



**University of International Business and Economics
International Summer School**

STAT 220 Introduction to Statistics

Term: December 19th 2022– January 13th, 2023

Instructor: Shen Fan

Home Institution: China University of Petroleum

Email: fans@cup.edu.cn

Class Hours: Monday through Friday, 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:

Day 1

What are Statistics? Displaying and Describing Categorical Data

Day 2

Quantitative Data, Distributions

Day 3

Standard Deviation, Scatterplots

Day 4

Linear Regression, Regression Wisdom

Day 5

Re-expressing data, Randomness

Day 6

Sample Surveys, Experiments and Observational Studies

Day 7

Review first 12 chapters and First tests

Day 8

Probability, Probability Rules

Day 9

Random Variables



Day 10

Probability models

Day 11

Sampling Distribution Models

Day 12

Confidence Intervals, Testing Hypotheses

Day 13

Inference about Means, Tests and intervals

Day 14

Comparing Groups

Day 15

Paired Samples and Blocks, Comparing counts

Day 16

Inferences for Regression

Day 17

Analysis of variance

Day 18

Multifactor Analysis of Variance

Day 19

Multiple Regression

Day 20

Final Exam