

**STA 4504/5503: Categorical Data Analysis**  
**Fall 2021**

*UF Course Catalog: Description and inference using proportions and odds ratios, multi-way contingency tables, logistic regression, and other generalized linear models, log-linear models applications. Prerequisite: STA 3024 or STA 3032 or STA 4210 or STA 4322.*

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**Instructor Office Hours:** TBD, zoom link will be posted on Canvas course page  
**Graduate Teaching Assistants:** Xavier Mak  
**GTA Office Hours/Location:** TBD, zoom link will be posted on Canvas course page

**Course Description and Objectives**

**Days:** MWF  
**Time:** 1:55pm - 2:45pm  
**Place:** WEIM 1094

**Course Description:** This course will cover a wide range of analysis techniques used when dealing with categorical data. Course content includes description and inference for binomial and multinomial observations using proportions and odds ratios; multiway contingency tables; generalized linear models for discrete data; logistic regression for binary responses; multi-category logit models for nominal and ordinal responses; inference for matched pairs and correlated clustered data; loglinear models.

**Course Objectives:** At the end of the course a student should:

- be able to identify and analyze categorical variables
- be able to calculate and interpret odds ratios and relative risks and associated inference procedures
- be able to apply statistical tools to make inference about a single binomial proportion or two sample proportions.
- understand and be able to calculate the different goodness of fit statistics
- understand and explain the properties of different measures of association by estimating various forms of measures of association from retrospective, cross-sectional and prospective studies.
- be able to analyze three-way tables.
- understand the fundamental importance of the logistic model.

**Required Course Materials**

**Textbook:** An Introduction to Categorical Data Analysis, 3rd Edition, Author(s): A. Agresti  
ISBN-13: 9781119405269

**Scientific or Graphing Calculator:** You will need a calculator capable of basic arithmetic operations and taking square roots will be needed for in-class exams. Internet-enabled electronic devices, such as cell phones or tablets, cannot be used as calculators during exams.

**Web-enabled device:** You will need some type of web-enabled device such as a laptop, smartphone, or tablet to use in-class to access Canvas as needed.

### **Course Resources**

The Canvas, <https://lss.at.ufl.edu/>, course website will be used extensively throughout the semester to post notes and make course announcements. You must log on using your gatorlink username and password and access the course webpages from there. Important information about the course will be posted here including this syllabus, announcements, notes, assignments and your grades throughout the semester and computer output to supplement the examples done in class.

### **Course Computer Programs and Applets**

Some assignments will require you to use statistical applets or a statistical software package to analyze and visualize data. One statistical software program that you will be required to use throughout the semester is **JMP**. JMP is available as a free download (recommended) or is available as an UF app. Information on how to download this program will be posted on Canvas and discussed during the first week of class. Another software program is **R**, which is also a free download. A list of other statistical applets will be posted on Canvas.

### **Study Approach**

You are to skim the lecture slides and text sections before class to familiarize yourself with the material and its organization. The lecture notes will be posted on Canvas. Next, you are to carefully study the lecture slides and textbook sections after each lecture to increase understanding. Remember to use the notes to help you to complete all assignments.

### **Help**

Remember to ask for help! You can come by during my scheduled office hours or make an appointment to see me. I can also answer some questions via email. *Emails received during the working week will be answered within 24 hours however emails received over the weekend may not be answered until Monday morning.*

### **Course Assignments**

Your final course grade will be based on a combination of assessment types including homeworks, class activities and discussion, computer assignments and in-class exams. Due dates will be posted on the course schedule, on the Canvas course page and announced in class.

### **Homework:**

Eight homework exercises will be assigned during the semester. The objective of these homework assignments is to help you develop a more in-depth understanding of the material and help you prepare for the exams. Therefore, doing the homework promptly and carefully is necessary for success in this course. Homework assignments in this course:

- Give you an opportunity to practice using formulas and interpreting results of various analyses.
- Give you feedback on what you understand and on what areas need more review.
- Help you apply concepts from class in situations requiring more intense computation and analysis.

The homework assignments will vary in length and content. Some homework assignments will involve analyzing data sets and submitting a written summary of your analysis. Other assignments will mainly involve solving exercises like those in the textbook. **You are required to work alone on homework assignments**

### **Class Activities and Discussion:**

This course will devote a significant amount of class time to activities, examples, practice problems, etc. To participate effectively and benefit fully from these, you will need to prepare in advance for each class period. Accordingly, you are expected to prepare for each class period by:

- Reading the corresponding sections of the textbook to be covered in class.
- Reviewing class materials and notes posted in Canvas to be covered in class and attempting any included activities.

Class activities and discussions allow students time to work in small groups.

### **Computer Assignments:**

There will be two computer data analysis assignments referred to as CA's. Each computer data analysis assignment is like mini project and should be taken very seriously. You are required to type all solutions (unless otherwise specified). That is, you must integrate in Microsoft Word (or another similar program) the statistical results for any software package or applet (including any graphs) used to solve the problems with your typed answers to the questions. You must upload your solutions document as a pdf file electronically onto Canvas to get your assignment graded. It is your responsibility to make sure your posted file is readable. Unreadable files cannot be graded. **You are required to work alone on these computer assignments.** This means you cannot discuss these assignments with anyone except your professor and the TAs only for clarification purposes.

Due dates for all computer assignments will be posted on Canvas. There will be a 10% penalty per day for late work and no assignments will be accepted more than two days after the due date.

### **Exams:**

There will be four in-class exams which will contain multiple choice and open-ended items. All students must bring to the exam: their student ID number, picture ID, a calculator, and pencils. In case of conflict or illness, if a student is unable to take an exam at the scheduled time, they must get in touch with the instructor prior to the exam time for any arrangements to be made

for a makeup. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite under such extenuating circumstances. A grade of zero is the minimum punishment of any type of dishonesty on an exam.

You may be provided with a packet of formulas and statistical tables to be used on the exams, if needed. A copy of this packet will be available in Canvas so that you will know what information will be provided to you on each exam.

**Grading Scheme:**

Exams (4@15% each)	60%
Computer Assignments (2@10% each)	20%
Homework (8@2% each)	16%
Class Activities and Discussion	4%

Numeric Score	Letter Grade
91 – 100	A
88 – 90	A-
86 – 87	B+
81 – 85	B
78 – 80	B-
76 – 77	C+
71 – 75	C
65 – 70	C-
60 – 64	D
0 – 59	E

Your final overall numeric score is rounded to the nearest integer. So, for example, if your average is 76.4 your grade will be 76. If your grade is 76.5, your grade will be 77.

Letter grades will be assigned according to the table shown.

**Course Policies**

**Grading Policies:**

\*You have at most seven days after a graded assignment is posted to question the grade. If you do not notify me in writing of any issues with your grade within that time, then the posted score stands.

\*Requirements for class attendance and make-up exams, assignments, and other work in this course as well as policies regarding absences, religious holidays, illness, and student athletes are consistent with UF Attendance Policies.

Additional make-up policy requirements:

- Every effort should be made to complete the assignment/exam during the open period. Only extreme situations will warrant a makeup. Contact the instructor prior to the exam - as soon as you realize you will be unable to take the assignment/exam at the scheduled time. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite for scheduling a makeup under such extenuating circumstances.
- If you have an emergency on the day of the assignment/exam, the instructor must be contacted by midnight of the day of the assignment/exam.
- Make-ups need to be scheduled within a week from the assignment deadline. Student is responsible for scheduling.

- Additional Note: Being on vacation or booking a trip prior to the completion of the semester is not a valid reason to request a makeup. Please reference the most recent Academic Calendar, <https://catalog.ufl.edu/UGRD/dates-deadlines/pdfs/>.

\*If you have a disability that requires academic accommodation, contact the Disability Resource Center (DRC). The DRC will provide documentation to the students who must then provide this documentation to the instructor when requesting information. You must submit this documentation prior to submitting any assignments for which you are requesting accommodation.

\* Incompletes are only assigned when extraordinary circumstances (such as an accident, or extended hospitalization), arising after the date for dropping the course, prevent the student from completing the course requirements. Having a failing grade in the course is not a valid reason for requesting an Incomplete. Information on Medical Withdrawal can be found at <https://umatter.ufl.edu/> . Information on how to Drop a class can be found in UF's Academic Catalog <https://catalog.ufl.edu/> and <https://catalog.ufl.edu/UGRD/academic-regulations/dropping-courses-withdrawals/>

\*There is no “extra credit” or forgiven grades – you are responsible for all your work done (or left undone).

**Honor Code on Homework, Computer Assignments and Exams:** You are required to abide by the University of Florida Student Honor Code. Any violation of the academic integrity expected of you will result in a minimum academic sanction of **a failing grade on the assignment or assessment**. Any alleged violations of the Student Honor Code will result in a referral to Student Conduct and Conflict Resolution. Please review the Student Honor Code and Student Conduct Code at [sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/](https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/)

The Honor Code will be enforced for **all homework, computer assignments and exams**.

Homework and computer assignments are to be undertaken independently; all graded work is expected to be your original and independent work. It is not appropriate to: (1) give your work on the assignment to someone else to copy, (2) copy directly from someone else's solutions (either present or past students), (3) use someone else's computer program or output, or a copy of someone else's computer session, or (4) use solutions posted in previous semesters. ***You are responsible for making sure that there is no reason to doubt that the work you hand in is your own.*** As only your name appears on an assignment, my expectation and assumptions are that you have done the work yourself, fully and independently.

**Classroom Behavior:** During class students should turn off their cellular phones and refrain from eating, drinking, reading newspapers, doing homework, listening to music, excessive talking and all other behaviors that are distracting and disrespectful to the instructor and their fellow students.

**Privacy Policy:** Student records are confidential. Only information designated “UF directory information” may be released without your written consent. This applies to parents or anyone else who contacts me about your grades.

**Faculty Course Evaluations:** Student feedback is welcomed by the instructor and beneficial to future students in the course. Students are requested to provide feedback on the quality of instruction in this course by completing a brief confidential evaluation towards the end of the semester at <https://evaluations.ufl.edu>. Summaries of the evaluation results can be found at <https://evaluations.ufl.edu/results>.

### **Other University Services**

**U Matter, We Care:** Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**\*Sexual Assault Recovery Services (SARS): Student Health Center, 392-1161**

**\*University Police Department, 392-1111 (or 9-1-1 for emergencies),  
<http://www.police.ufl.edu>**

## Covid Policy

In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: <https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.
- **You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.** Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
  - Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
  - Hand sanitizing stations will be located in every classroom.
- If you sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.
  - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
  - If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- Continue to regularly visit [coronavirus.UFHealth.org](https://coronavirus.UFHealth.org) and [coronavirus.ufl.edu](https://coronavirus.ufl.edu) for up-to-date information about COVID-19 and vaccination.

Tentative Schedule Fall 2021				
Date	Day	Chapter	Topic Section	Assignment
23-Aug	M	1	1.1	
25-Aug	W	1	1.1	
27-Aug	F	1	1.2	
30-Aug	M	1	1.3	
1-Sep	W	1	1.4.2	
3-Sep	F		Activity	HW1
6-Sep	M		Labor Day - No Class	
8-Sep	W	2	2.1-2.2	
10-Sep	F	2	2.3	
13-Sep	M	2	2.4	
15-Sep	W	2	2.6	
17-Sep	F	2	2.7	HW2
20-Sep	M	3	Exam 1	
22-Sep	W	3	3.1	
24-Sep	F	3	3.2	
27-Sep	M	3	Activity	CA1
29-Sep	W	3	3.3	
1-Oct	F	3	3.4	
4-Oct	M	3	Activity	HW3
6-Oct	W	4	4.1	
8-Oct	F		Homecoming - No Class	
11-Oct	M	4	4.2	
13-Oct	W	4	4.3	
15-Oct	F	4	4.4	
18-Oct	M	4	4.5	HW4
20-Oct	W	4	4.6	
22-Oct	F		Exam2	
25-Oct	M	5	5.1	
27-Oct	W	5	5.2	
29-Oct	F	5	5.3	
1-Nov	M	5	Activity	HW5
3-Nov	W	5	6.1	
5-Nov	F	6	6.1	
8-Nov	M	6	6.2	HW6
10-Nov	W	6	Activity	
12-Nov	F		Exam3	
15-Nov	M	8	8.1 and 8.5	CA2
17-Nov	W	8	8.1 and 8.5	



19-Nov	F	9	9.1	
22-Nov	M	9	9.2	HW7
24-Nov	W		Thanksgiving - No Class	
26-Nov	F		Thanksgiving - No Class	
29-Nov	M	10	10.1	
1-Dec	W	10	10.2	
3-Dec	F	7	7.1-7.2	
6-Dec	M	7	7.3-7.4	HW8
8-Dec	W		Exam 4	