

STA 2023 Introduction to Statistics 1

Fall 2021 Syllabus

Instructor: Stephanie Stine

Office: 117B Griffin Floyd Hall

Phone Number: (352) 273 2975

Office Hours: MWR 10:00am – 11:30am EST or by appointment.

- Monday in person
- Wednesday and Thursday online via Zoom. Zoom link is on Canvas.

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Teaching Assistant: Karina Gelis Cadena

Office: 103C Griffin Floyd Hall

Office Hours: In person on Monday 2:00pm – 4:00pm and Friday 2:00pm – 3:00pm

email: Contact through Canvas email

Review/Homework Sessions: Every Wednesday afternoon online via Zoom at 2:00pm – 4:00pm EST. Zoom link is on Canvas.

Class Times:

Lecture: MTWR 8:30am – 9:20am (2nd period) in FLI 0101

- You can attend live in person or live via Zoom. Zoom link is on Canvas.

Lab: In person only on Wednesday in WEIL 408E

Course Website: <https://elearning.ufl.edu/>

Masks

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.

Masks will be expected to be worn if you attend the in person lecture or Lab and the in person office hours.

Course Objective

The primary goal of the course is to help students understand how the process of posing a question, collecting data relevant to that question, analyzing data, and interpreting data can help them find answers to real world problems.

Course Description

STA2023 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 in a manner that emphasizes understanding the principles of data collection and analysis rather than theory. Much of the course will be devoted to discussions of how statistics is 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, approximately 3 weeks), 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, 1 week.)

II Probability and Inference – using the language of probability and the properties of numerical summaries computed from random samples (chapters 5, 6 and 7, 4 weeks), we learn to draw conclusions about the population of interest, based on our random samples, and attach a measure of reliability to them (chapters 8, 9, 10 approximately 8 weeks).

Weeks	Topics Covered
1-2	Exploring Data with Graphs; Measures of Center, Spread and Position.
2-4	Exploring Relationships Between Two Variables; Simple Linear Regression, Exam 1 .
4-5	Experimental and Survey Design.
6	Probability Rules.
7-8	Binomial and Normal Distributions, Exam 2 .
9-10	Sampling Distributions of the Sample Proportion and Sample Mean.
10-11	Confidence Interval for the Population Proportion and Population Mean.
12-13	Significance Test for the Population Proportion; Significance Test for the Population Mean, Exam 3 .
13-15	Comparing Two Ind. Proportions and Two Ind. Means; Compare Means from Dependent Samples, Exam 4 .

Required Materials

Lecture Notes: These are needed to follow along with the lectures. You can print them from the Lecture Notes link on the Canvas course home page.

Scientific Calculator: One that has the basic statistical functions mean and standard deviation.

Optional Materials

Textbook: Statistics The Art and Science of Learning from Data by Agresti, Franklin and Klingenberg. Fifth edition, Pearson. To get the textbook you can:

- Opt in to UF All Access for around \$70. Click the [flyer](#) for directions on how to do this.
- Purchase or rent, hardbound new or used ISBN13: 9780321997838

Class Attendance

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

In addition, I expect you to:

- Attend all lectures
- Arrive on time and review your notes after each class
- Do not use electronic devices during class unless asked to do so for a class assignment
- Ask questions if you do not understand something
- Inform the Instructor of a problem in a timely manner

Grading Structure

Current UF grading policies for assigning grade points can be found at:

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

For this class the methods by which you will be evaluated and your grade determined are given below.

Assessments	% of Grade
4 Exams	68% (17% per exam)
Labs	9%
Homework	9%
Quizzes in Canvas	7%
Class Participation Activities	7%

Grading Scale

Letter Grade	Grade Points	Percentage of Points Needed
A	4.00	90.0 to 100%
A-	3.67	88.5 to 89.99%
B+	3.33	84.5 to 88.49%
B	3.00	80 to 84.49%
B-	2.67	78.5 to 79.99%
C+	2.33	74.5 to 78.49%
C	2.00	67.5 to 74.49%
D	1.00	60 to 67.49%
E	0.00	Below 60%

You must have a grade of a C or higher to get general education credit for this course.

Exams

There will be total of four exams. **All exams will be in person.** You will need to bring your own scientific calculator (you cannot share one with another student) and a pencil or pen. Graphing calculators, TI-nspires or other smart devices are NOT allowed. Electronic/Smart devices must be switched off and in your backpacks.

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 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 have documentation.

Exam	Exam Dates
Exam 1	In Class: Thursday September 16 th
Exam 2	In Class: Thursday October 14 th
Exam 3	In Class: Monday November 15 th
Exam 4	In Class: Wednesday December 8 th

Labs

The Labs will be conducted on most Wednesdays of each week in WEIL 408E except the first Wednesday August 25th and the last Wednesday December 8th, where we will meet in the lecture room. There will be about eight Labs. The two lowest Lab grades will be dropped. **Students must arrive within 5 minutes of the start of the Lab in order to participate.** Students who miss Lab must contact the instructor after missing a Lab. Labs should be made up as soon as possible. They cannot be made up after the exam for that material has been covered. Please note that documentation may be required to make up a missed Lab.

Homework

Homework will be assigned on Thursday and due the following Thursday on most occasions. There will be about nine homework assignments. The lowest homework grade will be dropped. Homework will be accepted up to three days late with a 25% late penalty per day and not accepted after the fourth day. Copying another student's homework is considered cheating and the minimal punishment will be to receive a grade of 0 on the assignment.

Quizzes in Canvas

There will be eight quizzes in Canvas that review material covered during the previous lectures. The lowest quiz grade will be dropped. Please note that documentation may be required to make-up up a missed quiz. Quiz dates are posted in Canvas.

Class Participation Activities

During class periods throughout the semester, we will conduct classroom activities. I will drop the lowest activity. The activities can only be made up with documented excuse within 1 week of the activity happening in class. Additionally, during class periods you will be expected to answer questions about the day's topic.

Course Policies

Attendance and Class Demeanor

Exams will be based on the assigned homework problems and the examples that are done in the class. If you miss class for any reason it is your responsibility to get any notes and information you might have missed from the uploaded notes in Canvas. Additionally, you should not use your cellphones and refrain from eating, drinking, reading newspapers, doing homework for other classes, and excessive talking.

Accommodations for Students with Disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Grading

Grading will be changed only when an error has been made; negotiation is not appropriate.

Incomplete

Incompletes are only assigned when extraordinary circumstances, arising after more than 2/3rds of the course has been completed, prevent the student from completing the course requirements. Having a failing grade in the course is not a valid reason for requesting an Incomplete.

Academic Dishonesty

University's Honesty Policy: 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 STA2023 course instructor. Please note that the minimum disciplinary action would be to receive a grade of zero on the assignment. If there have been more than one case of disciplinary actions filed with the Dean of Students Office, consequences may be more severe.

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” I will ask them to contact you.

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. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Course Schedule

Monday	Tuesday	Wednesday	Thursday
8/23 Syllabus	8/24 Notes	8/25 Notes	8/26 Notes
8/30 Notes	8/31 Notes	9/1 Lab 1 Histograms	9/2 Notes / HW1 due
9/6 Holiday Labor Day	9/7 Notes Quiz 1 open	9/8 Lab 2 Regression	9/9 Notes / HW2 due Quiz 1 due
9/13 Notes Quiz 2 open	9/14 Notes	9/15 Exam 1 Review	9/16 Exam 1 Notes p1-27 Quiz 2 due
9/20 Notes	9/21 Notes	9/22 Lab 3 Legos	9/23 Notes
9/27 Notes Quiz 3 open	9/28 Notes	9/29 Lab 4 Contingency Tables	9/30 Notes / HW3 due Quiz 3 due
10/4 Notes Quiz 4 open	10/5 Notes	10/6 Notes	10/7 Notes / HW4 due Quiz 4 due
10/11 Notes	10/12 Notes	10/13 Exam 2 Review	10/14 Exam 2 Notes p30-53
10/18 Notes	10/19 Notes Quiz 5 open	10/20 Lab 5 Samp Dist. of \hat{p} .	10/21 Notes / HW5 due Quiz 5 due
10/25 Notes	10/26 Notes	10/27 Lab 6 Samp. Dist of \bar{x}	10/28 Notes / HW6 due
11/1 Notes	11/2 Notes	11/3 Lab 7 CI mu	11/4 Notes / HW7 due
11/8 Notes Quiz 6 open	11/9 Notes	11/10 Exam 3 Review Quiz 6 due	11/11 Holiday Veterans Day
11/15 Exam 3 Notes p54-89	11/16 Notes Quiz 7 open	11/17 Lab 8 ST mu	11/18 Notes / HW8 due Quiz 7 due

11/22 Notes	11/23 Notes	11/24 Holiday	11/25 Holiday Thanksgiving
11/29 Notes	11/30 Notes Quiz 8 open	12/1 Notes	12/2 Notes / HW9 due Quiz 8 due
12/6 Notes	12/7 Exam 4 Review	12/8 Exam 4 Notes p90-124	12/9 Reading Day

Campus Resources

Health and Wellness

U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352-392-1575 to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: <https://counseling.ufl.edu/>, 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit <https://shcc.ufl.edu/>

University Police Department: Call 352-392-111 (or 9-1-1 for emergencies) or visit <https://police.ufl.edu/>

UF Health Shands Emergency Room/Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 W Archer Road, Gainesville, FL 32608 or visit <https://ufhealth.org/emergency-room-trauma-center>

GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit <https://gatorwell.ufsa.ufl.edu/> 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.

Career Connections Center, Reitz Union, 392-1601. Career assistance and counseling services. <https://career.ufl.edu/>

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources <https://uflib.ufl.edu/find/ask/>

Teaching Center: Broward Hall, 352-392-2010 or make an appointment 352-392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio/>

Student Complaints On-Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>

This course satisfies general education credits in the mathematical sciences. 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 a 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 homework assignments, quizzes and the three 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 lab assignments and semester project. 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 their homework assignments, quizzes and on two of the exams.