



STA 1013 Spring 2020  
Department of Statistics  
Florida State University

## STA 1013 Statistics Through Example

Spring 2020 - Section 0009/0018

### **Course Information:**

Instructor: Ximu Deng

Email: xdeng@fsu.edu

Office Location: Rm 360 LOV

Office Hours: MON 14:00pm – 15:00pm, or by appointment

Class Times and Locations:

Section 0009: MWF 10:10am – 11:00am, HCB 217

Section 0018: MWF 11:15am – 12:05pm, HCB 217

### **Course Description:**

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 Materials:**

- Class slides will be provided
- Calculator: TI-84 Plus or equivalent.
- Textbook(optional): Statistical Reasoning for Everyday Life, Fifth Edition 2018, by Bennet Briggs Triola

### **Assessment and Grading:**

Regularly assigned homework exercises (NOT collected).

We will allow absolutely no make-ups, no extra credit assignments, and in general, no opportunities for grade improvement after the last day of class, so please do your best during the term. Assessments that are not taken, and assignments that are not submitted, will receive a grade of zero. When a missed assessment/assignment is made up, the zero will be replaced with the earned grade.

Attendance: Attendance will be checked every quiz during the semester.

In-class Quizzes: You could bring one 8.5'' × 11'' hand-written single-side cheat sheet and a calculator. There should be absolutely no late submission for any quiz, if you refuse to submit your quiz paper and cheat sheet at the end of the class, you will be taken extra 20% credits off whatever you get for that quiz. The best three will be included in the total grade.

LSQA: STA 1013 has been certified as one of FSU’s Liberal Studies Quantitative and Logical Thinking courses. This will be a common assessment (not final exam). It will be part of the one of our quizzes and the total time length will be about 50 mins.

**Final Exam:** There will be a (cumulative) final exam given at our usual classroom. At the final exam, you could bring one 8.5’’ ×11’’ hand-written double-side cheat sheet and a calculator.

You may not use a cell phone as a calculator in a quiz or the final exam.

Your overall course grade will consist of the following:

	<b>Quantity</b>	<b>Weight</b>
<b>In-class Quizzes</b>	4 drop 1 = 3 @ 20%	60%
<b>Final Exam</b>	1	30%
<b>Attendance</b>		10%
<b>Total</b>		100%

The grading scale for the course is as follows:

		B+	87-89	C+	77-79	D+	67-69	F	0-59
A	93-100	B	83-86	C	73-76	D	63-66		
A-	90-92	B-	80-82	C-	70-72	D-	60-62		

Final scores are rounded to the nearest integer before determining the grade, so a 79.5 will round up to 80 and be considered a "B-".

### **In-class Quiz and Final Exam Schedule:**

#### **In-class Quiz (tentative):**

- Quiz 1: Friday, January 24
- Quiz 2: Wednesday, February 19
- Quiz 3: Friday, March 13
- Quiz 4: Friday, April 10

#### **Final Exam:**

Section 0009: Thursday, April 30, 10:00am – 12:00pm  
 Section 0018: Monday, April 27, 10:00am – 12:00pm

### **Course Objects**

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.

### **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  $\mu$ , 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

### **Exam Policy:**

No student is exempt from any quizzes. If you have a medical or some other situation that prevents you from appearing at the quiz, you have to contact me in advance and obtain permission.

If you have missed a quiz and want to make it up, you need to contact me within TWO calendar days after the exam 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 an exam will result in a zero. The make-up quiz will be given within one week of the original exam date. I will discuss the detail time and location for it after receiving the 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 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 will be given.

### **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 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/>), 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

- (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 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.

### **LIBERAL STUDIES FOR THE 21<sup>st</sup> CENTURY:**

#### **Quantitative and Logical Thinking**

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.

#### **Test Question Security & Academic Honesty**

The following pledge and affirmations will be printed on most assessments (wording may vary slightly). We regret to say that if you do not sign the pledge and affirmations, we will not grade your paper and your grade will be zero. Please bear in mind that academic dishonesty and question disclosures reduce the worth of the academic qualification that you are working toward.

I pledge that I will never disclose the questions herein to anyone, and I will not discuss them with anyone other than my course instructor or my TA. I understand that if I break this pledge at any time, the grade that I earn on this paper will be reduced to zero and my overall numerical course grade will be calculated, or re-calculated, accordingly, and my course letter grade will be demoted if necessary.

I affirm that I did not receive help with this assessment and I affirm that I did not help anyone with this assessment.

#### **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. This can be accomplished by logging in to the AIM system and electing to receive academic accommodations in this class so that an email notification will be sent to the instructor.

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/>