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Bus 273: Statistical Analysis for Business

Fall 2014

SYLLABUS FOR THE ON-SITE VERSION

"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 distribution; the exponential distribution; applications

8. More about random variables and their distributions: Sampling; the central limit theorem; the law of large numbers; further distributions.

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 characterictics (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.

You are required to do the following:

(i) Attend the on-site lecture each week.

(ii) After each lecture, answer the work sheet questions in the online system for that week. You should do this before the next class and before the next lecture sessions. Your responses to work sheet questions will be recorded by the online system.

(iii) Attend the class session each week, given by Erdal Terkivatan and Deren Çağlayan on-site. Quizzes and exercises will be given in the class sessions; they will be used in the grade assessment (see below). Your class contribution will only count on condition that your activities in (ii) are sufficient.

(iv) Go online regularly (at least once a week) and check for updates of course material.

Grading:

midterm exam:	20%
final exam:	20%
class quizzes:	60%

As a bonus, up to 10 percent points can be given for substantial contributions to discussions in lectures.

Recommendations:

- **This is an easy course only if you study regularly.**
- **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.**
- **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:

- Newbold, Paul, Carlson, William L., & Thorne, Betty: *Statistics for Business and Economics,* eighth edition. Prentice Hall, 2012.
- Özdemir, Durmuş: *Applied Statistics for Economics and Business.* İstanbul Bilgi University Press, 2001.