Introductory Statistics

Global Program on Economics and Finance (2021 Fall)

Course Title	Introductory Statistics		
Credit	3	**Credit Hours**	48 credit hours
Course Objectives	This course will help students understand basics of statistics, including estimation, sampling distributions，hypotheses testing, categorical data and nonparametric methods, and linear statistical models. Students will also learn how to use Excel, STATA, R to conduct simple statistical analyses.		
Course Description	This course is the first course in statistics for undergraduates. It will examine basic concepts in statistics, as well as frequentist or Bayesian view of statistics.		

Course Requirements:
Prerequisites:
None

Teaching Methods:
Lecture

Course Schedule
This outline may change as the session proceeds.

48 lessons will be arranged into 12 topics, each of which covers 2-4 lessons, including concept and formula, case study, panel discussion, software practice, etc.

	Topics		**Homework**
1	Data and Statistics: Randomness and Regularity	Ch1	
2	Description of Data: Tabular and Graphical Displays	Ch2	Case Problem 1 Pelican Stores 84 Case Problem 2 Motion Picture Industry 85 Case Problem 3 Queen City 86
	Numerical Measures Computing Summary Statistics	Ch3	Case Problem 1 Pelican Stores 160 Case Problem 2 Motion Picture Industry 161

			Case Problem 3 Business Schools of Asia-Pacific 162 Case Problem 4 Heavenly Chocolates Website Transactions 162 Case Problem 5 African Elephant Populations 164
3	Collection of Data Sample Survey	Ch22	
4	Probability Introduction to Probability Discrete Probability Distributions Continuous Probability Distributions Sampling and Sampling Distributions	Ch4	Case Problem Hamilton County Judges 216
		CH5	Case Problem Go Bananas! 268
		CH6	Case Problem Specialty Toys 301
5	Drawing Conclusions: Interval Estimation	Ch7	Case Problem Marion Dairies 344
		Ch8	Case Problem 1 Young Professional Magazine 379 Case Problem 2 Gulf Real Estate Properties 380 Case Problem 3 Metropolitan Research, Inc. 380
6	Drawing conclusions: Hypothesis testing Inference About Means and Proportions with Two Populations	Ch9	Case Problem 1 Quality Associates, Inc. 435 Case Problem 2 Ethical Behavior of Business Students at Bayview University 437
		Ch10	Case Problem Par, Inc. 479
7	Mid-term Review & R		
8	Case Study		
9	Inferences About Population Variances	Ch11	Case Problem Air Force Training Program 506

	Comparing Multiple Proportions Test of Independence and Goodness of Fit Chi-square Analysis for Two Categorical Variables	Ch12	Case Problem A Bipartisan Agenda for Change 542
10	Experimental Design and Analysis of Variance Analysis of Variance for a Categorical and a Metric Variable	Ch13	Case Problem 1 Wentworth Medical Center 592 Case Problem 2 Compensation for Sales Professionals 593
	Simple Linear Regression Regression and Correlation for Two Metric Variables	Ch14	Case Problem 1 Measuring Stock Market Risk 672 Case Problem 2 U.S. Department of Transportation 673 Case Problem 3 Selecting a Point-and-Shoot Digital Camera 674 Case Problem 4 Finding the Best Car Value 675 Case Problem 5 Buckeye Creek Amusement Park 676
11	Multivariate analysis Multiple Regression Regression Analysis: Model Building	Ch15	Case Problem 1 Consumer Research, Inc. 750 Case Problem 2 Predicting Winnings for NASCAR Drivers 751 Case Problem 3 Finding the Best Car Value 752
		Ch16	Case Problem 1 Analysis of PGA Tour Statistics 803 Case Problem 2 Rating Wines from the Piedmont Region of Italy 804
12	Time Series Analysis and Forecasting	Ch17	Case Problem 1 Forecasting Food and Beverage Sales 866 Case Problem 2 Forecasting Lost Sales 867

13	Nonparametric Methods Rank Methods for Two Rank Variables	Ch18	Final Review
	Statistics in Everyday Life: Quality Control Index Numbers Decision Analysis	Ch19/ 20/21	Final Review
14	Case Study Discussion & Presentation		final ddl

The design of class discussion or exercise, practice, experience and so on:

The outline of this course:

(1) This Course has MOOC courses and E-books as following:

https://elearning.fudan.edu.cn/

(2) Individual Exercises: Topic Exercise, PowerPoints, references for teaching and the requirements for homework can all be downloaded on the university MOOC platform.

(3) Group Discussions: Homework will be published on each topic, which will be discussed by penal groups on next lectures. Oral Presentation is at least one time for each group through the whole semester.

Grading & Evaluation:

Check Forms: Check in Homework 50% ; Final exam 50%

- In-class Fast Quiz： 1 questions（2%）* 12 Weeks=24%
- After-class Homework：1 questions（1%）* 12 Weeks =12%
- Group Discussion：34 cases, One Group One Case, 24%

=14%presentation+10%final paper report（DDL to be announced）

- Final Exam：40%（DDL to be announced）

Exam form Open-book √ Closed-book □ Other □

Teaching Materials & References:

Reference Books

David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, Jeffrey D. Camm, James J. Cochran; Statistics for Business & Economics, 13th Edition

Douglas A. Lind, William G Marchal, Samuel A. Wathen; Basic Statistics for Business and Economics, 9th Edition

Gerald Keller; Statistics for Management and Economics

Gudmund R. Iversen, Mary Gergen; Statistics: The Conceptual Approach

William M. Mendenhall, Terry L. Sincich; Statistics for Engineering and the Sciences, 6TH Edition