

Palestine Polytechnic University

Faculty of Applied Sciences

5453 - Categorical Data Analysis

Second Semester 2019-2020

Course Name : (5453) Categorical Data Analysis.
Prerequisites : Mathematical Statistics.
Class Schedule : Mon. Tues. 9:30-10:45, Bld Wade Al hareiah Room B+511.
Instructor : **Name:** Monjed H. Samuh
E-mail: monjedsamuh@ppu.edu
Website: <http://staff.ppu.edu/monjedsamuh>
Office : B+503.
Office Hours : Mon. 11:00-12:30, Wed. 8:00-9:30.
: Tues. 8:00-11:00.
: or by appointment (via email).

Textbook Agresti, A. (2019), **An Introduction to Categorical Data Analysis**, 3rd Edition. John-Wiley & Sons, Inc.

Recommended Texts

1. Bilder, C. R., and Loughin, T. M. (2015), **Analysis of Categorical Data with R**, Taylor & Francis Group, LLC.
2. Friendly, M., and Meyer, D. (2016), **Discrete Data Analysis with R**, Taylor & Francis Group, LLC.

Course Description Inference for multinomial distribution, cross-classifications, contingency tables, chi-squares tests, goodness-of-fit tests for discrete and continuous distributions, methods of estimation and testing in cross-classification, measures of association and agreement, model for categorical data, large-sample theory.

Intended Learning Outcomes After the completion of this course, students should be able to:

1. Give an account of the sampling strategies for categorical data;
2. Analyze a two-way contingency table;
3. Carry out exact inference for a three-way contingency table;
4. Build and apply logit and loglinear models;

- 5. Use R for analyzing real data sets;
- 6. Be able to interpret the results in practical examples.

Software Package Use **R** and **RStudio**.

Course Outline and Calendar

Chapters/Topics	HOURS
Introduction to Categorical Data Analysis	6
Analyzing Contingency Tables	9
• Generalized Linear Models	12
Logistic Regression	9
Loglinear Models for Contingency Tables and Counts	9

Course Policies

- Please do the reading from the sections to be covered before coming to class each day. Your instructor will be planning class activities assuming you have done the reading.
- **Homework:** There will be two types of homework assignments.
 1. **Mini Homework:** these are problems which arise while lecturing. I will assign a mini homework almost every class day.
 2. **Major Homework:** these are set of problems assigned weekly.
- You may collaborate on homework, but you must write your submitted work in your own words. All steps are required, this includes showing calculations, derivations, and proofs.
- You have to devote to this class several hours per week of concentrated attention to understand the subject enough so that standard problems become routine. If you think that coming to class and reading the examples while also doing something else is enough, you're in for an unpleasant surprise on the exams.
- Attending classes is compulsory; according to the University regulations, a student who misses more than 4 lectures will be prevented from entering the final exam.
- In the event that a student has to miss a class, he is responsible to get caught up with the materials covered and homework assigned.
- No make-up tests will be hold in any circumstance, any student with accepted excuse will be given the grade of the final transferred to appropriate weight. Make-up of the final test will follow the university regulations.
- All students are expected to be in the classroom on time. [Being late will be treated as being absent.](#)

- It is the **student's responsibility to observe the academic calendar for important dates.**
- It is the **student's responsibility to be knowledgeable about the rules and regulations that govern your study at the university.**
- I assume, the students come to class to learn, I come to class to teach.
 - We will be respectful of everyone in class.
 - Mobiles should be turned off before the beginning of each class, no exceptions.
 - There will be no talking in class, except to ask instructor questions or share comments with the entire class. Talking is disruptive to the class and disrespectful to the Instructor.
 - There will be no texting, reading, eating, etc., while in class.
- Cheating will be dealt with according to the University rules.
- Wastah is the thing that the Instructor hates the most!. Definitely, No grade will be changed because of Wastah.

Teaching Methods

- Explaining concepts and applications through lectures using white-board.
- Group discussions and solving problems.
- Problems and exercises will be assigned from the text on each section at the time of discussing the section.

Grade Distribution

- Your final grade will depend on the following components with these proportions:
 - **Assignments and Quizzes (10%): Quizzes may not be announced in advanced.**
 - **Mini-Project (10%).**
 - **First Exam (20%).** 7th Week: Mar. 4, 2020 (Wednesday).
 - **Second Exam (20%).** 12th Week: Apr. 8, 2020 (Wednesday).
 - * If the exam is not held for any reason (urgent circumstances), it will be immediately postponed to the next regular class.
 - **Final Exam (40%):** To be announced by the University.
- You need to achieve at least 60% in order to pass the course.