Syllabus
STA2023 – Introduction to Statistics I
Fall 2020

1 INSTRUCTIONAL TEAM

	Course Coordinator	Lab Coordinator	Teaching Assistants
Email	Maria Ripol mripol@stat.ufl.edu	Stephanie Stine s.stine@ufl.edu	~16 TAs - names and emails available in Canvas
Zoom office hours	MWF 7th period (1:55 – 2:45pm) Zoom LINK or by appointment	MWR 10:00 – 11:30 am Zoom LINK or by appointment	In Zoom Tutoring Room (see Canvas for schedule)
contact for:	Questions about quiz and exam grades. General questions about the course not answered on the syllabus or the homepage in Canvas.	Questions about lab.	Problems with lab grades. Course material – In Tutoring Room (see Canvas for schedule)
Website	Course website in Canvas at https://elearning.ufl.edu/		

2 MATERIALS

Lecture Notes – available from the course homepage in Canvas, you will need 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 to write on them.

Scientific Calculator - You will need a calculator with some basic statistical functions: mean and standard deviation. Many inexpensive calculators (around $15) have these functions; check the manual or look for the following symbols: x-bar and either s or σn-1.

Recommended Textbook: *Statistics: The Art and Science of Learning from Data* by Agresti, Franklin, Klingenberg, 4th edition, Pearson, 2017.   You need to have access to the textbook in order to complete the suggested homework problems listed for each module- these are good practice to learn the material but do not count for your grade. There will be copies of the book available for you to use on reserve at the Marston Science Library and in our Tutoring Room. You can also purchase the textbook hardbound, or you can get it as an eText which allows you to complete the homework problems electronically, check your answers, and use the homework help for extra videos and examples. See Canvas for more details.

3 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 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 a random samples (chapters 5, 6 and 7, 4 weeks), 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 approximately 8 weeks).

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 problems from their world.

This semester, because of coronavirus, the course will be delivered 100% online, including labs, lectures, quizzes and exams. All sections will work exactly the same, regardless of whether your registration says it meets once a week (lab time) or four times a week (lab plus lectures).

Structure of the Course: This course consists of:
- Modules which include:
  - lectures/lessons delivered 3 times a week and available to everyone either as live Zoom lectures, recorded lectures, or online interactive lessons
  - a short online quiz for each one
  - suggested reading and homework problems from the textbook and additional examples
- 10 Labs to be completed weekly through Canvas
- 3 Exams completed through Canvas, proctored electronically (information provided before each exam)

4 LECTURES / LESSONS

All students, regardless of which section they are registered for, have the option of either:
- attending the live Zoom lectures offered MWF 8th period (3pm)
- watching the recordings of those lectures, available in Canvas shortly after the live lecture ends (closed captioning will be added as soon as possible, and noted on the website)
- accessing the material through online Interactive Online Lessons available in in Canvas – these are posted for the entire semester from the first day of classes so you can work ahead if you want to.

5 QUIZZES

There will be a short, 5 point quiz associated with each lecture / lesson. These quizzes will be completed in Canvas and students will have three chances for each quiz, with the highest score counting towards your grade. All quizzes will be open from the start of the semester, and will close at midnight one business day after the live lecture is taught. See calendar at the end of this syllabus. For technical problems contact the UF Help Desk http://helpdesk.ufl.edu/

6 LABS

All students are registered for one Lab period a week, according to their section number. On regular semesters, students were required to attend labs in person at the time their section met. HOWEVER, this semester the Labs will be done online in Canvas. Students will read some information, answer questions related to the given computer output, complete a short statistical analysis, and upload their results to Canvas. Detailed instructions will be provided, and students will have three chances to do the lab by the deadline at the end of each week. There are 10 Labs during the semester starting the week after Drop/Add - see calendar at the end of this syllabus. Each Lab is graded out of 10 points.

7 EXAMS

There will be three exams, each worth 100 points. The days and times are determined by the registrar, with the two midterms taking place at night, and the last one during final exam week. Each exam consists of 33 multiple choice questions, each worth 3 points apiece, and an Honor Code question worth 1 point. Exams will cover a larger amount of material that the quizzes and will also place more emphasis in the understanding of concepts and ideas behind the formulas.

This semester all exams will be conducted online and proctored electronically by the vendor determined by the university. All exams are closed book, closed notes and closed internet. Use a wired connection, not wireless, if possible. A digital formula sheet will be provided for your use, including statistical tables. You may use a scientific calculator during the exam, but NOT a cell phone or any type of device that connects to the internet or other people. Accessing notes and formulas from the course during the exam is cheating. Accessing your cell phone or communicating with another individual during the exam is also considered cheating. It is an honor code violation to copy, take pictures or disseminate any of the exam questions anywhere, to anyone. For exam security reasons, all students must take the exam at the same time. Academic dishonesty on any exam will result in a *minimum* penalty of a grade of *zero* on that exam.

Exams	Date	Time	Chapters in Book	Modules
Exam 1	Wednesday, October 7th	8:20 pm – 10: 00 pm (AT NIGHT)	Ch. 1 – Ch. 6 Sec. 3	1-16
Exam 2	THURSDAY, November 5th	8:20 pm – 10:00 pm (AT NIGHT)	Ch. 7 Sec. 1 – Ch. 9 Sec. 2	17-26
Exam 3	Saturday, December 12th	12:30 – 2:10 pm (EARLY AFTERNOON)	Ch. 9 -- Ch. 10 Sec. 4	27-36

8 MAKEUP POLICIES

Quizzes: There are 33 quizzes during the semester, one associated with each Module. They must be completed by the deadline, one business day after the live lectures are taught. All quizzes are open from the beginning of the semester, so students can work ahead if they need to, since all the material is also available as online interactive lessons posted from the start. Please complete the quizzes early if you have travel plans, religious observances, sports or club events, or any other conflict whether approved by the university or not. In addition to the regular quizzes there will be three makeup quizzes available in Canvas during the last week and a half of the semester. All students can take as many of these three makeup quizzes as they want, either to replace a quiz they missed or one with a low grade.

Labs: There are 10 labs during the semester and students must complete them by the deadline each week. There will be three makeup labs available in Canvas during the last week and a half of the semester. All students can complete as many of these three makeup labs as they want, either to replace a lab they missed or one with a low grade.

Extenuating Circumstances: Sometimes students may be unable to complete their labs and quizzes due to extended hospitalization or illness, or some catastrophic event. They should avail themselves of the three makeup opportunities for quizzes and labs. In very rare instances these makeup opportunities are not enough. In these cases the student must discuss their situation with the Course Coordinator and provide all the appropriate documentation. Each case will be reviewed individually.

Exams

- In case of conflict with a class: Assembly exams have priority over regularly scheduled classes. The instructor for the other class must allow you to make up any work you miss because of an assembly exam - contact them early to make arrangements. This is a University of Florida policy, as stated on the Registrar's website https://catalog.ufl.edu/ugrad/current/regulations/info/exams.aspx
- In case of conflict with another exam: Assembly exams have priority over time-of-class exams. If you have two assembly exams scheduled for the same day and time, the course with the higher number has priority. This is a University of Florida policy, as stated on the Registrar's website (https://catalog.ufl.edu/ugrad/current/regulations/info/exams.aspx) Contact instructor of the appropriate class early to make arrangements for a makeup exam - do not wait until the last minute. If you need to schedule a makeup exam for STA 2023 because it conflicts with another assembly exam for a course with a higher number, you must contact the STA2023 Course Coordinator at least ONE WEEK prior to the regularly scheduled exam.
- In case of sudden illness or emergency: Contact the STA2023 Course Coordinator **prior** to the exam - as soon as you realize you will be unable to take the test at the scheduled time. Each case will be reviewed individually and valid and detailed documentation must be provided. If you are sick and have documentation you should NOT take the regular test but request a makeup – there are no retakes. Being on vacation is not a valid reason to request a makeup.
- To make arrangements for a makeup exam: Contact the STA2023 Course Coordinator by email, or during office hours (information appears at the top of this syllabus). Makeup exams will cover the same material as the regularly scheduled exam, but will not necessarily the same format.

9 COURSE ASSESSMENT

Grade Structure	Percent
Exam 1	25%
Exam 2	25%
Exam 3	25%
Labs	12.5%
Quizzes	12.5%

Grading Scale		
A	4.00	91 to 100%
A-	3.67	89.5 to 90.99%
B+	3.33	85.5 to 89.49%
B	3.00	81 to 85.49%
B-	2.67	78.5 to 80.99%
C+	2.33	75.5 to 78.49%
C	2.00	68.5 to 74.49%
D	1.00	60 to 68.49%
E	0.00	Below 60%

Minimum grade of C is required for General Education credit. More information on grades and grading policies can be found here: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

10 HOW TO GET THE MOST OUT OF THIS COURSE

Time Commitment: Keep up with the class material, either by attending a live Zoom class, watching the recordings, or completing the interactive online lessons. Set aside a consistent time three times a week to work on the course material. Factor in time to complete your quizzes, and don't forget to complete your lab assignment each week, on time.

Choice: The course can be done completely asynchronous, or with synchronous lectures. Remember the class material is available in three different formats – live Zoom lectures, recorded lectures and online interactive lectures. Each student should choose the one that works best for them. Everyone is welcome to attend the live Zoom lectures, but it may not be possible for you. The online interactive lessons are all available well ahead of the time when the live lectures are delivered and recorded. If you know you will be out of town or very busy one week you may want to complete the lessons and quizzes ahead of time.

Watching Videos: If you choose to watch the recorded videos, watch them one at a time at regular speed and then do the quiz and also a few suggested homework problems listed on the modules. If I ask the audience to work out a problem, this includes those who watch it online as well. Watch the lectures in a low disruption environment - you should not be texting, messaging, emailing, looking at social media, reading a website, watching tv, etc. Your attention should be focused on the lecture - make sure that you are paying attention to all of it. If you find that the online lectures are not working for you, consider going to the live Zoom lectures or doing the Interactive lessons.

Getting Help: You can get free help from all the TAs in the class in the **Zoom Tutoring Room** that will be open about 40 hours per week, no appointments are necessary. The zoom link and information will be

posted in canvas. There is also free tutoring from the **Broward Teaching Center** - a schedule of their hours can be found at www.teachingcenter.ufl.edu . There is also a new tutoring service available free to students in our class, one-on-one or in groups, through **Knack** at https://studentsuccess.ufl.edu/knack-tutoring. Both Broward and Knack offer tutoring for different classes, so check their websites for more details.

Quizzes and Labs: If you have questions on the quizzes or labs, you are allowed to ask teaching assistants and the instructor about <u>submitted</u> attempts. For example, you can take the quiz one time, submit the quiz for grading. The teaching assistants in the Zoom Tutoring Room can help you with the parts with which you had questions. You can then go and try attempts 2 and 3 on your own, getting help again if necessary. You are not allowed to complete quizzes and labs by asking one of the TAs to provide you with the answers. If you send an email to the instructor about a quiz or lab question, make sure that you take a screen shot of the question and include your full name in the email. Remember that you have several days and several tries for each quiz and lab. Given all these opportunities, all students should do extremely well on the quizzes and labs. Hopefully they will serve the purpose of improving your grade in the class, as well as be an important tool in learning the material for the course.

Learn by Doing: You learn Statistics by doing Statistics. In addition to the lectures / lessons, quizzes and labs, there are suggested homework problems and additional examples in each module. You should do as much as you need to understand the material.

11 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", I will ask them to contact you.

Privacy in Zoom Live Lectures: Our class sessions will be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Privacy in Zoom Tutoring and Office Hours: The Zoom Tutoring Room is open to all students to discuss course material. Any student who joins can listen in on your questions, as they would in the in-person tutoring room. However, the Office Hours for the Course Coordinator and the Lab Coordinator will only admit one student at a time, with any others being placed in a waiting room. So students can discuss any personal issues or problems with the instructor during office hours with the guarantee of confidentiality. Neither office hours nor tutoring will be recorded.

Email: Email relating to information about the class should be sent to the instructional team using the email addresses at the beginning of this syllabus or the Canvas email function. Your message will be answered within two business days, in most cases. If using the Canvas email function, you can search by name or by role (teacher, TA, student, etc). Please don't email all TAs or all instructors using the group email sending option in Canvas. We don't know who you intended to speak to. However, we ask you to please refer to this syllabus, the course pages in Canvas to try to find the answers for yourself. Questions regarding the material covered in class, homework problems, quizzes or labs should be asked in person in the Zoom Tutoring Room, or office hours. Statistical questions often require formulas or pictures, which can make it very hard to communicate by email. Emails should include your full name, UFID number and section number.

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.

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 the student must present to the instructor when requesting accommodations. Students with disabilities should follow this procedure as early as possible in the semester. This letter must be discussed with the STA2023 Course Coordinator directly, not with the lab TA, for accommodations on exams to be made. Accommodations will not be made retroactively, but only forward from the day that the letter was received. Special circumstances should be discussed in person with the Course Coordinator.

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** can be found at https://umatter.ufl.edu/ Information on how to **Drop a class** can be found in UF's Academic Catalog https://catalog.ufl.edu/

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 can complete evaluations through the email they receive from GatorEvals or in their Canvas course menu under GatorEvals.

12   OTHER UNIVERSITY SERVICES

U Matter, We Care: If you or someone you know is in distress, or needs information on services offered at UF, please contact them: 352-392-1575 umatter@ufl.edu   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

E-learning technical support – contact the UF Computing Help Desk: http://helpdesk.ufl.edu/
phone: 352-392-4357   e-mail: helpdesk@ufl.edu.

13   GENERAL EDUCATION OBJECTIVE AND STUDENT LEARNING OUTCOMES

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 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 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 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.

14   WEEKLY COURSE SCHEDULE – SEE CANVAS CALENDAR FOR DETAILS

	Monday	**Wednesday**	**Friday**
Week 1 (no lab)	**8/31 Module 1:** Introduction to Statistics	**9/02 Module 2:** Intro and Graphs for Quantitative Data *Quiz due 9/10*	**9/04 Module 3:** Measuring Center and Spread *Quiz due 9/10*
Week 2	**9/07** *Labor Day Holiday*	**9/09 Module 4:** Quartiles and Boxplots *Quiz due 9/10*	**9/11 Module 5:** Intro to Regression *Quiz due 9/14* **Lab 1: Histograms DUE**
Week 3	**9/14 Module 6:** Regression Example *Quiz due 9/15*	**9/16 Module 7:** Cautions In Regression *Quiz due 9/17*	**9/18 Module 8:** Categorical Data *Quiz due 9/21* **Lab 2: Regression DUE**
Week 4	**9/21 Module 9:** Sampling *Quiz due 9/22*	**9/23 Module 10/11:** Experiments *Quiz due 9/24*	**9/25 Module 12:** (Skip Mod 13) Basic Probability *Quiz due 9/28* **Lab 3: Sampling DUE**
Week 5	**9/28 Module 14:** Continuous Probability Distributions *Quiz due 9/29*	**9/30 Module 15:** Discrete Probability Distributions *Quiz due 10/01*	**10/02 Module 16:** More Normal and Binomial Examples *Quiz due 10/05* **Lab 4: Contingency Table DUE**
Week 6 (no lab)	**10/05** **EXAM REVIEW**	**10/07** Q&A **EXAM 1 - TONIGHT starts 8:20 pm**	**10/09 Module 17:** Sampling Distribution of p-hat *Quiz due 10/12*

Week 7	**10/12 Module 18:** Sampling Distribution of x-bar *Quiz due 10/13*	**10/14 Module 19:** More Sampling Distribution Problems *Quiz due 10/15*	**10/16 Module 20:** Confidence Intervals for p *Quiz due 10/19* **Lab 5: Sampling Distribution of p-hat DUE**
Week 8	**10/19 Module 21:** Confidence Intervals for μ *Quiz due 10/20*	**10/21 Module 22:** More on Confidence Intervals *Quiz due 10/22*	**10/23 Module 23:** Sample Size, Small Sample CI for p and Bootstrap *Quiz due 10/26* **Lab 6: Sampling Distribution of x-bar DUE**
Week 9	**10/26 Module 24:** Basics of Significance Tests *Quiz due 10/27*	**10/28 Module 25:** More about P-values and Significance Tests for Proportions *Quiz due 10/29*	**10/30 Module 26:** More Significance Tests for Proportions Examples *Quiz due 11/02* **Lab 7: Confidence Intervals for μ DUE**
Week 10 (no lab)	**11/02** **EXAM REVIEW**	**11/04** Q&A **EXAM 2 – TOMORROW THU 11/5 starts 8:20pm**	**11/06 Module 27:** Significance Tests for Means *Quiz due 11/09*
Week 11	**11/09 Module 28:** Relationship between CI and Sig Tests *Quiz due 11/10*	**11/11** *Veterans Day Holiday*	**11/13 Module 29:** Other Considerations about Sig Tests *Quiz due 11/16* **Lab 8: Significance Test for p DUE**
Week 12	**11/16 Module 30:** Comparing Two Independent Proportions *Quiz due 11/17*	**11/18 Module 31:** Comparing Two Independent Means *Quiz due 11/19*	**11/20 Module 32:** Comparing Two Dependent Means *Quiz due 11/23* **Lab 9: Significance Test for μ DUE**
Week 13 (no lab)	**11/23 Module 33:** McNemar's Test and Permutation Tests *Quiz due 11/30*	**11/25** *Thanksgiving*	**11/27** *Holiday*
Week 14	**11/30 Module 34:** Review – Part 1 *Quiz due 12/01*	**12/02 Module 35:** Review – Part 2 *Quiz due 12/03*	**12/04 Module 36:** Review – Part 3 *Quiz due 12/07* **Lab 10: Comparing Two Groups DUE**
Week 15 (no lab)	**12/07** Flex Day	**12/09** Q&A **All makeup labs and quizzes DUE**	**12/11** *Reading Days*

EXAM 3 – Saturday 12/12   12:30 – 2:10 pm

NOTE – this calendar is subject to change, if necessary