STA 1013: Statistics Through Example

Fall 2021 – Section 0006/0011

Course Information

Instructor: Xiaolin Wang

Email: xw17b@my.fsu.edu

Office Hours: Friday 2:00 – 3:30 PM (Office hours will be on Zoom. Students can join via the Zoom link on the course Canvas)

Course Format: Face-to-Face/F2F (in-person in a classroom)

Class Times and Locations: Aug 23rd ~ Dec 3rd (15 weeks).

Section 0006   HCB_0207   MWF 09:20 AM-10:10 AM

Section 0011   HCB_0207   MWF 10:40 AM-11:30 AM

I will not be using Honorlock. Students will need to follow the University's current health and safety guidelines.

Required Course Resources

A personal computer, reliable internet connection, and Chrome or Firefox browser.

Textbook: There is no required textbook for this class. The notes and relevant materials will be posted to Canvas before class. For your own study, the following book is recommended as supplementary material:

Statistical Reasoning for everyday life, 5th ed 2018, by Bennet Briggs Triola.

Calculator: TI-84 Plus or equivalent calculator. We will teach you how to use a TI-84 series calculator, but we cannot promise to be able to help with any other type of calculator.

Email & Communication

Please turn on the course notifications on Canvas by going to Account / Notifications / and checking the Notify me right away option for all of the items under Course Activities. We will communicate with you by sending emails to your @my.fsu.edu account and posting announcements on the course website. You may expect a response to your email within two work days. Please check your FSU email and the Canvas announcements every day.

Lecture Videos and other recordings:

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

Course Description

Credit Hours: 3

Prerequisite: None

This course provides students with a background in applied statistical reasoning. Fundamental topics are covered including graphical and numerical description of data, understanding randomness, central tendency, correlation versus causation, line of best fit, estimation of proportions, and statistical testing.

Statistical thinking, relevant ideas, themes, and concepts are emphasized over mathematical calculation. In this class students learn many of the elementary principles that underlie collecting data, organizing it, summarizing it, and drawing conclusions from it.

Learning 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:

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 STA1013, which includes a written summary of results.

3. Apply sound concepts of sample selection and experimental design in producing data.

4. Use statistical thinking in the context of work processes, academic endeavors, and everyday life.

5. Describe how inferential statistical methods are used to make valid judgments based on the data.

6. Evaluate the validity of statistical results with skepticism based on sensible considerations.

Tentative Topics:

1. Terminology/Initial ideas: population, sample, parameter, statistics, categorical, quantitative

2. Sampling: simple random sample, systematic sampling, stratified sampling, cluster sampling, convenience sampling

3. Graphs: histograms (sketch and interpret), bar charts (sketch and interpret), pie charts (interpret)

4. Summary statistics: mode, mean, quartiles, range, standard deviation, five-number summary, boxplot

5. Empirical rule

6. Normal Distributions: forward problems (finding area under the curve/percentage of data)

7. Central Limit Theorem: sampling distributions of x-bar, features of the distributions and implications when using a larger/smaller sample to estimate mu, forward problems (finding probabilities)

8. Probability: random process, four rules, probability models, addition rule for mutually exclusive events

9. Random Variables: definition, expected values

10. One-sample mean: obtain and interpret z-intervals, carry out and interpret results of z-test, interpret P-value

11. One-proportion: z-intervals and z-tests

12. Correlation: what the sign and absolute value of r imply, correlation does not imply cause-and-effect

13. Simple Linear Regression: read scatterplots, given equation make prediction, interpret R-squared

Tentative Pacing Schedule:

Week	Dates	**Day 1**	**Day 2**	**Day 3**
1	Aug 23 ~ Aug 27	Syllabus	Terminology	Sampling
2	Aug 30 ~ Sep 3	Graphs	Graphs	Summary statistics
3	Sep 6 ~ Sep 10	**Labor Day. No class.**	Summary statistics	Review
4	Sep 13 ~ Sep 17	Quiz 1 (collaboration not permitted)	Empirical rule	Normal Distributions
5	Sep 20 ~ Sep 24	Normal Distributions	Normal Distributions	Central Limit Theorem
6	Sep 27 ~ Oct 1	Central Limit Theorem	Central Limit Theorem	Central Limit Theorem
7	Oct 4 ~ Oct 8	Review	Quiz 2	Probability
8	Oct 11 ~ Oct 15	Probability	LSQA (collaboration not permitted)	Probability
9	Oct 18 ~ Oct 22	Probability	Random Variables	Random Variables
10	Oct 25 ~ Oct 29	Review	Quiz 3 (collaboration not permitted)	One-sample mean
11	Nov 1 ~ Nov 5	One-sample mean	One-proportion	One-proportion
12	Nov 8~ Nov 12	One-proportion	Review	Quiz 4 (collaboration not permitted)
13	Nov 15 ~ Nov 19	Correlation	Correlation	Simple Linear Regression
14	Nov 22 ~ Nov 26	Simple Linear Regression	**Thanksgiving Day Holiday. No Class.**	**Thanksgiving Day Holiday. No Class.**

15	Nov 29 ~ Dec 3	Simple Linear Regression	Simple Linear Regression	Review
16	Dec 6 ~ Dec 10	Final Exam (collaboration not permitted)		

Liberal Studies for the 21st Century: Quantitative and Logical Claims

The Liberal Studies for the 21st Century Program at Florida State University builds an educational foundation that will enable FSU graduates to thrive both intellectually and materially and to support themselves, their families and their commitments through a broad and critical engagement with the world in which they live and work. This course has been approved as meeting the Liberal Studies requirements and this is designed to help you become a critical analyzer of quantitative and logical claims. **In order to fulfill the state of Florida's College mathematics and computational requirement, the student must earn a C- or better in the course.**

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.

Grade Structure

Quiz (60%): There will be 4 quizzes during the semester. Collaboration is allowed only for Quiz 2.

LSQA(10%): Note that, STA1013 has been certified as one of FSU's Liberal Studies Quantitative and Logical Thinking courses. As a requirement, administer the appropriate Liberal Studies Quantitative Assessment (LSQA) during the semester. This will be a common assessment (not final exam). It will be **part of the Quiz 2** and the total time length will be about 50 mins. Collaboration is not allowed.

Final Exam (30%): There will be a cumulative final exam given on the final exam week. If you need to miss the final, you must notify the instructor in advance. Collaboration is not allowed.

All assessments will be open-book which means that the following resources may be used during quizzes and final exam: lecture notes, personal notes, textbooks. Each assessment will be available online for 24 hours. You will have TWO attempts for each assessment. Due dates for each assessment will be provided on Canvas. There should be absolutely no late submission for any assessments. Assessments that are not taken will receive a grade of zero. When a missed assessment is made up, the zero will be replaced with the earned grade. Grades will be posted on Canvas within one week. After a grade is posted the student has 5 workdays to request a grade change. After a grade has been posted for one week, no grade changes will be made.

The **grading scale** for the course is as follows:

		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		

Please ignore the grade totals or averages that you may see on the course website; they are not correct. In this class, we only store and display individual assessment grades on the course website, we do not do grade calculations there. All grades will be recorded as percentages, and these percentages (not points) will be used in your overall course grade calculation. Your letter grade will be selected from the table above after rounding the overall numerical course grade UP to the next higher whole number. If you want to appeal your grade, you must contact the instructor within 7 calendar days since the grade is posted, otherwise the grade will be final.

Receiving a grade of "Incomplete"

A request for a grade of "Incomplete" will NOT be granted if you have completed the coursework, including the final quiz and excluding the allowable absences. It will be granted only if both of the following conditions are satisfied:

1. the only assessment that you have yet to take is the final quiz, and

2. your overall average excluding the final quiz is a passing grade (70% or above).

Attendance and Drop/Withdrawal

First-day attendance will be taken in person during class time. 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.

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. 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.

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.

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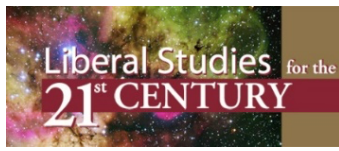
Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid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

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.

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/academic-resources/academic-integrity-and-grievances/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/), University Health Services (https://uhs.fsu.edu/), or pastoral counselors.

Americans With Disabilities Act
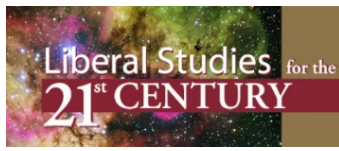
Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student:

(1) must register with and provide documentation to the Office of Accessibility Services (OAS); (2) must provide a letter from OAS to the instructor indicating the need for accommodation and what type; and, (3) should communicate with the instructor, as needed, to discuss recommended accommodations. A request for a meeting may be initiated by the student or the instructor.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided.

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

For 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/

Confidential Campus Resources

Various centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program
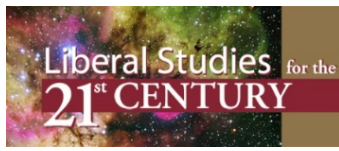
University Center A, Rm. 4100

(850) 644-7161

Available 24/7/365

Office Hours: M-F 8-5

https://dsst.fsu.edu/vap

University Counseling Center

Askew Student Life Center, 2nd floor

942 Learning Way

(850) 644-8255

https://counseling.fsu.edu/

University Health Services

Health and Wellness Center

(850) 644-6230

https://uhs.fsu.edu/