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Syllabus
Florida State University
Department of Statistics
STA 2122: Introduction to Applied Statistics
Section- 0029/0033
Spring 2019

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Course Information

Class meeting place & time:

Section	Venue	Days	Time
0029	HCB 217	Monday, Wednesday, Friday	1:25 PM - 2:15 PM
0033	HCB 217	Monday, Wednesday, Friday	2:30 AM - 3:20 PM

Final exam: Tuesday, April 30th at 3:00 PM - 5:00 PM.

Instructor: Pranay Tarafdar

e-mail: pt17@my.fsu.edu
Office: OSB 209H
Office hours: Monday 3:30 PM- 4:30 PM or **by appointment**.

Course Description

Prerequisite: A grade of "C-" or better in MAC 1105 College Algebra (or equivalent).
Credit hours: 3
Special Note: No credit given for STA 2122 if a grade of "C-" or better is earned in STA 2171, STA 3032 or QMB 3200.

The course covers Normal distributions, sampling variation, confidence intervals, hypothesis testing, one-way and two-way analysis of variance, correlation, simple and multiple regression, contingency tables and chi-square tests, non-parametric statistics.

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.

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.

Course Materials

Calculator: TI-84 or equivalent. You may not use your phone as a calculator on exams. You need to bring this calculator to each class meeting.
Course Website: Canvas is accessible through `https://my.fsu.edu` or at `https://fsu.instructure.com/`. Please check Canvas regularly for class notes, announcements, grades and other course materials.
Textbook: Introduction to the Practice of Statistics, 9th ed. 2017 by Moore McCabe Craig. (Optional).
Study Material: Lecture notes will be provided on-line. Any additional (or changes to) lecture notes/slides will be added on the Canvas website so it is important that you check daily for updates via announcements. You will be filling in the notes duting lectures, so you can choose to do this manually by printing the notes or on your laptop.
Software: Microsoft Excel or equivalent.

Grading

Pop-quizzes:
- There will be a total of 7 pop-quizzes each worth 8 points.
- 2 pop-quizzes with lowest scores will be dropped.
- You will not be allowed to make-up or retake pop-quizzes.
- Pop-quizzes are going to be closed note.
- Quizzes will NOT be cumulative.

Mid-terms:
- There will be a total of 2 mid-terms each worth 30 points.
- Exams will be closed note but you will be allowed to use ONE self-planned self-handwritten back-and-front $8\frac{1}{2}$" $\times$ 11" original sheet of notes.
- You must bring 2 sharpened pencils and one calculator. Under no circumstances you will be allowed to share a calculator with anyone (even if another student has already finished their exam).
- Make sure you arrive 5 minutes earlier as there will be random seating assignments.
- Mid-terms will NOT be cumulative.

Bonus points:
- You will have a chance to increase your score upto 10 points.
- This test will be taken towards the end of the semester.
- The paper will have only MCQs, having both single correct option and multiple correct options.
- It will be a closed note exam and you will NOT be allowed to use calculator or note sheet.

- The test is worth 10 points.
- Make sure you arrive 5 minutes earlier as there will be random seating assignments.
- Topics will be announced later.

Group project:
- Group project is worth 30 points.
- You will be assigned to a small group of 3-4 students. Instead of individual grading, points will be awarded for the performance of your entire group.
- You will have to analyze a statistical problem using the methodologies taught in the class and submit the final written report by April 26th. The goal of this project is to familiarize you with real world statistical analysis procedures.
- We will start working on the group project after first three weeks of class.
- There will be three different components of the project and you will have to submit reports for each component by its assigned deadline.

Project Component	*Deadline*	*Maximum points*
Group formation, data collection and proposal submission	February 15th	10
Data processing and initial data summarizing	March 8th	10
Data analysis and final cumulative report submission	April 26th	10

- You will be penalized 10% of maximum points per day for late submission for the first two components. Late submission is not allowed for the last component.
- Detailed instructions will be uploaded later on Canvas website and will be discussed in class.

Final exam:
- Final exam is worth 70 points.
- Final exam will be closed note but you will be allowed to use TWO self-planned self-handwritten back-and-front $8\frac{1}{2}$" $\times$ 11" original sheet of notes.
- You must bring 3 sharpened pencils and one calculator. Under no circumstances you will be allowed to share a calculator with anyone (even if another student has already finished their exam).
- Make sure you arrive 5 minutes earlier as there will be random seating assignments.
- Final exam will be cumulative.

Grade distribution:

Pop-quizzes	40
Mid-terms	60
Group project	30
Final exam	70
Bonus points	10
Total	210

Grading policy:

A : 186 or above	A- : 185 - 180	B+ : 179 - 174	B : 173 - 166
B- : 165 - 160	C+ : 159 - 154	C : 153 - 146	C- : 145 - 140
D+ : 139 - 134	D : 133 - 126	D- : 125 - 120	F: 119 or below

Round your overall course grade UP to the next higher whole number before matching it to a letter grade.

Course Policy

- You are strongly encouraged to participate in the discussion and ask questions anytime.
- Attendance is not mandatory but you are strongly encouraged to attend all the lectures. Attendance will be taken on the first day of class. Absentees will be dropped automatically according to the university policy.
- During pop-quizzes and the exams, if I believe that you or persons sitting near to you are engaging in academic dishonesty or have previously engaged in academic dishonesty, we will ask you to move to a different seat. This will be a subjective judgment on my part. In such situations you should move to the indicated seat as quickly and as quietly as possible in order to keep distraction to a minimum during testing.
- Please do not bring typed up sheets, electronically copy-pasted collages or hard-paper cut-and-pasted collages. Please do not bring cheat sheets provided by a tutor or tutoring agency, or any other person or organization.

Make-up Policy

- You can make up missed mid-term exams within two weeks and bonus point exam within one week by submitting proper documentation.
- You are not allowed to retake any exam.
- You are not allowed to make up pop-quizzes under any circumstance.

Grading Appeal Policy

During the course of the term, if you believe that a paper was improperly graded, make an appointment to come to my office within one week to see your paper and discuss it with me.

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.

Religious Holidays

Students shall, upon notifying their instructor within the first two weeks of the semester, be excused from class to observe a religious work-restricted holy day of their faith.

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,

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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 April** 26th.

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.

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/`).

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:

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Student Disability Resource Center
874 Traditions Way
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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/
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Tentative Pacing Schedule

	Monday	Wednesday	Friday
Week 1	Syllabus; Introduction		Summary Statistics
Week 2		Summary Statistics	
Week 3	No Classes- MLK Jr Day		Normal Distribution
Week 4	Normal Distribution		Central Limit Theorem
Week 5	Central Limit Theorem		Midterm 1
Week 6		One-sample Confidence Interval	
Week 7	One-sample Confidence Interval		One-sample Hypothesis Tests
Week 8	One-sample Hypothesis Tests		One-way ANOVA
Week 9		One-way ANOVA	
Week 10	Simple Linear Regression	Midterm 2	Simple Linear Regression
Week 11		No Classes- Spring Break	
Week 12	Simple Linear Regression		SLR Inference
Week 13		SLR Inference	
Week 14	Chi-square tests		Chi-square tests + Bonus-points test
Week 15	Chi-square tests		Review