**100210028 Applied Statistics**

**Lecture Hours: 32**

**Credits: 2**

**Prerequisite(s): Probability and Mathematical Statistics**

**Course Description:**

Applied Statistics is a methodological science for the study of data collection, collation and analysis. It is also an important tool to analyze quantitatively the objective phenomenon.

The main content consists of two parts:

One is to study the elementary statistics, including the collection of statistical data, collation and demonstration, description of the data distribution feature. According to the purpose of the study, data information can be effectively and fully extracted, inherent data quantity regularity can be probed;

The other is to apply statistical analysis in economics and management, including parameter estimation and hypothesis testing, variance analysis, correlation and regression analysis, time series analysis, analysis of statistical index, statistical synthesis evaluation, statistics and projections, and by using integrated application of all kinds of statistical methods to necessarily and properly analyze practical problems in various fields .

**Course Outcomes:**

By completing this course, the students will be able to do:

1. Systematically learn some basic statistical methods, and understand the statistical way of thinking;

2. Learn the different characteristics of the various statistical methods, application conditions and scope of applications;

3. Students can conduct right statistical analysis by applying statistical methods, using statistics software like SPSS and Excel, combining with the specific socio-economic and management issues.

**Course Content:**

**Lectures and Lecture Hours:**

1. Introduction 1

* Generation and development of statistics
* Objects and methods of statistics
* Some basic concepts of statistics
* Types of statistics data

2. Collecting statistical data and introduction of relative software 1

* Basic issues of collecting statistical data
* Statistical survey system

3. Collating statistical data 4

* The meaning and process of collating statistical data
* Statistics classification
* Distribution series
* Presenting statistical data
* Dissertation of statistical analysis function in SPSS and Excel

4. Describing the data distribution characteristics 4

* Absolute indicators and relative indicators
* Describing indicators for degree of data distribution concentration
* Describing indicators for degree of data distribution dispersion
* Skewness and kurtosis of data distribution

5. Sampling and estimation of parameters 4

* Basic concepts of sampling distribution
* Sampling distribution theory
* General principles of parameter estimation
* Confidence Interval estimation in different sampling

6. Hypothesis testing 3

* Basic concepts of hypothesis testing
* Basic process of hypothesis testing
* Testing population mean
* Testing population proportion

7. Analysis of variance 3

* Basic issues of analysis of variance
* One-way analysis of variance
* Two-way analysis of variance

8. Correlation and regression analysis 4

* Basic issues of correlation and regression analysis
* Analyzing the correlation
* Simple linear regression
* Multiple linear regression

9. Time-Series analysis 4

* Basic issues of time-series analysis
* Basic analysis index of time-series
* Analysis on the change tendency of time-series

10. Statistical Index numbers 4

* Basic issues of Index numbers
* Building up total index numbers
* Index numbers system
* Several common economic index numbers

**Grading**

Attendance 10%

Homework 10%

Teamwork 20%

Final exam 60%

**Text and Reference Books**

**Text:**

H.Y. Li, S.F. Xiao&Y.Wang. Statistics: Data Analysis in Economics and Management [M].Beijing: China Statistics Press, 2014.

**Reference Books:**

1. J.P. Jia.Statistics (Fifth Edition) [M]. Beijing: Renmin University of China Press, 2014.
2. X.Z. Wu Statistics: From the Data to Conclusion (Fourth Edition) [M].Beijing: China Statistics Press, 2013.

[3] Statistics for business & economics McClave, J.T., Benson, P.G., & Sincich, T. 2014., 12th International ed., Singapore: Pearson Education, Inc.