

Bus 273: Statistical Analysis for Business

Fall 2011

“Statistical literacy” is essential for modern managers and indispensable in every area of business. This course gives an introduction to the idea of statistics and introduces useful methods for the collection, presentation, analysis, and interpretation of data. The abuse of statistical techniques is also critically discussed. The course tries to lay out the basics of applied statistics using many real-world examples.

Bus 273 is the first part of a two-semester introduction to business statistics; it will be followed by Bus 274.

Contents:

Part I: Introduction to Statistics; Basic Concepts; Descriptive Statistics

1. Introduction
2. Populations and observations: Variables; scales; sample surveys
3. Displaying univariate data: The notion of distribution; techniques of exploratory data analysis (e.g., stem-and-leaf diagram)
4. Location, variation and shape of a distribution: Mean values and their application; quantiles; variance and standard deviation; skewness; kurtosis

Part II: Probability and Stochastic Models

5. Stochastic models behind the observations: Introduction to stochastic models; urn models and probability
6. Discrete probability distributions: Binomial and related distributions; Poisson distribution; examples
7. Continuous probability distributions: The normal and lognormal distributions; the exponential distribution; applications (e.g., investigating daily returns on stocks)
8. More about random variables and their distributions: Sampling; the central limit theorem; the law of large numbers; further distributions.

Part III: Statistical Inference

9. Estimation: Point estimation; confidence intervals

Learning Outcomes: On successful completion of this course, students will be able to

- formulate a statistical problem related to real-world examples,
- recognize the problems in collecting data,
- summarize the characteristics (location, variation, shape) of a distribution,
- identify stochastic models behind observations,
- calculate probabilities related to daily business problems,
- calculate point estimations and confidence intervals for the parameters of distributions.

Grading:

presence & quizzes:	20%
midterm exam:	30%
final exam:	50%

Attendance will be taken, occasionally together with a short quiz, to evaluate your performance. Date and time of the exams will be announced later.

Recommendations:

- **This is an easy course only if you study regularly. You are strongly advised against delaying your efforts for this course until the exam week.**
- **The slides you'll see in this course are not self-contained; they need to be explained. Explanations will be given in the lectures.**
- **You should take notes during the lectures in order to study successfully.**
- **You are supposed to attend the classes, too.**
- **You have to attend the Bus 273 section you are registered for.**
- **Academic dishonesty (for example, plagiarism and cheating) will be punished according to the rules of Istanbul Bilgi University.**
- **In case of problems, please see us BEFORE the exams take place. Please do not come to see us after the final exam to "explain" your "situation".**

Literature:

- Bowerman, Bruce L., O'Connell, Richard T., & Hand, Michael L.: *Business Statistics in Practice*, second edition. McGraw Hill, 2001.
- Devlet İstatistik Enstitüsü (editor): *İstatistik Terimleri Sözlüğü*, Ankara, 1998.
- Newbold, Paul, Carlson, William L., & Thorne, Betty: *Statistics for Business and Economics*, sixth edition. Prentice Hall, 2006.
- Özdemir, Durmuş: *Applied Statistics for Economics and Business*. İstanbul Bilgi University Press, 2001.
- For further information, please go online regularly.