

COURSE OUTLINE

Class Meetings: MWF - 8:10 am to 9:00 am RBC 261
Office Hours: MW - 9:00 am to 11:00 am RBC 220 or by appointment
Contact: rea204@lehigh.edu
Course Objectives: Our goal in Eco. 145 is to develop an understanding of the basic tools of statistical analysis and to learn how to apply them to a wide variety of situations and data encountered in the areas of business and economics. By the end of the semester you should be able to do the following:

- 1) Compute and interpret basic descriptive statistical measures;
- 2) Understand the basic concepts of probability and utilize elementary probability rules;
- 3) Apply techniques of statistical inference (estimation and hypothesis testing);
- 4) Work with measures of statistical association (correlation and regression);
- 5) Apply chi-square tests of goodness-of-fit;
- 6) Utilize EXCEL for statistical computing.

Texts: Anderson, Sweeney, Williams (ASW), *Statistics for Business and Economics*, 10th edition. (Required)

Other Materials: A good pocket calculator (one with statistical functions) is helpful for working homework problems. During examinations, however, you may use only a (non-programmable) calculator that performs only basic arithmetic functions. You can purchase one of these calculators at the L.U. Bookstore. Please make sure that you have your books and calculators with you during the lectures, so that you can “actively” work on the in-class examples.

Topics and Reading Assignments:

1. Introduction to Statistical Analysis
Readings: Anderson, Sweeney, and Williams (ASW), Ch. 1
2. Frequency Distributions and Descriptive Statistics
Topics: Frequency distributions
Measures of average (location), variability, skewness
Standardizing data
The “empirical rule” and Chebyshev’s theorem
Measures of association: the covariance and the correlation coefficient
Readings: ASW, Ch. 2 and Ch. 3, Appendix C & E

3. Introduction to Probability
 - Topics: The meanings of probability
Elementary probability rules
Bayes' rule
Counting techniques
 - Readings: ASW, Ch. 4

4. Probability Distributions
 - Topics: Random variables
Expected value
The uniform, binomial, Poisson, hypergeometric and normal distributions
 - Readings: ASW, Ch. 5 and Ch. 6 (skip section 6.4)

5. Sampling and Sampling Distributions
 - Topics: Parameters and statistics
Random sampling
Sampling error
Unbiased estimators
The central limit theorem
 - Readings: ASW, Ch. 7

6. Statistical Estimation
 - Topics: Point estimation and sampling error for means and proportions
Confidence intervals
Appropriate sample size determination
The t-distribution
 - Readings: ASW, Ch. 8

7. Hypothesis Testing
 - Topics: One- and two-tail tests of means and proportions
Type I and Type II errors
Two-population tests
 - Readings: ASW, Ch. 9 and Ch. 10

8. Chi-Square Analysis
 - Topics: Goodness-of-fit tests
 - Readings: ASW, Ch. 12 (to p. 462 only)

9. Correlation Analysis
Topics: The product-moment correlation coefficient
Readings: ASW, Ch. 3 (pp.110-116) and Appendix 14.1 & 14.2 (pp. 618-620)
10. Regression Analysis
Topics: Simple regression
Standard error of estimate
Coefficient of determination
Inference in regression analysis
Multiple Regression
Logistic Regression
Readings: ASW, Ch. 14 and Ch. 15

Attendance Policy: Class attendance is mandatory. Excessive absences will affect your grade for the course, so please be very careful to avoid missing any. We will be covering a considerable amount of material during each of the class meetings. Since most of the material is cumulative, a missed class will put you very far behind in a very short time. If you must miss a class, please contact me beforehand.

Homework: Because of the applied nature of the course, each week I will distribute a set of homework problems (exercises). These homework exercises will ordinarily consist of a set of problems involving concepts and techniques recently studied. The problem sets should be worked out neatly and completely on 8½" x 11" paper (not torn out of a spiral notebook) and then handed in. After they are collected, I will usually distribute a solutions key. Please notice that assignments cannot be accepted after the date on which they are due. Each problem set is a graded exercise, so please be careful to work the assignments carefully and honestly. Although you may consult with me or with other students, the work which you hand in should be your own. Homework assignments showing evidence of outright dishonesty will not be accepted and will be penalized.

Examinations and Quizzes: Three examinations will be given during the semester - two hourly exams during the 6th and 11th weeks and a final examination during the final exam period. Dates will be announced well in advance. In addition, there will be several (possibly unannounced) short class quizzes during the semester. No make-ups will be given for the examinations or the quizzes, and an excused absence from a quiz or an exam will only be allowed in the case of a medical emergency. In such situations a note from the Dean of Students Office is necessary.

Final Grades:

Your final grade will be determined by assigning the following weights to graded material in the course:

First examination	25%
Second examination	25%
Final examination	35%
Homework sets, quizzes, class participation, and attendance	15%

Office Hours, E-mail Address and Telephone:

My office is located in the Rauch Business Center, Room 220. Office hours are Monday and Wednesday from 9:00 AM to 11:00 AM. If posted hours are inconvenient, please feel free to make an appointment with me. I can be contacted via my email, rea204@lehigh.edu. For any emergency, please contact Rene Hollinger - Department Coordinator at rf03@lehigh.edu or at 610-758-3420.

Please notice the Eco. 145 course web page (Blackboard). You can access the web page at <http://ci.lehigh.edu>. Be sure to check the course web page regularly. I will post homework sets, class handouts, and other materials there in addition to announcements regarding homeworks, corrections, etc.

Disabilities:

If you have a documented learning disability and will be requesting academic accommodation for this class, please contact Dean Cheryl Ashcroft in the Office of the Dean of Students, UC 212, 8-4152.

Academic Integrity:

It is the duty and obligation of the students to meet and uphold the highest principles and values of personal, moral and ethical conduct. As partners in our educational community, both students and faculty share the responsibility for promoting and helping to ensure an environment of academic integrity. As such, each student is expected to complete all academic course work in accordance to the standards set forth by the faculty and in compliance with the university's Code of Conduct.