

STA 2023/0017: Fundamental Business Statistics

Department of Statistics, Florida State University

Fall 2020

1 Course Information

Lecture: This class will be taught remotely and asynchronously on Canvas (canvas.fsu.edu) from Aug 24th to Dec 11th. We will not be using Honorlock.

Instructor: Yijia Ma

Email: yma2@fsu.edu

Online Office hour: on Zoom, by appointment. Please email me to set up a meeting.

Prerequisites: None, but two years of high school algebra are recommended.

Credit Hours: 3

Required materials:

- A personal computer, reliable internet connection, and Chrome or Firefox browser.
- A TI-84 Plus or equivalent calculator. We will help you to learn how to use a TI-84 series calculator. but we cannot promise to be able to help with any other type of calculator.

Recommended Materials: Moore, D. S., McCabe, G. P., Alwan, L. C., & Craig, B. A. (2016). *The Practice of Statistics for Business and Economics* (Fourth ed.). New York, NY: W. H. Freeman and Company.

Special Note: High school students who earn a “3” or better on the AP Statistics exam will be given credit for STA 2023.

Course topic: The course covers statistical applications in business, involving graphical and numerical descriptions of data, data collection, correlation and simple linear regression, elementary probability, random variables, Binomial and Normal distributions, sampling distributions, and confidence intervals and hypothesis tests for a single sample.

Course purpose: The purpose of this course is to prepare students for further study and job preparation in the field of Business. It will emphasize understanding of data and interpretation of statistical analyses. It will require students to think of data, and report the results of their analyses, in context.

Class Notes: The course is mainly taught by notes. You can find the notes on Canvas.

This course is heavily technology-dependent. While we will do our best to work with you on technology issues, please be aware that if you take an assessment but we can find absolutely no record of the fact, then we will not be able to give you credit for it. Please **DO NOT USE SAFARI** when you take assessments on Canvas – **please use Chrome or Firefox.**

Important dates:

Classes begin August 24th and end December 4th.

Final Exam, December 8th.

Last day to drop a course without receiving a grade is October 9th.

Lecture Videos

Watching the lecture videos is equivalent to attending class and listening to lectures. We acknowledge that the lecture videos are not short, but remember that class time would have been 50 or 75 mins - not

short either. On the bright side, however, you may pause the video at any time and return to it later - you would not have been able to do that with live lectures. Therefore, we fully expect you to watch the lecture videos in their entirety. Pause whenever you need to, but always be sure to return and finish watching the video.

Please note that the recorded lectures are the property of Florida State University and are made available only to students enrolled in this class. Students are not permitted to share the recorded lectures with any other persons outside of this class. Copyrights of the recorded lectures are reserved by the instructor and Florida State University.

Tentative Topics:

- (1) Summary statistics: mean, quartiles, range, standard deviation, five-number summary, boxplot, IQR, identifying outliers.
- (2) Probability: random processes, four rules, probability models, addition rule for mutually exclusive events, multiplication rule for independent events, multiplication rule for dependent events, contingency tables and conditional probability
- (3) Random Variables: definition, expected value, standard deviation/variance
- (4) Normal Distributions: forward problems (finding area under the curve/percentage of data).
- (5) Central Limit Theorem: sampling distributions of \bar{x} , features of the distributions and implications when using a larger/smaller sample to estimate μ , forward problems (finding probabilities).
- (6) Binomial Distributions: binomial coefficients, binomial probability formula, mean and variance.
- (7) One-sample Mean: obtain and interpret z-intervals and t-intervals, concept of confidence level, sample size calculation, carry out and interpret results of z-test, t-test and p-value; Type I & II error.
- (8) Correlation; Simple Linear Regression; Simple Linear Regression Interpretation.

Tentative Pacing Schedule

	Day 1	Day 2	Assessment
Week 1	Introduction	Summary Statistics	
Week 2	Summary Statistics	Summary Statistics	
Week 3	Quiz 1	Normal Distribution	Quiz 1
Week 4	Normal Distribution	Central Limit Theorem	
Week 5	Central Limit Theorem	Review	
Week 6	Quiz 2	Simple Linear Regression	Quiz 2
Week 7	Simple Linear Regression	LSQA	LSQA
Week 8	Probability	Probability/ Random Variables	
Week 9	Random Variables	Binomial Distribution	
Week 10	Binomial Distribution	Quiz 3	Quiz 3
Week 11	One-Sample Confidence Intervals	One-Sample Confidence Intervals	
Week 12	One-Sample Confidence Intervals	Quiz 4	Quiz 4
Week 13	One-Sample Hypothesis Tests	One-Sample Hypothesis Tests	
Week 14	Thanksgiving week (No Class)	Thanksgiving week (No Class)	
Week 15	One-Sample Hypothesis Tests	Review	
Week 16	Final week (No Class)	Final week (No class)	Final Exam

2 Course Objectives

This course has been approved to meet FSU's Liberal Studies **Quantitative and Logical Thinking** requirements and is designed to help you become a critical analyst of quantitative and logical claims. In order to fulfill the State of Florida's College mathematics and computation requirement the student must earn a "C-" or better in the course.

By the end of the course, students will demonstrate the ability to:

(1) Select and apply appropriate methods (i.e., mathematical, statistical, logical, and/or computational models or principles) to solve real-world problems.

(2) Use a variety of forms to represent problems and their solutions.

The above two competencies will be assessed in the Liberal Studies Quantitative Assessment for STA 2023, which includes a written summary of results.

(3) Use descriptive statistics and graphical methods to summarize data accurately.

(4) Use inferential statistics to make valid judgments based on the data available.

(5) Describe the goals of various statistical methodologies conceptually.

(6) Apply statistical techniques in the context of business processes, everyday life, and further studies in their discipline.

(7) Develop a healthy skepticism toward statistical studies and their results based on a sensible consideration of the techniques employed.

3 Grading

Grade structure:

Assessments			
Type	Count	Weight	Total Weight
Quizzes	4	15%	60%
LSQA	1	10%	10%
Final Exam	1	30%	30%
Total:			100%

1. There will be four (4) quizzes, which will cover lecture material occurring after the last assessment.

2. There will be one (1) Liberal Studies Quantitative Assessment (LSQA), which will cover one topic. For study purposes, treat this as you would a quiz.

3. There will be one (1) Final Exam, which will be cumulative.

The **Final Exam** is scheduled for December 8, 2020. Please see the Tentative Pacing Schedule (TPS) for all other assessment dates.

Assessments that are not submitted will receive a grade of zero. If you are absent for an assessment, there may be make-up opportunities (see the Make-Up Policy). When a makeup is submitted, the zero will be replaced with the earned grade. If you miss an assessment and do not make it up according to the Make-Up Policy, then it will be given a grade of zero (0).

Attendance and Drop/Withdrawal

First-day attendance will be taken electronically on the course website. Drop and Withdrawal deadlines are given in the University's academic calendar at <https://registrar.fsu.edu/calendar/>. For each assessment, you

are expected to adhere to the deadline.

Grading Scale

		B+	87-89	C+	77-79	D+	67-69		
A	93-100	B	83-86	C	73-76	D	63-66	F	0-59
A-	90-92	B-	80-82	C-	70-72	D-	60-62		

Your overall course grade will be calculated according to your assessment scores (reported as percentages) and the weights given to those assessments, and your letter grade will be assigned using the table above and the smallest whole number greater than or equal to your overall course grade (e.g., an overall course grade of 89.04 will be assigned an A- since 90 is the smallest whole number greater than or equal to 89.04).

Grades will not be curved, and there will be no opportunities for extra credit, make-ups, or any other forms of grade improvement after the Last Day of Class.

4 Course Policies

Syllabus Change Policy

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

Grading appeal policy: If you believe an assessment has been improperly graded, then you must discuss it with me within one (1) calendar week after your grade has been posted to Canvas. If I do not hear from you within this period, I will assume the grade is accepted.

Grade appeals will not be allowed after the Last Day of Class.

Make-Up Policy

Make-ups are for absences only. Make-ups will not be given due to undesired performance on an assessment.

If you are absent for a quiz or the LSQA, then please email me immediately. You will have until Wednesday of the following week to make up a missed assessment unless you have a documented reason for being unable to do so. If you do not complete a make-up according to the above guidelines, then the missed assessment will receive a grade of zero (0).

No make-ups will be given after the Last Day of Class. If you are absent for the Final Exam, then you must email me immediately. Absolutely no documentation will be accepted after the last day of class.

* WE WILL ACCEPT DOCUMENTATION FOR ABSENCES CAUSED BY:

- religious holidays: write a letter, date and sign it, and give it to your recitation TA by the Monday of the week in which the holiday occurs; letters presented after this deadline will not be accepted and your absence will count as a “without documentation” case.
- health matters related to self or immediate family members: doctor’s note must be dated at most 5 calendar days before or after the date of absence.
- crises for which we receive a notification letter from the Dean of Students Department

- events where you represent FSU, such as FSU sports teams, FSU music groups, etc
- traffic accident or any other event where law enforcement was called in
- death in the family and other documented crises as approved by the Dean of Students

Department

- jury duty or any other court appointments
- military-related matters

Please note that lack of future planning, or mismanagement of time and other resources, are not acceptable reasons for being absent. In addition, travel tickets and itineraries do not count as documentation, because travel per se is not an acceptable reason for being absent. You must have an acceptable reason for travelling.

Please note that the FSU University Health Services 'Verification of Visit' does not constitute a documented absence.

Email and Communication:

- Please turn on the course notifications in Canvas by going to Account / Notifications / and checking the Notify me right away option for all of the items under Course Activities. You may expect a response to your email within two work days.
- Please check Canvas every day to keep up with what happens in class, especially the announcements part. Please turn on the applicable notification settings on your Canvas course site so that you don't miss anything.
- Please check your @my.fsu.edu email every day for emails from the instructor.
- Please refer to Syllabus and other uploaded documents related to this course first whenever you have questions.
- Please always do the above three before you email the instructor.
- If you email me, please send from your @my.fsu.edu account. Other emails address will not get a response.
- Always include your name and section number when you email to the instructor.
- Send assessment-related questions at least 24 hours before the assessment is due to begin, otherwise you may not get a response.
- Be aware that email sent from outside the FSU domain may not get through to the instructor, so if you send an email and you don't get a response within two working days, please try to meet the instructor online through zoom meeting during office hours.
- If you have any questions about the grades or need to appeal your grade, please talk to the instructor during the office hour within one week after the grades has been posted.

Note on Technology-dependent Assessments:

This course is heavily technology-dependent. While we will do our best to work with you on technology issues, please be aware that if you take an assessment but we can find absolutely no record of the fact, then we will not be able to give you credit for it. Please DO NOT USE SAFARI when you take assessments on Canvas – please use Chrome or Firefox.

Final Exam Rescheduling Policy:

You may not take the final exam before final exams week. Individual students who need to reschedule the final exam for a different time during final exams week will need to

- (i) talk to me about it first and get my permission to reschedule,
- (ii) fill out the "Request to Reschedule Final Examination" form at

<https://artsandsciences.fsu.edu/students/undergraduate/forms-requiring-deans-approval/rescheduling-final-examination> and get it approved by the Dean of Arts and Sciences office, and

(iii) let me have the approved form by the last day of classes. If you experience a documented emergency that prevents you from observing the above deadline, contact me as soon as you are able to, and we'll take it from there.

University Attendance Policy:

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy:

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University."(Florida State University Academic Honor Policy, found at <http://fda.fsu.edu/Academics/Academic-Honor-Policy>)

Sexual Misconduct and Title IX Reporting

As an instructor, I am obliged to report all instances of sexual misconduct that I become aware of to the University's Title IX Director; I cannot hold such information confidential. If you would like to discuss your situation in confidence, you may contact the Victim Advocate Program (<https://dos.fsu.edu/vap/>), the University Counseling Center (<https://counseling.fsu.edu/>), the Employee Assistance Program (<https://eap.fsu.edu/>), or University Health Services (<https://uhs.fsu.edu/>).

Americans With Disabilities Act:

Students with disabilities needing academic accommodation should:

- (1) register with and provide documentation to the Office of Accessibility Services; and
- (2) request a letter from the Office of Accessibility Services to be sent to the instructor indicating the need for accommodation and what type; and
- (3) meet (in person, via phone, email, skype, zoom, etc...) with each instructor to whom a letter of accommodation was sent to review approved accommodations.

This syllabus and other class materials are available in alternative format upon request.

For the latest version of this statement and more information about services available to FSU students with disabilities, contact the:

Office of Accessibility Services

874 Traditions Way

108 Student Services Building

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

oas@fsu.edu

<https://dsst.fsu.edu/oas/>