

Statistics 6650

Discrete Data Analysis

Spring 2019

Course Information: Class Number 20350
Lectures TR 12:40 – 2:30 p.m.
Journalism Building - Room: 274

Instructor: Dr. Elizabeth A. Stasny, 319 Cockins Hall, 614-292-0784, stasny.1@osu.edu
Office Hours (Stasny): Wednesday 2:30 – 3:30 p.m., and by prior appointment

Course Assistant: Ms. Jordan Vasko, vasko.30@buckeyemail.osu.edu
Office Hours (Vasko): Monday 3:00 – 4:00 p.m., 134 Cockins Hall, and by prior appointment

Text: Agresti (1996), *An Introduction to Categorical Data Analysis*, 2nd Edition.

You may also read this online (one at a time) via the e-book at the OSU library. A link to the worldcat summary page is: <http://osu.worldcat.org/title/introduction-to-categorical-data-analysis/oclc/368083243?ht=edition>, and a direct link to the e-book that should work from computers on campus is: <http://site.ebrary.com/lib/ohiostate/docDetail.action?docID=10278250>.

This text is essentially a subset of the much more substantive *Categorical Data Analysis*. Make sure you are looking at the correct textbook for assignments.

Supplemental reading assignments may be posted on the course website.

Other References:

Agresti (2002), *Categorical Data Analysis*, Second Edition
Bishop, Fienberg, and Holland (1975), *Discrete Multivariate Analysis*
Christensen (1990), *Log-Linear Models*
Fienberg (1980), *The Analysis of Cross-Classified Categorical Data*
Hosmer and Lemeshow (1989), *Applied Logistic Regression*
Santner and Duffy (1989), *The Statistical Analysis of Discrete Data*

Prerequisites: excellent background in material from the Statistics courses 5302, 6450, 6950, PubHBio 6203 (or permission from the instructor), knowledge of regression, ANOVA, basic matrix algebra, and basic calculus.

Computing: I plan to use the Statistical package R for the computing needs in the course. R is freely available for most operating systems (<http://www.r-project.org/>). If you are not already familiar with R, there are online tutorials available. I recommend getting started with swirl. This site <http://swirlstats.com/students.html> has instructions for downloading R, RShiny, and opening the swirl tutorial system. Once inside, you can learn the basics of working with R via the tutorial "R Programming: The basics of programming in R."

Course Requirements: You are responsible for all material covered in class, in assigned readings, and on homework assignments. You are expected to attend all classes.

Note: for a graduate class, you should expect to spend three hours working outside of class for every hour of class time.

Homework: Assignments will be due at the **start** of the class period approximately weekly during the term. It is your job to make your homework easy to grade. Any computer output must be edited and annotated; graphs and plots must be clearly labeled and discussed in the text of the homework. Problems that are out of order or with parts not clearly identified may not receive full credit. It can be helpful to discuss course material with your colleagues outside of class, but your submissions must be your own and should demonstrate your personal understanding of the problems. **No late assignments will be accepted.** Solutions will be available on Carmen.

Exams:

Midterm: Scheduled for Thursday, January 31, during the regular class time. A single sheet (8.5" x 11") of handwritten notes and a calculator may be used for the exam.

Final Exam: Scheduled for Tuesday, February 26, during the regular class time. Two sheets (8.5" x 11") of handwritten notes and a calculator may be used for the exam.

Both Exams: **No cell phones, tablets, or other electronic devices will be permitted; nothing that obscures your eyes may be worn.**

Grades: The final numerical grade will be determined as follows:

Homework (lowest grade dropped)	25%
Midterm Exam	35%
Final Exam	35%
Class Participation *	5%

Academic Misconduct: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of suspected academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>.

Disability Services: Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614-292-3307, <https://slds.osu.edu>.

Diversity: The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential. Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

* You may earn two points towards the five possible points for class participation by giving me a good discrete data set from your research, the press, or a source other than a statistics text book!

Tentative Schedule of Topics

(Actual schedule will evolve as the term progresses)

<u>Dates</u>	<u>Topic</u>	<u>Chapters in Text</u>
January 8	Introduction	Chapter 1
January 10 – January 22	Classical Methods	Chapter 2, selected sections Chapter 3
January 24 – February 14	Log-Linear Models	Chapter 7, selected sections Chapter 8
February 19 – February 21	Logistic Regression	Chapter 4

I also encourage you to read Chapter 11 for the historical perspective – it's fun reading!