HANYANG UNIVERSITY

2018 HISS Syllabus

[Basic Business Statistics]

Professor:	**Jong-Min Kim**
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Home Univ.:	University of Minnesota at Morris
Dept.:	Statistics

Description:	Scope, nature, tools, language, and interpretation of business statistics. Descriptive statistics; graphical and numerical representation of information; measures of location, dispersion, position, and dependence; exploratory data analysis. Elementary probability theory, discrete and continuous probability models. Inferential statistics, point and interval estimation, tests of statistical hypotheses, regression analysis; and use of statistical computer packages (Excel, R).

Objective:	Learn basic statistics concepts and practice how to apply the learned statistics knowledge to real business data.
Preparations:	**Textbook**: Statistics for Management and Economics, Abbreviated 7th edition, Thomson 2007, by Keller. **Pre-knowledge**: Basic College Algebra. **Materials**: Regular Calculator needed.

Schedule:	Week 1	Chapter 1: What is Statistics? 1.1. Key Statistical Concepts. 1.2. Statistical Applications in Business. 1.3. Statistics and the Computer. Chapter 2: Graphical Descriptive Techniques I. 2.1. Types of Data and Information. 2.2. Describing a Set of Nominal Data. 2.3. Describing the Relationship between Two Nominal Variables and Comparing Two or More Nominal Data Sets. Chapter 3: Graphical Descriptive Techniques II. 3.1. Graphical Techniques to Describe a Set of Interval Data.

	3.2. Describing Time-Series Data.2 3.3. Describing the Relationship between Two Interval Variables. 3.4. Art and Science of Graphical Presentations. Chapter 4: Numerical Descriptive Techniques. 4.1. Measures of Central Location. 4.2. Measures of Variability. 4.3. Measures of Relative Standing and Box Plots. 4.4. Measures of Linear Relationship.
Week 2	Chapter 5: Data Collection and Sampling. 5.1. Methods of Collecting Data. 5.2. Sampling 5.3. Sampling Plans. 5.4. Sampling and Nonsampling Errors. Chapter 6: Probability. 6.1. Assigning Probability to Events. 6.2. Joint, Marginal, and Conditional Probability. 6.3. Probability Rules and Trees. 6.4. Bayes' Law. 6.5. Identifying the Correct Method. Chapter 7: Random Variables and Discrete Probability Distributions. 7.1. Random Variables and Probability Distributions. 7.2. Bivariate Distributions. 7.3. (Optional) APPLICATIONS IN FINANCE: Investment Portfolio Diversification and Asset Allocation. 7.4. Binomial Distribution. 7.5. Poisson Distribution. Chapter 8: Continuous Probability Distributions. 8.1. Probability Density Functions. 8.2. Normal Distribution. 8.3. (Optional) Exponential Distribution. 8.4. Other Continuous Distributions. Chapter 9: Sampling Distributions. 9.1. Sampling Distribution of the Mean. 9.2. Sampling Distribution of a Proportion. 9.3. Sampling Distribution of the Difference between Two Means. 9.4. From Here to Inference.

Week 3	Chapter 10: Introduction to Estimation. 10.1. Concepts of Estimation. 10.2. Estimating the Population Mean when the Population Standard Deviation is Known. 10.3. Selecting the Sample Size. Chapter 11: Introduction to Hypothesis Testing. 11.1. Concepts of Hypothesis Testing. 11.2. Testing the Population Mean when the Population Standard Deviation is Known. 11.3. Calculating the Probability of a Type II Error. Chapter 12: Inference about One Population. 12.1. Inference about a population Mean when the Standard Deviation is Unknown. 12.2. Inference about a Population Variance. 12.3. Inference about a Population Proportion.
Week 4	Chapter 13: Inference about Two Populations. 13.1. Inference about the Difference between Two Means: Independent samples. 13.2. Observational and Experimental Data. 13.3. Inference about the Difference between Two Means: Matched Pairs Experiment. 13.4. Inference about the Ratio of Two Variances. 13.5. Inference about the Difference between Two Population Proportions. Chapter 14: Analysis of Variance. 14.1. One Way Analysis of Variance. 14.2. Multiple Comparisons. 14.3. Analysis of Variance Experimental Designs. 14.4. Randomized Blocks (Two Way) Analysis of Variance. 14.5. Two-Factor Analysis of Variance.

Evaluation:	Midterm (%)	Final (%)	Attendance (%)	Assignments (%)	Participation (%)	Etc. (%)
	25	50	5	15	5	00