THE OHIO STATE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES

Statistics 6650 Discrete Data Analysis Spring 2021

Instructor: Dr. Elizabeth A. Stasny, 319 Cockins Hall, 614-292-0784, stasny.1@osu.edu
Zoom Office Hours (Stasny): Wednesday 2:00 – 3:00 p.m. and immediately following classes.

Course Assistant: Lauren Contard, contard.1@buckeyemail.osu.edu
Zoom Office Hours (Contard): TBA

Textbook: Agresti (1996), *An Introduction to Categorical Data Analysis*, 2nd Edition. The ebook may be accessed at https://library.ohio-state.edu/record=b6629935~S7.

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: An 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.

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*.

Course delivery

Classes will be delivered live using CarmenZoom from 12:40 – 2:30 TR, as scheduled. On occasion, the class may be divided into breakout rooms for group competitive modeling exercises.

Video and audio recordings of class lectures will be made during each class in case a student is ill or otherwise cannot attend. The video and audio recording will be used for educational purposes only and may be made available upon request only to a student presently enrolled in the course.

Computing: I plan to use the Statistical package R for my 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."

Alternately, you may use any statistical package you prefer for the work in this course; I may not be able to help you with the package you choose, however.

Homework: Assignments will be due just before the start of class approximately weekly. You must ensure that your homework is 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 material covered in the problems. Solutions will be available on Carmen. **No late assignments of any type will be accepted*.**

Exams:

Mini Midterms: Two 45-minute mini exams after weeks 3 and 5. You may choose, in advance, to complete the exam on Friday, Saturday, or Sunday from 3:00 – 4:15 p.m.

Comprehensive Final Exam: Scheduled for Tuesday, March 2, during the regular class time.

Both Exams: Exams will be available online. An additional ½ hour will be permitted to allow for downloading and uploading the exam and to deal with technical matters. You may use your book and/or your notes, but the work you submit must be your own.

Ohio State's academic integrity policy

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 alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/.

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

Homework (lowest grade dropped)	23%
Mini Exams	35%
Final Exam	35%
Class Participation**	7%

* Obviously, if you are ill or caring for someone who is ill, we will make alternate arrangements. Please contact me by email as soon as possible and keep me appraised of your situation.

** You may earn one point towards the seven possible points for class participation by posting a video introducing yourself to me and your classmates. You may earn two points towards the seven 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.

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at http://titleix.osu.edu or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu.

Accessibility accommodations for students with disabilities

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; 098 Baker Hall, 113 W. 12th Avenue.

Your mental health

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you, or someone you know, are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting ccs.osu.edu or calling 614- 292-5766. You can reach an on call counselor when CCS is closed at 614-292-5766 and 24 hour emergency help is also available through the 24/7 National Suicide Prevention Hotline at 1-800-273- TALK or at suicidepreventionlifeline.org.

Tentative Schedule of Topics

(Actual schedule will evolve as the term progresses)

Dates	Topic	Chapters in Text
January 12	Introduction	Chapter 1
January 14 – January 26	Classical Methods	Chapter 2, selected sections Chapter 3
January 28 – February 18	Log-Linear Models	Chapter 7, selected sections Chapter 8
February 18 – February 25	Logistic Regression	Chapter 4

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

For my planning purposes.

	Tuesday	Thursday	Fri.-Sun.
Week 1	1/12	1/14	
Week 2	1/19 HW	1/21	
Week 3	1/26 HW	1/28	Mini-Exam
Week 4	2/2 HW	2/4	
Week 5	2/9 HW	2/11	Mini-Exam
Week 6	2/16 HW	2/18	
Week 7	2/23 Instructional Break	2/25 HW	
Week 8	3/2 Final Exam		