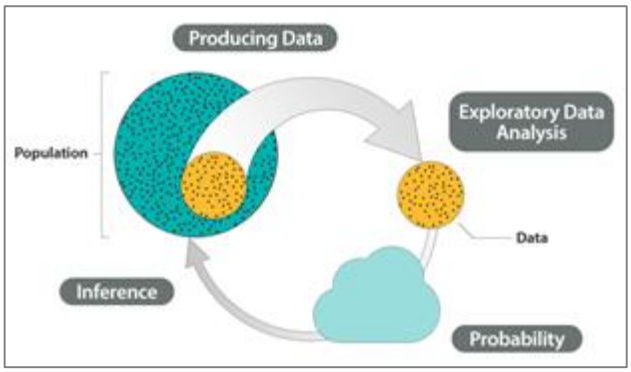
# Math 28-0303
## Math Support for Statistics
## &
# Math 34-7399
## Introduction to Statistics




Spring 2017, MW 9:00 to 12:50 pm, MA-207
Math 28: 2 units  Math 34: 4 units

Instructor: Erich Holtmann
eholtmann@losmedanos.edu  925-473-7654  http://holtmann2834.pbworks.com/

My drop-in office hours (MA-121)
- Mon 8:00-8:30 a.m.
- Tue 9:00-9:30 a.m.
- Wed 8:00-8:30 a.m.
- Thu 9:00-9:30 a.m., 11:30-12:30

Drop-in MESA hours (SC-202)
- Tue 11:30-12:30
- Thu 11:30-12:30

When I am in the math lab (MA-107 / MA-107)
- Tue 1:00-1:30 p.m.
- Thu 1:00-1:30 p.m.
- Fri 8:00-9:00 and 11:00-3:00 p.m.

**Welcome to the Math 28 & Math 34 dynamic statistics duo!**
Math 34 is a college-level statistics course that transfers to CSU and UC. Math 28 will support you to do well in Math 34.

## Frequently Asked Questions about Math 28 & Math 34

**Why is Math 28 paired with some sections of Math 34 and not others? (Prerequisites)**
In the past, community colleges required students to demonstrate proficiency with both elementary and intermediate algebra (Algebra I and II) before enrolling in transfer-level statistics (Math 34). Now, students who have earned a C- in elementary algebra (Algebra I or Math 25), but haven't completed intermediate algebra (Algebra II), can take Math 34 if they enroll in Math 28 at the same time. In other words, Math 28 allows many more students to take Math 34 and to finish their math requirements for transfer.

If you have completed Algebra II (Intermediate Algebra or Math 27 or 28 or 30) with a C- or better, or Math 27 at LMC, you do not need to take Math 28. You should enroll in a section of Math 34 that is not linked to Math 28.

**How does the Math 28 & Math 34 combination work?**
The two classes run back-to-back and instruction will be blended across the two class periods. For example, your instructor may deliver a short lecture on a statistical concept

(similar to what you might experience in Math 34) and then you might work on problems with other students to deepen your understanding of this concept (this is the support part.)

**Will I be assigned a separate grade both Math 28 & Math 34?**
No. You will be assigned the same grade for Math 28 and Math 34. This syllabus contains details about assignments and grades for both courses.

**Can I drop Math 28 and stay enrolled in Math 34, or vice versa?**
No. If you drop one of the two courses, you will automatically be dropped from the other.

**Do I have to pass Math 28 in order to pass Math 34, and vice versa?**

**What will I learn in Math 28 & Math 34? (Course Student Learning Outcomes)**
In Math 28 & Math 34 you learn to read and understand statistical information in the world around us, and you will learn to make decisions based on data.

This includes the following learning goals for Math 34:

1) *Statistical Literacy:* Read and critique simple statistics-based studies in order to make an informed judgment about whether the statistical presentation or argument is valid.

2) *Data Production:* Analyze the design of a study to determine if the conclusions drawn from the study are valid or if the study is biased

3) *Data Exploration and Representation:* Investigate patterns in data to answer questions and compare data sets to look for a relationship between variables.

4) *Modeling and Inference:* Test a hypothesis about a population or make an estimate using the methods of statistical inference.

5) *The Role of Probability in Inference:* Explain how variability and probability are connected to statistical inference.

You will also receive the following supports in Math 28 to be successful in your study of statistics:

1) *Statistical Problem Solving*: Use a statistical problem solving process: read statistical texts and problems with understanding, extract relevant information, identify variables, execute relevant statistical procedures and interpret the results in the context of the data or scenario.

2) *Arithmetic and Algebra*: Use arithmetic and algebraic while working with statistical formulas and methods and interpret the results;

3) *Geometry*: Approximate areas under curves or histograms, use technology and geometric reasoning to find area under a normal curve, and interpret these areas as probabilities.

4) *Explanation of Concepts*: Explain statistical thinking and concepts related to statistical inference using hands-on demonstrations, simulations or applets, and apply to the normal distribution or other mathematical models of sampling distributions.

5) *Conclusions, vocabulary and common errors*: Draw appropriate conclusions from statistical analysis, use statistical vocabulary accurately, and identify common misinterpretations in the use of statistics.

6) *Effective Learning*: Learn and practice study strategies that promote understanding and improve performance.

# Course materials for Math 28 & Math 34:

We have worked hard to lower costs for students. Instead of a textbook, we will use inexpensive online resources and a packet of activities that you will purchase from the LMC bookstore.

Here is what you will need:

- Access to the Open Learning Initiative's (OLI) online textbook *Concepts of Statistics* (free);
- A packet of activities from the bookstore.
- A 6-month license to the online statistical software package called *StatCrunch* (one-semester license included in the packet from the bookstore);

I also recommend a simple calculator with a ± key and a $\sqrt{\ }$ key. You may use a cell phone or WiFi-enabled tablet to access StatCrunch (and as a calculator).


See the document *Sign up for OLI/Get Access to StatCrunch* for instructions on how to register for the OLI online materials and how to find and enter the 6-month StatCrunch license.

# Description of Assignments/Grading:

You will receive a separate grade for Math 28 and Math 34. Each class will have a different set of assignments, but all of the assignments will be related to each other.

**Overview of assignments**

- Classwork (25%)
- Outside-of-Class Work (20%)
- Quizzes and Exams (25%)
- Unit Projects (10%)
- Final Assessments (20%)

Grades are calculated as a weighted average. An A is 89.5% or better; a B is 79.5 to 89.49%; a C is 69.5% to 79.49%; a D is 59.5% to 69.49%; below 59.5% is an F.

**More detail on assignments and how they are graded**

**Classwork** (25% of your grade)

During class time for Math 28 & Math 34, you will be working in groups on problems from the "Math 28, Math 34 Packet" in the binder. These activities will help you understand statistical concepts and apply them.

*How is the classwork graded?*
Classwork is graded based on completeness. If you complete a module, you will receive full credit. It is very important to complete the classwork because it is 25% of your grade.

**Outside-of-Class Work: Labs and OLI Exercises**

Labs (10% of your grade)

Labs are assignments from the Math 28, Math 34 Packet that help you synthesize what you have learned. You should do these assignments in the math lab and work with your peers as part of the two lab hours by arrangement each week for Math 34. The two lab hours by arrangement each week must be done in the math lab at the main Pittsburg campus (MA-102 / MA-107) or in the math lab at the Brentwood Center (Room 15). You can also get help from the tutors and instructors in the math labs.

The math labs are open
Monday to Thursday, 8:00 a.m. to 8:00 p.m.
Friday, 8:00 a.m. to 3:00 p.m.
These hours might change. Check the web for current hours.
(http://www.losmedanos.edu/Groups/Math/web/lab.asp).

*How are labs graded?*
Labs are graded based on the accuracy and thoroughness of your work. Each lab is weighted equally. There will be approximately 11 labs.

OLI exercises (10% of your grade)

In OLI you will read and do exercises online for homework. These exercises will prepare you for the Checkpoint quizzes. There are two types of OLI exercises, *Learn By Doing* and *Did I Get This*. These exercises are embedded in the reading, not at the end of a chapter or section like in a standard textbook.

- *Learn By Doing* exercises are hands-on activities that provide you the opportunity to investigate concepts and practice skills. These exercises have hints, to guide you if you need help, along with detailed solutions.

- *Did I Get This* exercises help you assess your learning of each concept, but there are no hints. These are multiple-choice items with feedback tailored to each response. If you don't get it right the first time, try again!

*How are OLI exercises graded?*
Your grade for OLI exercises is the percentage of exercises you complete within a Unit. If you complete the exercises, you receive full credit even if you make mistakes. As we all know, mistakes are part of learning. So if you make a mistake, use the feedback and redo the exercise until you get it right**.**

**Quizzes and Exams**

OLI Checkpoint Quizzes (5% of your grade)

Checkpoints are multiple-choice online quizzes that occur at the end of each Module and the end of each Unit.

*How are OLI Checkpoint Quizzes graded?*
Your grade on OLI Checkpoint quizzes is the percentage you got correct. You can take each Checkpoint four times and the highest score counts. Checkpoint Quiz scores are tallied at the end of the Unit. Each Checkpoint within a Unit is weighted equally.

Group quizzes (10% of your grade)
To test your understanding of concepts, we will periodically have a group quiz. This is an opportunity to work with your peers under time pressure to solve problems … a great practice opportunity for exams!

*How are group quizzes graded?*
Group quizzes are graded based on accuracy and thoroughness of work shown.

Exams (10% of your grade)
There will be at least two exams.

*Can I take a make-up exam if I miss the test?* If you are not able to take an exam on the scheduled date, you must contact me ahead of time to make alternate arrangements. If you do not show up for an exam without contacting me ahead of time, you will receive a zero on the exam.

**Unit Projects** (10% of your grade)

At the end of many Units, you will work in groups on a Unit project that requires you to analyze data to answer a question. Unit projects will culminate in a poster presentation

that is similar to a poster session at a conference where groups roam from poster to poster to hear short presentations. You may also be required to submit a written report for each Unit project.

*How are the unit projects graded?*
The written reports are graded on clarity, accuracy and thoroughness.

**Final Assessments**

Final project (5% of your grade)
For your final project, you will work with a group of your classmates to investigate a topic of interest to the group. You will collect data, analyze it, and draw inferences based on the data.

*How is the final project graded?*
Your final project will be graded on clarity, accuracy and thoroughness.

Final exam study guide (5% of your grade)
To help you prepare for the final exam, you will prepare a study guide. We will work the study guide on Monday, May 2, from 10:00 to 11:50.

Final exam (10% of your grade)
The final exam will be cumulative (it will cover the entire course.). It will be on Wednesday, May 4, from 10:00 to 11:50.

## Late work and attendance

Many assignments require that you be in class to receive credit, such as group activities from the packet, group quizzes, and Unit projects. Therefore, attendance is important to your learning and to your grade. However, if you are sick or must miss class or an assignment for some other reason, you may submit at most two late assignments without penalty in each of these categories:

- OLI Exercises
- OLI Checkpoint Quizzes
- Labs
- Group Activities from the packet
- Group Quizzes
- Unit Projects

Late work must be turned in no later than two weeks after the deadline. Of course, if you miss a group activity, group quiz or Unit project, you will miss the opportunity to work with your peers in class on the assignment which puts you at a real disadvantage. If you are not able to take an exam on the scheduled date, you must contact me ahead of time to make alternative arrangements.

If you do miss a class meeting, you are expected to complete your OLI homework and Math Lab work. Check online at http://holtmann2834.pbworks.com/ to see what is due. If a Lab or Unit Project is due, you can turn in by emailing photos of it to me at eholtmann@losmedanos.edu.

## Strategies for Success:

**Get help when you need it!**
It sounds simple but can be hard to do, especially if you are feeling frustrated or confused or running up against a deadline. If at some point you feel like giving up, or you begin to just click through the OLI exercises without actively engaging, or you are tempted to copy someone else's work, **ask for help as soon as possible**.

**Getting help from me:**
The easiest way to get help from me is come to my drop-in office hours or to visit the math lab when I am on duty.

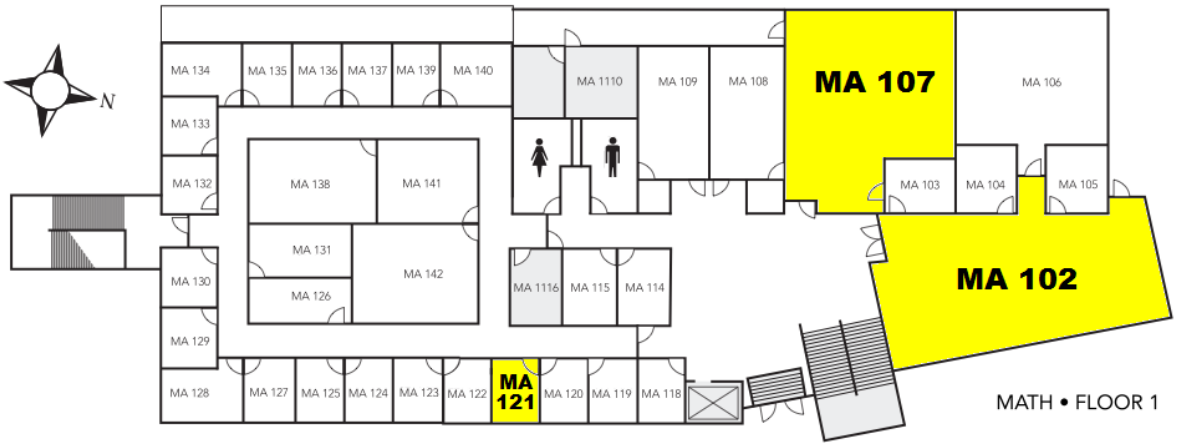
My drop-in office hours (MA-121)
Mon 8:00-8:30 a.m., 1:00-2:00 p.m.
Tue 9:00-9:30 a.m., 11:30-12:30
Wed 8:00-8:30 a.m.
Thu 9:00-9:30 a.m., 11:30-12:30

When I am in the math lab (MA-107 / MA-107)
Tue 1:00-1:30 p.m.
Thu 1:00-1:30 p.m.
Fri 8:00-9:00 and 11:00-3:00 p.m.

**Getting help in one of the LMC math labs:**
There are math labs at the main campus in Pittsburg (in MA-102 and MA-107) and in the Brentwood Center (in Room 15). Both labs offer free tutoring assistance for LMC students, in addition to study rooms where you can work with classmates on lab assignments. The math labs are open

Monday to Thursday, 8:00 a.m. to 8:00 p.m.
Friday, 8:00 a.m. to 3:00 p.m.

These hours might change. Check the web for current hours.
(http://www.losmedanos.edu/Groups/Math/web/lab.asp).



**Getting help from classmates:**
This semester you will work together both in class and out of class with your peers. Working with others has advantages. It can keep you motivated. In addition, talking can build deeper understanding and help ideas stick. However, there is a difference between working with someone else and letting somebody else do your work for you. The former is collaboration; the latter is cheating … and cheating you of your education. Make sure that your collaboration with others is promoting your learning, not undermining it. (Note: According to LMC policy, "dishonesty, such as cheating, plagiarism, or knowingly furnishing false information to the college, is grounds for disciplinary action and suspension." See Section III of the Student Code of Conduct.
http://www.losmedanos.edu/studentcodeofconduct/)

# Additional important information:

**Adding/Dropping:**

It is your responsibility to enroll by the late add deadline, and to drop the course if you choose not to complete it. See www.losmedanos.end/dates for the deadlines. I may drop any student who does not attend the first day, who misses two consecutive weeks of lab or lecture, or whose absences have irretrievably affected her/his progress. Students who are not making adequate progress by the fourth week may be dropped. CCCCD policy does not allow auditing (attending a class without being enrolled). This also means that unenrolled children of students are not allowed to come to class. Please plan accordingly.

**Religious Holidays:**
Reasonable accommodations will be made for you to observe religious holidays when such observances require you to be absent from class activities. It is your responsibility to inform me during the first two weeks of class, in writing, about such holidays.

**Disabilities:**
Students with documented learning and/or physical disabilities may receive reasonable classroom and/or testing accommodations. These arrangements need to be made with me in the first two weeks of the semester or as soon as the documentation has been determined. I will not be able to accommodate last minute requests. If you would like more information on Americans with Disabilities Act issues, please contact the DSPS (Disabled Students Programs & Services) program at 925-473-7471.

**Student Code of Conduct**
http://www.losmedanos.edu/studentcodeofconduct/
It is your responsibility to read and follow the Student Code of Conduct. The Student Code of Conduct is a statement of the Contra Costa Community College District's expectations regarding student standards of conduct, both academic and nonacademic. Students are expected to obey all laws and District policies and regulations.

**Cheating**

Cheating is taken very seriously by me and by Los Medanos College. There are many reasons why students feel that they need to cheat. I strongly advise you to resist any temptation and instead talk to me or to an advisor/counselor about your frustration or other issues affecting your learning. All the work that you submit must be yours and yours alone. Do not put your name on other students' work. If you copy someone's idea or a portion of his/her work, give him/her credit by citing that person by name. It is also your responsibility to ensure that other students are not copying from you (e.g., two identical tests or projects will be considered both students' responsibility). If you are caught cheating, you will be asked to leave that class period and you will receive a zero grade on the assignment. You may also be referred for disciplinary action to the dean.

**Course Content and Schedule**

There will be three exams, with dates to be determined

Topic

1 Affective Domain
  Module 1 A Poster Session
  Module 2 Brainology
  Module 3 Grow Your Brain
2 Summarizing Data Graphically and Numerically
  Module 4 Distributions of Quantitative Data
  Module 5 Measures of Center
  Module 6 Measures of Spread about the Median
  Module 7 Quantifying Variability Relative to the Mean
3 Examining Relationships: Quantitative Data
  Module 8 Scatterplots, Linear Relationships, and Correlation
  Module 9 Fitting a Line
4 Relationships in Categorical Data with an Introduction to Probability
  Module 10 Two-Way Tables
5 Probability and Probability Distributions
  Module 11 Probability and Distributions
  Module 12 Continuous Random Variables
6 Types of Statistical Studies and Producing Data
  Module 13 Types of Statistical Studies
  Module 14 Collecting Data—Sampling
  Module 15 Collecting Data—Conducting an Experiment
7 Linking Probability to Statistical Inference
  Module 16 Introduction to Inference
  Module 17 Distribution of Sample Proportions
  Module 18 Introduction to Statistical Inference
8 Inference for One Proportion
  Module 19 Estimating a Population Proportion
  Module 20 Hypothesis Testing
  Module 21 Hypothesis Test for a Population Proportion
9 Inference for Two Proportions
  Module 22 Distribution of Differences in Sample Proportions

Module 23 Estimate the Difference between Population Proportions
Module 24 Estimating a Population Proportion
10 Inference for Means
Module 25 Distribution of Sample Means
Module 26 Estimating a Population Mean
Module 27 Hypothesis Test for a Population Mean
Module 28 Inference for a Difference between Population Means
11 Chi-Square Tests
Module 29 Chi-Square Test for One-Way Tables
Module 30 Chi-Square Tests for Two-Way Tables
Final Review
Final Exam

## Seize the Day!

College is an opportunity to learn to think critically, broaden your worldview, and deepen your knowledge and understanding. Embrace challenges and take satisfaction in learning from mistakes.