Description

Students are introduced to statistics with an emphasis on its applications in business and economics. Topics include descriptive statistics and numerical measures; an introduction to probability; discrete and continuous probability distributions; sampling and sampling distributions; interval estimations; and testing hypotheses and statistical inferences.

Educational Objectives/Outcomes

Upon completing this course, students will be able to:

1. Apply descriptive statistics such as measures of central tendency, variability and association between two variables.
2. Compute probabilities using Bayes' Theorem and apply conditional probability to business and economic problems.
3. Compute the expected value and variance of any random variable.
4. Use discrete and continuous probability distributions for business and economic problems.
5. Demonstrate the central limit theorem and its implications.
6. Construct and interpret interval estimations.
7. Test various hypotheses to make statistical inferences.
8. Apply the use of statistical techniques in various fields within business such as marketing, supply chain management, accounting, finance, and economics.

Prerequisites

ECON 1220 or both ECON 1900 and ECON 1950

Note: Students cannot receive credit for more than one of MATH 1200, STAT 1200, STAT 2000, ECON 2320, PSYC 2100, SOCI 2710, BIOL 3000, and SOCI 3710.

Co-requisites

None

Texts/Materials

Anderson, Sweeney, Williams, Camm, and Cochran, <u>Statistics for Business & Economics</u>, 12th Edition, South-Western, 2014.

Student Evaluation

Participation	0-20%
Assignments/quizzes	0-20%
Project	0-25%
Midterms	30-60%
Final exam	30-50%

Course Topics

1. Descriptive Statistics and Numerical Measures
   - Summarizing quantitative data
   - Cross-tabulations and scatter diagrams
   - Measures of location and variability
   - Weighted mean and working with grouped data

2. Introduction to Probability
   - Some basic relationship of probability
   - Conditional probability
   - Bayes' theorem

3. Discrete Probability Distribution
   - Random variables
   - Developing discrete probability distribution
   - Expected values and variances
   - Bivariate distributions, covariance, and financial portfolios
   - Binomial probability distribution
   - Poisson probability distribution
   - Hypergeometric probability distribution

4. Continuous Probability Distribution
   - Uniform probability distribution
   - Normal probability distribution
   - Normal approximation of binomial probabilities
   - Exponential probability distribution

5. Sampling and Sampling Distributions
   - Point estimation
   - Sampling distribution of $\bar{x}$
   - Sampling distribution of $\bar{p}$

6. Interval Estimation

- Population mean: σ known
- Population mean: σ unknown
- Determining the sample size
- Population proportion

7. Hypothesis Tests and Statistical Inferences
   - Developing null and alternative hypotheses
   - Type I and Type II Errors
   - One and two population(s) mean: : σ known
   - One and two population(s) mean: : σ unknown
   - One and two population(s) proportions

Methods for Prior Learning Assessment and Recognition

As per TRU policy.

Attendance Requirements – Include if different from TRU Policy

As per TRU policy.

Special Course Activities – Optional

Use of Technology – Optional