STA 3024: Introduction to Statistics II
Fall 2022

UF Course Catalog: An introduction to the analysis of variance. Nonparametric statistical methods and applications. Analysis of count data: chi-square and contingency tables. Simple and multiple linear regression methods with applications. **Prerequisite:** STA 2023 or the equivalent.

Instructor: Beth Johnson
Email: ejohnson5@ufl.edu
Office: 115-B Griffin-Floyd Hall
Telephone: 352-273-1897

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

Course Description and Objectives

Days: MWF
Time: 10:40 am – 11:30 am
Place: CSE A101

Course Description: In this course, students learn how to summarize data, analyze it, and make appropriate decisions based on data. The sequence of courses STA 2023-3024 provides students with a firm foundation in the basics of applied statistical methods. The prerequisite for this course is STA 2023, which covered chapters 1-9 in the textbook (data collection, graphical and numerical summaries, probability, and an introduction to statistical inference). Concepts from STA 2023 will be reviewed as needed. The course focuses on the following four topics:

1. Analysis of Variance to compare three or more population means.
2. Simple Linear Regression and Multiple Regression to predict a quantitative response.
3. Analysis of Two-Way Tables to study the relationship between two categorical variables.
4. Nonparametric Statistics that do not require a Normal distribution of the response variable

Required Course Materials

Textbook: Statistics, The Art and Science of Learning from Data, by Agresti, Franklin and Klingenberg, 4th edition, Prentice Hall. Purchase as an e-text (around $60) from UF All Access. Access the text using the MyLab and Mastering link in Canvas. This format allows you to complete the textbook homework problems electronically, check your answers, and use the homework help for extra videos and examples.

Scientific Calculator (around $10 to $15): 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 and iClicker app 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 Program 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. A list of other statistical applets will be posted on Canvas or listed on assignments.

Course Approach

As an introductory statistics class is a prerequisite for this course, I expect that students will be familiar with basic statistical terms and concepts. I have posted a list of typical material covered in a first course of statistics for you to review. I have also posted a non-graded "Diagnostic Test" for students to review/refresh their knowledge on these terms and concepts. I strongly suggest that you take this assessment during the first week of the semester.

In this second course of statistics, we will focus on the following skills: working with data using statistical software, interpreting results from a statistical analysis, and stating clear conclusions in context for a lay audience.

These skills will all be assessed through various modes such as computer assignments, online homework, and in-class exams.

Help and Course Communication

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.*

- Always use GatorMail for email. I do not check Canvas inbox regularly.
- Always put STA 3024 in the subject line of your email. I teach multiple courses and use course numbers to search emails from students.

Course Assignments

Your final course grade will be based on a combination of assessment types including homeworks, 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 using the Pearson MyLab and Mastering system located in the Canvas course site. **These assignments are designed to help understand the statistical topics through practice.** Students can work on each problem as many times as needed to get the question correct. In addition, you can discuss these problems with other students in this course as well as the TAs and your professor. These problems will prepare you to complete the exams. Assignments are due on the exam date for the covered material, see Canvas for due dates.

Computer Assignments:
There will be four 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 Word or 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 assignments**. This means you cannot discuss these assignments with anyone except your professor and the TAs only for clarification purposes, see Honor Code policy.

Due dates for all computer assignments will be posted on Canvas. There will be a 5% 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 be contain multiple choice, short answer, and matching 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. Makeup exams may not be multiple choice. A grade of zero is the minimum punishment for 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@17% each)	68%
Computer Assignments (4@6% each)	24%
Homework (8@1% each)	8%

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.
Note: No D+ or D- given

Numeric Score	Letter Grade
91-100	A
88-90	A-
85-87	B+
81-84	B
78-80	B-
75-77	C+
68-74	C
65-67	C-
60-64	D
0-59	E

Course Policies

Grading Policies:

*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 on the day of the assignment/exam.
- Make-up exams will be scheduled within a week from the assignment deadline. Student is responsible for attending scheduled make-up. Instructor reserves the right to utilize the UF posted final exam day as a make-up date.
- 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).

*If you have a question concerning a graded assignment, you should notify me within seven days after a graded assignment is posted to schedule a meeting.

Honor Code on 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/

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

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 silence 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 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**

***Student Health Care Center:** Call 352-392-1161 for 24/7 information to help you find the care you need or visit the Student Health Care Center website.

***GatorWell Health Promotion Services:** For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273-4450.

Academic Resources

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.

COVID -19

In response to COVID-19, the following recommendations 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 and have been demonstrated to be safe and effective against the COVID-19 virus. Visit one.uf for screening/testing and vaccination opportunities.

- If you are sick, stay home. 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 to be evaluated.

- As with any excused absence, you will be given a reasonable amount of time to make up missed work.

Tentative Schedule FALL 2022

Date	Day	Topic	Section	Online Homework*	Computer Assignment**
24-Aug	**W**	Review statistical inference - simulation example	Posted Notes		
26-Aug	**F**	Review one and two sample proportions inference procedures	Sec 8.1-8.2 and Sec 10.1		
29-Aug	**M**	Association for categorical variables	Sec 11.1		
31-Aug	**W**	The goodness of fit test	Sec 11.2	HW1	
2-Sep	**F**	Tests for homogeneity and independence	Sec 11.2		
5-Sep	**M**	HOLIDAY - No Class			
7-Sep	**W**	Relative risk and the odds ratio	Sec 11.3		
9-Sep	**F**	Fisher's Exact Test and Permutation Tests	Sec 11.5		CA1
12-Sep	**M**	Review		HW2	
14-Sep	**W**	**Exam 1**			
16-Sep	**F**	Review basic descriptive statistics	Posted Notes		
19-Sep	**M**	Inference - one sample mean methods with assumptions	Sec 8.3 and Sec 9.3		
21-Sep	**W**	Matched t-test and the Sign Test	Sec 10.4 and Sec 15.2		
23-Sep	**F**	Nonparametric Alternative: Wilcoxon Signed-Rank Test			
26-Sep	**M**	Inference - Comparing Two Independent Means	Sec 10.2	HW3	
28-Sep	**W**	Nonparametric Alternative: Wilcoxon Rank Sum Test	Sec 15.1		
30-Sep	**F**	Permutation Resampling	Sec 10.3		
3-Oct	**M**	Nonparametric Practice			
5-Oct	**W**	Comparing Two Group Variances Using the F-test	Posted Notes		
7-Oct	**F**	Homecoming			CA2
10-Oct	**M**	Review		HW4	
13-Oct	**W**	**Exam 2**			

14-Oct	**F**	Introduction to Design of Experiments	Chapter 4 and Posted Notes		
17-Oct	**M**	One-way ANOVA	Sec 14.1		
19-Oct	**W**	One-way ANOVA	Sec 14.2		
21-Oct	**F**	Multiple Comparison Methods	Sec 15.2	HW5	
24-Oct	**M**	Nonparametric Alternative: Kruskal-Wallis Test	Sec 14.3		
26-Oct	**W**	Two-way ANOVA	Sec 14.3		
28-Oct	**F**	Two-way ANOVA			CA3
31-Oct	**M**	Review		HW6	
2-Nov	**W**	**Exam 3**	Sec 12.1		
4-Nov	**F**	Linear Regression Model	Sec 12.1		
7-Nov	**M**	Inference for the Regression Slope	Sec 12.2		
9-Nov	**W**	Correlation	Sec 12.3		
11-Nov	**F**	HOLIDAY			
14-Nov	**M**	How the Data Vary Around the Regression Line	Sec 12.4		
16-Nov	**W**	Transformations	Posted Notes		
18-Nov	**F**	Multiple Regression	Sec 13.1	HW7	
21-Nov	**M**	Extending the Correlation Coefficient and R^2	Sec 13.2		
23-Nov	**W**	HOLIDAY			
25-Nov	**F**	HOLIDAY			
28-Nov	**M**	Inference for MR slope	Sec 13.3		
30-Nov	**W**	Residual Plots	Sec 13.4		
2-Dec	**F**	Modeling a Categorical Response	Sec 13.6		CA4
5-Dec	**M**	Review		HW8	
7-Dec	**W**	**Exam 4**			
				*Suggested due dates for online HW. All online HW due on the date of corresponding exam for that material	**See syllabus. 5 point per day late penalty for max of two days