**Berkeley City College   Fall 2022**
**Mathematics 13+213      Introduction to Statistics     Code: 40426+388 [40377+87], 6 units**
**Syllabus**

**Instructor:**   Shawn McDougal                          **E-mail:**        smcdougal@peralta.edu

**Class Meeting Days/Times:** MW 5:30-8:20 [TTh 2:30-5:20]        **Location:** Room 321
**Office Hours:** MW 3-4pm, TTh 12:30-1:30pm (+ by appointment); online
**Prerequisites:** Math 203, or placement through assessment

**Textbook:** Fundamentals of Statistics, by Michael Sullivan III. (5th edition)

**Materials**: You should obtain a scientific calculator. Access to a graphing utility for some of
homework problems is encouraged but not required.

**Catalog Description**
Introduction to theory and practice of statistics: Collecting data: Sampling, observational and
experimental studies. Organizing data: Univariate and bivariate tables and graphs, histograms.
Describing data: Measures of location, spread, and correlation. Theory: Probability, random variables;
binomial and normal distributions. Drawing conclusions from data: Confidence intervals, hypothesis
testing, z-tests, t-tests, and chi-square tests; one-way analysis of variance. Regression and
nonparametric methods.

**Class format**
Our typical class will be a mix of lectures clarifying and expanding upon the points raised in the book
and the videos, hands-on problem-solving sessions, solution presentations (from students as well as
me), and open discussion. A portion of the class will be "workshop"—you will be working on
problems individually or in groups as I go around helping as needed. In addition to providing feedback
and guidance, I will often ask you to talk through the problems or ideas with other students. Talking
through your ideas with others is a good way to 1) test and refine your ideas, 2) learn multiple ways of
thinking about a concept or solving a problem, and 3) practice putting the ideas in your own words.

**Self-intros**
Every day (until all have had a turn) several students will get a chance to briefly introduce themselves
to the class. "Briefly" meaning 30 sec.-1 min. This will allow all of us to get to know a bit about each
other. When you do your self-intro, include a response to *one* of the following prompts:
  • An experience you had after age 12 that really shaped who you are or how you think
  • If you could, what is one thing you would change about society?
  • An idea/concept that is not very widely known that you find especially useful or interesting

**Grading Allotment** (400 points = 100% for the course)

|                      | points each | total points | total % | notes                       |
| -------------------- | ----------- | ------------ | ------- | --------------------------- |
| Check-ins (30)       | 2           | 60           | 15%     | two different days per week |
| Solution Share (2)   | 20          | 40           | 10%     |                             |
| Quizzes (6-7 keep 5) | 40          | 200          | 50%     |                             |
| Final                | 100         | 100          | 25%     |                             |

**Grading Scale** A: 90–100%, B: 70–89%, C: 50–69%, D: 30–49%. F: Below 30%

**Homework**
For each section that we cover in the book I provide a list of suggested homework (HW) problems to guide your study. We'll have time to discuss the problems in class, as needed, but I won't collect or grade the HW. Doing the HW problems is key to mastering the concepts and skills in the course. Typically, students should expect to spend 6-8 hours per week outside of class studying, a big part of this being HW.

**Quizzes**
There will be a quiz about every two weeks, starting in Week 2. Usually W [Th] unless otherwise announced. Each quiz will cover all of the material since the previous quiz. (Usually 4 class days' worth of material.) There will be 6 or 7 quizzes altogether (depending on how the course pacing works out). Each quiz is worth 40 points (i.e. 10% of the course total). There are no make-ups. Instead, you get free passes: I will drop your lowest 1 or 2 quiz scores, so only your best 5 quiz scores will count. The quizzes will be mostly based on the HW problems and the exercises we cover in class.

**Final Exam**
The Final Exam will take place during class on Monday 12/12 [Tuesday 12/13]. It will cover all of the material of the course. Most of the problems will be ones you have already seen on the quizzes. It's worth 100 points (25% of the course total).

**Canvas Check-ins**
Twice per week throughout the semester you are expected to write a Canvas *Check-in*. The purpose of the Check-ins is to 1) encourage folk to discuss the material outside of class, 2) let me know which concepts I most need to clarify in class, and 3) build community among students.

For full credit, the two Check-ins must be 1) posted before the start of the next week--by Sunday 11:59pm [Monday 11:59pm]--in the appropriate weekly forum, 2) posted on 2 different days, 3) be about the topics covered in class or the book that week, and 4) be a *useful* question, comment, or response to someone else's question. (By "useful" I mean thoughtful and helpful in promoting conversation about the math. It doesn't have to be correct.) Some examples:
- *not-so-useful questions:* "I don't get problem X." or "Please do problem X for me."
- *useful question:* "On problem X I tried [STEPS] because [REASONS] but got stuck. What am I missing?"
- *not-so-useful comment:* "I like method X."
- *useful comment:* "I like method X more than Y because [REASONS]"
- *not-so-useful response:* "I agree."
- *useful response:* "I agree. Also, Method Y uses Theorem W, which I don't really get."

In general, a credit-worthy post will involve you sharing your own thought process/rationale.

Some examples of the kinds of posts that *won't* get full credit (even if they're reasonable things to do):
a. merely restating what someone else already said, without substantially adding anything
b. "out-of-the-blue" answers: e.g. posting a solution or resource that no one has asked about, without explaining why you find it interesting or relevant
c. "context-free" questions: e.g. asking people to check if something is correct, without providing your own thinking about it or explaining why you're not sure/what part you need help with
d. requiring people to open a separate file/link in order to read your question/comment
e. posts that aren't directly about the topics we're covering: e.g. "What will be on the quiz?" (this may be a reasonable question but wouldn't count for credit)

You are welcome to participate frequently in the Canvas discussions, though you will get credit for at most two Check-ins per week. Each Check-in is worth 2 points, so each week is 4 points (1%). If you do more than 15 weeks' worth, I will keep your best 15 scores.

**Solution Shares**
I want students to learn from each other, take time to think through challenging problems, and improve their presentation skills. Twice during the term, you will present your solution to a problem from the Suggested HW list. Each such *Solution Share* (SS) is worth 20 points (i.e. 5% of the course total). The problems that you may do for your SS are specially designated in the Suggested HW list. Grading will be based on clarity, correctness, organization, and timing. (A rubric will be provided.) The problems you do can't both be from the same section in the book, and a given problem cannot be presented more than once. The presentation of a SS from a given section must be within 2 class meetings after we have covered that section in class. (You must do your first SS before the end of W9, otherwise it will be worth only half credit.)

**Weekly Schedule (approximate)**

| Week of... | Sections | Week of... | Sections |
|---|---|---|---|
| 8/22 | 1.1-5 | 10/17 (no W) | 8.1 |
| 8/29 | 2.1-3.1; Quiz 1 | 10/24 | 8.2; Quiz 5 |
| 9/5 (no M) | 3.2-5 | 10/31 | 9.1-2 |
| 9/12 | 5.1-2; Quiz 2 | 11/7 | 10.1-3; Quiz 6 |
| 9/19 | 5.3-4 | 11/14 | 11.1-2 |
| 9/26 | 5.4-5; Quiz 3 | 11/21 (no Th) | 11.3 |
| 10/3 | 6.1-2 | 11/28 | 4.4, 12.1-2; Quiz 7 |
| 10/10--W8 | 7.1-4; Quiz 4 | 12/5 | 12.2; 4.1-3 |
| Final Exam: M 12/12 [T 12/13] (during class) | | | |

**Important Dates (from Peralta Fall 2022 Academic Calendar)**
Aug. 28 – Last day to add (without permission number or add card)
Sep. 5 – Last day to drop (without a "W") and get a refund; last day to add (with permission number)
Sep. 5 – Last day to add (with permission number)
Sep. 5 – Holiday
Sep. 9 – Last day to file for P/NP grading option for regular session classes
Oct. 14 – Last day to file petitions for AA or AS degree/certificate
Oct. 19 – No classes (Professional Day)
Nov. 18 – Last day to drop with "W"
Nov. 24 – Holiday

**Attendance**
Students who miss more than 2 consecutive classes without contacting me to explain their absences may be dropped from the course. Anyone who misses the first 2 class meetings may be dropped. Still, do not assume that I will automatically drop you if you merely stop attending class. Anyone whose name appears on the final grade roster who has not been attending class will receive an F.

**Academic Honesty**

Any evidence of cheating on an exam or quiz will result in a score of zero (0), and may incur further penalties. Cheating includes but is not limited to bringing notes or written or electronic materials into an exam or quiz, copying off of another person's exam or quiz, allowing someone to copy off of your exam or quiz, and having someone take an exam or quiz for you.

**General Information/Expectations**
- For personal questions (e.g., about your grade), email me or talk to me in office hours.
- For general questions about the course—e.g., if you missed a class or want to know what will be on the quiz—do NOT email me. I almost never answer questions about the course over email. (One: I don't want to be swamped with emails. Two: I prefer to answer a question once rather than multiple times.) To get your questions answered by me and/or your peers, and to help students share ideas and build community with each other, you should post your general questions in the *forums* on Canvas.

**Justification for Course**

Satisfies the General Education and Analytical Thinking requirement for Associate Degrees. Provides foundation for more advanced study in mathematics and related fields. Satisfies the Quantitative Reasoning component required for transfer to UC, CSUC, and some independent four-year institutions. Acceptable for credit: CSU, UC. AA/AS area 4b, CSU area B4, IGETC area 2A.

**Student Learning Outcomes (General)**

At the end of the course students will be able to:
1. represent relevant information in various mathematical or algorithmic forms.
2. calculate accurately and comprehensively.
3. interpret information presented in mathematical or algorithmic forms.
4. draw appropriate conclusions based on the quantitative analysis of data, while recognizing the limits of this analysis.
5. explain quantitative evidence and analysis.

**Student Health and Wellness**

Students are required to pay the Student Health fee of $18.00 per semester for fall and spring semesters ($15 for summer session). This fee is collected at the time of enrollment. The health fee covers low-cost health, mental health and wellness services on campus at: 2000 Center St., Suite 100.

**Disabilities Statement**

Berkeley City College is committed to providing reasonable accommodations for all individuals with disabilities. Any student with a documented disability needing academic accommodations is requested to speak with Programs & Services for Students with Disabilities (PSSD), located in Room 261 and the instructor as early in the semester as possible. I encourage any student who suspect they may have a learning disability to contact PSSD for assistance. They can be reached by phone at (510) 981-2812 or 2813. All conversations will remain confidential. The syllabus and course material can be made available in alternate formats upon request.