



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

STAT 220 Introduction to Statistics

Term: June 15 - July 16, 2020

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.