# STAT 545 001/GS01 1233: Generalized Linear Models and Categorical Data Analysis

# Course Syllabus

## Fall 2022

Course website: `https://teaching.rice.edu/canvas`

## 1 Honor code

Students are expected to follow the Rice Honor System; the Honor Code applies to all exams and written assignments in this class. Collaboration IS allowed on homework assignments unless stated otherwise, however, copying answer keys from another student or from any previous-year materials is strictly PROHOBITED. You are NOT permitted to use exams from previous semesters to study for this course; if you encounter such exams either in your College or online (e.g. Quizlet), you must report this to me immediately. All violations of the Honor Code will be reported to the Honor Council. Information on the Honor Code can be found online at `http://honor.rice.edu/Links` to an external site..

## 2 Part I

### Instructor: Yisheng Li

### 2.1 References

1. (Main reference) Categorical Data Analysis, 3rd edition (2013), by Alan Agresti, John Wiley & Sons, Inc.

2. Generalized Linear Models, 2nd edition (1989), by P. McCullagh and J.A. Nelder, Chapman & Hall/CRC.

### 2.2 Tentative Outline

There will be a total of 21 lectures (including an exam) (8/22/2022 to 10/12/2022) for this portion of the class. The following topics will be covered:

1. Introduction of category response data and statistical inference for discrete data

2. Describing contingency tables

3. Inference for two-way contingency tables

4. An outline of generalized linear models

5. Models for binary data (with primary focus on logistic regression)

There will be no class on 9/5/2022 (Labor Day) or 10/10/2022 (Midterm Recess).

## 2.3 Grading

One grade (50 points in total) will be given for this portion of the course based on two closed-book midterm exams (15 points each) given on September 16th and October 12th, 2022, respectively, as well as a total of six homework assignments (20 points in total). Extra credits may be given to students who solve extra problems given in midterm exam 2 and homework assignment 5.

## 2.4 Contact information

Yisheng Li
Office: 1MC Room 3217, 7007 Bertner Ave, MD Anderson Cancer Center
Phone: 713-563-4267
Email: ysli@mdanderson.org

# 3 Part II

Instructor: Ziyi Li

## 3.1 Reference

1. (Main reference) Categorical Data Analysis, 3rd edition (2013), by Alan Agresti, John Wiley & Sons, Inc.

2. Models for Discrete Longitudinal Data (2005), by Molenberghs G and Verbeke G, Springer.

## 3.2 Tentative Outline

There will be 20 lectures (10/14/2022 to 12/2/2022) covering the following topics:

1. Regression model for binary data

2. Regression model for counts data

3. Regression model for ordinal and nominal data

4. Extensions of standard regression models for categorical data

5. Regression models for longitudinal categorical data

There will be no class on 11/23/2022 and 11/25/2022 (Thanksgiving Recess).

## 3.3  Grading

One grade (50 points in total) will be given for this portion of the course based on three homework assignments (30 points in total), class participation (5 points in total), and a close-book final exam (15 points). Final exam will be given on 12/2/2022 for 50 minutes. Extra credits may be given to students for solving extra problems given in the final exam.

## 3.4  Contact information

Ziyi Li
Office: 1MC Room 3480, 7007 Bertner Ave, MD Anderson Cancer Center
Phone: 713-745-1146
E-mail: zli16@mdanderson.org

# 4  Class Meeting Time and Location

Monday, Wednesday & Friday 13:00 - 13:50

Location:
MXF 251, Rice University Campus

# 5  Office Hours

Drs. Yisheng Li and Ziyi Li: Online by appointment only.

# 6  Final Grading

The final grade will be a sum of the two grades given by the two instructors, which will then be converted to a letter grade.

# 7  Teaching Assistant

Jingyan (Janet) Fu
Email: jf81@rice.edu
Office Hours: Online 1-2pm every Tuesday except on holidays