



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

STAT 220 Introduction to Statistics

Term: May 24 – June 24, 2021

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)

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:

Week One:

Monday: What are Statistics? Displaying and Describing Categorical Data

Tuesday: Quantitative Data, Distributions

Wednesday: Standard Deviation, Scatterplots

Thursday: Linear Regression, Regression Wisdom

Week Two:

Monday: Re-expressing data, Randomness

Tuesday: Sample Surveys, Experiments and Observational Studies

Wednesday: Review first 12 chapters and First tests

Thursday: Probability, Probability Rules

Week Three:

Monday: Random Variables

Tuesday: Probability models

Wednesday: Sampling Distribution Models,

Thursday: Confidence Intervals, Testing Hypotheses

Week Four:

Monday: Inference about Means, Tests and intervals

Tuesday: Comparing Groups

Wednesday: Paired Samples and Blocks, Comparing counts

Thursday: Inferences for Regression

Week Five:

Monday: Analysis of variance

Tuesday: Multifactor Analysis of Variance

Wednesday: Multiple Regression

Thursday: Final Exam.

Online Possibility:

Due to the on-going pandemic, there is a possibility that in-person courses are changed to online ones. UIBE ISS will notify the students once the decision has been made.

If the in-person courses are to be changed to online courses, we will make a few adjustments:

1. **Lecture:** Each lecture will be uploaded on UIBE's online learning platform on a daily basis. Students are required to watch them according to the course schedule.
2. **Discussion:** There will be an open session on ZOOM every Wednesday. The attendance of the discussion is important as it is part of your final score.
3. **Office hours:** I will release the office hours once the course starts. You are very welcome to send me emails to book my time. We will have video or audio calls through ZOOM. Please be noted to book them at least 3 days in advance.
4. **Exam:** All students will attend the exams at the same time but at their own places. To ensure a fair exam, you are required to turn on your web cameras during the exam. Once you encounter any unexpected technical issues that most likely stop you from submitting your exam on time, contact the TA and/or the Instructor immediately.