

Statistics for Business and Economics

HSBC School of Business
Peking University
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Instructor: Dongming Zhu

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- Office Hours: Thursday p.m. 4:00 - 5:30.

Time and Location: Tuesday & Friday a.m. 10:30-12:20, Room C214.

Required textbook: *Statistics for Business and Economics*, 9th Edition, David R. Anderson, Dennis J. Sweeney & Thomas A. Williams.

Grading: There will be several assignments and projects, a final exam. They will count toward the grade as follows.

Assignments and Projects	30%
Final	70%.

Course Outline:

This course is an introduction to Business Statistics, including descriptive statistics, statistical inferences, regression models, and other statistical methods for business and economics. Students are expected and encouraged to read the text throughout. Homework assignments will frequently be computer exercises so that students are required to learn at least one computer software such as Excel, SAS, Minitab, etc. Some other topics of multivariate statistical analysis will be discussed if time allows.

Topics:

1. Descriptive Statistics

- (a) Tabular and Graphical Methods (Ch.2)
- (b) Numerical Methods (Ch.3)

2. Probability

- (a) Basic Concepts (Ch.4)
- (b) Discrete Probability Distributions: Binomial, Poisson, Hypergeometric (Ch.5)
- (c) Continuous Probability Distributions: Uniform, Normal, Exponential (Ch.6)

3. Statistical Inference I

- (a) Sampling: Sampling Methods (simple random, stratified random, cluster, systematic, etc.), Sampling Distributions (Ch.7)
- (b) Estimation: Point Estimation (unbiasedness, consistency, efficiency) and Interval Estimation (Ch.8)
- (c) Hypothesis Testing: Basic Concepts (null and alternative hypotheses, type I and type II errors, one-tailed and two-tailed tests, etc.), Tests about a Population Mean (σ known, σ unknown), Tests about a Population Proportion (Ch.9)

4. Statistical Inference II

- (a) Inferences about Means and Proportions with Two Populations (Ch.11)
- (b) Inferences about Population Variances (Ch.10)

- (c) Tests of Goodness of Fit and Independence (Ch.17)
 - (d) Analysis of Variance and Experimental Design (12)
5. Regression Models
- (a) Simple Linear Regression (Ch.13)
 - (b) Multiple Regression (Ch.14)
 - (c) Regression Analysis: Model Building (Ch.15)
6. Other Statistical Methods for Business and Economics
- (a) Index Numbers
 - (b) Forecasting (Ch.16)
 - (c) Nonparametric Methods (Ch.18)
 - (d) Sample Survey (Ch.20)
7. Introduction to Multivariate Statistical Analysis
- (a) Principal Components Analysis
 - (b) Factor Analysis
 - (c) Discriminant Analysis
 - (d) Cluster Analysis