STA 2023 - Intro to Statistics

Summer A 2024

Instructor	Yeison Quiceno	**Office hours** TF 10:55-12:00 PM Zoom	
E-mail	yeison.quicenodu@ufl.edu	**Office** Griffin Floyd Room 117A	
		352-392-1941	

Course Website: elearning.ufl.edu/
Course Time: TUR L011, 9:30 AM- 10:45 PM

Teaching Assistants

Name	E-mail	Office hours	Office
Partha Sarkar	sarkarpartha@ufl.edu	R 2:00-4:00 PM	Griffin Floyd 209
Minxuan Wu	wuminxuan@ufl.edu	M 10:55-12:00 PM	Griffin Floyd 117A

Required Materials:

- ### Lecture Notes:

Available at the course homepage in Canvas. These are needed to follow along with the lectures and to fill in the blanks while following the lectures. You can use them electronically if you can take notes on a pdf file, or print them.

- ### Recommended Textbook:

Title: *Statistics: The Art and Science of Learning from Data*, 5^{th} Edition
Author(s): Alan Agresti and Christine Franklin
ISBN-13: 978-0133860825

- ### Scientific Calculator:

It should have basic statistical functions (mean, and standard deviation). Graphing calculator is not allowed to use during the exams.

- ### Materials/Supplies Fees:

A fee of $1.74 is charged during registration for lab materials.

Course Material by Week

- ### Week 1

Textbook Sections: 1.1, 1.2, 2.1, 2.2, 2.3, 2.4, 2.53.1, 3.2, 3.3
Description: Exploring Data with Graphs; Measures of Center, Spread and Position; Regression.

- ### Week 2

Textbook Sections: 3.4, 5.1, 5.2, 5.3, 5.4, 5.4, 6.1, 6.2, 6.3
Description: Regression; Data from Surveys/Experiments; Probability.

- **Week 3**

Textbook Sections: $4.1, 4.2, 4.3, 4.4, 7.1, 7.2$
Description: Probability in our Daily Lives; Probability Distributions; Sampling Distributions.

- **Week 4**

Textbook Sections: $8.1, 8.2, 8.3$
Description: Confidence Intervals for the Population Proportion; Confidence Intervals for the Population Mean.

- **Week 5**

Textbook Sections: $9.1, 9.2, 9.3, 9.4, 10.1$
Description: Significance Tests

- **Week 6**

Textbook Sections: 10.1, 10.2, 10.4
Description: Comparison of Two Proportions and Two Means.

Course Assessment:

Exam 1: Chapters 1,2,3,5,6 (May 24)	30%
Exam 2: Chapters 4,7,8 (June 7)	30%
Exam 3: Chapters 9,10 (June 21)	30%
Participation: Weekly	10%

Letter Grade Distribution:

$90\% - 100\%$	A	$67\% - 73.99\%$	C
$88\% - 89.99\%$	A−	$60\% - 66.99\%$	D
$84\% - 87.99\%$	B+	Below 60%	E
$80\% - 83.99\%$	B		
$78\% - 79.99\%$	B−		
$74\% - 77.99\%$	C+		

Course Description:

STA 2023 is an introductory course that assumes no prior knowledge of statistics but does assume some knowledge of high school algebra. Basic statistical concepts and methods are presented to emphasize understanding the principles of data collection and analysis rather than theory. Much of the course will be devoted to discussing how statistics are commonly used in the real world. There are two major parts to this course:

I Data- which includes graphical and numerical summaries to describe the distribution of a variable, or the relationship between two variables (chapters 1, 2 and 3), and data production to learn how to design good surveys and experiments, collect data from samples that are representative of the whole population, and avoid common sources of biases (chapter 4).

II Probability and Inference- using the language of probability and the properties of numerical summaries computed from a random samples (chapters 5, 6 and 7), we learn to draw conclusions about the population of interest, based on our random sample, and attach a measure of reliability to them (chapters $8, 9, 10$).

Prerequisite(s): None.

General Education Objective and Student Learning Outcome

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 in 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:

- 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).
- Presentation of these concepts through lectures three times a week and lab once a week.
- Learning about the normal and binomial distributions, confidence intervals, and significance tests.
- Ability to critique real-world surveys and experiments, interpret graphs, and 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 problems.

In this course, these SLOs will be met by:

- **Content**: Students will learn critical terminology, concepts, methods, and theories during the 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 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 a description of data sets, sampling methods and interpretations of inference methodology.
- **Critical Thinking**: The students will be asked to critically think about the 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 labs, quizzes, and on two of the exams.

Assessment:

- ### Exams

Three multiple choice exams will be held in class. It is your responsibility to bring a scientific calculator, pencil, and Gator 1 ID (Photo ID) to each exam. If a student is unable to take an exam at the scheduled time, they must notify the instructor, Yeison Quiceno, 48 hours prior 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/family emergency/disability related absence, the instructor must be notified by 11:59 pm the day of the exam and must receive valid and detailed documentation. The makeup exam may not be in a multiple choice format. A grade of zero is the minimum punishment of any type of dishonesty on an exam. There are no retakes on exams for any reasons. If you are feeling poorly, you need to contact the instructor before taking the exam and provide a doctor's note. The exams are closed book, closed notes.

- ### Suggested Homework/Workshop (not graded)

Homework/Workshops will be assigned but not graded. A list of recommended problems is posted on the e-Learning course page: http://elearning.ufl.edu/. It is for your benefit that you work these problems. The TAs will have open discussions for the problems assigned in the workshop.

- ### Getting help

1. Zoom or in person office hours of your instructor.
2. Zoom or in person office hours of your TAs.
3. For many classes, not just statistics, at the tutoring lab in the Basement of Broward Hall; a schedule of their hours is at http://www.teachingcenter.ufl.edu/ .
4. As a last resort, by getting (and paying) a private tutor. A list of private tutors from the Statistics Department can be obtained from the Administrative Specialist of the Statistics department Christine Miron.
5. Cross Validated is a question and answer site for people interested in statistics, machine learning, data analysis, data mining, and data visualization.

School Closures

If classes at the University of Florida are canceled, the course will be suspended until the university re-opens. The University will announce this closure on the University of Florida homepage. Any announcements about the course will be posted at the course e-Learning webpage.

Course Policies

- **Privacy Policies** Student records are confidential. Only information designated "UF directory information" may be released without your written consent. UF views each student as the primary contact for all communication. If your parents contact me about your grade, attendance or other information that is not "UF directory information", they will be directed to contact you. More information can be found at https://catalog.ufl.edu/ugrad/current/regulations/info/student-ferpa-rights.aspx
- **E-mail** E-mail relating to information about the class should be sent to the instructor at yeison.quicenodu@ufl.edu or through the course management system. Your message will be answered within one working day, in most cases. However, we ask you to please refer to this syllabus and the course website to try to find the answers for yourself. Questions regarding the material covered should be asked during class, at the instructor's office hours, or in the tutoring room. It is often difficult to answer questions regarding material through e-mail.

- **Students with Disabilities** Students who require special accommodations in class or during exams should follow the procedures outlined by the Disability Resources Program at http://www.dso.ufl.edu/drc/. Please send your letter of a to the instructor as soon as you receive the information. The instructor must be emailed the form 5 business days before the exam date for accommodations to be arranged.

- **Instructor's Honor Code** We the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. - Academic Honesty UF students are bound by The Honor Pledge which states, "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 (http://www.dso.ufl.edu/sccr/process/student-conduct-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. Grades will be posted on the e-Learning course page at http://elearning.ufl.edu/. The current UF grading policies for assigning grade points is available at

  https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

- **Incomplete** Incomplete grades 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.

- **Course Evaluation** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu/. Evaluations are typically open during the few weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

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

The syllabus is subject to change. You will be notified if there is a change.