University of International Business and Economics
International Summer School

STAT 220 Introduction to Statistics

Term: June 13th – July 14th, 2022
Instructor: Shen Fan
Home Institution: China University of Petroleum
Email: fans@cup.edu.cn
Class Hours: Monday through Thursday, 120 minutes each day (2,400 minutes in total)
Office Hours: TBD
Discussion Session: 2 hours each week

Total Contact Hours: 64 contact hours (45 minutes each, 48 hours in total)
Location: WEB
Credit: 4 units

Course Description:

Statistics is the study of data and how it can be collected, organized, analyzed and interpreted to obtain insights. Descriptive statistics focuses on organizing and summarizing data so that it is better understood. Inferential statistics leverages data from a small group to arrive at conclusions about the entire population of which the small group is a part. Statistics is part of everyday life. One of the most sought-after job areas these days is business analytics, which refers to the application of statistics to obtain important insights from data available to organizations. This course provides a calculus-based introduction to statistics.

Course Goals:

We will first introduce data and statistics, data presentations, measures of centrality and variation, discrete and continuous probability, hypothesis testing for populations and parameters, Chi-square tests, analysis of variance.

Prerequisites:

At least one semester of calculus is required; two or three semesters are strongly recommended.

Required Textbook:

De Veaux, Velleman and Bock, Stats: Data and Models, Pearson, ISBN 13: 978-1-292-10163-7

Grading Policy:

Grading will be determined by homework and the results of your exams. Homework 30%, Midterm Exams 30%, Final Exam 40%.

Grading Scale:

Assignments and examinations will be graded according to the following grade scale:

A	90-100	C+	72-74
A-	85-89	C	68-71
B+	82-84	C-	64-67
B	78-81	D	60-63
B-	75-77	F	below 60

Course Schedule:

June.13 8:30-10:30
What are Statistics? Displaying and Describing Categorical Data

June.14 8:30-10:30
Quantitative Data, Distributions

June.15 8:30-10:30
Standard Deviation, Scatterplots

June.16 8:30-10:30
Linear Regression, Regression Wisdom

June.20 8:30-10:30
Re-expressing data, Randomness

June.21 8:30-10:30
Sample Surveys, Experiments and Observational Studies

June.22 8:30-10:30
Review first 12 chapters and First tests

June.23 8:30-10:30
Probability, Probability Rules

June.27 8:30-10:30
Random Variables

June.28 8:30-10:30
Probability models

June.29 8:30-10:30
Sampling Distribution Models

June.30 8:30-10:30
Confidence Intervals, Testing Hypotheses

July.4 8:30-10:30
Inference about Means, Tests and intervals

July.5 8:30-10:30
Comparing Groups

July.6 8:30-10:30
Paired Samples and Blocks, Comparing counts

July.7 8:30-10:30
Inferences for Regression

July.11 8:30-10:30
Analysis of variance

July.12 8:30-10:30
Multifactor Analysis of Variance

July.13 8:30-10:30
Multiple Regression

July.14 8:30-10:30
Final Exam