

# 0701S201

## Introduction to Statistics

**Instructor:** TBA

**Time:** May 9, 2022-June 10, 2022

**Office Hours:** 2 hours (according to the teaching schedule)

**Contact Hours:** 60 (50 minutes each)

**Credits:** 4

**E-mail:** TBA

### Course Description

Statistics and probability constitute the mathematics of uncertainty. This is an introductory course that gives the students' knowledge on both descriptive and inferential statistics. Topics include graphic and numerical representations of various types of data; probability and statistics, discrete and continuous probability distributions; sampling and estimations; statistical inferences.

### Required Textbook(s)

Peck, Olsen and Devore, Introduction to Statistics and Data Analysis, 3rd edition, Brooks/Cole.

### Prerequisites

College Algebra

### Course Schedule

Please note that the schedule is meant to give an overview of the major concepts in this course. Changes may occur in this calendar as needed to aid in the student's development.

#### Week 1: Describing data and basic probabilities

- Discrete and Continuous variables, bivariate data

- Describing data with graph and numerical measures
- Basic probability

**Week 2: Expectation, probability distributions**

- Discrete/absolutely continuous expectations, conditional expectation
- Variance, covariance, correlation, generating functions
- Bayes' rule
- Binomial, Poisson, Hypergeometric probability distribution
- Normal distribution

**Week 3: More on normal distribution, Sampling distributions and limit theorems**

- Distribution approximation
- Sampling distributions
- The law of large numbers, the central limit theory

**Week 4: Large-sample estimation, test of hypotheses**

- Point, interval and difference estimations
- Likelihood function, maximum likelihood estimation,
- Testing hypotheses and P-values
- Sample-size calculations
- Prior and posterior distributions, inferences based on the posterior

**Week 5: Statistical inferences from small samples**

- Student's t distribution
- Small sample inferences

**Grading Policy**

Midterm is worth 30% of the final course grade, the homework is worth 30%, and the final exam is worth 40%.

**Grading Scale**

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90~100
Good	B	80~89
Satisfactory	C	70~79
Poor	D	60~69
Failed	E	Below 60

## **Academic Integrity**

As members of the Jinan University academic community, students are expected to be honest in all of their academic coursework and activities. Academic dishonesty, includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e., misrepresenting as one's own work any work done by another; submitting the same paper, or a substantially similar paper, to meet the requirements of more than one course without the approval and consent of the instructors concerned; or sabotaging other students' work within these general definitions. Instructors, however, determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties that range from the lowering of their course grade to awarding a grade of E for the entire course.