

STA 1013 Spring 2021  
Department of Statistics  
Florida State University

## STA 1013: Statistics Through Example

Spring 2021 – Section 0009/0018

### Course Information

- Instructor:** Wenshan Han
- Email:** wh17c@my.fsu.edu
- Office Hours:** Monday 9:00 - 11:30 AM on Zoom (join via the zoom link on course Canvas) or by appointment.
- Course Format:** All materials (including lecture videos, notes, assessments, and related information) will be posted on Canvas ([canvas.fsu.edu](https://canvas.fsu.edu)) from Jan 6<sup>th</sup> to Apr 23<sup>rd</sup>. We will not be using *Honorlock*.
- Classroom:** HCB 0309 (Available from Jan 19<sup>th</sup>. You could choose to use the classroom as a quiet study place during the class time.)

### Required Course Resources

- ~ A personal computer, reliable internet connection, and **Chrome** or **Firefox** browser. **Please DO NOT USE SAFARI when you take assessments on Canvas, use Chrome or Firefox.**
- ~ **Textbook:** There is no required textbook for this class. The notes and relevant materials will be posted on Canvas before class. For your own study, the following book is recommended as supplementary material:  
*Statistical Reasoning for everyday life, 5<sup>th</sup> ed 2018, by Bennet Briggs Triola.*
- ~ **Calculator:** 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.
- ~ **Canvas Website:** Lecture videos, notes, announcements, assessments, grades, and other pertinent information will be available through this site. You will need to watch lecture videos and study the notes used in the videos. You are responsible for assignments and announcements posted on this website, as well as those sent through your FSU email. Please check Canvas regularly for the updates through [canvas.fsu.edu](https://canvas.fsu.edu).

### 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.
- ~ I will send announcements to your FSU email account (@my.fsu.edu) or on Canvas. You are responsible for all information sent via email or put on Canvas website. **Please check your FSU email and the Canvas announcements every day.**
- ~ When emailing me regarding this class, please always include STA1013-0009/STA1013-0018 and your name. Do use your FSU email account or your emails might not be seen and replied.
- ~ You may expect a response to your email within two workdays.



## 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.

## Course Description

**Prerequisite:** None

**Credit Hours:** 3

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.

## 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:

(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	Mon.	Wed.	Fri.	Sat.
1	Jan 4 - Jan 8	/	Syllabus	Terminology	
2	Jan 11 - Jan 15	Sampling	Graphs	Graphs	Quiz 1 Due
3	Jan 18 - Jan 22	<b>MLK Day. No class.</b>	Summary Statistics	Summary Statistics	
4	Jan 25 - Jan 29	Summary Statistics	Summary Statistics	Summary Statistics	Quiz 2 Due
5	Feb 1 - Feb 5	Review	Empirical Rule	Normal Distributions	
6	Feb 8 - Feb 12	Normal Distributions	Normal Distributions	Central Limit Theorem	Quiz 3 Due
7	Feb 15 - Feb 19	Central Limit Theorem	Central Limit Theorem	Central Limit Theorem	
8	Feb 22 - Feb 26	Central Limit Theorem	Central Limit Theorem	Review	Quiz 4 Due



9	Mar 1 - Mar 5	LSQA	Probability	Probability	LSQA Due
10	Mar 8 - Mar 12	Probability	Random Variables	Random Variables	Quiz 5 Due
11	Mar 15 - Mar 19	One-sample Mean	One-sample Mean	One-sample Mean	
12	Mar 22 - Mar 26	One-proportion	One-proportion	One-proportion	Quiz 6 Due
13	Mar 29 - Apr 2	Review	Correlation	Simple Linear Regression	
14	Apr 5 - Apr 9	Simple Linear Regression	Simple Linear Regression	<b>Homecoming Day. No Class.</b>	Quiz 7 Due
15	Apr 12 - Apr 16	Simple Linear Regression	Simple Linear Regression	Review (the Last Day of Class)	
16	Apr 19 - Apr 23	Final Week (Final Exam)			

**Attention: there will be no spring break this semester.**

### Grading

**Quizzes (70%):** There will be 7 quizzes during the semester. Your lowest grade will be dropped, and the other 6 add up to 70% of the overall grade. Collaboration is *not permitted*.

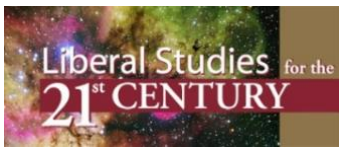
**LSQA (10%):** Note that, STA1013 has been certified as one of FSU's Liberal Studies Quantitative and Logical Thinking courses. As a requirement, administer the appropriate Liberal Studies Quantitative Assessment (LSQA) during the semester. This will be a common assessment (not final exam). Collaboration is *not permitted*.

**Final Exam (20%):** There will be a cumulative final exam given on the final exam week. Collaboration is *not permitted*.

~ All assessments will be "open-book" which means that ONLY the following resources may be used during quizzes, LSQA and final exam: *class notes, personal notes (these are notes that you can take while preparing/studying for assessments), textbooks.*

~ Quizzes and LSQA will be available online for **6 days**. The due date of final exam will be posted separately along with the final exam. You will have **TWO** attempts for each assessment. Due date for each assessment can also be provided on Canvas. **There should be absolutely no late submission for any assessments**, so please make proper arrangement, complete assessments as soon as possible and do your best during the semester.

~ Assessments that are not taken will receive a grade of zero. When a make-up is submitted, the zero will be replaced with the earned grade.



~ Grades will be posted on Canvas within one week. **After a grade is posted, you has 5 workdays to request a grade appeal.**  
 After a grade has been posted for one week, no grade changes will be made.

**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**.

**Grading Scale**

		<b>B+</b>	87-89	<b>C+</b>	77-79	<b>D+</b>	67-69		
<b>A</b>	93-100	<b>B</b>	83-86	<b>C</b>	73-76	<b>D</b>	63-66	<b>F</b>	0-59
<b>A-</b>	90-92	<b>B-</b>	80-82	<b>C-</b>	70-72	<b>D-</b>	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 me within 7 calendar days since the grade is posted, otherwise the grade will be final.

**Make-up Policy**

~ Make-ups are for absences only. Make-ups will not be given due to undesired performance on an assessment. If you have missed a quiz or exam and want to make up, you need to contact me within TWO calendar days after the quiz day or inform me in advance, and provide university approved documentation, which includes: *documented illness, deaths in the family and other documented crises ad proved by the Dean of Students office, active military or jury duty, religious work-restricted holy days, and official University activities*. Please note that the FSU University Health Services ‘Verification of Visit’ does not constitute a documented absence.

~ Unexcused absence from an assessment will result in a zero. The make-up quiz will be given within one week of the original quiz date. I will discuss the detail time with you after receiving the documentation.

~ You will only have 2 chances to make up for the missed quizzes. **No make-ups will be given after the last day of class.**

~ If you are going to miss the final exam, you must notify me and Radha Bose ([bose@stat.fsu.edu](mailto:bose@stat.fsu.edu)) in advance at the same time. Absolutely no documentation will be accepted after the last day of class.



### **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.

### **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.

### **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.**

### **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).

### **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.



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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>.)

### **Americans With Disabilities Act**

Students with disabilities needing academic accommodation should:

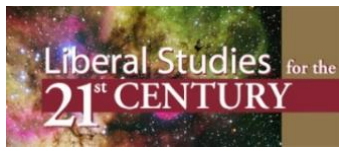
- (1) register with and provide documentation to the Office of Accessibility Services; and
- (2) request a letter from the Office of Accessibility Services to be sent to the instructor indicating the need for accommodation and what type; and
- (3) meet (in person, via phone, email, skype, zoom, etc...)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

Please note that instructors are not allowed to provide academic accommodations to a student until they receive the letter mentioned in item (2) above. Academic accommodations will be provided as soon as possible after the letter is received. Academic accommodations are not retroactive, so they will not apply to lectures/lessons and assessments that took place before the letter was received.



## **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/>

## **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.

## **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.