



**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**

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**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:

#### 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.