MATH 2265 Statistics with Applications; Fall 2020

Instructor: Dr. Hani Aldirawi
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Lectures: MW 1:00 – 2:15 pm
Office Hours: T 11:30am – 1:00pm, W 2:15 – 3:00pm, and by appointment.

Prerequisites: MATH 120 or co-requisite MATH 211.

Textbook: No textbook is required for this course. Class notes and homework assignments may be found on Blackboard. You are encouraged to use the following books as reference:

- Free e-book at OpenStaxs: Introductory Statistics
  `http://cnx.org/content/col11562/1.18`
- Probability and Statistics for Engineering and the Sciences, Jay L. Devore, 9th Edition, ISBN-13: 978-1305251809. The ISBN for a loose leaf copy is 9780357007006 and is available for purchase at the bookstore. If you already have a Cengage Subscription, you do not need to purchase anything additional. You can just load the book onto your bookshelf. Older editions of the book are available online.

Calculator: Each student will need a statistics calculator. A low-end calculator such as the TI-30 costs less than $20. A graphing calculator such as TI 83 or TI 84 is very useful.

Course Description: This course is designed to teach basic concepts of probability and statistics. Descriptive statistics, and data summary. Important probability models such as the binomial and normal. An introduction to linear regression models. Statistical procedures, particularly in relation to estimation, hypothesis testing and computations using **R** (a free software environment for statistical computing and graphics)

Mathematics Department Student Learning Outcomes: Upon successful completion of this course, students will be able to meet the expectation of several of the Math Departments SLOs:
SLO 1.2 Students will make connections between mathematical ideas verbally, numerically, analytically, visually, and graphically.
SLO 2.2 Students will calculate efficiently, flexibly, and with appropriate accuracy.
SLO 3.3 Students will explain and justify solutions using a variety of representations.
SLO 3.5 Students will be able to evaluate reasonableness of proposed results using estimation and context.

Course Requirements:

Written Homework:

- Homeworks will be assigned every Monday and due the following Monday, unless noted. Problems will be posted on Blackboard.
- Due on the due date by ***11:59 PM***. The lowest two homework scores will be dropped.
- **No late homework will be accepted. Copying solutions directly from the solution manual will not be tolerated**, and will result in a zero for the homework assignment.

- Homework will be submitted via Gradescope. Details below.

Gradescope Homework Uploads:

- At the beginning of the semester, you have already registered you for Gradescope `https://gradescope.com`. You should have received an email from them asking you to set your password. The email address used is your CSUSB email address.
- Log-in to Gradescope using your CSUSB email address.
- Read the Gradescope Submitting Homework Guide (found on Blackboard). You may use your phone to scan in homework.
- Notes:
  - You may only submit 1 PDF file or a series of pictures (linked to the correct problem).
  - To merge multiple PDFs together: `https://www.ilovepdf.com/merge_pdf`
  - To convert JPG files to PDF: `https://www.ilovepdf.com/jpg_to_pdf`
  - You can overwrite an uploaded file if you submitted the incorrect one. At the bottom right corner, click on "Resubmit" and you can change the file(s) that you uploaded.
  - **Problems not correctly linked will not be graded.**

R Projects:
R is a programming language and free software environment for statistical computing and graphics. There will be **Three** projects over the concepts submitted throughout the semester. You should start the project at least a week before they are due so that you can receive help with them if needed.

Exams:

- There will be a total of two midterm exams during the regular class meeting, and one (non comprehensive) final exam.
- Cheating on exams typically results in disciplinary procedures, up to expulsion from the university.
- If you have a **valid** excuse for missing a midterm let me know in advance. In case you are ill on the day of a midterm, give a written evidence/explanation of your absence (e.g. doctor's notes) to me upon returning to class. There will be **no make up exams**. If your excuse is valid with a written document, the missing exam will be rescheduled. Otherwise it counts as zero.

Format of All Exams: Each exam is based on the homework and the examples discussed in class. The last class session before each exam is a review session. Please prepare any questions that you may have

Tentative Exam Dates

- Exam I: Wednesday, September 23
- Exam II: Wednesday, November 04
- Exam III: TBD

Grading:

Midterm I: 20 Points	Written Homework: 25
Midterm II: 20 Points	R Projects: 15 points
Midterm III: 20 Points	**Total=100 Points**

Grades will be assigned according to the following rule. We reserve the right to make adjustments to the overall grading policy.

Total Score	Letter Grade
93–100	A
90–93	A^-
87–90	B^+
83–87	B
80–83	B^-
77–80	C^+
73–77	C
70–73	C^-
67–70	D^+
63–67	D
60–63	D^-
< 60	F

Extra credit: (Up to 5 points) You may receive up to a maximum of 5 points from the in-class activities and/or bonus quizzes. These points will be added to your total score. Example: Let's say your total score is 88 which means that your letter grade is a B+. If, for example, you have 3 points of extra credit, they will be added to your total score and you will have 91 points, now giving you A-.

Plagiarism and Cheating: The Policy and Procedures Concerning Academic Dishonesty states: Plagiarism and cheating are violations of the Student Discipline Code (see Appendix of the CSUSB Catalogue of Programs) and may be dealt with by both the instructor and the Judicial Affairs Officer. Plagiarism is the act of presenting the ideas and writings of another as one's own. Cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive or fraudulent means. Plagiarism is academically dishonest and makes the offending student liable to penalties up to and including expulsion. Students must make appropriate acknowledgments of the original source where material written or complies by another is used. Questions about academic dishonesty and the policy should be addressed to the Office of the Vice President, Student Affairs.

Commitment to Diversity: In our commitment to the furthering of knowledge and fulfilling our educational mission, California State University, San Bernardino seeks a campus climate that welcomes, celebrates, and promotes respect for the entire variety of human experience. In our commitment to diversity, we welcome people from all backgrounds and we seek to include knowledge and values from many cultures in the curriculum and extra-curricular life of the campus community. Dimensions of diversity shall include, but are not limited to, the following: race, ethnicity, religious belief, sexual orientation, sex/gender, disability, socioeconomic status, cultural orientation, national origin, and age. (from the CSU San Bernardino University Diversity Committee Statement of Commitment to Diversity, 1995).

Students with Disabilities: In this mathematics course, accommodations are managed between the instructor, student, and the Office of Services to Students with Disabilities(SSD). If you are in need of an accommodation for this class, please see the instructor and contact SSD at (909) 537-5238.

Emergency management and safety guidelines: All CSUSB students, faculty, and staffare expected to be familiar with basic emergency protocols and what to do in the event of a disaster on campus. For information regarding emergency management and safety guidelines please visit: https://www.csusb.edu/emergency-management/preparedness/preparedness-reference-guide.

Academic Deadlines
Current academic calendar and the list of deadlines can be found at `https://www.csusb.edu/academic-programs/academic-calendars`

Tentative Course Schedule

Week	Covering Section
1 08/24/2020	Section 1.1: What is Statistics? Section 2.1: Frequency Distributions, and Histogram
2 08/31/2020	Section 2.2: Bar Graphs + **R** introduction Section 3.1: Measures of Central Tendency
3 09/07/2020	Section 3.2: Measures of Variation Section 3.3: Percentiles and Box-and-Whisker Plots
4 09/14/2020	Section 4.1: Simple Linear Regression Models
5 09/21/19	Exam Review **Midterm Exam 1**
6 09/28/2020	Section 5.1: Sample Space and Events Section 5.2: Probability of an Event and Probability Properties
7 10/05/2020	Section 5.3: Counting Techniques Section 5.4: Conditional Probability
8 10/12/2020	Section 5.5: Bay's Rule Section 5.6: Independence
9 10/19/2020	Section 6.1: Random Variable Section 6.2: Discrete vs. Continuous Random Variables
10 10/26/2020	Section 6.3: Expected Value & Variance of Discrete Random Variables Section 6.4: Binomial Distribution
11 11/02/19	Exam Review **Midterm Exam 1**
12 11/09/2020	Section 7.1: Normal Distribution
13 11/16/2020	Section 7.2: Central Limit Theorem Section 7.3: t Distribution
14 11/23/2020	Section 8.1: CI for 1 Mean Section 8.2: CI for Population Proportion
15 11/30/19	Section 9.1: HT for Population Mean Section 9.2: HT for Population Proportion
16 12/07/2020	**Final Exam (covers week 12–week 15)**