

STA 2023 Introduction to Statistics I

Fall 2020 Syllabus

Instructor: Stephanie Stine

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

Teaching Assistant: Deborah Rozum

Please contact through Canvas email.

Office Hours: T 10:30 am – 1:30pm EST via Zoom

Class Times: MTWR – 2nd Period (8:30 am – 9:20 am EST) Lecture via Zoom (attendance is required).

Review / Homework Help Sessions: Every Wednesday 5:00 pm – 7:00 pm EST via Zoom

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

Links for the lectures, online office hours and review sessions can be found on the Canvas home page.

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 course home page in Canvas under the “Lecture Notes” link.
- **Scientific Calculator:** One that has the basic statistical functions mean and standard deviation.
- **Reliable Computer:** For the lectures and exams. This includes having access to a stable Internet connection and webcam. A webcam will be needed for the exams.
- **Scanner App:** This will be used to scan and upload both Exams and homework assignments.
- **Textbook:** *Statistics: The Art and Science of Learning From Data* by Agresti/Franklin 4th edition
To access the textbook you can:
 - Purchase as an etext (\$50) from UF All Access using the MyLab and Mastering link on the left side menu of the Canvas home page. See instructions on this [flyer](#). If you opt in you will also have access to StatCrunch (statistical software package).
 - Purchase or rent the textbook 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.
- Ask questions if you do not understand something.
- Inform the Instructor of a problem in a timely manner.

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.

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/>.

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)
Homework	9%
Labs	9%
Class Participation	7%
Quizzes in Canvas	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. You will need to bring your own scientific calculator and a black pen. Graphing calculators, TI-nspires or other smart devices are **NOT** allowed. The exams will be online via Zoom. You will need a webcam so that I am able to see your paper as you write. You will also need to use a scanner app to scan and upload your exam to Canvas so that I can grade it.

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 must receive a medical excuse. Cell phones must be switched off and in your backpacks and must not be in view during the exam. The exam schedule is below.

Exam	Exam Dates
Exam 1	In Class: Thursday September 24 th
Exam 2	In Class: Thursday October 22 nd
Exam 3	In Class: Thursday November 19 th
Exam 4	In Class: Wednesday December 9 th

Labs

The Labs will be conducted on Wednesdays of each week in the Zoom lesson. 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 makeup up a missed Lab.

Homework

Homework will be assigned on Thursday and due the following Thursday on most occasions. Homework will need to be written on paper, scanned and submitted in the correct location on Canvas. There will be about eight homework assignments. The lowest homework grade will be dropped. Homework assignments will be accepted up to one week late for partial credit. Homework will not be accepted after 5pm one week after the due date. 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. The tentative quiz dates are listed on page 7 of this syllabus. Quizzes 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 makeup up a missed quiz. Quiz dates are posted in Canvas.

Class Participation

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.

Netiquette Guide

Security

Remember that your password is the only thing protecting you from pranks or more serious harm.

- Don't share your password with anyone.
- Change your password if you think someone else might know it.
- Always logout when you are finished using the system.

Zoom Etiquette

Do not share your Zoom classroom link or password with others.

When attending a Zoom class or meeting:

- Arrive/Zoom in on time or a few minutes early if possible. Attendance will be taken at the start of each class session, and tardiness will be marked.
- Set up and mount the webcam video at the level of your eyes to show your full face. If you are using a laptop, you may need to place a book or two under it. Test the audio of your webcam. *For any technical difficulties, please contact the UF Computing Help Desk (352-392-4357).*
<https://elearning.ufl.edu/media/elearningufl.edu/zoom/How-to-Join-a-Meeting.pdf>
- During class session, set yourself on mute unless you want to speak or you are called upon.
- If you want to speak, you can raise your hand (click the “raise hand” button at the center bottom of your screen) and wait to be called upon.
- Your webcam must remain on throughout the class hour. If you have a reason to keep your webcam off, please communicate that reason with me or through the Dean of Students Office.
- When you are assigned to a breakout room, enable your webcam and microphone so that your partners may hear and see who they are working with.
- Dress appropriately for class. Even though you may be alone at home your professor and classmates can see you.
- Find a quiet indoor space with stable internet connection to attend class. The study space does not need to be a separate room; a chair and desk/table set for school work in a quiet corner should be sufficient. The space should be conducive to work, including pair/group work. Make sure you are uninterrupted by other household members, including pets.
- Your professor and classmates can also see what is behind you, so be aware of your surroundings. Make sure the background is not distracting or something you would not want your classmates to see. You may use a virtual background if your device supports this feature. Be sure to avoid using backgrounds that may contain offensive images and language.
- Refrain from eating during the class hour, as you would in a face-to-face course.
- Follow the same rules of respectful interaction as you would in a face-to-face course. This is especially important in a remote situation, where multiple voices attempting to speak at once result in no one being heard.
- Alert your instructor as soon as possible if you experience technical difficulties. A “chat” can be sent at any moment during a Zoom session if, for example, you find that your webcam or microphone are not functioning properly.
- Relax and enjoy class! Remote learning presents some challenges but many rewards as well.

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 turn your cell phones off and refrain from eating, drinking, reading newspapers, doing homework for other classes, and excessive talking.

Grading

Grading will be changed only when an error has been made; negotiation is not appropriate. **There is no appeal process.**

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 Coordinator. 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.

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 so that a team member can reach out to the student.

Counseling and Wellness Center: <https://counseling.ufl.edu/>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS): Student Health Care Center, 392-1161.

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

Academic Resources

Knack Tutoring, <https://studentsuccess.ufl.edu/>

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

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

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

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

Writing Studio, 302 Tigert Hall, 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.

Tentative Class Schedule (subject to change)

Monday	Tuesday	Wednesday	Thursday	Friday (no class)
8/31 Syllabus	9/1 Notes	9/2 Notes	9/3 Notes	9/4
9/7 Holiday Labor Day	9/8 Notes	9/9 Lab 1 Histograms	9/10 Notes HW1 due	9/11
9/14 Notes	9/15 Notes Quiz 1 opens	9/16 Lab 2 Regression Quiz 1 due	9/17 Activity HW2 due	9/18
9/21 Notes	9/22 Notes Quiz 2 opens	9/23 Exam 1 Review Quiz 2 due	9/24 Exam 1 Notes p1-27	9/25
9/28 Notes	9/29 Notes Quiz 3 opens	9/30 Lab 3 Legos Quiz 3 due	10/1 Notes	10/2
10/5 Notes	10/6 Notes	10/7 Lab 4 Contingency Tables	10/8 Activity HW3 due	10/9
10/12 Notes	10/13 Notes	10/14 Notes	10/15 Notes HW4 due	10/16
10/19 Notes	10/20 Notes Quiz 4 opens	10/21 Exam 2 Review Quiz 4 due	10/22 Exam 2 Notes p30-53	10/23
10/26 Notes	10/27 Notes Quiz 5 opens	10/28 Lab 5 Sampling Distribution of \hat{p} Quiz 5 due	10/29 Notes HW5 due	10/30
11/2 Notes	11/3 Notes	11/4 Notes	11/5 Lab 6 CI μ HW6 due	11/6
11/9 Notes Quiz 6 opens	11/10 Notes Quiz 6 due	11/11 Holiday Veterans Day	11/12 Notes HW7 due	11/13
11/16 Notes Open Lab 7 ST for μ	11/17 Close Lab 7 ST for μ	11/18 Exam 3 Review	11/19 Exam 3 Notes p54-89	11/20
11/23 Notes Quiz 7 opens	11/24 Notes Quiz 7 due	11/25 Holiday	11/26 Holiday Thanksgiving	11/27 Holiday
11/30 Notes Quiz 8 opens	12/1 Notes Quiz 8 due	12/2 Lab 8 ST for two proportions	12/3 Notes HW8 due	12/4
12/7 Notes	12/8 Exam 4 Review	12/9 Exam 4 Notes p90-124	12/10 Reading Day	12/11 Reading Day