ST 310 Biostatistics I (3 credits) - SYLLABUS
Spring 2021 - Online - Asynchronous

Instructor:	Dr. Abolfazl Saghafi	**Office**:	STC 209
Email:	@USciences.edu	**Phone**:	(215) 596-….
Lectures:	Recorded lectures are available on D2L		
Office Hours:	I will be online on TBA times on Zoom, join me if you have question or to review things, or email me to schedule office hours. You can find additional help virtually at the Tutoring Center, email tutoringcenter@usciences.edu		

I. Suggested Textbook:

Biostatistics for the Biological and Health Sciences, 1st edition, by Marc and Mario Triola, (ISBN: 0321194365). Three copies available in the library, access only in the library. There is an optional student solutions manual to accompany the textbook.

II. Course Description:

We will cover most of the material in chapters 1 through 9 of the textbook. Topics include methods for describing data and relationships, probability, discrete and continuous random variables, sampling distributions, confidence intervals and one- and two-sample hypothesis tests for means and proportions, and linear regression.

III. General Education Requirements

ST 310 satisfies the Mathematics GenEd discipline requirement.
ST 310 satisfies two GenEd skills: Technology (Tech) and Reasoning/Problem-Solving (R&PS).

IV. Technology:

All computing will be done using Microsoft Excel and TI-83+/TI-84+ calculator. Instructions on how to use Excel and the calculator are available in handouts on D2L.

D2L contains the syllabus, lecture handouts, practice problems with solutions, lecture videos, practice exams, datasets, Excel and calculator instructions, and other course related material. It is the responsibility of the student to mind the due dates for assignments and tests. Check D2L frequently for new posts. A tentative schedule is at the end of the syllabus.

Attendance to first day of class is mandatory. Day/Time will be announced on D2L.

V. Learning objectives, learning activities, and assessment methods

Learning Objectives	Learning Activities	Assessment Methods
Understanding basic terminology of probability/statistics and appropriate statistical techniques.	Informational handouts Practice in-class examples Out-of-class practice problems	In-class and on-line quizzes Exams Projects
Using statistical procedures to describe, analyze, and interpret data.	Informational handouts Demonstration by instructor Practice in-class examples Out-of-class practice problems	In-class and on-line quizzes Exams Projects
Applying statistical methods to solve problems in other disciplines.	Practice in-class on real-life applications Out-of-class practice problems Demonstration by instructor	In-class and on-line quizzes Exams Projects
Understand and solve multidisciplinary application problems **GenEd R&PS**	Demonstration by instructor Practice in-class examples, using real data if possible. Out-of-class practice problems	Exam questions specifically designed to assess R&PS In-class and on-line quizzes
Develop an appreciation for the diversity and usefulness of probability and statistical approaches in their discipline.	Practice multidisciplinary in-class examples Discussion boards	In-class and on-line quizzes Exams Projects
Follow the process of a statistical investigation: understand the problem, organize the info, choose relevant probability or statistical methods, carry out the statistical analysis, and communicate the solution. **GenEd R&PS**	Demonstration by instructor Practice in-class examples Out-of-class practice problems Class discussion on articles	Exam questions specifically designed to assess R&PS.
Use Excel to compute numerical summaries and construct graphical summaries **GenEd Tech**	Excel in-class demo Excel videos Excel practice datasets Informational handouts	Projects (In-class Excel)
Use graphing calculator to compute numerical summaries and construct graphical summaries, calculate binomial probabilities, draw scatterplots and fit a simple linear regression model, conduct an ANOVA test. **GenEd Tech**	Demonstration by instructor Out-of-class practice problems Informational handouts	Exam questions specifically designed to assess the use of the graphing calculator

VI. **Grading Rubric**: There are three mid-term exams each worth 14%, and a cumulative final worth 15% of your total grade. 15% for weekly quizzes, 14% for chapter assignments, and 14% for project.

Course grade is assigned as follows:

Grade ≥ 97	A+		73 ≤ Grade < 77	C
93 ≤ Grade < 97	A		70 ≤ Grade < 73	C-
90 ≤ Grade < 93	A-		67 ≤ Grade < 70	D+
87 ≤ Grade < 90	B+		63 ≤ Grade < 67	D
83 ≤ Grade < 87	B		60 ≤ Grade < 63	D-
80 ≤ Grade < 83	B-		Grade < 60	F
77 ≤ Grade < 80	C+			

Incomplete Grade: According to university policy, "An I grade shall be assigned at the discretion of the instructor when, due to extraordinary circumstances, the student was prevented from completing the work of the course on time. The assignment of an I grade requires a written agreement between the instructor and student specifying the time and manner in which the student will complete the course requirements during the student's next period of enrollment."

An "I" grade will be given only in cases of extreme hardship, and then only if a written explanation from a physician or other relevant person is provided. Poor performance in the course is not grounds for an incomplete.

VII. Makeup Exams

University policy states that midterm and final exams can be made up for **legitimate (documented)** absences, such as verified illness, participation in other University-sponsored activities (including athletics), jury duty, military service, or religious observances. It is the student's responsibility to inform the instructor of any expected legitimate and documented absences **in advance**. Any makeup of a midterm and/or final exam must be taken by 5pm Friday, May 7, 2021. The only exception to this rule is if a student has an exam conflict (another exam scheduled at the same time) or is participating in a University-sponsored activity.

For an exam conflict, the student needs to let me know **at least 1 week in advance** if they are taking my makeup exam. In these 2 cases, the makeup exam will take place on the same day as the scheduled ST 310 exam at a time to be determined by the instructor and student. **If taking the makeup exam on the same day is not feasible, then the makeup exam will take place on the Saturday following the originally scheduled ST 310 exam.**

VIII. Graded Assignments:

1. Weekly Quizzes (Q)

- Weekly Quizzes offer practices for applying lecture materials of each week. They are posted on D2L with Sunday due dates and should be completed online.
- Each quiz has up to 8 questions.
- You have three attempts to answer quiz questions, the highest score is used to calculate your quiz grade.

2. Chapter Assignments (A)

- There are eight chapter assignments throught the semester each covering materials of one chapter assessing student understanding of lecture materials.
- You should write answers to assignments on a piece of paper, then take a photo and submit the answers on D2L by due dates.

3. Project (PR)
- The project is completed in three phases throughout the semester.
- For phase 1 of the project, you will receive a unique EXCEL dataset and should perform requested descriptive and exploratory statistics within the EXCEL file. You should submit completed file during the allocated 40 minutes time.
- For phase 2 and 3, you will perform descriptive and inferential statistics for a dataset of your choosing selected from provided options. A WORD/PDF file of the project should be uploaded to D2L by the due date.
- Details regarding the turn-in dates, rubric, and sample project is provided on the D2L.

IX. Exam Policy

All the four exams are open notes. I encourage you to prepare one page of formula sheet for each midterm exam, 4 sheets for the final exam, to help you find important material faster. You may not share notes, formula sheets, or calculations during the exams. ANY dishonesty will be reported to the Office of Student Conduct. You will need your calculator for the exams, could use excel or an app instead.

X. IMPORTANT DATES

Given in detail in the university Academic Calendar:

Drop/Add Deadline:	Fri, Feb 5, 2021
Midterm Exam 1:	Fri, Feb 26, 2021 (**TBA, tentative**)
Midterm Exam 2:	Fri, Mar 26, 2021 (**TBA, tentative**)
Withdrawal Deadline:	Fri, Apr 2, 2021
Midterm Exam 3:	Fri, Apr 23, 2021 (**TBA, tentative**)
Final Exam:	Tue, May 4, 2021 (**1-3, tentative**)

XI. COURSE POLICIES: Student Expectations

Attendance Policy: Following weekly schedules is essential to academic success. If you miss more than two quizzes and more than one chapter assignment, you will receive an "F" grade for the course.

Professionalism Policy: Students are expected to follow course material on a routine schedule. Questions and issues can be discussed in individual meetings. It is highly recommended to keep your phone away when you are following lectures at home.

Academic Integrity: Academic integrity is at the center of the educational experience at USciences. Students are therefore expected to uphold the highest standards of academic integrity and not engage in or tolerate academic dishonesty. Academic dishonesty includes, but is not limited to, fabrication, cheating, plagiarism, and unauthorized collaboration. Any violation of academic integrity will be investigated and, where warranted, the student will receive appropriate sanctions through the University's Student Conduct Process. Please familiarize yourself with the current USciences Student Handbook. Adherence to the Student Conduct Policy and

Academic Integrity Policy will help to ensure that your learning and living experiences are founded on integrity.

Students with Disabilities Act (ADA) Compliance Statement: USciences supports the educational endeavors of all students, including students with disabilities. ADA defines a disability as a mental or physical impairment that substantially limits one or more major life activities. If you believe that you have a disability that may impact your ability to fulfill your course or degree requirements, and you would like more information on applying for an accommodation under ADA, please contact the Administrator of Student Accommodations at 215-596-8758. For additional information about student accommodations refer to the USciences Student Handbook, which is available online at usciences.edu/studenthandbook

Mental Health Wellness Statement: The University of the Sciences is committed to the mental health and wellbeing of its students. Diminished mental health due to academic stress or other personal issues such as relationships, family worries, loss, or personal crisis can cause barriers to learn. Symptoms may include significant anxiety, mood changes, excessive worry, alcohol/drug abuse, or problems with eating and/or sleeping.
If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, contact USciences Health and Counseling (SHAC) during business hours located on the first floor of Whitecar Hall or call 215-596-8536. SHAC is cost-free, confidential, and does not require appointments for counseling emergencies. Additional emotional support is available 24/7 and can be obtained by contacting the National Suicide Prevention Hotline at 800-273-8255 or by texting "Go" to the Crisis Text Line 741-741.
Please remember- getting help for yourself or your loved ones is smart and courageous.

Class Recording: All unauthorized distribution of class material is prohibited. Pre-recorded lectures are made available on D2L.

XII. COVID-19 statement

As we continue to navigate the COVID-19 pandemic it is important to remember that all students must:

- be wearing a mask while on campus unless alone in a room, such as a residence hall room
- pay close attention to the entrance/exit signage designed to help maintain social distancing
- practice good hygiene by frequently washing hands
- be sure to conduct a daily health check before coming to campus

If we all follow these rules we will help to ensure we make our learning environment as safe as possible.

Also, students who are ill, regardless of symptoms or diagnosis, should not come to campus for classes or activities and should contact SHAC. If students are ill, but able to virtually participate in courses they may do so. Students should not contact the Office of Student Health for "sick notes". The COVID-19 pandemic has refocused the need for both mental and physical personal wellness. The University encourages students who are ill to take the time to focus on their health. Additionally, if needed students may reach out to their college dean's office to inquire about leave of absence options including short-term leave of absence (up to 10 business days), a personal leave of absence, or a medical leave absence. We firmly believe to learn you must be healthy.

ST 310 Biostatistics 1 Section 03
Spring 2021 Tentative Sequence of Activities

Day	Recommend: Monday	Recommend: Wednesday	Recommend: Friday	Ass. Due
Week 1	25-Jan Ch1 Intro to BioStatistics / Data Types	27-Jan Ch1 Sampling / Design	29-Jan Ch2 Graphical Representation	Q1
Week 2	1-Feb Excel Lab - Create Tables Plots	3-Feb Ch2 Graphical Representation	5-Feb Ch2 Bivariate Graphs	Q2, A1
Week 3	8-Feb Excel Lab - Create Plots	10-Feb Ch2 Central Measures	12-Feb Ch2 Spread Measures	Q3
Week 4	15-Feb Excel Lab - Practice Plots	17-Feb Ch3 Counting Rules	19-Feb Ch3 Sets and Set Operations	Q4, A2
Week 5	22-Feb Practice Excel	24-Feb Ch3 Sample Space and Probability	26-Feb Test 1	Q5
Week 6	1-Mar Excel TEST aka Project Phase 1	3-Mar Ch3 More on Probability	5-Mar Ch3 Conditional Probability	Q6, A3
Week 7	8-Mar Ch4 Random Variables	10-Mar Ch4 Binomial Distribution	12-Mar Ch5 Normal Distribution	Q7
Week 8	15-Mar Ch5 Normal Distribution	17-Mar Ch5 Central Limit Theorem	19-Mar Ch6 Interval Estimation	Q8, A4
Week 9	22-Mar Ch6 Interval Estimation	24-Mar Review Chapters 3 & 4 & 5	26-Mar Test 2	Q9
Week 10	29-Mar Ch6 Interval Estimation Proportion	31-Mar Ch6 Sample Size Estimation	2-Apr Ch7 Testing Hypothesis Intro	Q10, A5
Week 11	5-Apr Ch7 Testing Hypothesis using Z	7-Apr Ch7 Testing Hypothesis using T	9-Apr Ch7 Testing Proportions	Project Q11
Week 12	12-Apr More on Testing	14-Apr Paired Samples t-Test	16-Apr Ch8 Ind. Samples t-Test	Q12, A6
Week 13	19-Apr Ch8 Ind. Samples t-Test	21-Apr Review Chapters 6 & 7	23-Apr Test 3	A7
Week 14	26-Apr Ch9 Regression / Ending Notes	28-Apr Review	30-Apr Q & A & Chill	Project A8
Week 14	Reach out to me in case of conflict Final Exam on Tue May 4, 1-3	5-May Reading Day		