Syllabus

Statistics for Business and Economics

BSAD 210 FAll 2018

Instructor:	Maurice Shihadi
	Department of Business and Economics
	Montgomery College - Rockville
Email:	maurice.shihadi@montgomerycollege.edu
Cell Number:	301.512.3890 (Text is Best)
Office Location:	HU 252

Office Hours:	Mondays:	12:00 to 2:00 PM
	Tuesdays:	02:00 to 03:00 PM
	Wednesdays:	12:00 to 2:00 PM

* *or by appointment as needed.*

Course Information:	CRN 20705 T, TH 11:00 AM to 12:15 PM: Room HU319
Course Length:	08/27/2018 to 12/16/2018
Course Materials:	All course materials (lectures, practice exams, syllabus) will be available on Blackboard, in addition to the use of Excel.

I. Course Description

An introductory course in the business and economic application of descriptive and inferential statistics. The meaning and role of statistics in business and economics, frequency distributions, graphical presentations, measures of central tendency and dispersion, probability, discrete and continuous probability distributions, inferences pertaining to means and proportions, and regression and correlation, time series analysis, and decision theory will be discussed.

Prerequisites: High school algebra or its equivalent or consent of department.

Assessment levels: ENGL 101/101A; MATH 093/096; READ 120. Three hours each week.

II. Resources

- Sharpe, De Veaux, and Velleman. *Business Statistics: A First Course*. 3rd edition, Pearson, 2017. ISBN 13: 978-0-13-418244-5; ISBN 10: 0-13-418244-8 (MyLab Statistics is required).

- Course website: You may access the course website by logging in to MYMC and clicking on My Courses. Then click on the link for this class. Only register for MyLab Pearson access from inside of Blackboard. Instructions inside our book may be misleading. Also, be sure to use the same login if you already registered. Click the recovery link if you need your password again. You may access technical support by calling 240-567-7222. No issues should take longer than a day to resolve. Please contact me immediately if you cannot get your problem resolved within a day so I can try to assist you.

- Please check out the Blackboard site regularly for chapter homework, quizzes, weekly PowerPoint presentations, project handouts and other relevant materials. **The use of MyLab Statistics is required** for this course to complete homework assignments and online testing. Please forward your school email to your personal email to stay in be aware of changing during the semester (if there are any).

III. Student Learning Outcomes

Upon completion of this course, the student will be able to:

1. Organize and present data in a tabular as well as graphical format;
2. Ascertain the appropriate use of and can calculate various measures of central tendency and dispersion;
3. Describe data using measures of central tendency and dispersion as well as coefficients of skewness and/or kurtosis;
4. Calculate and distinguish between various types of probability for one or more events;
5. Evaluate probabilistic statements for discrete as well as continuous probability distributions;
6. Ascertain the appropriate use of various discrete as well as continuous probability distributions;
7. Make inferences based upon large as well as small samples through the development of one-tailed and two-tailed tests of hypotheses pertaining to population parameter;
8. Develop and apply regression and correlation models;
9. Develop and apply a time series model for forecasting.

* Classes may include a combination of lecture, class participation/discussion, occasional short videos, and in-class projects. **Please read the assigned chapter *prior* to each class session in order to better understand the content we cover.** Assigned work may change during the semester according to the pace of the class.

IV. Format and Procedures

This course is made up mostly of lecture with class discussion and class activities to emphasize important concepts. Class discussion is paramount to the class toward an understanding of statistical analysis and how it can be interpreted, in addition to completion of all homework in a timely fashion.

V. My Assumptions

I assume we:

1) Have an open-minded intellectual curiosity about the world around us.
2) Are familiar with basic algebra and can correctly interpret diagrams and tables.
3) Will complete the indicated readings and supplemental publisher exercises.
4) All understand this course is about how to interpret and solve business problems, not how to use a scientific calculator or Excel.
5) Are learning to use statistical tools as a prerequisite to understanding and interpreting statistics and its usefulness to business.

VI. Your Responsibilities

You are responsible for all information in class even if you are late or absent. You are also responsible for checking your campus email daily. Course changes, suggestions for study, and other important messages will be posted by campus email and the "Announcements" section of Blackboard. Since Montgomery College email is the official means of communication, all students should forward their college email before the first week of class.

We will refrain from using smartphones while in class. This includes the use of social media. Side conversations or other behavior that disrupts the learning process is discouraged and could result in loss of participation points.

If you have a question, you are strongly encouraged to text me with a follow-up email or visit me during office hours. Our method of contact should be through my email address at Montgomery College. Do ***not*** email me through other methods, including Blackboard (unless I ask you to). I may not respond to such messages.

VII. Blackboard

We will be accessing all materials through Blackboard, in addition to using publisher materials and YouTube videos to supplement this course. Contact me immediately if you need help navigating any of our resources.

GroupMe as a Group Messaging App

All students should subscribe to the GroupMe App using their cell phones. This will allow us to help each other in potentially real-time communication. This QR Code or URL will automatically subscribe us to our class account.

https://groupme.com/join_group/33297878/pDxQdp

VIII. Standards of College Behavior

This section is quoted from the Student Code of Conduct*. For more information, please visit http://cms.montgomerycollege.edu/EDU/Verified_-_Policies_and_Procedures/PDF_Versions/42001_Student_Code_of_Conduct/.*

The College seeks to provide an environment where discussion and expression of all views relevant to the subject matter of the educational forum are recognized as necessary to the educational process.

However, students do not have the right to interfere with the freedom of the faculty to teach or the rights of other students to learn, nor do they have the right to interfere with the ability of staff to provide services to any student.

Faculty and staff set the standards of behavior that are within the guidelines and spirit of the Student Code of Conduct or other College policies for classrooms, events, offices, and areas, by announcing or posting these standards early in the semester.

If a student behaves disruptively in the classroom, an event, an office, or an area after the instructor or staff member has explained the unacceptability of such conduct and the consequences that will result; the student may be asked to leave that classroom, event, office, or area for the remainder of the day. This does not restrict the student's right to attend other scheduled classes or appointments. If the student does not leave, the faculty or staff member may request the assistance of Security.

The faculty or staff member must communicate with the student about the incident before the next class meeting to resolve the issue. If a second incident occurs that warrants removal from class, the faculty member again communicates with the student and must send a written report about the incident to the Dean of Student Development with a description of the incident and whether or not the incident is being referred to the formal disciplinary process.

The Dean of Student Development or designated instructional Dean of Workforce Development and Continuing Education should be informed in writing about any situation that should be addressed through the formal disciplinary process. The faculty or staff member will provide the Dean of Student Development with a written summary of the facts or conduct on which the referral is based within 48 hours of the incident for appropriate and effective disciplinary process, which must include the date, time, place, and a description of the incident.

IX. Academic Dishonesty

This section is quoted from the Student Code of Conduct*. For more information, please visit http://cms.montgomerycollege.edu/EDU/Verified_-_Policies_and_Procedures/PDF_Versions/42001_Student_Code_of_Conduct/.*

The maintenance of the highest standards of intellectual honesty is the concern of every student, faculty and staff member at Montgomery College. The College is committed to imposing appropriate sanctions for breaches of academic honesty.

See the above link for more information concerning what constitutes academic dishonesty and misconduct as well as possible sanctions imposed as punishment.

X. Disability Support Services

Any student who needs an accommodation due to a disability should make an appointment to see the course instructor during office hours. In order to receive accommodations, a letter from Disability Support Services will be needed. Furthermore, any student who may need assistance in the event of an emergency evacuation must identify the Disability Support Services Office.

XI. Veterans' Services

If you are a veteran or on active or reserve status and you are interested in information regarding opportunities, programs, and/or services, please visit the Combat2College website at http://www.montgomerycollege.edu/combat2college/.

XII. Attendance

Excessive absence is defined as **one more absence than the number of classes per week** during a fall or spring semester; the number of absences is pro-rated for accelerated sessions. Students are expected to attend all class sessions. In cases involving three or more absences from class, the instructor may drop the student from the class. Students with a pattern of late or arrival may lose double the amount of point for participation allocated each week.

XIII. Withdrawal and Refund Policy

It is the student's responsibility to drop a course. Non-attendance of classes or failure to pay does not constitute official withdrawal. To view specific drop deadlines, log into your MyMC account, click on "View My Class Schedule" under "Student Tools." Select the current term and click "View Drop Deadline Dates" at the bottom of the page. **Auto-drop should not be assumed**.

XIV. Audit Policy

All students registered for audit are required to consult with the instructor before or during the first session in which they are in audit status, and students are required to participate in all course activities unless otherwise agreed upon by the student and instructor at the time of consultation.

XV. Delayed Opening and Closing of College

On occasion, Montgomery College will announce a late opening or early closing of a specific campus or the entire college because of weather conditions or other emergencies.

- If a class can meet for 50% or more of its regularly scheduled meeting time ***or*** if the class can meet for 50 minutes or more, it will meet.
- Montgomery College will always operate on its regular schedule unless otherwise announced. Depending on the nature of the incident, notifications of emergencies and changes to the College's operational status will be communicated through one or more communication methods include the College's web page.

XVI. Course Changes

The instructor reserves the right to alter the schedule of the course if necessary but will notify the students of any changes to the schedule before the changes are implemented via Blackboard announcement and/or student email.

XVII. Grading, Evaluation, and Assessment Procedures

a) **Class Participation:** Face to face interaction (or online discussion during an online course) each per week. Participation includes asking and/or answering questions pertinent to the class. Students must post a minimum of three times for online courses. Please see me during office hours for support as needed.

b) **MyLab Statistics *Home Work:*** There will be twelve statistical analysis-based homework assignments completed through MyLab Statistics found in Blackboard. We will have three (3) attempts to complete each homework assignment. The score for the homework will be the best score. Additional homework should be attempted after accessing and completing online "Example" problems. Students should also review odd number exercises at the end of each chapter that have answers at the end of the textbook, in addition to YouTube videos presented in the content area for online students. Any homework submitted after the due date will not be accepted unless there is a special circumstance. In this case, there may be a 50% penalty assessed on a case by case basis.

c) **Text Book Alignment:** Please note, the way statistical formulas work remains consistent regardless of the different terminology that may be used in one book or video versus another. I good understand of Algebra, the order of operations, and so on, will help a great deal. Please consult with other students (via GroupMe chat) or the instructor if you need further clarification. Most of what we learn will come from completing Blackboard homework exercises (1-2 Hours Per Day).

d) ***Tests*:** The three tests will comprise multiple-choice questions assessing vocabulary and chapter concepts (some can be found at the end of each chapter). All exams are expected to be completed on time. Late exams will generally not be accepted. Exceptions will only be made in extreme circumstances (such as a death in the family) accompanied by written proof (such as a death certificate) uploaded to Blackboard in a private email after meeting with me.

e) **Final Exam:** One Final Exam to be given in class during finals week.
Our final exam will consist of copies of problems reviewed in class using different values and/or logic. Please take good notes and compare them with your study group members.

Assessment Schedule – Points and Percentages

Work Activity	Points	Times Assessed	Total	% of Grade
Class Participation	10	15	150	13.04%
Homework - Online	50	12	600	52.17%
Part I Test – Online	100	1	100	8.70%
Part II Test – Online	100	1	100	8.70%
Part III Test – Online	100	1	100	8.70%
Final Exam – Face to Face	100	1	100	8.70%
Total			1150	100.01%
* Point distributions will be rounded to the highest whole number. * We may add or remove opportunities depending on the pace of the class. * Grades can be calculated using total points earned divided by total points possible.				

XVIII. Late Policy

Late homework assignments and tests are not accepted unless there is a verifiable excuse in accordance with Montgomery College policies submitted to me within 5 business days of the missed class.

If you miss our final exam, you must contact me immediately to assess the reason, so we can make arrangements with the Montgomery College Assessment Center if necessary. Make-ups are not possible if I am not notified in a reasonable time (2 days).

Poor Internet or other technical problems is not a compelling reason to turn in an assignment late; this is a foreseeable problem—akin to traffic—and it's a possibility that should be accounted for. Alternatives could include using a "hot spot" from your phone, using someone else's hot spot, or going to a public place that offers free internet (coffee shop, café, etc.).

XIX. What's My Grade?

All assignments are out of approximately 1150 points. This total may be adjusted lower depending on the pace of the class and whether or not we can complete our last chapter. For participation, we should adjust the points for how far in the semester, in addition to accounting for any offline tests that have not been graded yet.

Note: The whole class needs shows improvement week to week. This means you guys should meet in study groups to go over problems together at the same time. This can be accomplished using GroupMe, Skype or meeting face to face in the business department study area. Please remember helping means figuring out "How" to complete a problem and being able to explain the results as they apply to business, not just getting the right answer.

Grading Scale (points needed for specific grades). Grades, for both the midterm and the semester, will be determined by how many points we have accumulated throughout the semester divided by the total possible points to date.

A: 90%+	B: 80-89.99%	C: 70-79.99%	D: 60-69.99%	F: 0-59.99%

Note that these are strict bounds: if you get 89.99 points for the semester, that's a "B," not an "A." I will only "adjust points up" for individuals if I feel it's appropriate. Guidelines for a possible adjustment made once at the end of the semester may mean you:

- Regularly went above and beyond what's required for full credit (such as discussion participation);
- Exhibited increasing mastery of the material as the semester moved forward (impressive, since the material gets harder as the semester moves forward); and/or
- Consistently demonstrated an understanding of particularly important question(s), especially if your fellow students had trouble with such question(s).

XX. Weekly Schedule - Subject to Change in Accordance to the Pace of the Class

MyLab Statistics homework and tests are mostly due within two weeks of the start date unless otherwise notified in writing.

Online Home Work Assignments (Mostly in Two Week Intervals)
Other activities completed per the pace of the class.

WK	Assignment Name	Category	Start	Due Date 11:59 PM
1	Chapter 1: Data and Decisions	HW	8/27/2018	9/09/2018
2	Chapter 2: Displaying and Describing Categorical Data Chapter 3: Displaying and Describing Quantitative Data	HW	9/03/2018	9/16/2018
3	Chapter 4: Correlation and Linear Regression	HW	9/10/2018	9/23/2018
4	Chapter 5: Randomness and Probability	HW	9/17/2018	9/30/2018
1-4	**Part I Test – Chapter 1-4**	**Test**	9/17/2018	9/23/2018
5	Chapter 6: Random Variables and Probability Models	HW	9/24/2018	10/07/2018
6	Chapter 7: The Normal and Other Continuous Distributions	HW	10/01/2018	10/14/2018
7	Chapter 8: Surveys and Sampling	HW	10/08/2018	10/21/2018
8	Chapter 9: Sampling Distributions and Confidence Intervals for Proportions	HW	10/15/2018	10/28/2018
5-8	**Part II Test – Chapter 5-8**	**Test**	10/15/2018	10/28/2018
9	Chapter 10: Testing Hypotheses about Proportions	HW	10/22/2018	11/04/2018
10	Chapter 11: Confidence Intervals and Hypothesis Tests for Means	HW	10/29/2018	11/11/2018
11	Chapter 11: Confidence Intervals and Hypothesis Tests for Means	HW	10/29/2018	11/11/2018
12	Chapter 12: Comparing Two Means	HW	11/12/2018	11/25/2018
13	Chapter 12: Comparing Two Means (11/21- 11/25 Holiday)	HW	11/12/2018	11/25/2018
9-12	**Part III Test – Chapter 9-12**	**Test**	11/12/2018	11/25/2018
14	Chapter 14: Inference for Regression	HW	11/26/2018	12/09/2018
15	Chapter 14: Inference for Regression	HW	12/03/2018	12/16/2018
	Finals Week		12/10/2018	12/16/2018
1-14	**Midterm (70 pts.) and Final (70 pts.) Participation** One or more absences during each week lose 10 points per week. One or more absences during each week after three absences loses 20 points per week. See our syllabus for more information. Online student are also graded on the amount and quality of posts in accordance with instructions.	HW	12/03/2018	12/16/2018
1-12	**Final Exam (Offline) Room HU313** **10:15 AM through 12:15 PM** * Students in the online class will take the exam at the Rockville Campus Assessment Center between 12/10 and 12/16 during their hours of operation.	TEST	12/03/2018	12/09/2018

Weekly Chapter Objectives

Answers for odd numbered textbook exercises can be found at the back of the book. Complete problems needed for practice prior to completing online homework. Always complete "Question Help" and "Similar Problems" at the top right corner of every problem until you are comfortable enough to answer the real question. Three attempts are allowed for online homework. Online tests only allow one attempt. Working in study groups for homework is highly recommended. Everything we do is a point collection exercise with grades only calculated for mid-terms and finals.

One or more of these topics will be covered during class lectures and used only as a supplement to online homework. Do not assume you will understand everything by only attending class. Reading each chapter and completing all online homework, plus viewing. YouTube videos provided in Blackboard is required to earn an "A" in this course. Please manage your time wisely and work in study groups.

* Online classes should refer to our Blackboard Discussion area.

Discussion Topics ***** Discussion topics will adjust depending upon the pace of the class.	**MyLab Statistics/Book Alignment to Discussion and Homework:** Complete Graded Online Homework Before Deadline
Week 1 Introduction to Statistics Population from Samples Descriptive vs. Inferential Statistics Applying Definitions of Statistics	**Chapter 1: Data and Decisions** 1.1 What Are Data? 1.2 Variable Types 1.3 Data Sources: Where, How, and When
Week 2 The Frequency Distribution Relative and Cumulative Frequency Distributions Pie Charts, Bar Graphs, and Pareto Charts Histograms Stem and Leaf Diagrams	**Chapter 2: Displaying and Describing Categorical Data** 2.1 Summarizing a Categorical Variable 2.2 Displaying a Categorical Variable 2.3 Exploring Two Categorical Variables: Contingency Tables 2.4 Segmented Bar Charts **Chapter 3: Displaying and Describing Quantitative Data** 3.1 Displaying Quantitative Variables 3.2 Shape 3.3 Center 3.4 Spread of the Distribution 3.5 Shape, Center, and Spread–A Summary 3.6 Standardizing Variables 3.9 Identifying Outliers

Discussion Topics ***** Discussion topics will adjust depending upon the pace of the class.	**MyLab Statistics/Book Alignment to Discussion and Homework:** Complete Graded Online Homework Before Deadline
Week 3 Correlation and Linear Regression Population Mean and Sample Mean Calculating Means Median and Mode Data Range	**Chapter 4: Correlation and Linear Regression** 4.1 Looking at Scatterplots 4.2 Assigning Roles to Variables in Scatterplots 4.3 Understanding Correlation 4.4 Lurking Variables and Causation 4.5 The Linear Model 4.6 Correlation and the Line 4.7 Regression to the Mean 4.8 Checking the Model 4.9 Variation in the Model and R2
Week 4 **Randomness and Probability** Random Variables and Discreet Probability Distributions The Normal Probability Distribution Properties of the Normal Distribution	**Chapter 5: Randomness and Probability** 5.1 Random Phenomena and Probability 5.2 The Nonexistent Law of Averages 5.3 Different Types of Probability 5.4 Probability Rules 5.5 Joint Probability and Contingency Tables 5.6 Conditional Probability 5.7 Constructing Contingency Tables 5.8 Probability Trees
Week 5 Random Variables and Probability Models The Area Under the Normal Distribution The Standard Normal Distribution Practice with Standard Normal Distributions Using a Z-Chart Table Finding Probability Using a Normal Distribution Findings Z Values with a Normal Distribution Using a Z-Chart Table	**Chapter 6: Random Variables and Probability Models** 6.1 Expected Value of a Random Variable 6.2 Standard Deviation of a Random Variable 6.3 Properties of Expected Values and Variances 6.4 Bernoulli Trials 6.5 Discrete Probability Models

Discussion Topics ***** Discussion topics will adjust depending upon the pace of the class.	**MyLab Statistics/Book Alignment to Discussion and Homework:** Complete Graded Online Homework Before Deadline
Week 6 Normal Probability Distribution Finding Probability Using a Normal Distribution Findings Z Values with a Normal Distribution Sampling Distributions Central Limit Theorem Applying Central Limit Theorem to Population Means Confidence Intervals for Population Means Estimating Population Means (Large Samples)	**Chapter 7: The Normal and Other Continuous Distributions** 7.1 The Standard Deviation as a Ruler 7.2 The Normal Distribution 7.3 Normal Probability Plots 7.4 The Distribution of Sums of Normals 7.5 The Normal Approximation for the Binomial 7.6 Other Continuous Random Variables
Week 7 Sampling Surveys Estimating Population Proportion from Sample Proportion Population and Sample Variance Calculating Variance Population and Sample Standard Deviation Calculating Standard Deviation Coefficient of Variation Standard Deviation of Data in a Frequency Table	**Chapter 8: Surveys and Sampling** 8.1 Three Ideas of Sampling 8.2 Populations and Parameters 8.3 Common Sampling Designs 8.4 The Valid Survey 8.5 How to Sample Badly
Week 8 Sampling Distributions Sampling Distribution/Confidence Intervals Finding Required Sample Size Empirical Role of Standard Deviation Empirical Rule Problems Chebyshev's Theorem and Standard Deviation Quartiles of Data Boxing Whisker Plots Standard Score (z-score)	**Chapter 9: Sampling Distributions and Confidence Intervals for Proportions** 9.1 The Distribution of Sample Proportions 9.2 The Sampling Distribution for Proportions 9.3 A Confidence Interval for a Proportion 9.4 Margin of Error: Certainty vs. Precision 9.5 Choosing the Sample Size

Discussion Topics ***** Discussion topics will adjust depending upon the pace of the class.	**MyLab Statistics/Book Alignment to Discussion and Homework:** Complete Graded Online Homework Before Deadline
Week 9 Hypothesis Testing	**Chapter 10: Testing Hypotheses about Proportions** 10.1 Hypotheses 10.2 A Trial as a Hypothesis Test 10.3 P-Values 10.4 The Reasoning of Hypothesis Testing 10.5 Alternative Hypotheses 10.6 Alpha Levels and Significance 10.7 Critical Values 10.8 Confidence Intervals/ Hypothesis Tests 10.9 Two Types of Errors
Week 10 Testing Hypothesis About Proportion	**Chapter 11: Confidence Intervals and Hypothesis Tests for Means** 11.1 The Central Limit Theorem 11.2 The Sampling Distribution of the Mean 11.3 How Sampling Distribution Models Work
Week 11 Hypothesis Testing for Population Mean The Student T- Distribution Using the Student T- Distribution Statistical Tables	**Chapter 11: Confidence Intervals and Hypothesis Tests for Means** 11.4 The t-Distribution 11.5 A Confidence Interval for Means 11.6 Assumptions and Conditions 11.7 Testing Hypotheses about Means– the One-Sample t-Test
Week 12 Comparing Two Means – Discussion with Class Activities	**Chapter 12: Comparing Two Means** 12.1 Comparing Two Means 12.2 The Two-Sample t-Test 12.3 Assumptions and Conditions
Week 13 Comparing Two Means – Discussion with Class Activities	**Chapter 12: Comparing Two Means** 12.4 A Confidence Interval for the Difference Between Two Means 12.5 The Pooled t-Test 12.6 Paired Data 12.7 Paired t-Methods

Discussion Topics ***** Discussion topics will adjust depending upon the pace of the class.	**MyLab Statistics/Book Alignment to Discussion and Homework:** Complete Graded Online Homework Before Deadline
Week 14 Inference for Regression	**Chapter 14: Inference for Regression** 14.1 A Hypothesis Test and Confidence Intervals for the Slope 14.2 Assumptions and Conditions 14.3 Standard Errors for Predicted Values 14.4 Using Confidence and Prediction Intervals
Week 15	**Final Exam**