Professor Nazgul Jenish  
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19 West 4th Street, Room 827

Office hours: Tuesday 14:30-15:30, Thursday 14:30 –15:30, and by appointment.

Course Description:  
The course provides an introduction to core concepts and methods of statistical analysis. The first part of the course covers basic statistical and probability concepts including random sample, various descriptive statistics (e.g. mean, median, variance etc.); discrete and continuous random variables, probability distributions; and statistical inference (i.e., hypothesis testing, confidence intervals). The second part of the course will focus on model building and estimation using regressions. More specifically, we will introduce the ordinary least squares (OLS) estimator of a multivariate linear model, and discuss inference based on the OLS estimator.

Required Text:  

The textbook comes with a CD that contains datasets, Minitab and other software.

This course will use Blackboard

Requirements and Grading:  
You are expected to attend all lectures and to complete ten homework assignments during the semester. Homework will be posted on Blackboard on Tuesday each week. It is due by 2 pm on Monday of the following week. Please leave homework in the mailbox of your respective Teaching Assistant on the 6th Floor of 19 West 4th Street. Because the homework will be discussed during the Lab sessions (different time for different sessions, starting from Monday, 2 pm.) no late homework will be accepted.

There will be two quizzes given during recitation sessions, one mid-term exam given during lecture and one final exam. You are required to take all quizzes and exams. The exams will test
your problem-solving ability based on the material covered in the class. The final exam will be cumulative.

A make-up exam for the mid-term exam will be given ONLY for those students with a valid University excuse. Request for make-up exams must be made within 24 hours of the exam, otherwise, the exam is deemed failed. In accordance with the University rules, the final exam must be taken on the date scheduled by the University, no make-up or early final exams will be granted. If for some reason, you can not take the final exam on the assigned date, please drop the course now.

The dates of quizzes and exams are as follows:

**Quiz 1:** Week of February 14, during recitation session  
**Quiz 2:** Week of April 18, during recitation session  
**Mid-Term Exam:** 3 March, Thursday, in class  
**Final Exam:** TBA, in class

Course grades will be determined as follows:

- **Homework:** 10%
- **Two quizzes:** 30% (15% each)
- **Mid-term exam:** 25%
- **Final exam:** 35%
- **Total:** 100%

**Topics Covered:** (I may add, drop or change the order of topics and chapters.)

- Introductory Concepts
- Descriptive Statistics
- Qualitative Data
  - Measures of Central Tendency
  - Measures of Dispersion and Variability
  - Measures of Relative Standing
  - Bivariate Relationships: qualitative and quantitative
  - Outliers
  - Time Series Plots
Distorting the Truth with Descriptive Statistics

Introduction to Probability

Random Sampling

Bayes’s Rule

Discrete Random Variables

Binomial Distribution

Poisson Distribution

Continuous Random Variables

Uniform Distribution

Normal Distribution

Sampling Distributions

Central Limit Theorem

Confidence Interval for Single Population Mean and Proportion

Hypothesis Testing

Population Mean:

Population Variance

Simple Linear Regression; Goodness of Fit and Prediction

Multiple Regression and Model Building

Some Pitfalls: Parameter Instability