MAT 168 Course Syllabus
Fall 2015 Online w/Campus Requirement

**** Please read the following carefully, as you are responsible for its content!***

Instructor: Sarah Leone   **email:** Please use Blackboard Messages

Phone: (860) 343-5790

Course Title: Elementary Probability and Statistics, CRN # 3139

Pre-requisites: Eligible for ENG*101 and MAT *137 with a grade of "C" or better OR eligible for ENG*101 and math placement.

Scope of course: Graphs and charts, measures of central tendency and variation. Elementary probability theory, random variables, probability distributions, with emphasis on the binomial and normal. Sampling distributions, hypothesis testing, confidence intervals, correlation and linear regression. Use of technology included.

Text and Other Required Materials:

- *Elementary Statistics Picturing the World, Larson and Farber, 6th Edition w/MyStatLab Access Kit*

  OR

  Purchase access to MyStatLab from the bookstore or online, and use the available e-book.

- *TI 83 of 84 Graphing Calculator*

General Expectations: Elementary Statistics can be a very challenging course when taken in a traditional classroom. Taking the course online can make it that much more difficult to stay on top of the material. It is crucial that you are doing work several times each week during this semester to be successful. Please do not wait until the weekend the assignments are due to complete them. If we were to meet in a classroom, you would be spending about 4 hours in class, and a minimum of another 5-6 hours outside of class doing work. Please keep that in mind to give yourself a guideline as to how many hours you will need to dedicate to this course.

Office hours: MW: 11:00-12:30 in Wheaton Hall Rm 310
You may email me with questions anytime.

Blackboard Learn: The entire course is set up using Blackboard Learn. I am often going to abbreviate this to BB. In BB you will find links to complete your homework and assessments, read brief summaries on your weekly topics, follow the calendar, contact me and post discussions. There are also links for help on BB. It is your responsibility to be logging on to BB and checking for announcements and following along with the course calendar. There is a hotline available for BB help 24/7. The number for this is 866 940 1928.

**Communication with me****:** Please message me through Blackboard Messages only. The only time you should need to use my email (sleone@mxcc.edu) is if Blackboard is down. To contact me through Blackboard, go to Messages on the navigation bar on the left and you will be able to find my name to send me a message.   Please allow 24 hours for me to get back to you once you have emailed me.

**Calendar:** You will find a one-page calendar with the topics and due dates for each week of the semester. I strongly encourage you to print this out during the 1st week of classes and use it as a reference each week so you don't miss any due dates.

**Weekly Notes:** At the beginning of each week, a summary of the week's topics and assignments will be posted for you to read. These weekly postings will be under Weekly Notes and Materials on the task bar in Blackboard. **Please be sure to start your week off by reading these weekly postings.** I will be describing the material we're covering, posting videos lessons and reminding you of upcoming due dates in these postings. So it is a great way to keep track of what's due in each upcoming week and find out what is covered on each quiz/test.

**Homework:** Each week you will be assigned a homework assignment that you are to complete using My Lab Mastering/MyStatLab, abbreviated MSL. You can get to MSL by using the link on Blackboard or going directly to their website at www.mystatlab.com. **If you purchased the textbook, you should have purchased a MyStatLab Access Kit. In that kit is an access code that you will need in order to register at My Lab/Mastering.** You can also purchase an access code directly from the website with a credit card. You will have to register using your access code ASAP to start completing your assignments.   Directions and details about registering with MyStatLab,   including the Course ID, are posted under Announcements.

You can work on the homework as many times as you like before the due date. **You will get three attempts at each question before MSL marks that question incorrect. When that happens, you may choose "Similar Problem" and you will be given a new problem to try.** All homework assignments are due at the end of the week the topic is covered. For example, MSL HW #1 is due Sunday September 6. . This assignment is on the topics covered the week of August 31. It is the expectation that you work on the material during the week/weekend, complete the homework by the end of the week and then move on to the next week's material. **All the homework assignments are available in MSL as of the first day of classes, so you can work ahead if you choose to.** Before attempting MSL homework, you will want to read the weekly notes and assigned sections from text and try the exercises at the end of each section. There are answers to the odd exercises in the back of the text so that you can check your work before completing your MyStatLab homework. Because this class is online and you are doing the work independently, it is critical that you stay on top of the material. Please make sure you are submitting on time!   LATE HOMEWORK WILL NOT BE ACCEPTED!

==***MyLab Mastering has many great features to help with the material. Once you are registered and logged onto MSL, be sure to look at the task bar on the left to see what else it has to offer. There are chapter notes, additional exercises, power point slides,vidoes with an instructor working through problems, and sample tests/quizzes. Also, My Lab/Mastering offers a Study Plan to show you the areas you need to work on. Every time you complete an assignment, the study plan is updated and you can go in and try more examples from that material. Please check this stuff out so you know where to go if you start having difficulty with the material.==

**Quizzes/Tests****:** Your quizzes and tests are also taken in MyStatLab. Exams are timed, so you will have to complete them in one sitting. Once you open the quiz/exam, the timer will start. The

reason tests are timed is to make sure that everyone has been fully prepared and mastered the material BEFORE taking the test. If you find that you are running out of time on these assessments, it is most likely because you have not practiced enough. If you are spending a good deal of time looking through your book/notes while you are taking a test, you will almost definitely run out of time. A short description of each exam, including amount of time you have to complete will be in your weekly notes. All tests/quizzes must be completed by midnight on the due date. See the calendar in BB for specific dates. Each week you will have at least a quiz or test due, as well as your discussion and weekly homework in MSL. The expectation is that you are working on the homework all week and you take the test once you have completed that and feel comfortable with the material. Tests/Quizzes will be available the Monday before the due date. You will able to view your test grades as soon as you have submitted your answers, but you can only review your answers once the due date has passed. Please follow the calendars so you do not miss a due date. NO LATE EXAMS WILL BE ACCEPTED UNLESS YOU HAVE A PHYSICIAN'S NOTE OR SOME DOCUMENTATION STATING YOU WERE UNABLE TO TAKE THE EXAM ON TIME.

****Note about partial credit—My Lab/Mastering will give partial credit if you get one part of a question correct but not another part. However, since it is a computer grading these tests/quizzes, it will not award you partial credit if you have an answer wrong due to rounding, or some other very minor error. Once each due date passes, please review your test/quiz in MSL. You can email me if you that feel there are some questions that you deserve partial credit on, along with your work. I can adjust the grade manually if I find you deserve more credit than you were given.

Final Exam: You will be required take your final exam on campus during one of the two provided times. The format of the exam will be exactly the same as every other exam, and taken on MSL. The two options for times will be provided to you during the first month of class so that you can plan ahead.

YOU MUST EARN AT LEAST A 60% ON THE FINAL EXAM IN ORDER TO PASS THE COURSE. Failure to earn a 60% will result in an F for the course, regardless of your calculated average.

Discussions: You will have weekly discussions throughout semester, the first one being due on Sunday September 6. The due dates are on your calendar. Not all of the discussions will be mandatory. You will see if the discussion is OPTIONAL or MANDATORY when you read the description. Go to DISCUSSIONS on the navigation bar in BB to get full description and to post your response to the discussion. Some of these discussions will be open ended questions like "Tell the class one thing that you are having difficulty with this week", and some will be problems that relate to the material we are covering. For some discussions you will be able to read other responses, and some you will be replying directly to me.

Use of the Calculator: We will use the graphing calculator for almost every topic we cover. It is extremely important that you get comfortable using the calculator from the very beginning of class. If you are trying to do every calculation by hand all semester, you will run out of time on the quizzes/tests. The best calculator for you to have is the TI-83 or 84. I will post an online graphing calculator emulator if you want to use that for the semester. Also, I will also put step-by-step instructions in the weekly notes each week for using the calculator, as well as some videos to help you out. Take a few minutes to check them out.

Project: You will have 1 semester long project that will be due <mark>Friday, December 11.</mark> The description and guidelines for this project will be posted during the first few weeks of class. You will also see guidelines as to when you are capable to complete each part of the project posted in the weekly notes.

Grading: Your final grade will be comprised of the following:

Tests/Final Exam	50%
Homework	20%
Quizzes	10%
Project	15%
Discussions	5%

Your discussion grades can be found under MY GRADES in Blackboard. The rest of your grades will be in MyStatLab

Grading Scale: The following is the grading scale for MxCC College:

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
93 – 100	90 – 92	87 – 89	83 – 86	80 – 82	77 – 79	73 – 76	70 – 72	67 – 69	63 – 66	60 – 62	< 60

Tutoring: MxCC offers **FREE TUTORING** on campus (Chapman Hall 711), at the Meriden Center, and online (etutoring.org). For more information, visit the College Learning Center Website (click "College Learning Center" on the www.mxcc.commnet.edu homepage) or call (860) 343-5770. Take advantage of these services and start to excel in your classes!

Withdrawal: You may withdraw from this class any time before the end of the 11th week of the semester. A completed and signed withdrawal form must be on file in the Records Office by the deadline in order to receive a "W" on your transcript. If you fail to complete this process on time, you will receive a letter grade at the end of the semester, which will include zeroes for any work not submitted. Course withdrawals may affect financial aid and veteran's benefits, so please make this decision carefully, and with the help of your advisor. Please see the Academic Calendar and the College Catalog for specific dates and procedures regarding the withdrawal process.

Math Placement Tests: The purpose of the Math Placement Exam is to assess a student's background and place him/her in an appropriate level of mathematics so as to increase the likelihood of a student's success. If a student believes that he/she has been misplaced in a math class, the student is responsible for speaking with his/her math teacher during the first week of class. If, after reassessing the placement, the math teacher believes that the student should be reassigned to another math class, the student must complete the course change process before the second week of class.

IMPORTANT COLLEGE POLICIES!! PLEASE READ CAREFULLY!

For information about the college's policies and procedures regarding academic honesty, accessibility/disability services, attendance, audio-recording in the classroom, grade appeals, plagiarism, religious accommodations, weather and emergency closings, and more, please go to the following website: www.mxcc.edu/catalog/syllabus-policies/ or scan the QR code with your smart phone. Also, please become familiar with the policies regarding nondiscrimination, sexual misconduct, and general student conduct at the following website: www.mxcc.edu/nondiscrimination/.

Departmental Outline

Course Description
Graphs and charts, measures of central tendency and variation. Elementary probability theory, random variables, probability distributions, with emphasis on the binomial and normal. Sampling distributions, hypothesis testing, confidence intervals, correlation and linear regression. Use of technology included. *Prerequisite: Eligible for ENG*101 and MAT*137 (or higher) with a grade of "C" or better OR eligible for ENG*101 and math placement.*
General Objectives of the Course
After completing this course, the student will be able to: - Describe both descriptive statistics and inferential statistics   - Construct (by hand and using technology, as appropriate) and interpret tables, graphs, and numerical summaries of data sets   - Understand the importance of appropriate data gathering methods   - Understand elementary probability theory, discrete and continuous random variables and probability distributions, and sampling distributions   - Construct (using technology, as appropriate) and interpret confidence intervals   - Perform (using technology, as appropriate) and interpret one- and two-sample hypothesis tests (population mean and proportion)   - Find (using technology), interpret, and use the least-squares regression line   - Be better informed citizens as a result of being able to understand and interpret media reports involving statistics and statistical studies

		Specific Objectives of Instructional Unit
Unit No.	Instructional Unit	Assume that each statement is prefixed with "The student will be able to".
1	Introduction to Statistics	• Explain how the scientific method applies to statistics • Formulate null and alternative hypotheses • Explain direction of the extreme and how it determines alternative hypotheses • Explain p-value and how it is used to make decisions • Explain Type I and Type II errors and their consequences • Explain the difference between population and sample • Explain how a parameter differs from a statistic
2	Producing Data	• Explain various types of bias that may occur in statistical studies • Explain the difference between the target population and the sample • Explain factors to consider when designing a statistical study • Identify and explain various types of sampling • Generate random integers appropriately in applied situations • Explain the difference between response variables and explanatory variables • Explain confounding variables • Explain the difference between treatment and control groups • Explain the difference between experimental study and observational study • Explain the difference between retrospective and prospective studies
3	Summarizing Data Graphically and Numerically	• Explain the meaning of *descriptive statistics* • Construct (by hand and with technology, where appropriate) and interpret frequency distributions, relative frequency distributions, bar charts, pie charts, histograms, stem-and-leaf displays, box-plots, and time plots. • Identify misleading graphical displays • Recognize and interpret symmetry and skewness in a distribution • Interpret the numerical summary measures • Calculate (by hand or using technology, as appropriate), explain, and interpret mean, mode, median, range, variance, standard deviation, percentiles, and quartiles for a given data set

4	Probability	• Demonstrate understanding of normal distributions • Apply the 68-95-99.7% Rule • Explain and apply standardization • Find proportions and percentiles using normal distribution • Explain the concept, vocabulary, and rules of probability • Identify sample spaces and events • Explain disjoint events • Find probabilities of events • Combine events using complement, union, and intersection • Apply the definition of independence • Apply the laws of probability • Explain random variables • Explain the difference between discrete and continuous random variables • Construct and interpret probability distribution tables and graphs • Calculate (by hand or using technology, as appropriate) and interpret mean and standard deviation • Apply (appropriately) the binomial distribution • Explain how to move from discrete to smooth continuous distributions • Apply the knowledge that probability for continuous random variables is represented by area • Explain the concept and importance of and be able to apply normal distributions
5	Sampling Distributions; Making Decisions	• Calculate and apply point estimates for the population mean, standard deviation, and proportion • Explain the meaning of the sampling distribution of a statistic • Describe the characteristics of the sampling distribution of the sample mean and sample proportion • Apply the Central Limit Theorem • Apply the t-distribution, when appropriate • Construct confidence intervals (by hand and using technology, as appropriate) for mean and proportion • Determine the minimum required sample size if given level of confidence and margin of error • Perform hypothesis tests (by hand and using technology, as appropriate) for population mean and population proportion and interpret their results • Interpret p-value

| 6 | More about Making Decisions | Construct appropriate confidence intervals in two-sample situations Perform appropriate hypothesis testing in two-sample situations Calculate (by hand or using technology, as appropriate), interpret, and use appropriately the least-squares regression equation for a data set Explain the dangers of extrapolation Explain residuals Perform residual analysis Distinguish between influential points and outliers Calculate and interpret the correlation coefficient |