

## STA 1013: Statistics Through Example

Spring 2019 – Section 0017/0018

### Course Information

Instructor: Yinpu Li

Email: [yinpu.li@stat.fsu.edu](mailto:yinpu.li@stat.fsu.edu) or [yl17f@my.fsu.edu](mailto:yl17f@my.fsu.edu)

Office Hours: Friday 8:00 – 10:00 AM

Office Location: OSB 444

Times and Locations: Section 0017: Classes meet Jan 7<sup>th</sup> ~ April 26<sup>th</sup>, MWF, 10:10-11:00 AM, HCB 207

Section 0018: Classes meet Jan 7<sup>th</sup> ~ April 26<sup>th</sup>, MWF, 11:15 AM-12:05 PM, HCB 207

### Required Course Resources

Textbook: There is no required textbook for this class. I will post notes and relevant materials to Canvas prior to the next class. Print and bring the appropriate notes and materials to the class. **I will not email any filled in notes.**

For your own study, the following book is recommended as supplementary material:

*Statistical Reasoning for everyday life, 4<sup>th</sup> ed. by Bennet Briggs Triola.*

Calculator: TI-84 (or TI-83) 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.

### 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: 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  $\bar{x}$ , features of the distributions and implications when using a larger/smaller sample to estimate  $\mu$ , forward problems (finding probabilities);
- 8) Probability: random process, probability models, addition rule for mutually exclusive events;
- 9) Random variable: 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  $R^2$ .

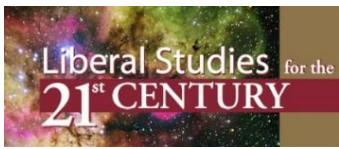


Tentative Pacing Schedule:

		Mon	Wed	Fri
Week 1	Jan 7 <sup>th</sup> ~ Jan 11 <sup>th</sup>	Syllabus and Pre-math	Preliminary definitions.	Terminology
Week 2	Jan 14 <sup>th</sup> ~ Jan 18 <sup>th</sup>	Terminology	Sampling	Graphs
Week 3	Jan 21 <sup>st</sup> ~ Jan 25 <sup>th</sup>	No Classes	Review	Quiz 1
Week 4	Jan 28 <sup>th</sup> ~ Feb 1 <sup>st</sup>	Graphs	Summary statistics	Summary statistics
Week 5	Feb 4 <sup>th</sup> ~ Feb 8 <sup>th</sup>	Summary statistics	Probability	Random variable
Week 6	Feb 11 <sup>th</sup> ~ Feb 15 <sup>th</sup>	Review	Review	Quiz 2
Week 7	Feb 18 <sup>th</sup> ~ Feb 22 <sup>nd</sup>	Normal Distributions	Normal Distributions	Empirical rule
Week 8	Feb 25 <sup>th</sup> ~ Mar 1 <sup>st</sup>	Central Limit Theorem	Central Limit Theorem	Central Limit Theorem
Week 9	Mar 4 <sup>th</sup> ~ Mar 8 <sup>th</sup>	Central Limit Theorem	Central Limit Theorem	Quiz 3
Week 10	Mar 11 <sup>th</sup> ~ Mar 15 <sup>th</sup>	One-sample mean	One-sample mean	One-sample mean
Week 11	Mar 18 <sup>th</sup> ~ Mar 22 <sup>nd</sup>	Spring Break	Spring Break	Spring Break
Week 12	Mar 25 <sup>th</sup> ~ Mar 29 <sup>th</sup>	One-proportion	One-proportion	Make-up Day
Week 13	Apr 1 <sup>st</sup> ~ Apr 5 <sup>th</sup>	Correlation	Review	Quiz 4
Week 14	Apr 8 <sup>th</sup> ~ Apr 12 <sup>nd</sup>	Simple Linear Regression	Simple Linear Regression	Simple Linear Regression
Week 15	Apr 15 <sup>th</sup> ~ Apr 19 <sup>th</sup>	Simple Linear Regression	Simple Linear Regression	Simple Linear Regression
Week 16	Apr 22 <sup>nd</sup> ~ Apr 26 <sup>th</sup>	Review	Make-up Day	TBD

**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

Attendance/Pop quiz (10%): Attendance will be checked every class, or a short pop-quiz will be given instead, except the Martin Luther King’s day, Spring Break days, Quiz days and make-up days. There will be 35 classes left in total, you need to attend at least 30 of them to get full attendance credits. Arriving late or leaving early will be taken as non-attendance. Further absences will require documents as excuses, otherwise 0.33 pts will be taken off your attendance grade. For detailed policy about DOCUMENTATION FOR ABSENCES \*, please refer to the policy information part. If you are unable to make it to class, it is your responsibility to get the notes from either the instructor or a classmate, review those notes, and come to my office hours if you have any questions over what you missed. All deadlines are released at the beginning of the semester, so it is up to you to be aware of those and make sure you are caught up by the deadline.

Quiz (50%): There will be 4 quizzes during the semester. You could bring one 8.5’’ ×11’’ hand-written single-side cheat sheet and a calculator. For detailed policy about make-up, please refer to the policy information part. There should be absolutely no late submission for any quiz, if you refuse to submit your quiz paper and cheatsheet at the end of the class, you will be taken extra 20% credits off whatever you get for that quiz.

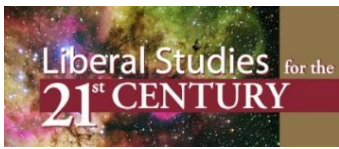
LSQA(10%): Note that, STA 1013 has been certified as one of FSU’s Liberal Studies Quantitative and Logical Thinking courses. As a requirement, administer the appropriate Liberal Studies Quantitative Assessment (LSQA) during the semester. This will be a common assessment (not final exam). It will be **part of the Quiz 3** and the total time length will be about 50 mins.

Final Exam (30%): There will be a (cumulative) final exam given at our usual classroom. At the final exam, you could also bring one 8.5’’ ×11’’ hand-written single-side cheat sheet and a calculator. If you need to miss the final, you must notify the instructor in advance.

### Final Exam Schedule:

Section	Class Time	Exam Day	Exam Time
0017	10:10 -11:00 AM	Monday, April 29 <sup>th</sup>	5:30- 7:30 PM
0018	11:15 AM - 12:05 PM	Thursday, May 2 <sup>nd</sup>	12:30 – 2:30 PM

For details, please double check the exam schedules at <http://registrar.fsu.edu/calendar/> by yourself and mark it on your calendar.



Extra Credits (5%): Extra credits could be earned by answering bonus questions either in quizzes or during courses.

Grades will be posted on Canvas within one week. After a grade is posted the student has 5 work days 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>B+</b>	87-89	<b>C+</b>	77-79	<b>D+</b>	67-69		
<b>A</b>	93-105	<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		

Your raw grade(percentage) will be rounded to the nearest integer to determine your letter grade. And actual letter grades cutoffs may change but no stricter than the above. 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.

Example:

Student A's scores are listed as follows:

Quiz 1: 10/15; Quiz 2: 9/10; Quiz 3+LSQA: 20/20; Quiz 4: 12/15; Final: 30/30; Attendance: 9/10; Bonus Credits: 0/5.

The final grades for A will be calculated as:

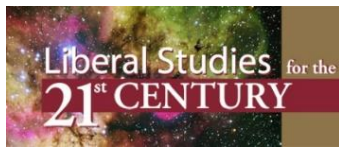
$$10 + 9 + 20 + 12 + 30 + 9 + 0 = 90$$

So, Arron will get a A- as final grade!

### **Policy Information:**

#### Make-up Quiz:

- Assessments that are not taken, or not made up, will receive a zero grade.
- Absolutely no make-ups are allowed after the last day of class; make-ups are not allowed during final week.
- If you need to miss a quiz, you must notify the instructor by email at least one day before the quiz and provide university approved\* documentation within one week. **If you miss a quiz without notifying the instructor or without university approved\* documentation, you will get a zero for the quiz.**



- Absolutely no documentation will be accepted after the last day of class.
- If you must be absent on a religious holiday, please submit a self-written-and-signed letter at least **ONE WEEK BEFORE** the holiday informing the instructor that you will be absent due to the religious holiday.
- If you have extenuating circumstances that prevent you from complying with the policy in this syllabus, then the instructor will need to receive verification of your extenuating circumstances from the **Dean of Students department** to make an exception in your case. In such situations the instructor will give you time to make up the missed work. The instructor and you will agree on a deadline for making up each missed activity.
- If you could not complete the make-up by its deadline or at the appointed time, you must notify the instructor by email at least one day before that and provide university approved\* documentation, otherwise your grade for that make-up will also be zero.
- You only have 2 chances to make up for the missed quizzes, that means you could at most miss 2 regular quizzes and make them up at specified date and location, further missed quizzes will directly result in a zero. Please save these 2 quiz allowances for emergencies and do not use them for reasons that can be avoided. We do not promise any further help with low quiz grades. We do not allow quiz re-takes, that is, if you were present for a quiz you may not take the same quiz again later.
- All the make-ups for quizzes will be set on March 29<sup>th</sup> and April 24<sup>th</sup>. In exceptional circumstances, the date may be changed, and notifications will be sent by the instructor in advance.

\* WE WILL ACCEPT DOCUMENTATION FOR ABSENCES CAUSED BY:

- religious holidays: write a letter, date and sign it, and give it to your recitation TA by the Monday of the week in which the holiday occurs; letters presented after this deadline will not be accepted and your absence will count as a “without documentation” case.
- health matters related to self or immediate family members: doctor’s note must be dated at most 5 calendar days before or after the date of absence.
- crises for which we receive a notification letter from the Dean of Students Department
- events where you represent FSU, such as FSU sports teams, FSU music groups, etc
- traffic accident or any other event where law enforcement was called in
- death in the family and other documented crises as approved by the Dean of Students Department



- jury duty or any other court appointments
- military-related matters

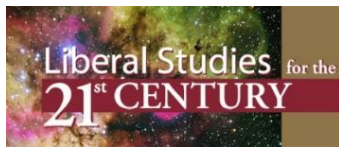
Please note that lack of future planning, or mismanagement of time and other resources, are not acceptable reasons for being absent. In addition, travel tickets and itineraries do not count as documentation, because travel per se is not an acceptable reason for being absent. You must have an acceptable reason for travelling.

Please note that the FSU University Health Services 'Verification of Visit' does not constitute a documented absence.

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

Email and Communication:

- Please check the Class Log on our STA1013 SP19 course site on Canvas every day to keep up with what happens in class, especially the announcements part. Please turn on the applicable notification settings on your Canvas course site so that you don't miss anything.
- Please check your @my.fsu.edu email every day for emails from the instructor.
- Please refer to Syllabus and other uploaded documents related to this course first whenever you have questions.
- Please always do the above three before you email the instructor.
- If you email us with an enquiry that was already addressed in the Class Log, in a class email, in a Canvas announcement or in one of our syllabus documents, you may not get a response.
- If you email us, please send from your @my.fsu.edu account.
- Always include your name and section number when you email to the instructor, if we need to know this information in order to answer your query and you have not provided it, you may not get a response.
- Send assessment-related questions at least 24 hours before the assessment is due to begin, otherwise you may not get a response.



- Be aware that email sent from outside the FSU domain may not get through to the instructor, so if you send an email and you don't get a response within two working days, please try to meet the instructor in person before class or after class or during office hours.
- The instructor is not a tutor, if you miss a class with documentation listed in the policy section, you should check the notes by yourself first. If you have further questions, please bring specific questions to the office hour. The instructor is not allowed to tutor anyone for this course.
- Please do not email the instructor and talk about grades. The instructor will not do grades calculation for you, you could check syllabus for calculation details. If you have any questions about the grades or need to appeal your grade, please talk to the instructor face-to-face during the office hour within one week after the grades has been posted.

### **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.

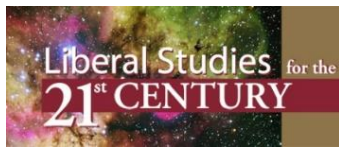
### **Academic Honor Policy:**

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>.)

### **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 the instructor about it first and get my permission to reschedule,
- 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
- bring the approved form back to the instructor by the last day of classes. If you experience a documented emergency that prevents you from observing the above deadline, contact the instructor as soon as you are able to, and you’ll take it from there.

### **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

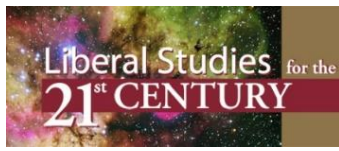
Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

[sdrc@admin.fsu.edu](mailto:sdrc@admin.fsu.edu)

<http://www.disabilitycenter.fsu.edu/>



STA 1013 Spring 2019  
Department of Statistics  
Florida State University

### **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.