STA 1013: Statistics Through Example

Spring 2022 – 0001/0002

Instructor Information
Name: Wenshan Han
Email: wh17c@my.fsu.edu
You may expect a response from me within two work days.
Office Hour: Monday 10:30 a.m. – 11:30 a.m., or by appointment.
Office Location: OSB 408

Course Information
Name: Statistics Through Example
Course Code: STA 1013 Section: 0001/0002
Credit-hours: 3
Format: F2F
Class Meeting Times:

        Section 0001: 8:00 a.m. – 8:50 a.m. MoWeFr

        Section 0002: 9:20 a.m. – 10:10 a.m. MoWeFr

Class Meeting Room: HCB 217
Final Exam Day & Time:

        Section 0001: April 27, 7:30 a.m. – 9:30 a.m.

        Section 0002: April 25, 7:30 a.m. – 9:30 a.m.

(see https://registrar.fsu.edu/registration_guide/spring/exam_schedule/)
Prerequisites: None.
Course website: https://canvas.fsu.edu
Please turn on the course notifications in Canvas by going to Account/Notifications and selecting the *Notify immediately* option for all of the items under Course Activities.
Please check your FSU email and the course announcements every day.
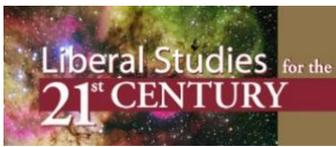We will not use Honorlock.

Required Materials
- A personal computer, reliable internet connection, and Chrome or Firefox browser.
- A 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.
A textbook is not required for this class. The instructor will provide all required course notes and exercises. Please note that the materials provided by the instructor were put together for your individual use only. While you may share these materials with classmates, we ask that you do not share them with third parties who are not enrolled in this class. If you seek help outside of class, you may, of course, allow your helper to see the materials, but please do not allow them to make copies or in any other way take our material. We appreciate your co-operation in protecting our material. Thank you!

Additional Resource

The following free online textbook is an additional resource that you might find useful: Introductory Statistics from OpenStax, Print ISBN 1938168208, Digital ISBN 1947172050, www.openstax.org/details/introductory-statistics.

Course Description

This course provides students with a background in applied statistical reasoning. Fundamental topics are covered, including graphical and numerical descriptions 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 helps 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 1013, 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.

Lecture videos and/or other recordings provided by the instructor

Please note that the recorded lectures and/or 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 person or entity outside of this class. Copyrights of the recorded lectures and other recordings are reserved by the instructor and Florida State University.

Note on Technology-dependent Assessments

This course is 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.

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.

Grades

1. Homework/Activity (20%):

> You could discuss with others but need to write up independently.
> Late homework will not be accepted unless prior arrangement has been made with the instructor.
> Penalty for late homework: 10% of the maximum score per day.

2. Exams (65%):

> There will be 4 *in-person* exams during the semester. Collaboration is *not permitted*.

3. LSQA (10%):

> This is an **online** assessment. 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*.

4. Attendance (10%):

> Attendance will be checked randomly.

Assessments that are not submitted will receive a grade of zero. When a makeup is submitted, the zero will be replaced with the earned grade.
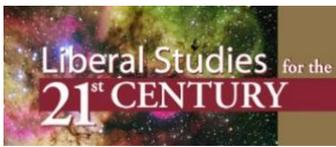
If you believe that the grade you received on an assessment is incorrect, please bring it to my attention within 48 hours after the grade has been made available to you. If no issues are raised during that 48-hour time frame, then it will be assumed that the grade is accepted and subsequent requests for a grade review may not be granted.

Grading scale (percent)

A = [93, 105]
A- = [90, 93)
B+ = [87, 90)

B = [83, 87)
B- = [80, 83)
C+ = [77, 80)
C = [73, 77)
C- = [70, 73)
D+ = [67, 70)
D = [63, 67)
D- = [60, 63)
F = [0, 60)

Make-up Policy
The Last Day of Classes is the absolute deadline for all make-ups barring the final exam.

The Last Day of Classes is the ultimate deadline for requesting an extension – this applies to all assessments given during the term.

No make-ups will be allowed after the Last Day of Classes – this applies to all assessments given during the term.

After the final exam is over, the class will be absolutely and completely over. In particular, this means that all assessments will be completely over and absolutely no extensions will be granted.

Receiving a grade of "Incomplete"
A request for a grade of "Incomplete" will
~ NOT be granted if you have completed the coursework, including the assessments that cannot be dropped and excluding the drops and allowable absences.
~ be granted only if both of the following conditions are satisfied:
   (1) the only assessment that you have yet to take is the final assessment, and
   (2) your overall average excluding the final assessment is a passing grade (70% or above).

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/), Counseling & Psychological Services (https://counseling.fsu.edu/), the Employee Assistance Program (https://eap.fsu.edu/), University Health Services (https://uhs.fsu.edu/), or pastoral counselors.

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 should talk to me about it first to get my approval and then fill out and follow the instructions on the "Request to Reschedule a Final Examination" form at https://artsandsciences.fsu.edu/sites/g/files/upcbnu321/files/2020-09/Request_to_Reschedule_revised.pdf. The form needs to be submitted to the College of Arts and Sciences before 5pm on 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.

Drop and Withdrawal deadlines are given in the University's academic calendar at https://registrar.fsu.edu/calendar/.

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**)

Academic Success

Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Department of Student Support and Transitions to learn more.

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

Academic accommodations will be provided as soon as possible after verification is received. Academic accommodations are not retroactive, so they will not apply to lectures/lessons and assessments that took place before verification 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	Counseling and Psychological Services	University Health Services
University Center A, Rm. 4100	Askew Student Life Center, 2nd floor	Health and Wellness Center
(850) 644-7161	942 Learning Way	(850) 644-6230
Available 24/7/365	(850) 644-8255	**https://uhs.fsu.edu/**
Office Hours: M-F 8-5	**https://counseling.fsu.edu/**	
https://dsst.fsu.edu/vap		

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.

Public Health Protocols

In our classroom, I will expect everyone to wear a proper, well-fitting mask. As our President has informed the university community, FSU expects everyone on campus to use face-coverings. In regions where virus rates are high, the CDC recommends that even vaccinated individuals wear masks in public indoor spaces, like classrooms, especially where social distancing is not possible. Florida infection and hospitalization rates are greater now than they were at the height of the 2020 surge due to the Delta variant, a more infectious and easily transmissible version of the COVID-19 virus. The best way to protect against serious illness is to be fully vaccinated, but not everyone among us can be. Because the Delta variant can infect even vaccinated individuals and can be spread by them to others, it poses a special threat to members of the community with underlying health conditions and children at home who are too young for vaccination.
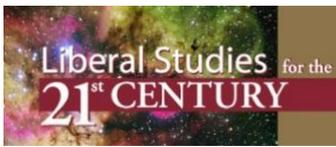
For these reasons, FSU expects each member of the community to comply with the public health protocols our President set forth on August 9, 2021, including (1) wearing masks in public indoor spaces, (2) getting fully vaccinated, (3) being tested for the virus if you have symptoms, and (4) staying home and away from others if you are sick. Please remember that you should NOT attend class in person if you have tested positive for

COVID-19 or are quarantining after exposure. Finally, please bear in mind that the COVID-19 situation is fast-moving, and that university guidance on the issue may change at any time.

Classes Subject to HB233 Recording

In this class, consistent with state law and university policy, students are permitted to make recordings of class lectures for personal use only. As noted, sharing, posting, or publishing classroom recordings may subject you to honor code violations and legal penalties associated with theft of intellectual property and violations of other state law. Moreover, students and educators have expressed concern that recording classroom activities may negatively impact the learning experience for others, especially in classes that involve questions, discussion, or participation. To protect a learning environment in which everyone feels free to experiment with ideas, we ask you refrain from recording in ways that could make others feel reluctant to ask questions, explore new ideas, or otherwise participate in class. Students must monitor their recording so that they do not include participation by other students without permission. Students with disabilities will continue to have appropriate accommodations for recordings as established by the Office of Accessibility Services.

Week	Dates	Mon.	Wed.	Fri.
1	Jan 5 – Jan 7	/	**First Day Attendance** Prerequisite Math Skills	Terminology
2	Jan 10 – Jan 14	Sampling	Visualization	Visualization
3	Jan 17 – Jan 21	Visualization	Summary Statistics	Summary Statistics
4	Jan 24 – Jan 28	Summary Statistics	Summary Statistics	**Exam 1**
5	Jan 31 – Feb 4	Empirical Rule	Normal Distributions	Normal Distributions
6	Feb 7 – Feb 11	Normal Distributions	Normal Distributions	Central Limit Theorem
7	Feb 14 – Feb 18	Central Limit Theorem	Central Limit Theorem	**LSQA (Online)**
8	Feb 21 – Feb 25	Probability	Probability	Probability
9	Feb 28 – Mar 4	Random Variables	Random Variables	Random Variables
10	Mar 7 – Mar 11	Random Variables	Random Variables	**Exam 2**
11	Mar 14 – Mar 18	**Spring Break. No Classes.**		
12	Mar 21 – Mar 25	One-sample Mean	One-sample Mean	One-sample Mean
13	Mar 28 – Apr 1	One-sample Mean	One-proportion	One-proportion
14	Apr 4 – Apr 8	One-proportion	One-proportion	**Exam 3**
15	Apr 11 – Apr 15	Correlation	Simple Linear Regression	Simple Linear Regression
16	Apr 18 – Apr 22	Simple Linear Regression	Simple Linear Regression	(Last day of classes)
17	Apr 25 – Apr 29	**Final Exam**		