B.E. International Program

Faculty of Economics, Thammasat University

Course Outline

ST217 Statistics for Social Science 2

Semester S/2015 (July 13 – August 5, 2016)

Number of credits: 3 credits (3-0-6)

Lecture Time: Monday to Friday, 09.00 – 12.00 hours.

Lecture Venue: Room……., Faculty of Economics

Instructor: Associate Professor Chinnaphong Bumrungsup, Ph.D.

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General Information:

Inference, in the form of estimation, hypothesis testing, and predictions, plays a vital role in everyday life as well as in organized research. In many cases, a knowledge of statistics will allow a quantitative assessment of risk involved with each inference and, hence, improve the basic knowledge of inference-making procedures for students. This course is a second course in statistics that applies tools from ST 216 to develop a variety of statistical inference that can be used to make decisions with data in the real world. Since this course builds directly from ST 216, material from that course, descriptive statistics, probability, sampling distribution, estimation, and hypothesis testing, should be reviewed.

Course Description:

Estimation and hypotheses testing for two populations; one – way and two – way analysis of variance; curve fitting; simple and multiple linear regression and correlation analysis; classical time series analysis; chi – square test; statistical package results interpretation.

Prerequisites: ST 216

Course Objectives:

This course covers the standard methods of statistical inference needed for economics. The purpose of the course is to provide students in the economic sciences with enough understanding of statistical ideas and methodology to communicate knowledgeably and effectively with specialists in these technical areas.

The widespread availability of computer software packages is revolutionizing statistics education. Each year, more and more students enter statistics course with a good experience in computer technology and an expectation of using computer packages to solve problems in statistics. Because of this trend, this course will also focus on reading and interpreting the computer outputs. The computer software used in the course is SPSS for windows.

Main Text:

Anderson, David R., Sweeney, Dennis J., Williams, Thomas A., Camm, Jeffrey D., and Cochran, James J. ***Statistics for Business and Economics.*** Twelfth Edition. Cengage Learning, 2014.

Other Recommended Book:

1. Berenson, Mark L., Levine, David M., and Krehbiel, Timothy C. ***Basic Business and Economics*** Eleventh Edition. Pearson/Prentice Hall. 2009.
2. Lind, Douglas A., Marchal, William G., and Wathen, Samuel A.***Basic Statistics for Business and Economics.***Seventh Edition. McGraw-Hill Irwin 2011.
3. McClave, James T., Benson, P. George, and Sincich, Terry. ***Statistics for Business and Economics***. Eleventh Edition. Student Edition.Prentice Hall, 2011.
4. Mendenhall, W., Reinmuth, J.E., Beaver, R., and Duhan, D. ***Statistics for Management and Economics.*** Fifth Edition. Duxbury Press, 1986.
5. Watson, C.J., Billingsley P., Croft D.J., and Huntsberger D.V. ***Statistics for Management and Economics***.Fifth Edition. Allyn and Bacon, 1993.
6. Wonnacott, T.H., and Wonnacott R. J. ***Introductory Statistics for Business and Economics.*** Fourth Edition. John Wiley & Sons, 1990.

Grading Policy:

The course grades will be based on two exams (individual performance) and homework assignments (individual performance). Grading scheme is as follows.

1. Midterm Examination 30% (**Saturday, July 30, 2016, 09.00 - 11.00 hrs)**
2. Final Examination 60% **(Monday, August 8, 2016, 09.00-12.00 hrs)**
3. Homework Assignments 10%

Remarks:

- Semester begins July 13, 2016
- Period of withdrawal without "W" To be announced
- **Mid-Term Examination** **July 30, 2016**
- Course withdrawal with "W" To be announced
- Last day of class August 5, 2016
- **Final Examination** **August 8, 2016**

Teaching Plan:

Class Schedule

Date	Course Content	Reading References	
		Chapter	**Section**
July 13,14	1. Statistical Inference: Two Population	10, 11	
	1.1 Confidence Intervals for the Differences Between		
	1.1.1 Two Population Means		
	1.1.2 Two Population Proportions		
July 15,21	1.2 Testing Hypotheses on Differences Between		
	1.2.1 Two Population Variances		
	1.2.2 Two Population Means		
	1.2.3 Two Population Proportions		
July 22,25,26	2. Analysis of Variance	13	13.1-13.4
	2.1 One-Way Analysis of Variance		
	2.2 Multiple Comparisons of Means		
	2.3 Two-Way Analysis of Variance		
July 27,28,29	3. Regression and Correlation		
	3.1 Simple Linear Regression	14	14.1-14.6
	3.2 Finding the Slope and the Intercept of a Regression Line		
	3.3 The Standard Error of Estimate		
	3.4 Coefficient of Determination		

Date	Course Content	Reading References	
		Chapter	Section
	3.5 Statistical Inference in Regression Analysis		
	3.6 Correlation Coefficient		
	3.7 Inferences Concerning the Population Correlation Coefficient		
	3.8 Relationship Between Regression and Correlation		
July 30	**Midterm Exam Date: Saturday, July 30, 2016 Time: 09.00-11.00 hrs. Venue: Faculty of Economics**		
August 1,2	4. Multiple Regression		
	4.1 Multiple Linear Regression	15	15.1-15.6
	4.2 Finding the Coefficients for a Multiple Regression Equation		
	4.3 Multiple Standard Error of Estimate		
	4.4 Coefficient of Multiple Determination		
	4.5 Statistical Inference in Multiple Regression Analysis		
	4.6 Multiple Correlation Analysis		
	4.6.1 Coefficient of Multiple Correlation		
	4.6.2 Coefficient of Partial Correlation		
August 3,4	5. Time Series Analysis		
	5.1 Components of a Time Series	17	17.1-17.4
	5.1.1 Trend Component		
	5.1.2 Cyclical Component		
	5.1.3 Seasonal Component		
	5.1.4 Irregular Component		
	5.2 Forecasting Using Smoothing Methods		
	5.2.1 Moving Averages		
	5.2.2 Exponential Smoothing		
	5.3 Methods of Determining Seasonal Indexes		
	5.3.1 A Method Using Averages		
	5.3.2 Ratio-to-Moving-Average Method		
	5.4 Forecasting a Time Series with Trend and Seasonal Components		
August 5	6. Chi-Square Tests		
	6.1 Goodness-of-Fit Test: A Multinomial Population	12	12.1-12.3
	6.2 Tests for Independence		
August 8	**Final Exam Date: Monday, August 8, 2016 Time: 09.00-12.00 Venue: Faculty of Economics**		

Course Evaluation

Type of evaluation	Evaluation Method	Evaluation date
Homework	Written assignment (Essay questions)	To be announced
Midterm Examination	Written exam (Closed book, essay questions)	Saturday, July 30, 2016 Time: 09.00-11.00 hrs.
Final Examination	Written exam (Closed book, essay questions)	Monday, August 8, 2016 Time: 09.00-12.00 hrs.