
COURSE SYLLABUS
Math 338-05: Statistics Applied to Natural Sciences (4 units)
Course Numbers: 20608
Fall 2018

Instructor: Dr. HeeJeong Lim
Office: MH 182P
E-mail: Lim_Hee-Jeong@sccollege.edu
Phone: (657) 278 – 8506

Class Hour: TR 8:30 - 9:45 am (Classroom: MH 491)
Lab Hour: TR 10:00 - 10:50 am (Lab: MH 452)
Office Hour: TR 8:00 - 8:30 am & 11:00-11:30 am. Also by appointment.

Prerequisite: Math 130 or 150B or consent of instructor

Textbook: Custom Edition for CSUF - Introduction to the Practice of Statistics
by Moore, McCabe, Craig, 9th Edition. W. H. Freeman and Company.
ISBN-13: 9781319137533
Options: bookstore (looseleaf textbook), Macmillan Student Store (rent a hardcover at different durations, purchase an ebook at different durations)

Required in the Course

- **Calculator:** scientific calculator (TI83 or higher recommended) **Note:** For the tests and quizzes, cell phones or PDA calculators of any sort are forbidden. Sharing calculators is prohibited and unacceptable under any circumstances
- **Lecture Notes**: Print the notes and bring them to class. You are **NOT** allowed to use your l**aptop or iPad or any other electric devices** during the lecture time.
- **Software:** We will use statistical software **R** or **RStudio**.
- **Titanium:** The course will use the campus TITANium site for informational purposes. All handouts/solutions and grades will be posted on the Titanium

Course Description:

The basics are covered: what to look for when you plot data, what makes a good scientific study, how to interpret your results, what you can and cannot say based on your study design, is that claim of “clinically proven to enhance weight loss” correct. Students will gain an understanding of statistical principles and their use. Students will also gain experience in collecting data and learn how to summarize data using graphical and numerical techniques, apply basic probability rules and perform standard statistical analyses for one and two variables

Course Topics:

Descriptive Statistics; Statistical Measures; Scatter Plots; Correlation and Regression; Sampling Schemes, Probability and probability Models; Mean and Variance; The Normal and Binomial Distributions; Some Other Distributions; Sampling Distributions; Confidence Intervals; Tests of hypotheses, Comparing Two Means; Two-Way Tables (Contingency Tables), Multiple Linear Regression, ANOVA

Course Evaluation:

Exam 1	Exam 2	Final Exam	Lab	Project
25%	25%	30%	10%	10%
Oct 9 (Tue)	Nov 27 (Tue)	Dec 20 (Thu)		

1. Two Midterm Exams (25% each) and a Comprehensive Final Exam (30%)

- Each exam will contain some free response and some multiple choice problems.
- For free response questions. you must show your work or provide enough explanation to receive any partial credit. I will give zero if you don't show your work or if you don't explain when asked.

2. Lab Assignments (10%)

- Lab assignments are given in almost all lab sessions.
- For some lab assignments, you'll work a set of problems by hand and submit your hand-written work.
- Sometimes, you'll use software (R) to calculate statistics and/or draw plots. Your work must include the commands and theirs results from R. You must type your answers and submit it online (Titanium).
- If you are not present in the lab, a zero will be given for the lab. You must stay for the entire lab session, unless you finish and submit it.
- You may request one make-up lab assignment before the due date.

3. Homework and Project (10%)

- Homework are assigned from the textbook, but not collected for grading,
- There are some projects throughout the semester and you'll use R/RStudio for projects. We'll discuss in class.

Grading Scale: Your final letter grade will be determined from your course percentage by the table below

A+ 98%-100%	B+ 88%-89%	C+ 77%-79%	F 0%-59%
A 93%-97%	B 83%-87%	C 68%-76%	
A- 90%-92%	B- 80%-82%	D 60%-67%	

Note: A grade of "C" (2.0) or better is required to meet the GE requirement.

<< Example of Grade Calculation >> This student would earn a C.

Category	Score in Percent	Category Weight	Contribution to Course Percentage
Midterm Exam 1	45	25%	50 × 25% = 12.5%
Midterm Exam 2	75	25%	70 × 25% = 17.5%
Final Exam	70	30%	70 × 30% = 21%
Lab	90	10%	90 × 10% = 9%
Project	80	10%	90 × 10% = 9%
Course Percentage: 12.5% + 17.5% + 21% + 9% + 8% = 69%			

Math Department ADD/DROP Dates

- **Sep 11 (Tue):** Last day for students to ADD with a permit. All permits expire at midnight on September 11
- **Sep 11 (Tue):** Last day for students to DROP without a grade of "W". Students drop using Titan Online
- **Oct 5 (Fri):** Last day the Math Department will be flexible on the approval of late withdrawal requests. Beginning Monday, September 24, students must have a serious and compelling reason for withdrawing (e.g. medical reason) and must provide supporting documentation for their reason
- **Nov 15 (Thu):** Last day to withdraw with a truly and compelling reason that is clearly beyond the student's control. Students must document their reason.

Classroom Rules of Conduct

- There should be no talking, sleeping, reading unrelated material, use of cell phones, mp3 players, or ridiculing fellow students during the class discussion. Any student who persists in this will be asked to leave the class.
- Have cellular phones, pagers, music players deactivated at all times.

Tutoring: Opportunity Center for Science and Mathematics Students (OCSAMS)
Location: MH 488
Hours: Mon-Thu 8:00 a.m.-7:00 p.m.; Fri 8:00 a.m.-5:00 p.m.

Disability Support Services (DSS)

During the first week of classes, inform me of any disabilities or special needs that you have that may require special arrangements related to attending class sessions, carrying out writing assignments or service learning component, or taking examinations. Students with disabilities may receive assistance and support services through the Disability Support Service Office, UH-101, 657-278-3117, www.fullerton.edu/disabledservices

Academic Integrity

Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. (see http://hhd.fullerton.edu/MSW/documents/StudentHandbook.pdf).

Examples of actions that constitute academic dishonesty include, but are not limited to:

- **Unacceptable examination behavior** – communicating with fellow students, copying material from another student's exam or allowing another student to copy from an exam, possessing or using unauthorized materials, or any behavior that defeats the intent of an exam
- **Unauthorized collaboration** on a project, homework or other assignment
- **Plagiarism** – taking the work of another and offering it as one's own without giving credit to that source, whether that material is paraphrased or copied in verbatim or near-verbatim form
- **Documentary falsification** including forgery, altering of campus documents or records, tampering with grading procedures, fabricating lab assignments, or altering medical excuses

Learning Goals for the General Education Category:

This course achieves all of the general education learning goals of category III A.1 of the Mathematics Department. This course achieves all of the general education learning goals in this category.

- To understand and appreciate the varied ways in which mathematics is used in problem-solving
- To understand and appreciate the varied applications of mathematics to real-world problems
- To perform appropriate numerical calculations, with knowledge of the underlying mathematics, and draw conclusions from the results
- To demonstrate knowledge of fundamental mathematical concepts, symbols, and principles
- To solve problems that requires mathematical analysis and quantitative reasoning
- To summarize and present mathematical information with graphs and other forms that enhance comprehension
- To utilize inductive and deductive mathematical reasoning skills in finding solutions, and be able to explain how these skills were used
- To explain the overall process and the particular steps by which a mathematical problem is solved
- To demonstrate a sense of mastery and confidence in the ability to solve problems that requires mathematical concepts and quantitative reasoning

Two broad goals of the course are to provide students an appreciation of the very important role of the field of statistics in empirical research, and to teach students to use some useful statistical methods in empirical research. Particular goals of the course are

- To learn basic techniques for exploring and describing data sets
- To understand and appreciate the importance of how data are produced and the difference between experimental and non-experimental studies
- To learn basic inferential methods, understand why they work, and appreciate their basic theoretical properties
- To learn use of a statistical software, such as R (Rstudio)

Emergency Evacuation: In the event of an emergency such as earthquake or fire:

- Take all your personal belongings and leave the classroom. Use the stairways located at the east, west, or center of the building.
- Do not use the elevator. They may not be working once the alarm sounds.
- Go to the lawn area towards Nutwood Avenue. Stay with class members for further instruction.
- For additional information on exits, fire alarms and telephones, **Building Evacuation Maps** are located near each elevator.
- Anyone who may have difficulty evacuating the building, please see the instructor.