Statistical Practice

Spring 2024

Instructor:

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Class Schedule: Wednesday 09:10 ~ 12:00
Office Hour: Thursday 10:00 ~ 12:00

Course Description:

This course's objective is to provide the students with the essential and fundamental concepts of problem solving in statistics. The topics include "Define Problem", "Data Collection", "Statistical Analysis", and "Decision & Interpretation." The students are expected to solve the real-life problem through statistical thinking at the end of class. There are five homework assignments to meet our requirements:

(a) Problem Definition;
(b) Data Collection and Sampling;
(c) Exploratory Data Analysis;
(d) Advanced Statistical Analysis;
(e) Case Studies.

Homework is due on Wednesday afternoon at 5 and no late homework will be accepted. In addition to the regular bi-weekly homework, there will be in-class assignments and discussion. Therefore, the class participation is also counted in the final grade. The students will be grouped into 2 or 3 persons. The homework and in-class discussions are team-based.

References:

This course covers a broad range of topics and no single textbooks can cover all the materials in this class. Instead, the instructor will prepare power point files for each class and suggested references will be given to the students in class. The students can download the teaching materials at my homepage. The following are some references for the first 3 weeks of class.

1. Strategies for Creative Problem Solving (1995), H. S. Fogler and S. E. LeBlanc, Prentice Hall.
2. Tainted Truth (1996), C. Crossen, Chinese version published by China Times.
3. The Cartoon Guide to Statistics (1993), L. Gonick and W. Smith, Chinese version published by Common Wealth Publishing Co.

Session	Assignment
1	Course Introduction
2	Problem Definition
3	Problem Definition, Assignment #1
4	Data Collection (Experimental Design)
5	Data Collection (Sampling Survey), Assignment #2
6	Questionnaire Design
7	Exploratory Data Analysis, Assignment #3
8	Analysis of Questionnaire Data
9	Sampling Survey Cases Study (1)
10	Sampling Survey Cases Study (2), Assignment #4
11	Advanced Statistical Analysis (1)
12	Advanced Statistical Analysis (2), Assignment #5
13	Advanced Statistical Analysis (3)
14	Presentation Skills, Assignment #6
15	Oral Presentation
16	Final Report

Grade:

There are regularly based homework, in-class discussion, and one final report. The homework counts 50%, the mid-term project 20% and the final report 30%.