Course Title: Categorical Data Analysis
Course Number: QNME0614J-001
Course Location: Medical Sciences Building, F 506b
Course Date & Time: Monday, 5:30-8:30
Course Instructor: Amy L. Davidow, Ph.D., Associate Professor, Dept. of Preventive Medicine & Community Health, New Jersey Medical School, Medical Sciences Building F596-A; davidoal@njms.rutgers.edu; 973-972-4587
Office Hours: By Appointment Only
Course Assistant: Not applicable.
Additional/Supplemental Readings/Resources:
Course Description: This course will teach you how to analyze the type of data that arises in many epidemiologic studies, in particular, data that are collected from a case-control study. Analyses include chi-square tests and logistic regression. Other topics include Poisson regression for rates and counts. It is highly recommended to have already taken a course in linear regression models. Some familiarity with SAS is recommended as well.
Selected Department Competencies Addressed: Each Department identifies competencies for each degree offered. The competencies addressed in this course for the MPH (or other degrees) for the Department of Quantitative Methods: Epidemiology & Biostatistics include:

- Use epidemiologic concepts to identify and evaluate public health and clinical problems;
- Critically evaluate epidemiological data and findings;
- Communicate results from epidemiologic studies;
- Demonstrate proficiency in the use of the software package SAS used in epidemiology;
- Conceptualize public health or clinical research questions using quantitative methods;
- Conceptualize public health or clinical research questions using advanced quantitative method techniques.
Course Objectives: By the completion of this course, students will be able to:

- Use SAS to execute categorical data analyses, including contingency tables, logistic and Poisson regression
- Use contingency tables to assess the relationship between two or more categorical variables
- Use logistic regression to model binary outcomes
- Use Poisson regression to model counts and rates
- Understand the ideas of confounding and effect modification and how to assess them using both contingency tables and logistic regression models
- Statistically account for a matched case-control study design
- Use diagnostics and influence statistics to assess model fit

Course Requirements and Grading: *In this section, Instructor should include*

- Course assignments will include up to 10 assignments based on problems in Agresti’s book and other instructor-created problems. The midterm exam is an in-class exam. The final exam is a take-home exam.

Grading

1. Examination #1 35 pts.
2. Examination #2 35 pts.
3. Homework Assignments 30 pts.
   Total: 100 pts.

- The student’s strongest component will be up-weighted by 5% and the weakest component will be down-weighted by 5%.

Course Schedule: All readings from Agresti, unless otherwise noted.

   Reading: Chapter 1. pages 1-10 (1.4.3), 13. Chapter 2. pages 21, 22, 25.

   Reading: Chapter 2. pages 23, 26-34.


Reading: Chapter 2, pp. 49-54.


Reading: Ch 2. pp. 70-72, Ch.4, pp. 104-109.

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Reading: pp. 99-top 100, Section 4.1.4, 4.1.5 (pp. 104-105), section 4.2: pp. 106-top of 113, Section 4.4, Section 4.5


Reading: pp. 137 – top 141, section 5.1.3, 5.1.5, 5.1.6, Section 5.2 (Model Checking)


Reading: pp. 247- top 252.


Reading: pp. 65-67, 70-72


Readings:
1. Agresti, pp. 75- top of 81, 82-83.


School of Public Health Honor Code: The School of Public Health Honor Code is found in the student bulletin (sph.rutgers.edu/academics/catalog/index.html ). Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another’s work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the works used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the school community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the Rutgers School of Public Health.

Policy Concerning Use of Recording Devices and Other Electronic Communications Systems:
When personally owned communication/recording devices are used by students to record lectures and/or classroom lessons, such use must be authorized by the faculty member or instructor who must give either oral or written permission prior to the start of the semester and identify restrictions, if any, on the use of mobile communications or recording devices.