STA2023 Introduction to Statistics I

Fall 2019 Syllabus

Instructor: Stephanie Stine

Office: 117B Griffin Floyd Hall

Phone Number: 352-273-2975

Office Hours: M 1:00pm – 2:30pm and T 9:30am – 11:00am or by appointment

email: s.stine@ufl.edu

Teaching Assistant: Deborah Rozum **email:** drozum@ufl.edu

Office Hours: TBA

Class Times: 2nd Period – MTR Lecture in TUR 2328; W Lab in WEIL 408E

Review / Homework Sessions: Every Wednesday 5:00-7:00pm Griffin Floyd 230

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

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 Supplies

- Textbook: *Statistics: The Art and Science of Learning From Data* by Agresti/Franklin 4th edition (UF All Access, new, used or ebook)
- Scientific Calculator
- Student Laboratory Workbook by Mocko and Ripol 4th edition (A "You Print" version will also be provided in the course shell in Canvas.)

Expectations

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
- Make it your goal to understand everything that we do
- 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%

Exams

There will be total of four exams. You will need to bring your own scientific calculator (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 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 on the next page.

Exam	Exam Dates
Exam 1	In Class: Thursday September 12th
Exam 2	In Class: Thursday October 10th
Exam 3	In Class: Thursday November 7th
Exam 4	In Class: Wednesday December 4th

Labs

The Labs will be conducted on Wednesday of each week in WEIL 408E except the first Wednesday August 21st and the last Wednesday December 4th, where we will meet in the lecture room. There will be about ten Labs. Two of the 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. There will be nine 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 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.

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.

Accommodations for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

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/.

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 Ce*nter: 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

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/

Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday** **(no class)**
	8/20 Syllabus and Fingerprint Activity	8/21 Notes	8/22 Notes	8/23
8/26 Notes	8/27 Notes	8/28 Lab 1 Histograms	8/29 Notes / HW1 due	8/30
9/2 Holiday **Labor Day**	9/3 Notes Quiz 1 open	9/4 Lab 2 Regression	9/5 Notes / HW2 due Quiz 1 due	9/6
9/9 Notes Quiz 2 open	9/10 Notes	9/11 Exam 1 Review Quiz 2 due	9/12 **Exam 1**	9/13
9/16 Notes	9/17 Notes	9/18 Lab 3 Legos	9/19 Notes	9/20
9/23 Notes Quiz 3 open	9/24 Notes	9/25 Lab 4 Contingency Tables Quiz 3 due	9/26 Notes / HW3 due	9/27
9/30 Notes Quiz 4 open	10/1 Notes	10/2 Lab 5 Samp Dist. of $\hat{p}$ Quiz 4 due	10/3 Notes / HW4 due	**10/4 Holiday** **Homecoming**
10/7 Notes	10/8 Notes	10/9 Exam 2 Review	10/10 **Exam 2**	10/11
10/14 Notes Quiz 5 open	10/15 Notes	10/16 Lab 6 Samp Dist. of $\bar{x}$ Quiz 5 due	10/17 Notes / HW5 due	10/18
10/21 Notes	10/22 Notes	10/23 Lab 7 CI mu	10/24 Notes / HW6 due	10/25
10/28 Notes Quiz 6 open	10/29 Notes	10/30 Lab 8 ST p Quiz 6 due	10/31 Notes / HW7 due	11/1
11/4 Notes	11/5 Notes	11/6 Exam 3 Review	11/7 **Exam 3**	11/8
11/11 Holiday **Veterans Day**	11/12 Notes Quiz 7 open	11/13 Lab 9 ST mu	11/14 Notes / HW8 due Quiz 7 due	11/15
11/18 Notes Quiz 8 open	11/19 Notes	11/20 Lab 10 ST two prop. Quiz 8 due	11/21 Notes / HW9 due	11/22
11/25 Notes	11/26 Notes	**11/27 Holiday**	**11/28 Holiday** **Thanksgiving**	**11/29 Holiday**
12/2 Notes	12/3 Exam 4 Review	**12/4 Exam 4**	12/5 Reading Day	12/6 Reading Day

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.