# Beijing Jiaotong University

# 2019 Summer Session

# STAT 101 Introduction to Statistics

# Course Outline

**Term: July 08-August 09,2019**

**Class Hours: 16:00-18:00 (Monday through Friday)**

**Course Code: STAT 101**

**Instructor: Dr. Mahfuza Farooque**

**Home Institution: Pennsylvania State University**

**Office Hours: TBA**

**Email: mff5187@psu.edu**

**Credit: 4**

**Class Hours:** This course will have 72 class hours, including 40 lecture hours, professor 10 office hours, 10-hour TA discussion sessions, 2-hour review sessions, 10-hour extra classes.

**Course Description:**
This is an introductory course in statistics intended for students in a wide variety of areas of study. Topics discussed include displaying and describing data, the normal curve, regression, probability, Testing the Difference Between Two Means, Two Variances, and Two Proportions, Correlation and Regression, Analysis of Variance.

**Course Objectives:**

After this course, students will be able to:
- Demonstrate their understanding of descriptive statistics by practical application of quantitative reasoning
- Demonstrate their knowledge by making valid generalizations from sample data
- Develop basic concepts of probability, Correlation and Regression

**Required Textbooks:**

Elementary Statistics: A Step By Step Approach **10th Edition**
by Allan Bluman

**Grading & Evaluation:**

Final grades will be computed per the following:
• Assignments: 10%
• Class Participation/ Quizzes: 10%
• Midterms: 30%
• Final: 50%
Letter grades will be assigned per the following scale which will be strictly followed.
• 90 – 100 %A
• 80 – 89%   B
• 70 – 79%   C
• 60 – 69%   D
• 0 – 59%    F

**Course Schedule**
Tentative course outline is mentioned below:

**Week1: The Nature of Probability and Statistics, Frequency Distributions and Graphs**

Session 1: Levels of Measurements, types of Data
Session 2: Sampling Techniques, Experimental Design, Misuses of Data
Session 3: Compute Frequencies, Change Relative Frequencies
Session 4: Compute the Midpoint, Construct a Histogram, Shapes of Distributions.

**Week 2: Descriptive Statistics Skills, Probability Skills**

Session 1: Compute Mean, Median, Weighted Mean
Session 2: Compute and Compare Standard Deviation
Session 3: Set Theory, Addition Rules
Session 4: Multiplicative rules, Permutation, Combinations

**Week 3: Probability Distributions, Normal Distribution**

Session 1: Discrete Probability Distribution

Session 2: Binomial Distribution
Session 3: Normal Distribution
Session 4: Mid Exam1

## Week 4: Confidence Intervals and Sample Size, Hypothesis Testing

Session 1: Minimum Sample Size for Mean Confidence Interval for Mean
Session 2: Confidence Interval Proportion, Z-Test for Mean
Session 3: Hypothesis Test using P-value
Session 4: Z Test for Mean (using P-Value), P -value Introduction

## Week 5: Testing Difference, Correlation and Regression

Session 1: Testing Difference Between Two Means, Two Variances
Session 2: Linear Correlation, Regression Equation, Correlation coefficient
Session 3: Review Class
Session 4: Final Exam