

MATH 115: STATISTICS

Spring 2013

Instructor: Tom Beran
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Office: Kupa'a 112
Office Hours: T/Th 12:30-2
or by appointment

- **Text:** Larson, R. and Farber, B. (2011). Elementary Statistics, 5th
- Edition. Pearson Publishing. Textbook ISBN-13: ISBN: 9781256080619
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Course ID: **beran84197**

*I've worked with the Pearson folks to get the least expensive price for the text, homework, and analysis program that we'll need this semester. The MCC Bookstore has ordered the text in a three-ring notebook format, and it's packaged with MyStatLab (on-line homework) and StatCrunch (a statistical analysis program) – for a special price. It's unlikely that you'll be able to get the text, the MyStatLab code, and StatCrunch packaged together (or secured separately) less expensively.

A Couple Requirements, Key Pieces of Information Regarding the Final and Homework and Quizzes, and a Few Words from Your Instructor:

A Couple Requirements:

The text book package (ASAP), and you to ask questions when you don't understand.

A Key Piece of Information Regarding the Final:

Students will have to earn at least a 60% on the final to pass the course. The final comes in two parts – the take-home portion and the proctored portion (in your home school's learning center).

A Key Piece of Information Regarding the Homework and Quizzes:

MyStatLab is the venue through which Homework is completed. Stay on top of the assignments (the sections are noted on the schedule). When registering in MyStatLab, you'll need your access code and the course ID, **beran84197**.

Students must complete each section's homework with 75% proficiency, before they'll be able to take the quiz. That is, the system will keep giving you similar problems until you get 75% of them correct. Homework will account for 15-20% of your grade.

Important Information

Usual Procedure for the class: Generally, after lecture, you'll look under the Resources page (at our Laulima site) for assignments, review materials, power point slides from lecture, and any extra practice problems. I emphasize the types of problems that I expect you to emphasize - and the types I'll emphasize on the quizzes and tests. The Quizzes are always a mixture of class material and MyStatLab. If you have any questions, ask in class, email me, or call me. If you email me during class time, I'll answer your question live on cable (since my emails come into my phone).

Grading: Grades will be based on scores achieved on a series of quizzes and tests. The tests and quizzes will consist of questions designed to judge the level of mastery of text material. Emphasize the types of problems that I emphasize in the Modules page on Laulima, and you should be fine. Further, grades will be based on the number of acquired points, divided by the number of points possible, using the standard "90 – 100% = A" grading scale.

Quizzes: Quizzes have a value of 10 points each. Each quiz will cover the material from the section noted on the Schedule. Quizzes can be found under the "Tasks, Tests, and Surveys" page on Laulima.

Tests: There will be 2 cumulative Final Exams, and 1 proctored midterm. Each will be worth 50 points. There will be a Take-Home Final Exam and an in-class Midterm and Final Exam. The in-class final will be held in class or proctored in your home school's learning Center. You'll have to show ID, you can have access to StatCrunch, tables, and one page of notes (front and back, with only formulas and StatCrunch steps – no completed problems), and you'll have to pass the final with at least a 60% in order to pass the class (regardless of previous passing scores).

Communication with the Instructor: You can always call my office – during office hours or to leave a message. If leaving a message, be sure to leave a number and time when I can reach you. However, I'm not in the office much.

Email is ALWAYS the best way to reach me, as I check it often. Some students might have a quick question (that can be transmitted through the internet). If so, you can email me through the Laulima/UH email system itself. I check my mail often. You're assured of a speedy response. Be sure to **PUT MATH 115 in the subject box.**

How You're Doing in the Class: Laulima is designed to allow students access to their scores, after taking quizzes or tests. You can also look over your quizzes to examine any mistakes. You'll be prompted when new scores are available on your home page of Laulima.

Learner Outcomes

Students will

1. Explain the impact of statistics in various professional fields.
2. Distinguish between descriptive statistics and inferential statistics
3. Describe the various methods of displaying and organizing data.
4. Define basic statistical terms.
5. Distinguish between qualitative and categorical data and quantitative (discrete and continuous) data.
6. Differentiate various sampling techniques.
7. Compute measures of central tendency and describe the impact of their numerical values on skew.
8. Interpret a frequency histogram and polygon, scatter plot, and stem plot (stem and leaf) graphs.
9. Discuss the five number summary for a set of data.
10. Compute and interpret the values of the sum of squares, variance, and standard deviation for a set of data.
11. Recognize the shape and importance of normal curves and be able to calculate proportions/areas from such curves using standardized scores and the z score table.
12. Find the corresponding raw score in distribution based on a given z score, mean, and standard deviation.
13. Interpret the magnitude/strength and direction of a linear correlation coefficient.
14. Give the equation of the least squares regression line and use it to make predictions.
15. Use the rules of probability that apply to simple and compound events.
16. Generate probabilities (allowing for the impact of mutual exclusivity).
17. Relate the concepts of probability to the normal curve and the interpretation of inferential statistics.
18. Find probabilities using a sampling distribution.
19. Discuss various random sampling techniques.

20. Differentiate between random sampling/selection and random assignment.
21. Differentiate between normal and sampling distributions.
22. Discuss the concept of the distribution of sample means.
23. Define the standard error of the mean.
24. State in non-technical language the meaning of a confidence interval and the margin of error.
25. Discuss the concept of central limit theorem.
26. Conduct and interpret a z test.
27. Identify and define the key terms in hypothesis testing.
28. Differentiate between the research and null hypotheses.
29. Discuss the impact of the alpha and beta regions in hypothesis testing.
30. Distinguish between sample statistics and population parameters.
31. Explain the concepts of statistical confidence, power, and the impact of type I and type II errors.
32. Differentiate between the concepts of levels of confidence, interval estimate, confidence interval, and significance level.
33. Conduct a single sample, independent samples, and correlated/dependent pair t-test.
34. Calculate a confidence interval for the proportion of a population, the mean of a population, matched paired data, and the difference between two means.

Important: Email me or call me, if you have any trouble. Don't wait until "crunch time".

Disability Statement:

Reasonable accommodations will be provided for students with documented physical, sensory, systemic, cognitive, learning and psychiatric disabilities. If you believe you have a disability requiring accommodations, please notify Lisa Deneen - Disabilities Coordinator at 984-3227 or Telecommunication Device for the Deaf (TDD) 984-3325 or the Text Telephone (TT) replay service at 643-8833. The Disabilities Coordinator will verify your disability and provide the course instructor with recommendations for appropriate accommodations.