

STA 2122: Introduction to Applied Statistics (Spring 2020)

Florida State University, Department of Statistics

Section 0027: MWF 8:00AM — 8:50AM, Room: HCB 217

Section 0028: MWF 9:05AM — 9:55AM, Room: HCB 217

Instructor: Seunghee Choi, 352 Love Building.

Office Hours: 10:10AM — 11:10AM Wednesday, or by appointment.

Contact: sc17x@my.fsu.edu

Course Description

- **Prerequisite:** A grade of “C–” or better in MAC 1105 College Algebra (or equivalent)
- **Credit Hours:** 3
- **Special Note:** Subsequent credit for STA 5126 is not permitted. No credit given for STA 2122 if a grade of “C–” or better is earned in STA 2171, STA 3032 or QMB 3200. The purpose of this course is to prepare students for further study and job preparation in the field of Natural Sciences. It will emphasize understanding of data and interpretation of statistical analyses. It will require students to think of data, and report the results of their analyses, in context.
- **Website:** Course website is available at canvas.fsu.edu
- **Topics:** Major topics in this course will include:
 1. Simple random sample.
 2. Graphs: histograms and segmented bar charts.
 3. Summary Statistic: mean, quartiles, range, standard deviation, five-number summary, boxplot, IQR, identifying outliers; Empirical rule.
 4. Normal Distribution: forward and backward problems ; Central Limit Theorem
 5. One-sample Mean: obtain and interpret z -intervals and t -intervals, concept of confidence level, sample size calculation, carry out and interpret results of z -test, t -test and p -value ; Type I & II error.
 6. One-way ANOVA F -test; Two-way ANOVA F -test.
 7. Correlation; Simple Linear Regression; Simple Linear Regression Inference.
 8. Chi-square Test of Independence.
 9. Non-parametric Tests.

Required Materials

- **Calculator:** TI-84 Plus or equivalent. You may not use your phone as a calculator on exams. You need to bring this calculator to each class meeting.
- **Textbook:** Introduction to the Practice of STATISTICS, 9th ed. (Optional). You will need to print out class notes from course website and bring them to class.

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 2122, which includes a written summary of results.

- (3) Use descriptive statistics and graphical methods to summarize data accurately.
- (4) Use inferential statistics to make valid judgments based on the data available.
- (5) Select the appropriate statistical tools to analyze a particular problem.
- (6) Describe the goals of various statistical methodologies conceptually.
- (7) Develop a healthy skepticism toward statistical studies and their results based on a sensible consideration of the techniques employed.

Email

- Please check your [@my.fsu.edu](mailto:my.fsu.edu) email every day.
- If you email me, please send from your [@my.fsu.edu](mailto:my.fsu.edu) account. Always include your full name, course code and section number when you email me.
- Send assessment-related questions at least 24 hours before the assessment 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 working days, please try to meet me in person.

Grading

- Your grade for the semester will be determined from scores on cumulative final exam (30%), on the quizzes (45%), on LSQA test (10%), on homework assignments (5%), and on attendance (10%). **Cheating will not be tolerated and will be seriously treated.**
- If you miss a quiz or LSQA test with a valid documentation, you may make it up during my office hours on the following Wednesday or email me to make an appointment. Please note that (1) you can only make up **one** quiz, (2) you must have an acceptable document and (3) you need to make it up within **7** days of the missed quiz.
- If you believe that a paper was improperly graded, report to me right after the class you received your quiz paper. Delayed report will not be resolved. 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.

1. Cumulative Final Exam (30%)
 - (a) **TUESDAY, Apr 28th, 12:30 – 2:30pm**, location **TBA**.
 - (b) You may use TWO self-planned and self-handwritten two-sided 8.5" × 11" original sheets of notes.
 - (c) You need to bring a calculator and a pencil to write with.
 2. Quizzes (45%)
 - (a) There will four quizzes each worth 15% of your grade. The quizzes are NOT cumulative. The lowest quiz will be dropped.
 - (b) You will not be allowed to make-up or retake quizzes without a valid document.
 - (c) You need to bring a calculator and a pencil to write with.
 - (d) You may also bring one self-planned and self-handwritten two-sided 8.5" × 11" original sheet of notes for reference.
 3. LSQA (10%)
 - (a) STA 2122 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).
 - (b) You will not be allowed to make-up or retake LSQA test without a valid document.
 - (c) You need to bring a calculator and a pencil to write with.
 - (d) You may also bring one self-planned and self-handwritten two-sided 8.5" × 11" original sheet of notes for reference.
 4. Homework Assignments (5%)
 - (a) It will be assigned every Wednesday and will be due the next Wednesday. Late assignments will not be accepted.
 5. Attendance (10%)
 - (a) Attendance will be taken on first day of class. Absentees will automatically drop the class according to university policy.
 - (b) Attendance will be taken **randomly** throughout the semester.
 - (c) If you miss five or more classes without documents, you will not be able to get the 10 points. If you miss one and don't show me the documentation in time, you will miss 2 points on the final grade.
- Grade cutoffs will be established at the end of the course.

Average	Letter	Average	Letter	Average	Letter	Average	Letter	Average	Letter
		≥ 87%	B+	≥ 77%	C+	≥ 67%	D+		
≥ 93%	A	≥ 83%	B	≥ 73%	C	≥ 63%	D		
≥ 90%	A-	≥ 80%	B-	≥ 70%	C-	≥ 60%	D-	< 60%	F

Course Schedule

		Monday	Wednesday	Friday
Week 1	Jan 6 th –Jan 10 th	First Day Attendance	Summary Statistics	Summary Statistics
Week 2	Jan 13 th –Jan 17 th	Summary Statistics	Summary Statistics	Quiz 1
Week 3	Jan 20 th –Jan 24 th	No Classes - MLK Jr Day	Normal distribution	Normal distribution
Week 4	Jan 27 th –Jan 31 st	Normal distribution	Normal distribution	Central Limit Theorem
Week 5	Feb 3 rd –Feb 7 th	Central Limit Theorem	Central Limit Theorem	Quiz 2
Week 6	Feb 10 th –Feb 14 th	One Sample CI	One Sample CI	One Sample CI
Week 7	Feb 17 th –Feb 21 st	One Sample CI	One Sample HT	One Sample HT
Week 8	Feb 24 th –Feb 28 th	One Sample HT	One Sample HT	LSQA Test
Week 9	Mar 2 nd –Mar 6 th	One-way ANOVA	One-way ANOVA	One-way ANOVA
Week 10	Mar 9 th –Mar 13 th	Simple Linear Regression	Simple Linear Regression	Simple Linear Regression
Week 11	Mar 16 th –Mar 20 th	No Classes - Spring Break		
Week 12	Mar 23 rd –Mar 27 th	Multiple Linear Regression	Multiple Linear Regression	Quiz 3
Week 13	Mar 30 th –Apr 3 rd	Regression Inference	Regression Inference	Regression Inference
Week 14	Apr 6 th –Apr 10 th	Quiz 4	Chi-square tests	Chi-square tests
Week 15	Apr 13 th –Apr 17 th	Chi-square tests	Chi-square tests	Review
Week 16	Apr 20 th –Apr 24 th	Final Exam: TUESDAY, Apr 28th, 12:30 – 2:30 pm		

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.

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.

Missed Attendance Checks

Student who cannot attend the class when attendance check happens, tell TA before or within 24 hours after the class with acceptable document. Excused absences include documented illness, deaths in the family, documented crises, jury duty, religious holy days, and official University activities. Other situations will be considered on a case-by-case basis.

Missed Quizzes

Either drop or make up one quiz within one week or in advance. Students have one chance to make up missed quizzes and students should have an acceptable document. But students cannot retake a quiz. Other situations will be considered on a case-by-case basis.

Grading Appeal Policy

If you wish to appeal the grade for an individual assessment during the term, come to my office hours or email me to discuss the grade within one week after papers are returned to the class. If no complaints are voiced within that time frame, then it is assumed that the grade is accepted.

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 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.

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>)

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/>).

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/>