

STA1013-0005(Fall 2019): Statistics through Example

Florida State University, Department of Statistics

Mo/We/Fr 12:20PM - 1:10PM, Room: OSB 108

Instructor: Hwiyoung Lee

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Office Hours: MW 11:10AM-12:10PM, or by appointment.

Office: OSB 446

Course Website: Course website is available through canvas: canvas.fsu.edu.

Course Description

Prerequisites: 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.

Materials

Textbook: No book is required. But *Statistical Reasoning for Everyday Life*, Pearson, Fifth Edition, 2018, by Bennet Briggs Triola is a good source.

Class notes: Class notes will be posted on Canvas. **You should either print them before class or have them available on a computer.**

Calculator: A calculator of type TI-84 Plus or equivalent is necessary.

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 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.

Course Topics

- Terminology/Initial ideas
- Sampling: simple random sample, systematic, stratified, cluster, convenience
- Visualization of data: histograms, stem plots, bar charts, pie charts
- Summary Statistics
- Empirical Rule
- Normal Distribution
- Central Limit Theorem
- Probability: random process, four rules, probability models, addition rule for mutually exclusive events
- Random variable
- 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
- Correlation
- Simple Linear Regression

Exam Schedule

- Final Exam: Tuesday, December 10th, 10:00 – 12:00 noon., OSB 0108

Grading

- **Quizzes (45%)** : There will be 4 quizzes during the semester. Your lowest quiz grade will be dropped, and the other three will equally worth 15% of your grade.
- **Final Exam (35%)** : There will be one final exam. Final exam will last 2 hours. You can use your calculator and bring two pieces of hand written cheat sheets to the final exam.
Final Exam: Tuesday, December 10th, 10:00 – 12:00 noon., OSB 0108
- **LSQA (10%)** : STA 1013 has been certified as meeting FSU's Liberal Studies requirements in the area of Quantitative and Logical Claims. In order to maintain that certification, we must administer the appropriate Liberal Studies Quantitative Assessment (LSQA). It is a common assessment (not the final exam).
- **Attendance (10%)** : If you miss more than five classes without documents, you will not be able to get the 10%.
- **Extra credit (5%)** : In each quiz, there will be a bonus problem.
- **Homework (0%)** : Homework problems will be given after lecture, but they will not be collected or graded. But there will be quiz problems based on the homework. Solutions will be provided on the course webpage.

Grading Scale

Grade cutoffs will be established at the end of the course, but will not be stricter than the following cutoffs.

Letter	Average	Letter	Average	Letter	Average	Letter	Average	Letter	Average
		B+	$\leq 87\%$	C+	$\leq 77\%$	D+	$\leq 67\%$		
A	≤ 94	B	$\leq 83\%$	C	$\leq 73\%$	D	$\leq 63\%$		
A-	≤ 90	B-	$\leq 80\%$	C-	$\leq 70\%$	D-	$\leq 60\%$	F	$< 60\%$

Missing Exams

Make-ups will not be given unless the student has an official document for an excused absence; see the University Attendance Policy for more information. No documentation will be accepted any later than one week after the absence. If appropriate, then you will be allowed an extension to the following Friday and will be able to get full credit on the missed work.

Email

- Please check your @my.fsu.edu email every day.
- Always include your full name, course code and section number when you email us.
- Send test-related questions at least 24 hours before the test is due to begin
- Be aware that email sent from outside the FSU domain may not get through to us, so if you email us and you don't get a response within two days, please try to meet us in person before class, or after class, or during office hours.

Attendance, Absence and Drop/Withdrawal

- First day attendance is mandatory per university regulations.
- Drop/Withdrawal deadlines are given in the University's academic calendar at https://registrar.fsu.edu/registration_guide/fall/academic_calendar/
- Students shall, upon notifying their instructor by formal self-written-and-signed letter at least one week before the holiday, be excused from class to observe a religious work-restricted holy day of their faith.

Tentative Pacing Schedule

		Mon	Wed	Fri
Week 1	Aug 26 - Aug 30	First Day Attendance	Terminology	Terminology
Week 2	Sep 2 - Sep 6	Labor Day	Sampling	Sampling
Week 3	Sep 9 - Sep 13	Visualization	Visualization	Quiz 1
Week 4	Sep 16 - Sep20	Visualization	Visualization	Summary Statistics
Week 5	Sep 23 - Sep27	Summary Statistics	Summary Statistics	Quiz 2
Week 6	Sep 30 - Oct4	Empirical Rule	Normal Distribution	Normal Distribution
Week 7	Oct 7 - Oct11	Normal Distribution	Central Limit Theorem	Quiz 3
Week 8	Oct 14 - Oct18	Central Limit Theorem	Central Limit Theorem	Central Limit Theorem
Week 9	Oct 21 - Oct25	LSQA Test	Probability	Homecoming
Week 10	Oct 28 - Nov1	Random variable	Random variable	One-sample mean
Week 11	Nov 4 - Nov8	One-sample mean	One-sample mean	Quiz 4
Week 12	Nov 11 - Nov15	Veteran's Day	One-sample mean	One-sample mean
Week 13	Nov 18 - Nov22	One Proportion	Correlation	Correlation
Week 14	Nov 25 - Nov29	Simple Linear Regression	Thanksgiving	Thanksgiving
Week 15	Dec 2 - Dec6	Simple Linear Regression	Simple Linear Regression	Final Review

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.

Sexual Misconduct and Title IX Reporting

As an instructor, I am obliged to report all instances of sexual misconduct that I become aware of; 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/>).

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

- 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 take it to the Dean of Arts and Sciences office at 010 LON to get it approved, and
- (iii) bring the approved form back to me *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>)

Americans with Disabilities Act

Students with disabilities needing academic accommodation should:

1. register with and provide documentation to the Student Disability Resource Center; and
2. bring a letter to the instructor indicating the need for accommodation and what type.

Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from the Student Disability Resource Center 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:

Student Disability Resource Center
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
<http://www.disabilitycenter.fsu.edu/>