

STA 1013: Statistics Through Example

Spring 2019 – Section 0019

Course Information

Instructor: Zishen Xu

Email: zx16@my.fsu.edu

Office Hours: Monday, 3:30 pm - 5:30 pm or by appointment

Office Location: Dirac 443 (use the elevator on the left after entering the first auto-door of the Dirac library)

Class Times and Locations: Jan 7th ~ April 26th, MWF, 12:20 pm – 1:10 pm, TUL 2010

Required Course Resources

Textbook: There is no required textbook for this course. The notes and relevant materials will be posted to Canvas before class. Some suggested readings are:

- *Statistical Reasoning for everyday life, 5th ed.* by Bennet Briggs Triola.
- *Elementary Statistics, 7th ed.* by Mario F. Triola

Calculator: A scientific calculator is required. Cell phones are not permitted as calculators during exams and quizzes.

Canvas Class Website: Grades, homework, notes, announcements and other pertinent information will be available through this site. You are responsible for assignments and announcements posted on this website, as well as those sent through your FSU email. Please check your FSU email and Canvas daily.

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.

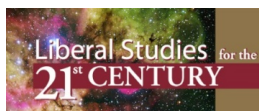
Statistical thinking, relevant ideas, themes, and concepts are emphasized over mathematical calculation. In this class students learn many of the elementary principles that underlie collecting data, organizing it, summarizing it, and drawing conclusions from it.

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 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.
- 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.

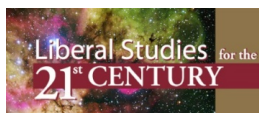


Tentative Topics:

1. Terminology/Initial Ideas: statistical study process, population, sample, parameter, statistic, categorical, quantitative
2. Sampling: simple random sampling, systematic sampling, stratified sampling, cluster sampling, convenience sampling
3. Graphs: histograms (sketch and interpret), stemplots (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 \bar{x} , features of the distributions and implications when using a larger/smaller sample to estimate μ , forward problems (finding probabilities)
8. Probability: random processes, four rules, probability models, addition rule for mutually exclusive events
9. Random Variables: definition, expected value
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:

		Mon	Wed	Fri
Week 1	Jan 7 ~ Jan 11	Introduction to the course	Topic 1 & 2	Topic 3
Week 2	Jan 14 ~ Jan 18	Topic 4	Topic 4	Topic 5
Week 3	Jan 21 ~ Jan 25	Martin Luther King, Jr. Day No class	Topic 5	Review
Week 4	Jan 28 ~ Feb 1	Quiz 1	Topic 6	Topic 6
Week 5	Feb 4 ~ Feb 8	Topic 7	Topic 7	Topic 7
Week 6	Feb 11 ~ Feb 15	Topic 7	Topic 7	Review
Week 7	Feb 18 ~ Feb 22	Quiz 2	Topic 8	Topic 8 Last day to drop class
Week 8	Feb 25 ~ Mar 1	LSQA Test	Topic 8	Topic 8
Week 9	Mar 4 ~ Mar 8	Topic 9	Topic 9	Review
Week 10	Mar 11 ~ Mar 15	Quiz 3	Topic 10	Topic 10
Spring Break	Mar 18 ~ Mar 22	No class		
Week 11	Mar 25 ~ Mar 29	Topic 10	Topic 10	Topic 11
Week 12	Apr 1 ~ Apr 5	Topic 11	Topic 11	Review
Week 13	Apr 8 ~ Apr 12	Quiz 4	Topic 12	Topic 12
Week 14	Apr 15 ~ Apr 19	Topic 13	Topic 13	Topic 13
Week 15	Apr 22 ~ Apr 26	Topic 13	Topic 13	Review



Note that this is only a plan for the course. The process may be changed according to the actual situation.

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.**

Grades

Quizzes (50%): There will be 4 quizzes during the semester, which add up to 50% of the final grade. The quizzes are not equally weighted. The one with the highest score will be 20% and the other three will be 10% each. You could bring one 8.5” × 11” (A4) hand-written single-side cheat sheet and a calculator.

LSQA (10%): Note that, STA 1013 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). Time length will be about 50 mins.

Final Exam (30%): There will be a (non-cumulative) final exam given at **10:00-12:00 noon, Thursday, May 2nd at our usual classroom**. At the final exam, you could also bring one 8.5” × 11” (A4) hand-written single-side cheat sheet and a calculator.

Attendance (10%): Attendance will be checked every class during the semester. There are overall 42 classes without the two classes that are in the drop/add period. If you miss no more than 6 classes (need to attend 36 or more classes), you will receive all the 10%. Otherwise every missing class exceed 6 will cause 1% deduction in the attendance score, which means if you miss 16 or more classes (attend 26 or less classes), you will receive 0% on the attendance.

Grades will be posted on Canvas and the quiz papers will be given back to the students (the final exam paper will not be given back). When a grade is posted, the student has **one week** to request a grade change. After this one-week period, no grade changes will be made.

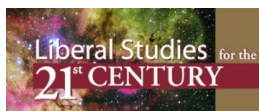
The grading scale for the course is as follows:

		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		

Policy Information:

Make-up Policy:

- If you have missed a quiz and want to make up, you need to contact me within **TWO** calendar days after the quiz day and provide university approved documentation, which includes: documented illness, deaths in the family and other documented crises as approved 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 a quiz 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 and location for it after receiving the documentation.
- If you have missed an attendance check and do not want it to be count as one missing class, same as the policy for the quizzes, you can contact me within **TWO** calendar days after the day that you missed the class and provide university approved documentation.



- If you are going to miss the final exam, you must notify me and Radha Bose (bose@stat.fsu.edu) in advance at the same time.
- If you are going to miss a quiz or an attendance check due to religious holiday, please send me an email informing me the details of the holiday with your name in the end via your FSU email account **ONE week in advance**. No other documentation will be required. Otherwise no make-up quiz or attendance will be given.

Classroom Conduct: You are expected to act professionally in the classroom. You should arrive on time and prepared for the class. If you do arrive late or leave early, please do so in a manner that does not disturb the others.

Email and Canvas: 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, so check your FSU email account and Canvas website frequently (at least one time a day). When emailing me regarding this class, please put STA1013-0019 in the subject line, sign your full name in the end and use your FSU email account. **Emails not from FSU email account will not be replied.** I will respond to all email within two business days, which do not include weekends, holidays or weekdays after 6 pm. Asking me early, do not expect me to save you in the last minute!

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/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 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/>



Syllabus Change Policy

Except for changes that substantially affect implementation of the 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

- 1) talk to me about it first and get my permission to reschedule,
- 2) fill out the "Request to Reschedule Final Examination" form at <https://artsandsciences.fsu.edu/students/undergraduate/forms-requiring-deans-approval/reschedulingfinal-examination> and take it to the Dean of Arts and Sciences office at 010 LON to get it approved, and
- 3) 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.