

Florida State University

STA 1013 --- Statistics Through Example

Fall 2019 Section 02

Class Meeting Time: Aug 26th to Dec 6th, MWF 1:25pm - 2:15pm

Location: HCB 0207

Instructor: Linlin Sha

Email: ls15w@my.fsu.edu

Office hours: Monday 15:00am - 17:00pm, or by appointment.

Office: 430 DSL (Dirac 4th floor).

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, 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.

Materials

- (1) Class slides and homework will be posted on Canvas;
- (2) A recommendation of textbook (not required): Statistical Reasoning for Everyday Life, (4th ed.) by Jeffrey O. Bennett, William L. Briggs, Mario F. Triola
- (3) Calculator: TI-84 Plus CE

Course Topics:

- (1) Terminology/Initial ideas: population, sample, parameter, statistic, categorical, quantitative, statistical study process;
- (2) Graphs: pie chart, bar chart, histogram (sketch and interpret), stemplot (interpret);
- (3) Summary statistics: mean, quartiles, five-number summary, boxplot, standard deviation;
- (4) Probability: random processes, four rules, probability models, addition rule for mutually exclusive events;
- (5) Random variable: definition, expected values;
- (6) Empirical rule;
- (7) Normal distribution: forward problems (finding area under the curve/percentage of data);
- (8) Sampling: simple random sample, systematic sampling, stratified sampling, cluster sampling;
- (9) Central Limit Theorem: distributions of \bar{x} , forward problems
- (10) One-sample inference: obtain and interpret z-intervals, understand statistical testing, interpret p-value;
- (11) Simple linear regression: read scatterplots, make prediction using linear equation.

Grading

- (1) Attendance (10%). I'll check the attendance during the exams.
- (2) Exam (60%). You will have four exams. The best three will be included in the total grade. At each exam you may use ONE self-planned self-handwritten two-sided 8.5"x11" sheet of notes.
- (3) Final (30%). At the final exam you may use ONE self-planned self-handwritten two-sided 8.5"x11" sheet of notes.
You may not use a cell phone as a calculator in an exam or the final.
- (4) Default grade cutoffs:

FSU does not award A+	B+	87-89	C+	77-79	D+	67-69	F	≤59	
A	≥93	B	83-86	C	73-76	D			63-66
A-	90-92	B-	80-82	C-	70-72	D-			60-62

The actual grade cutoffs could be lower than this, if warranted by the distribution of scores.

Exam Schedule: (tentative)

- Exam 1: Friday, September 13
- Exam 2: Wednesday, October 2
- Exam 3: Monday, October 28
- Exam 4: Friday, November 22
- Final: Friday, December 13, 7:30 am – 9:30 am.

Absence

If you have to miss an exam, you need to send me an email at least ONE DAY before the exam, and remember to provide the documentation for your absence. If you miss a exam without notifying me or without documentation, then you will get zero for that exam.

Liberal Studies for The 21st Century: Quantitative and Logical Thinking

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 communities through a broad and critical engagement with the world in which they live and work. Liberal Studies thus offers a transformative experience. This course has been approved as meeting the Liberal Studies requirements for Quantitative and Logical Thinking and thus 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 computation requirement the student must earn a "C-" or better in the course.

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, <http://fda.fsu.edu/Academics/Academic-Honor-Policy>.) It is your responsibility to appropriately acknowledge all sources that helped in your preparation of all submitted materials. See <http://wr.english.fsu.edu/College-Composition/Plagiarism-Exercises> for help!

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 should be done during the first week of class.

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

This syllabus is a guide for the course and is subject to change according to interests of the students or course pace; any necessary changes will be announced in class.