**Categorical Data Analysis**

Spring 2022

Credit hours: 3

Class Time: Tuesday, 10:30 AM – 11:45 AM, Thursday, 9:00 – 10:15 AM

Office Hour: TBA

Classroom: 31409

INFORMATION ON COURSE INSTRUCTORS

Instructor: Keunbaik Lee, Professor of Statistics

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Important announcements, lecture notes, homework problems and solutions, references, computational codes, data sets and other information about the class are posted on the course website.

Textbook

**Required –** A. Agresti. An Introduction to Categorical Data Analysis, 3rd Edition*.* Wiley: New York

**Recommended –** A. Agresti. Categorical Data Analysis, 2nd Edition*.* Wiley: New York

COURSE DESCRIPTION

This course surveys theory and methods for the analysis of categorical response variables. The main subject areas covered are descriptive and inferential statistics for two-way and three-way contingency tables, generalized linear models for binary responses (emphasizing logistic regression), generalized linear models (logit and loglinear) for contingency tables, modeling ordinal responses, matched pairs, and maximum likelihood fitting of models for categorical response data.

COURSE OBJECTIVES

Students successfully completing this course will be able to:

* Fit and interpret various statistical models for categorical data using statistical software (SAS or R).
* Analyze categorical data using proper statistical methods.

**Topics**

**1. Introduction: Distribution and Inference**

**2. Describing Contingency Tables**

**3. Inference for Contingency Tables**

**4. Introduction to Generalized Linear Models**

**5. Logisitic Regression**

**6. Building and Applying Logisitic Regression Models**

**7. Models for Multinomial Responses**

**8. Loglinear Models**

**9. Extending Loglinear Models**

**10. Models for Matched Pairs**

EVALUATION AND GRADING PROCEDURES

1. Exams (90%)

Tentative schedule: April 12 (Tuesday: 45%) and May 31 (Tuesday: 45%).

The exams will be 1.25 hour exams. No make-up exams will be given except for medical or family emergencies, and must be approved before the time of the exam. Calculator may be used for the exams.

1. Homework (5%)

Assignments are due at the start of the class period. All computer output must be edited and annotated. Solutions will be made available on the course web site.

1. Participation (5%)

POLICIES AND EXPECTATIONS

1. Students are required to attend all classes
2. No late assignments will be accepted.