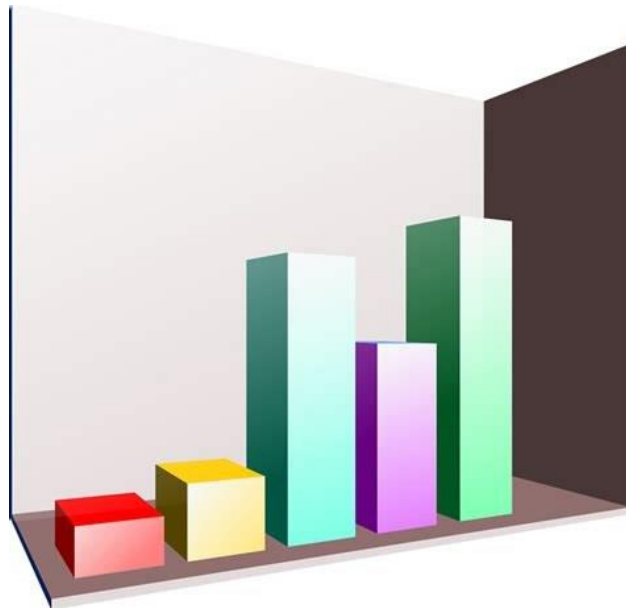




Math 160/60 Spring 2023



1 - M W: 6:00 - 7:50 PM

1/30/2023 - 6/5/2023

Location: Techconnect Zoom

Our class supports and encourages a collaborative learning environment in which students and the instructor work as a team to create a rewarding experience and in order for students to succeed.

I am here to help you! So please always feel free to reach out and talk to me. If you have questions concerning any assignment, please contact me by email. I will do my best to return any emails within 48 hours.

About Your Instructor

Instructor: Mitra Ahsan

- contacting me via Canvas Inbox (preferred method of contact) or
- Email: mitra.ahsan@gcccd.edu¹

Student Hours

Student Hours: M W: 8 - 9 PM, or by appointment

Location: Techconnect Zoom

Entrance Skills

Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed:

- 1) Working with Algebraic Expressions:
 - Simplify and evaluate algebraic expressions
 - Have a thorough understanding of order of operations
 - Understand and use essential terminology
 - Evaluate equations written in function notation
1. Graphing:
 - a. Plot points in the X-Y plane
 - b. Graph the equation of a line
 - c. Write the equation of a line given its slope and y-intercept
 - d. Interpret graphical representations such as points and lines
- 3) Solving:
 - Solve formulas for a specific variable
 - Evaluate formulas with multiple independent variables

¹<mailto:mitra.ahsan@gcccd.edu>

- Solve real-world problems using problem-solving strategies and techniques
- 4) Radicals and Exponents:
- Simplify radical expressions using the basic operations
 - Simplify and evaluate expressions involving integer exponents
 - Use scientific notation

Course Content

1. Summarizing data graphically and numerically
2. Descriptive statistics: measures of central tendency, variation, relative position, and levels/scales of measurement
3. Sample spaces and probability
4. Random variables and expected value
5. Sampling and sampling distributions
6. Discrete distributions – Binomial
7. Continuous distributions – Normal
8. The Central Limit Theorem
9. Estimation and confidence intervals
10. Hypothesis Testing and inference, including t-tests for one and two populations, and Chi-square test
11. Correlation and linear regression and analysis of variance (ANOVA)
12. Applications using data from disciplines including business, social sciences, psychology, life science, health science, and education
13. Use of Statistical software such as Stat Crunch to summarize and analyze data and produce and interpret graphs and charts

Cuyamaca Cares Emergency Fund²

Cuyamaca Student Affairs³

Required Material



*Textbook: In lieu of a textbook we will use Stanford's Open Learning Initiative (OLI) course materials with interactive reading which are already **on** our Canvas course for FREE.*

StatCrunch: Instruction for how to register for Stat Crunch is posted in Module 1.

Desmos Online Graphing Calculator⁴

Desmos Online Scientific Calculator⁵

²<https://www.cuyamaca.edu/student-support/cuyamaca-cares/index.php>

³<https://www.cuyamaca.edu/student-support/student-affairs/index.php>

⁴<https://www.desmos.com/calculator>

⁵<https://www.desmos.com/scientific>

Free Office 365⁶



Email Web Access⁷



Interactive Reading on Canvas

Much of your homework will be completed through the interactive reading assignments on Canvas. Interactive reading includes short quizzes and discussion boards focused around reading passages.

I will drop your four lowest scores from this category.

⁶<https://www.microsoft.com/en-us/education/products/office?tab=teachers?tab=teachers>

⁷<https://www.gccd.edu/it/help-desk/email/default.html>

Module Checkpoints on Canvas

At the end of each Module in Canvas, you will have a Module Checkpoint. Think of these checkpoints as take-home quizzes that you complete online. To accommodate any technical difficulties, you are allowed three attempts on each Module Checkpoint.

I will drop your two lowest scores from this category.

Unit Checkpoints on Canvas

Modules are organized into units on Canvas. After every three or four modules, you will have a Unit Checkpoint on Canvas. Think of these checkpoints as take-home exams that you complete online.

I will drop your single lowest score from this category.

Labs & Other Assignments

Additional assignments will include StatCrunch labs (completed on StatCrunch and Canvas), in-class group work, pop quizzes, and other activities.

I will drop your two lowest scores from this category.

Final Exam

A comprehensive final exam will be given at the end of the course. The final exam is mandatory and may not be dropped.

Cuyamaca Tutoring Online!⁸



⁸<https://www.cuyamaca.edu/student-support/tutoring-center/index.php>

Course Objectives

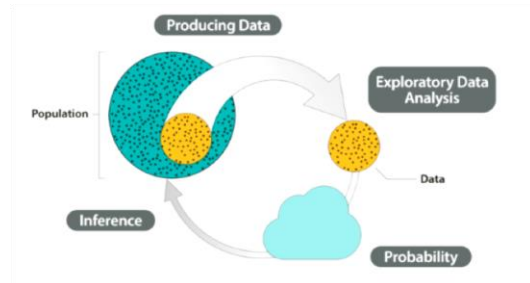


Student will be able to:

1. Distinguish among different scales of measurement and their implications.
2. Interpret data displayed in tables and graphically.
3. Apply concepts of sample space and probability.
4. Calculate measures of central tendency and variation for a given data set.
5. Identify the standard methods of obtaining data and identify advantages and disadvantages of each.
6. Collect data using various methods and input scores into statistical software such as SPSS for analysis.
7. Calculate the mean and variance of a discrete distribution.
8. Calculate probabilities using normal and student's t-distributions.
9. Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem.
10. Construct and interpret confidence intervals.
11. Determine and interpret levels of statistical significance including p-values.
12. Interpret the output of a technology-based statistical analysis.
13. Identify the basic concept of hypothesis testing including Type I and II errors.
14. Formulate hypothesis tests involving samples from one and two populations.
15. Select the appropriate technique for testing a hypothesis and interpret the result.
16. Use linear regression and ANOVA analysis for estimation and inference, and interpret the associated statistics; and

17. Use appropriate statistical techniques to analyze and interpret applications based on data from disciplines including business, social sciences, psychology, life science, health science, and education

Course Description



Course Description

The use of probability techniques, hypothesis testing, and predictive techniques to facilitate decision-making. Topics include descriptive statistics; probability and sampling distributions; statistical inference; correlation and linear regression; analysis of variance, chi-square, and t-tests; and application of technology for statistical analysis including the interpretation of the relevance of the statistical findings. Applications using data from disciplines including business, social sciences, psychology, life science, health science, and education.

Exit Skills

Students having successfully completed this course exit with the following skills, competencies and/or knowledge:

1. Summarize data graphically and numerically.
2. Use descriptive statistics (measures of central tendency, variation, relative position, and levels/scales of measurement) to describe a population and compare populations when appropriate.
3. Identify the sample space of an experiment or random trial.
4. Find and interpret the expected value and standard deviation of a Random variable.
5. Recognize the sampling distribution as a distribution of a sample statistic, the mean of the sampling distribution as the population mean, and the standard error of the sampling distribution as the standard deviation for the population (the Central Limit Theorem).
6. Construct and interpret confidence intervals.
7. Use hypothesis tests and inference (including t-tests for one and two populations and Chi-square test) to determine if a result is statistically significant for discrete (binomial) and continuous (normal) distributions.

8. Use analysis of variance (ANOVA) to analyze the differences between group means and their associated procedures such as variation among and between groups.
9. Perform statistical analysis using technology such as SPSS or other equivalent statistical software.

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Use analytical, numerical, and graphical methods to solve statistics problems.
2. Solve multi-disciplinary application problems and interpret the results in context.
3. Perform statistical analysis using technology such as SPSS or other equivalent statistical software.

*For the complete list of **learning objectives**, please see the **Course Objectives** section



Please identify yourself to me (after class) and/or to Disabled Students Programs & Services staff so that the appropriate accommodations can be ensured. If you suspect you have a learning disability or need services for any other type of disability, contact the Disabled Students Programs & Services (DSP&S)⁹ Office, A-113, at the Student Services One-Stop Center or call (619) 660-4239 or TTY: 619-660-4386. |

⁹<https://www.cuyamaca.edu/student-support/additional-support-and-assistance-programs/dsp-s/index.php>

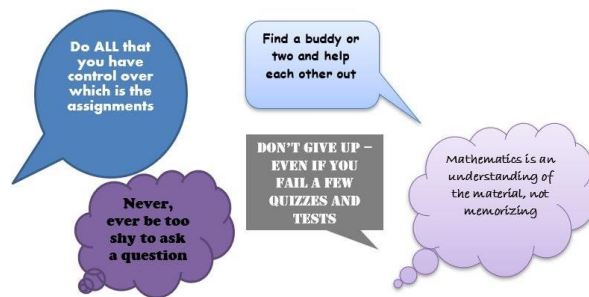
encourage you to contact DSPS as soon as possible to ensure that accommodations are implemented in a timely fashion.

cuyamaca.dsp@gcccd.edu¹⁰

To earn a C or better in the class a student must earn an overall grade of C or better AND a D or better on the final assessment(s) OR

The following is the breakdown for your Math 160 grade.

- **Reading Assignments and Quizzes: 20%**
- **In Class Activities: 5%**
- **Module Checkpoints: 20%**
- **Unit Checkpoints: 15%**
- **Lab and other Assignments: 15%**
- **Final Exam project: 25%**



A = 90 – 100 %

B= 80 - 90 %

C = 70 – 79 %

¹⁰<mailto:cuyamaca.dsp@gcccd.edu>

D = 60 – 69 %

F = below 60%



I would like our class to be a supportive learning environment that values and builds on the richly diverse identities, perspectives, and experiences of our group. Please help me develop this environment by honoring the diverse identities of your classmates and letting your instructor know (via anonymous surveys or email, for example) if an assignment, comment, etc. makes you feel uncomfortable.

Both in the readings and in discussions, you will likely encounter cultures, ideas, and values that differ from your own. These are valuable opportunities to learn more about different perspectives and where they intersect with yours. We all see the world from a point of view informed by our experiences and backgrounds, and what we read and discuss can open new windows through which to understand both our texts and world around us. You are encouraged to contribute your ideas about our discussion prompts freely, but please remember to demonstrate respect for the works as well as your classmates and instructor. We all have unconscious biases that stem from our experiences, recognizing and discussing them can lead to unexpected insights.

Week & Description: Math 160

Week 1 Module 1 - 3

Week 2 Module 4 -6

Week 3 Module 7 & 8

Week 4 Module 9 & 10

Week 5 Module 11 & 12

Week 6 Module 13

Week 7 Module 14 & 15

Week 8 Module 16 & 17

Week 9 Module 18

Week 10 Module 19

Week 11 Module 20

Week 12 Module 21

Week 13 Module 22

Week 14 Module 23
Week 15 Module 24
Week 16 Module 25
Week 17 Final Exam Week