STA 2023 LD Fall 2024

Statistical Methods I (GE Core) Syllabus

Instructor: Annabelle Lassiter

Email: alassiter1@ufl.edu
Office Hours: T 2:00-4:00pm, Th 3:00-4:00pm on zoom https://ufl.zoom.us/j/91268466657
Office: Griffin Floyd Hall Room 115-A
Phone: (352) 392-1941

Teaching Assistant: Andre Glover

Email: andrew.glover1@ufl.edu
Office hours: MW 1:00-4:00 pm in G-FLO rm 234
Phone: (352) 392-1941

Course Website in CANVAS: https://elearning.ufl.edu/

This is the portal for UF's E-learning website. You log on using your Gatorlink username and password to access the course materials, announcements, grades, online quizzes etc.

Course Description

Graphical and numerical descriptive measures. Simple linear regression. Basic probability concepts, random variables, sampling distributions, central limit theorem. Large and small sample confidence intervals and significance tests for parameters associated with a single population and for comparison of two populations. Use of statistical computer software and computer applets to analyze data and explore new concepts. (M)

General Education Objective and Student Learning Outcomes

This course satisfies general education credits in the mathematical sciences. A minimum grade of C is required for general education credit. Students learn how to summarize data and how to make appropriate decisions based on data. (This course is the general education category of M.)

General Education Objective (Mathematics)

Courses in mathematics provide instruction in computational strategies in fundamental mathematics including at least one of the following: solving equations and inequalities, logic, statistics, algebra, trigonometry, inductive and deductive reasoning. These courses include reasoning in abstract mathematical systems, formulating mathematical models and arguments, using mathematical models to solve problems and applying mathematical concepts effectively to real-world situations.

In this course, this objective will be met by . . .

During the semester the students will be given an introduction to the three main aspects of statistics: design (of experiments/surveys), description (of data collected) and inference (the extension of conclusions from the data gathered in the sample to the larger population). These concepts will be presented through lectures three times a week and lab once a week. They will also learn about the normal and binomial distributions as well as the methodology of confidence intervals and significance tests. From the methods that they learn in class they will be able to critique real

world surveys and experiments, interpret graphs in newspapers and magazines as well as conduct basic statistical inference for one or two groups.

General Education Student Learning Outcomes (SLOs)
Content: Students demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline.

Communication: Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline.

Critical Thinking: Students analyze information carefully and logically from multiple perspectives, using discipline specific methods and develop reasoned solutions to the problems.

In this course, these SLOs will be met by . . .
Content: Students will learn critical terminology, concepts, methods, and theories during lecture. These concepts will include terminology to describe one and two samples, discuss surveys/experiments, basic probability theory, sampling distributions, and one and two group inference. The students will be assessed on these terms and concepts during the weekly quizzes and the exams. Students will also demonstrate their competence in identifying the appropriate formulas to use for each situation and using those formulas correctly.

Communication: The students will use verbal and written communication to discuss central statistical concepts in their weekly labs. These concepts include description of data sets, sampling methods and interpretations of inference methodology.

Critical Thinking: The students will be asked to critically think about trustworthiness of surveys and experiments presented in the media. Additionally, students will learn how to conduct significance tests, a statistical method to logically determine if there is enough evidence for a hypothesis. Students will learn how to state the null and alternative hypotheses (different perspectives) and then to use the data collected to determine if there is enough evidence to support the alternative hypothesis using methods central to the field of statistics. The students will be tested on these concepts in lab, quiz and on two of the exams.

Student Learning Outcomes:
- Students will visualize and summarize data using descriptive statistics.
- Students will apply basic probability concepts to draw reasonable conclusions.
- Students will employ concepts of random variables, sampling distributions, and central limit theorem to analyze and interpret representations of data.
- Students will choose an appropriate method of inferential statistics including confidence intervals and hypothesis testing, to make broader decisions based on sample data.
- Students will model linear relationships between quantitative variables using correlation and linear regression.

Materials
1. **Required Lecture Notes: will be posted in Canvas for you to print or use electronically, and you can also purchase them at Target Copy (recommended).** They have an outline of the material, plus the computer output for the examples we will do together in class, so it is essentially your class notebook.

2. Required Scientific Calculator (around $10 to $15) that has some basic statistical functions like mean and standard deviation. **Graphing calculators are not allowed during the exams**.
3. Recommended Textbook: Statistics, The Art and Science of Learning from Data, by Agresti, Franklin and Klingenberg, 5th edition, Pearson. This *optional* textbook is available in an electronic version that is purchased through UF All Access (inside of Canvas) and includes MyLab and Mastering to do the *suggested* review problems electronically – details available in Canvas. Older editions of the book contain basically the same information and can be found used in hardcover. An automatic supplies fee of $1.74 is associated with this course.

Lectures
   Class # 16626   MTWR 3rd pd (9:35am– 10:25pm)   MAT 0011
Students must attend lectures IN PERSON; the lectures will not be streamed or recorded. Notes from these in-person lectures will be posted on Canvas when possible.

Online Quizzes
The Canvas Quiz function will be used to assign problems after each class so students can practice the concepts and formulas learned that day. These quizzes will be completed electronically but function more like a homework assignment. Students will have three chances at each quiz and the highest score will count for their grade.

Labs – Data Analysis Assignments
There will be around twelve Data Analysis Assignments throughout the semester. They will be completed during class and you will need a laptop on these days. **Students must arrive within 5 minutes of the start of the Lab in order to participate.** The instructor will bring lab worksheets for all the students to complete the activity during class.

Class Attendance and Participation
For each class period throughout the semester, students will receive points for attendance, punctuality, attentiveness, and participation. This means that students should come to every class, be on time, pay attention, take notes, work in groups when instructed to do so, and ask and answer questions related to the material.

Absences and Makeup Lab, Quizzes, Homework
Students are expected to attend all classes and complete all course assignments within the assigned time frame. Students who miss any assignments due to illness or conflict must contact the instructor before or immediately after missing it and provide valid documentation. Assignments should be made up as soon as possible and they cannot be made up after the exam for that material has been given.

Exams
There will be a total of four exams, all done in class. You will need to bring your own scientific calculation (you cannot share one with another student) and a pencil. If you are unable to take an exam at the scheduled time, it is your responsibility to get in touch with me one week prior (earlier if possible) to the exam 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. In case of illness, you must notify me on the day of the exam by 5pm and must receive

a medical excuse. Cell phones must be switched off, in your backpacks, and not be in view during the exam.

Exam 1	Mon Sep 16	In class	Modules 1-8	Graphs, Numerical Summaries, Regression Contingency Tables
Exam 2	Wed Oct 9	In class	Modules 9-16	Gathering Data, Probability, Normal and Binomial Distributions
Exam 3	Wed Nov 6	In class	Modules 17-26	Sampling Distributions, Confidence Intervals, Sig Test for Proportions
Exam 4	Wed Dec 4	In class	Modules 27-36	Confidence Intervals and Sig Tests for one and two groups

Grades

Grade Structure:

4 In-Class Exams	60% (15% each)
Labs – Data Analysis	15%
Canvas Quizzes	15%
Attendance and Participation	10%

Grading Scale:

A	90% to 100%	C+	74% to 76%
A-	87% to 89%	C	70% to 64%
B+	84% to 86%	D	60% to 63%
B	80% to 83%	E	59% and below
B-	77% to 79%	(No C-, D+ or D- given)

UF Grading Policies: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Course Policies

Attendance – Students are expected to attend every lecture unless reasonable documentation is provided. Attendance is a grade and will be monitored.

Late Work – Late work will not be accepted.

Email to Instructor – will be answered within one working day in most cases. Please be aware that statistical questions should be answered in person (in class or in-person office hours) since they often require pictures and formulas that make it very hard to communicate through email.

Privacy Policy - Student records are confidential. Only information designated "UF directory information" may be released without your written consent.

Privacy in Zoom Office Hours: The instructor's office hours will only admit one student at a time, with any others being placed in a waiting room. Students can discuss any personal issues or problems with the instructor during office hours with the guarantee of confidentiality. None of the office hours will be recorded.

Students with Disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://disability.ufl.edu/get-started/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which will be sent to the instructor. Students with disabilities should follow this procedure as early as possible in the semester, and need to do this every semester. Accommodations will not be made retroactively, but only forward from the day that the letter was received. Special circumstances should be discussed with the instructor.

University's Honesty Policy: UF students are bound by The Honor Pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The [Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.
Grading: Grades will be changed only when an error has been made; negotiation is not appropriate.

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** or how to **Drop a class** can be found in UF's website.

Instructor / Course Evaluations: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Students will be notified when the evaluation period opens and instructions given on how to access them.

Other University Services

U Matter, We Care: Information on services offered at UF for students in distress:

https://umatter.ufl.edu/

Student Health Care Center: 352-392-1161   https://shcc.ufl.edu/

University Police Department, 352-392-1111 (or 9-1-1 for emergencies) http://www.police.ufl.edu

UF Computing Help Desk (including problems with e-learning): http://helpdesk.ufl.edu/

Weekly Schedule (subject to change if needed)			**Thursday**	
Monday	**Tuesday**	**Wednesday**	8/22 Module 1	
8/26 Module 2	8/27 Lab 1	8/28 Module 3	8/29 Module 4	
9/2 NO CLASS	9/3 Module 5	9/4 Module 6	9/5 Module 7	
9/9 Lab 2	9/10 Module 8	9/11 Review for Exam 1	9/12 Review for Exam 1	
9/16 **EXAM 1**	9/17 Module 9	9/18 Lab 3	9/19 Module 10	
9/23 Lab 4	9/24 Module 12	9/25 Lab 5	9/26 Module 14-1	
9/30 Module 14-2	10/1 Module 15-1	10/2 Module 15-2	10/3 Lab 6	
10/7 Review for Exam 2	10/8 Review for Exam 2	10/9 **EXAM 2**	10/10 Module 17	
10/14 Lab 7	10/15 Module 18	10/16 Lab 8	10/17 Module 20	
10/21 Module 21	10/22 Lab 9	10/23 Module 22	10/24 Module 24	
10/28 Module 25	10/29 Lab 10	10/30 Module 26	10/31 Review for Exam 3	
11/4 Review for Exam 3	11/5 Review for Exam 3	11/6 **EXAM 3**	11/17 Module 27	
11/11 NO CLASS	11/12 Module 28	11/13 Lab 11	11/17 Module 30	
11/18 Module 31	11/19 Module 32	11/20 Lab 12	11/21 Module 34-36	
11/11 NO CLASS	11/11 NO CLASS	11/11 NO CLASS	11/11 NO CLASS	
12/2 Review for Exam 4	12/3 Review for Exam 4	12/4 **EXAM 4**	11/11 NO CLASS	