

**Math 075 Syllabus Spring 2019 (Section #37644)**  
**Intermediate Algebra for Statistics / Teachout**

**Instructor:** Matt Teachout

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**Time/Place:** Math 075 Spring 2019 will meet Mondays and Wednesdays from 11:00 am – 1:25 pm in CCC-305 at the Canyons Country campus from February 4<sup>th</sup> through May 29<sup>th</sup>.

**Office Hours:** Monday through Thursday from 1:25 pm to 2:25 pm in CCC-305 at the Canyon Country campus. If you cannot make it at that time, feel free to make an appointment.

**COC Campus Resources and Information:** [Campus Resource Guide Fall 2018](#)

**Student Learning Outcome:** Here is an over-arching goal of the class. The student will be able to:

**Construct, evaluate, and analyze mathematical models, specifically linear and exponential functions, to represent relationships in quantitative data.**

**Textbook and Class Materials:** The free online textbook for Math 075 is “Introduction to Data Analysis” (1<sup>st</sup> edition) by Matt Teachout. The textbook, class materials and data sets can be found on my website [www.matt-teachout.org](http://www.matt-teachout.org). Just click under the “Int Alg for Stats” tab.

**Drop Policy:** If you have four absences or more, you may be dropped from the class for lack of attendance. It is your responsibility to drop if necessary. You need to process the drop online or fill out the necessary paperwork and process it in the Admissions office. Here are the drop deadlines for Spring 2019.

Drop Deadlines for Math 075 Spring 2019 (Semester Length Class)

02/04/2019 End: 05/30/2019  
Add Deadline.....: 02/17/19  
Drop w/o "W".....: 02/17/19  
Drop Deadline.....: 05/05/19  
Drop Refund.....: 02/17/19

**Statistics Software:** Best practices for statistics education is to learn to solve real world problems by analyzing data with statistics software. No statistician calculates statistics with a calculator and a formula especially with large data sets. With that being said, we will primarily be learning to use two statistics software programs called Statcato and StatKey to solve problems.

- **Statcato:** The primary statistics software we will be using during class is Statcato. Computers in class and in the TLC have Statcato saved already. You just need to click on the Statcato icon on the in-class or TLC computers. If you wish to use Statcato on your laptop or home computer, go to [www.statcato.org](http://www.statcato.org) and use the Java Web Start function to open the program on your computer. Statcato does not need to be saved. There are Java Web Start instructions for MAC or PC on my website [www.matt-teachout.org](http://www.matt-teachout.org) at the top of the “Statistics” page.
- **StatKey:** We also may occasionally use another program called StatKey. This software is free and does not need to be downloaded. Just go to [www.lock5stat.com](http://www.lock5stat.com) and click on the “StatKey” button.

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**Calculator:** You will need to purchase a small cheap scientific calculator for the class. Any calculator will work. Make sure the calculator has an “LN” or “LOG” button.

**Flash Drive:** The project and many of the exercises in the book are done with the computer and may need to be saved so you can work on it later. A small flash drive works well for this. School computers will not save any files more than 1 day. At the end of each day, files are purged off the computers. You may want a small inexpensive flash drive for saving work on. Flash drives are not required however.

**Tutoring:** Feel free to make an appointment to see me if you need any help. The TLC labs are also available for tutoring. The Valencia campus TLC (LTLC) is located next to the Library and the Canyon Country TLC is located in CCC-306. MESA and DSPS also have tutoring available if you qualify for those programs. Note: A valid COC student ID is required to use the TLC. Here are the Spring 2019 hours for the TLC.

**The Learning Center (TLC)**  
**Expanded Spring 2019 Hours**

**Valencia Campus**  
Monday-Thursday 8:00am-8:00pm  
Friday & Saturday 9:00am-3:00pm

**Canyon Country Campus**  
Monday-Thursday 9:00am-7:00pm  
Friday & Saturday Closed

<b>Grading Scale:</b>	<b>90 – 100    A</b>	<b>60 – 69        D</b>
	<b>80 – 89     B</b>	<b>59 or below   F</b>
	<b>70 – 79     C</b>	

**Grade Summary:**        **Six Exams: 50% of grade**  
                                      **Classwork Points and Homework Assignments: 20% of grade**  
                                      **Six Projects with Presentations: 20% of grade**  
                                      **Final Exam: 10% of grade**

**Test Policy:** There will be six exams worth 50% of your grade in the class. If you know ahead of time that you will be absent on an exam day, make arrangements with me to take the exam early. The lowest exam score will be dropped. If you are absent on an exam day, that exam will be the one that is dropped. See schedule for exam dates.

**Final Exam:** The final exam is cumulative and will be worth 10% of your grade in the class. It will be given on the last day of class during regular class time.

**Project and Presentation:** You will be doing six small real world data analysis projects. These small group projects will be done during class. Your group will make a poster and you will present your findings to your classmates. Projects are worth 20% of your grade.

**Notes, Classwork Points and Homework Assignments:** Each day we will be going over notes and work on problems during class. Classwork points and homework assignments are worth 20% of your grade in the class. If you are absent, you will lose your classwork points for that day. If you are late to class or leave early, you may also lose classwork points. Homework assignments and projects can be made up but classwork points cannot be made up. The notes can be found at [www.matt-teachout.org](http://www.matt-teachout.org). Just click on the “Int Alg for Stats” tab.

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**Affective Domain and Journal Assignments:** Many students face issues that can interfere with their success in school. Affective domain activities will help address these key issues. The affective domain activities can be found at [www.matt-teachout.org](http://www.matt-teachout.org), just click on the “int alg for stats” tab. You will also occasionally be asked to write a paragraph on a given data analysis topic. Affective domain and journal assignments are included in your homework/classwork grade, along with problems from the book.

**Attendance and Tardiness:** It is very important to your success in the class that you come to every scheduled class meeting. Missing classes, coming to class late, or leaving early will cause you to fall behind, lose classwork points, and greatly reduce your chances of succeeding in the class.

**Formulas:** A key part of modern statistics is using technology to solve problems, and not do complicated statistics calculations with formula and calculator. Whenever possible, we will use Statcat to find statistics and create graphs. We will look at formulas to understand them.

**Laptops:** If you have a laptop, you are welcome to use it during class. A laptop is not required. We have computers in the classroom for you to use.

### Key Elements of Math 075

**Critical Thinking and Growth Mindset:** One of the main goals of math 075 will be to develop real world critical thinking skills. Remember intelligence, critical thinking, and math proficiency are not fixed quantities. Even if you think of yourself as not a math person, you are not stuck in this mindset. Our brains can grow and change. Any student can become a critical thinker. It just takes effort and the belief that we can change. Therefore there will be “exploring” exercises in almost every class, that help us not only develop critical thinking skills, but will help us understand statistics at a much higher level.

**Teamwork:** You will be required to work with your fellow classmates to solve problems and analyze data. Working as a team is another important real world life skill that employers consistently want from their employees. Many points in the class are designed around working as a team to solve something that is difficult. If you do not work with your team or do not do your share of the work, you will not get full credit for assignments or projects.

**In-class discovery based activities and problem solving:** In most math courses, you listen to a lecture, then go home, and try to do problems that are similar to what the teacher taught in lecture. Math 075 is a little different. The emphasis of the course is not to do problems by yourself for homework. Instead, you will be expected to work with your fellow students to solve problems during class. In addition, the activities are meant to challenge you and teach you the topics at a higher level. In other words, the in-class activities are really the most important part of the class. That is where the real learning begins.

**Productive Persistence:** Studies show that students who are allowed to struggle and work through problems do much better than those who are given the answers right away. With this in mind, you will need to work hard and figure out material during activities. You will eventually get the answers, but I will not always give you answers to questions right away. I know this is hard on you, but we have seen huge gains in problem solving and critical thinking skills because we allow you to struggle some. Think of it this way. In the workplace, your employer is going to ask you to be able to work through situations and figure things out on your own. In real life, you do not have someone with an answer key standing by to help you.

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**Reading/Writing/Presenting:** Math 075 is designed to teach you to apply statistics to the world around you. The study of statistics is really the study of information. Employer's number one request is that their employees can look over information, critically think to help find a solution, and then be able to present their solutions in written reports and verbal form. With that being said, Math 075 will incorporate a lot of reading, writing assignments and verbal presentations to your classmates. These are the real world skills that you need to succeed.

**Behavior / Cheating Policy:** I like my classes to have a fun, encouraging environment. I expect you to come to class with a commitment to learn, take good notes and participate in discussions and classwork. I like group learning in my class. I expect my students to work together and encourage each other. With that being said, I do expect students to abide by the code of conduct in the COC college handbook. Please do not disrupt the class by talking during lecture or using profane language. Laptops can also be a distraction during class and should only be used for course-approved materials. Do not go on any websites or video games during class, as it is a distraction to other students. Also, keep your cell phones off or on silent and put away. I do encourage you to talk and work together during classwork time, but please keep your conversations to a whisper and make sure they are math related. Cell phones are not allowed on exams. They must be turned off and put on top of your desk. I have had problems with students attempting to cheat by hiding their cell phones under their desk. I reserve the right to change people's seats at my discretion. I like to have everyone change seats on test days. I will also have students change seats if they cannot get along with their neighbors.

**Note: Acts of academic dishonesty will be forwarded to the Office of the Dean of Students, whose personnel will determine appropriate sanctions.**

**Management of Stress and Mental Health:** Often the pressure on our students is very strong, involving academic commitments, relationships, outside jobs and family pressure to name a few. The staff and faculty of College of the Canyons are here to see you succeed academically and care about your emotional and physical health. You can learn more about the broad range of confidential student services, including counseling and mental health services available on campus by visiting the Student Health & Wellness Center in the Student Services Building (across from the bookstore) or by clicking on <http://www.canyons.edu/offices/Health/Pages/default.aspx>. The phone number is **661-362-3259**. At the Canyon Country Campus, the Health Center is in 1B adjacent to Administration, Admissions and Records.

In addition, the **National Suicide Hotline number is 1-800-273-8255(TALK)**. All students at COC are encouraged to enter that phone number in their cells. You can call when you, or someone you know, is having thoughts of suicide or is in severe distress.

You can also now use the **Crisis Text Line:** Just text "**Courage**" to **741741**. Someone will get back to you immediately. It's free and 24/7 confidential.

**Topic Outline with Exam and Project Info:**

**Introduction:** Syllabus, Two Types of Data (Categorical and Quantitative)

**Section 1: Analyzing Categorical Data** (Calculating and Using Percentages, Bar Plots, Pie Charts, Comparing % from multiple groups)

Exam#1 – Calculating basic Percentages, Making and Analyzing Bar Plots and Pie Charts, Comparing Percentages from different groups

Project#1 – Poster Project on Categorical Data Analysis

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**Section 2: Relationships between different Categories** (Making and Analyzing Two way tables, Marginal, Conditional and Joint Probabilities, Using conditional probabilities to show categories related)

Exam#2 – Making and Analyzing Two way tables, Marginal, Conditional and Joint Probabilities, Using conditional probabilities to show categories related  
Project#2 – Poster Project on Categorical Relationships

**Introduction to Quantitative Data** (Two types of Data, Graphs, Shapes, Mean verses Median)

**Section 3: Analyzing Bell Shaped Quantitative Data** (Shape (dotplots, histograms), Center (Mean), Spread (Standard Deviation), Typical Range, Unusual Values, Min, Max)

Exam#3 – Dotplots, Histograms, Shape, Analyzing a bell shaped quantitative data set, Center (Mean), Spread (Standard Deviation), Typical Range, Unusual Values, Min, Max)  
Project#3 – Poster Project on Bell Shaped Quantitative Analysis

**Section 4: Analyzing Skewed Quantitative Data** (Skewed Shape, Median, Quartiles, Boxplot, IQR, Outliers)

Exam#4 – Skewed Shape, Median, Quartiles, Boxplot, IQR, Outliers  
Project#4 – Poster Project on Skewed Quantitative Analysis

**Introduction to Relationships between two different quantitative variables** (explanatory, response, scatterplots)

**Section 5: Linear Relationships** (Scatterplots, Correlation Coefficient, R-squared, Regression Line, Slope, Y-intercept, Residuals, Standard Deviation of the Residual Errors, Making Predictions in the Scope, multivariable correlation comparisons, correlation is not causation)

Exam#5 – Scatterplots, Correlation Coefficient, R-squared, Regression Line, Slope, Y-intercept, Residuals, and Standard Deviation of the Residual Errors  
Project#5 – Poster Project on Linear Quantitative Relationships

**Section 6: Nonlinear Relationships** (Exponential growth and decay, Logarithmic growth and decay, Quadratic opening up and down, Min and Max values, R-squared, Standard Deviation of the Residual Errors, Finding the best Fit, Making Predictions in the Scope)

Exam#6 – Exponential growth and decay, Logarithmic growth and decay, Quadratic opening up and down, Min and Max values, R-squared, Standard Deviation of the Residual Errors, Finding the best Fit, Making Predictions in the Scope  
Project#6 – Poster Project on Curved Quantitative Relationships

**Final Review / Cumulative Final Exam**