FE 502: Statistical Analysis for Finance

금융통계분석

2016 Spring-I (1st-half semester): 8 weeks (2016.2.1~2016.3.25)

Instructor : Lee, Hoe Kyung (이회경) hklee@business.kaist.ac.kr (#9611, Tel. 3639)

Classes: Mondays and Wednesdays, 10:00 – 11:20 a.m.

Office Hours: Mondays, 2:00 - 3:30 p.m. or by appointment.

T. A.: TBA

Exam: 2016.3.23 (Wed), 8:30 a.m. – 11:20 a.m.

Course Description:

The objective of this course is to acquaint students with estimation and hypothesis testing for one or two populations, and for simple linear regression models. The course includes properties of point estimators, confidence intervals, analysis of variance (*F*-tests), Chi-square tests, and least squares estimation. The prerequisite is Introductory Statistics or equivalent.

Text:

Anderson, D. R., D. J. Sweeney, and T. A. Williams, *Statistics for Business and Economics*, 11th ed. South-Western, 2011.

References:

Wackerly, D. D., W. Mendenhall, and R. L. Scheaffer, *Mathematical Statistics with Applications*, 7th ed. Thompson, 2008

Lee, C. F., J.C. Lee and A.C. Lee, *Statistics for Business and Financial Economics*, 3rd ed. Springer, 2013

Grading:

Homework (30%)

Exam(s) (70%)

Class Schedule:

1. **Review**

   Two Random Variables:

   Marginal probability, Conditional probability, Conditional expectation, Independence, Covariance, Correlation coefficient

   Moment Generating Function

2. **Sampling (Ch.7)**

   Shape of the sampling distribution, Proportions

3. **Point Estimation and Properties of Point Estimators (Ch.7)**

   Unbiasedness, Efficiency, Consistency

4. **Interval Estimation (Confidence Intervals) (Ch.8)**

   Confidence intervals (i) when σ^2 is known and (ii) when σ^2 is unknown

   Confidence interval for μ

   Confidence interval for p (proportion)

5. **Hypothesis Testing (Ch.9)**

   Developing null and alternative hypotheses

   Hypothesis testing using confidence intervals, one-sided and two-sided tests

   Hypothesis testing using critical values, one-sided and two-sided tests

   Type-I and type-II errors

6. **Statistical Inference about Means and Proportions with Two Populations (Ch.10)**

   Difference in two means (for independent samples)

   Difference in two means (for matched samples)

7. **Inferences About Population Variances (Ch. 11)**

   One population variance

   Two population variances

8. **Chi-square Tests for Goodness of Fit and Independence (Ch. 12)**

9. **Analysis of Variance (Ch.13)**

   One-way ANOVA

   Two-way ANOVA