UMSL Online

Syllabus: SCMA 3300, Fall 2023
Business Analytics and Statistics

About the Instructor:

Contact Information:
Name: Dr. Shakiba Enayati
Email address: senayati@umsl.edu
Campus office: #209-ESH
Class Time: No Regular Meeting Time- **100% online**
Office Hours: <u>always virtual</u>- **Tuesdays from 12 pm to 2 pm or by appointment** via Zoom (https://umsystem.zoom.us/my/shakiba**).**

Welcome: I am excited to welcome you to SCMA 3300. Business analytics is the process of using quantitative methods to gain insights from data in order to make informed decisions about business problems. My goal is to make these methods understandable and enjoyable for all by explaining the intuition behind the concepts and providing examples in different applications. In order to make the most of the course, however, it will take effort from you to complete assignments in a timely manner and a willingness to ask questions when you do not understand something.

Also, Office hours are important in supporting you throughout this course. Even if you don't have specific questions, needs, and concerns, I would love to meet up with you at least once during this semester. Just virtually stop by and say hi!

Instructor Bio: I joined Supply Chain and Analytics Department at UMSL in the fall 2020 and before that I was teaching at SUNY- Plattsburgh. I do research on analytical modeling and optimization of complex systems as applied to healthcare and service systems. For example, I've recently worked on the optimal distribution of a limited supply of influenza vaccine in an equitable manner to contain an outbreak. I also work on a few ongoing projects for vaccine delivery using drones in less-developed countries. I enjoy finding the best course of action for difficult strategic and tactical problems for which there are no immediate and obvious solutions. In my spare time, I enjoy hiking with my husband, watching movies, and reading classic novels.

Teaching Philosophy: My teaching techniques and strategies have evolved around three essential principles:

(1) *interactive learning*: my primary responsibility as a teacher is to design learning processes and environments in which students continually interact with me and their peers
(2) *goal orientation*: I link my lectures to several bigger-picture learning objectives,
(3) *incentivizing via rewards*: I reward students' achievements on different levels.

I endeavor to provide a strong foundation of business analytics and to foster enhanced critical thinking skills that will build students' confidence in their ability to apply quantitative methods in practice and to learn new techniques as needed. To reach these goals, I will ask questions that require you to think through problems and consider how different concepts are related to each other. I will also encourage you to make connections between the class material and your everyday lives.

Distance learning for me is like understanding and connecting to the world for someone who has lost their sight; that is, they are not able to use every "**normal**" tool to connect to the world. It is the role of the instructor, student's collaboration and their consistent hard work that would help sharpen other senses for making the best possible experience! What does it mean? it means we are going to work **harder together** to make that happen.

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Communication Plan:
All emails from the instructor will be sent to each student's UMSL email address. Check this email address regularly. Treat all email as professional correspondence with an appropriate salutation and closing.

During the week (Monday-Friday), all students' emails sent by 5 pm will be responded by the end of the day. Emails sent after 5 pm will be replied within 24 hours. Be advised that questions posed over the weekend (i.e., after 5 p.m. Friday) may not be answered until the following Monday afternoon.

Teaching Assistant/Tutor: TBA

About this course:

Course Overview: Today, most organizations emphasize data to drive business decisions, and rightfully so. But data alone is not the goal. Facts and figures are meaningless if you can't gain valuable insights that lead to more-informed actions. How do companies make sense of data and understand the uncertainties they face on a daily basis? In this course, you will learn quantitative methods to analyze data and derive insights that can be leveraged for a competitive edge. This course examines probability distributions as a basis of statistical inference and introduces multivariate analysis, including regression methods. The course will include case studies with software analysis (Excel) to demonstrate the application of course content.

Course Description: Analytics solutions offer a convenient way to leverage business data. But the number of solutions on the market can be daunting—and many may seem to cover a different category of analytics. This course provides introductory knowledge on the three pillars of analytics: descriptive, predictive, and prescriptive analytics. These are all forms of data analytics, but each uses the data to answer different questions. At a high level:

- *Descriptive Analytics*: looks at data statistically to tell you what happened in the past.
- *Predictive Analytics*: takes historical data and feeds it into a machine learning model that considers key trends and patterns. The model is then applied to current data to predict what will happen next.
- *Prescriptive Analytics*: takes predictive data to the next level. Now that you have an idea of what will likely happen in the future, what should you do? It employs analytical modeling to suggest various courses of action and outlines what the potential implications would be for each.

Course Objectives: Your attainment of the following goals will be assessed based on homework scores, quiz scores, and 3 exams.
- Formulate and analyze problems based on data
- Understand methods for descriptive, predictive and prescriptive analytics and apply the methods for small case examples
- Use statistical software such as Excel to conduct data analyses
- Appreciate the significance of statistics and data analytics in a business context

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Schedule:

All lecture recordings are posted offline. Every week contains example problems and additional contents to help with the content presented in the main lecture videos for that week.

Each Wednesday, the new weekly content will be uploaded, and the assignment and quiz due dates for that week are set for the end of the following Tuesday.

Required Text:

Business Analytics: Data Analysis and Decision Making by Albright & Winston, 7th edition (Cengage).

This class participates in the Cengage unlimited/auto access programs for the textbook. Students pay for online access to all Cengage titles. Online access is necessary to complete the online homework which includes helpful supplemental material for many of the problems.

Hard copies of the book are available separately through the Triton Store and various online sellers. However, if you prefer to study from a hard copy, you can often save money by purchasing a used copy of an older edition of the book.
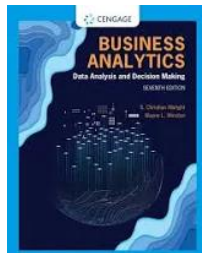
Auto Access (UMSL Digital Content Solution):

This course is part of our AutoAccess program designed to reduce the cost of course materials for students. You will be able to access the digital content for this course through Canvas on *the first day of class* automatically. Your student account will be charged for the cost of the digital course material.

You have access to your MindTap through Cengage Unlimited – a digital subscription service. With Cengage Unlimited you can access ALL Cengage materials you are using in ANY courses AND a library of 22,000+ ebooks, study guides and reference materials. The lowest cost content has been sourced. If you choose to opt out of the content please do so by **Sep 5, 2023** to receive a refund. Through this program, the lowest cost content has been sourced compared to competitive market rates.

You will be sent an AutoAccess Welcome Email that will provide charge amounts, the opt-out process and any additional information needed for your AutoAccess course(s).
The AutoAccess Welcome Email will provide charge amounts, the opt-out process and any additional information needed for your AutoAccess courses.

Title: Business Analytics: Data Analysis & Decision Making 7E

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Author: Albright
Content Type: MindTap

Your AutoAccess course may have a Print Upgrade available as an additional purchase. This is a low-cost version of the printed text made available by the publisher at a reduced cost. It is the publisher's requirement that in order to purchase the additional print, you must be opted in for the AutoAccess digital required material. If you have questions about Print Upgrades and opting out, please contact us at autoaccess.umsltritonstore.com.

For help accessing your digital content in Canvas, please refer to the help guides:
https://www.cengage.com/coursepages/UMSLStudents

If you have any questions please contact the Triton Store 314-516-5763, email autoaccess@umsl.edu or visit autoaccess.umsltritonstore.com.

Cengage Virtual Student Help:

Visit "Student Help" at https://help.cengage.com/student/ for any Cengage-related issues. If you are ever having a technical issue you feel isn't being resolved in a timely manner please send your support ticket to Mary Rhodes (mary.rhodes@cengage.com) and she will escalate your issue.

Time Requirements:
In-person versions of this course include 2.5 hours/week of time in class plus time outside of class for studying the material and completing assignments. The time requirements of the online version are no different in terms of the expectations for your involvement.
This is an active online course that *requires 2.5 hours/week of your time* for reviewing contents and prepare, in addition to the time it takes you to complete assignments. You should plan to spend a *minimum of 6 hours a week* (up to 9-10 hours a week) on activities related to this course.

Technology Requirements:
As a student in a hybrid course, you are expected to have reliable internet access almost every day. If you have computing problems, it is your responsibility to address these or to use campus computing labs. Problems with your computer or other technology issues are not an excuse for delays in meeting expectations and missed deadlines for the course. If you have a problem, get help in solving it immediately.
At a minimum, you will need the following software/hardware to participate in this course:
1. Computer with an updated operating system (e.g. Windows, Mac, Linux)
2. Updated Internet browser of your choice
3. Ability to navigate Canvas (Learning Management System)
4. Minimum Processor Speed of 1 GHz, 2 or more GHz recommended.
5. DSL or Cable Internet connection or a connection speed no less than 10 MB/s
6. Media player such as Windows Media Player to open course media. Flash player may be required by some aspects of the course and is available as a free download (http://get.adobe.com/flashplayer/)
7. Adobe Acrobat to open PDF files throughout the course – available as a free download (http://get.adobe.com/reader/)

8. A webcam and/or microphone is highly recommended.
9. <mark>Access to a full copy Microsoft Excel **that includes the data analysis add-in and the solver add-in**. Students can get a version for free (http://products.office.com/en-us/student/office-in-education)</mark>

Calculators: _All calculations in this course can be done in Excel_ and as we move forward, the methods we learn will be more dependent on Excel. You may, however, use a calculator specially at the beginning while you are getting used to Excel.

You may use any calculator of your choice. Students who would like to use calculator at the beginning, tend to do better in the course if they use either a scientific calculator or a graphing calculator. Having a screen that shows what you typed is a surprisingly large advantage.

Prerequisite: MATH 1105, INFSYS 1800 and a 2.0 campus GPA

Succeeding in This Course: This course will include a mix of lecture, example problems, small offline discussions, group assignments, and small case studies as computer lab assignments. Success requires your active and ongoing participation including:

1. Due to the quantitative nature of the course, it is highly recommended that the students work on an adequate number of exercises (examples, solved problems, homework assignments) to succeed in this class.
2. Accessing and completing all assignments in a timely manner.
3. Ensure that you understand the homework problems that you solve rather than blindly plugging-in numbers following an example. If you see a similar but different problem in the future (such as a quiz or exam), make sure you would know how to approach it and solve it.
4. Staying up-to-date on the material. If you fall behind, it is very difficult to catch up.
5. Asking questions and reaching out for help when you do not understand something.
6. Taking advantage instructor (and tutor) office hours.
7. Checking your email regularly for any class updates.

<mark>**If this is your first online course, it is recommended that you log into Canvas and complete the Online Course Overview listed in your Canvas course list.** If you've already completed the orientation, you do not have to retake it but you can refer to it for helpful videos and tutorials about the technologies used in this course.</mark>

Class Rules:

1. You are expected to regularly (_at least once a day_) check the Canvas course website as it will be the main channel of our communication. Please double check your notification setting on Canvas to make sure you are properly receiving updates.
    a. Due dates for all assignments and exams will be posted on Canvas. Tentative dates are provided at the beginning of semester but they are subject to change.
2. There will be a homework assignment each week, which is due in a week when the next week's materials are posted. Assignments and their due dates will be posted on Canvas**. No late assignment will be accepted.**
3. There will be a weekly quiz, also due in a week when the next week's materials are posted. No make-up quiz is given, except for unusual circumstances.
4. Group assignments will be given in the form of case studies. Detailed instructions will be given on every case study.

5. There are three exams (exams are not cumulative, except for the optional final exam). It is the student's responsibility to attend each exam. **NO MAKE-UP, LATE OR EARLY EXAMS WILL BE GIVEN** in general, except for unusual circumstances or documented medical emergencies. Signed documents with official letter head are required for a makeup exam.

6. It is expected that all assigned reading material will be done prior to the class meeting for which it is assigned.

7. Cheating (including plagiarism) is **not tolerated** and it will lead to the student expulsion from the course.

**Honor Code*: It is expected that all students enrolled in this class support the letter and the spirit of the Academic Honesty Policy as stated in the college catalog.*

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Tentative Course Outline:

Week	Date	BA	Topics	Lectures	Chapter
1	23-Aug		Unit 1: The Normal Distribution & Sampling	The normal distribution	Section 5.4
2	30-Aug			Sampling distributions	Chapter 7
3	6-Sep		Unit 2: Confidence Intervals & Hypothesis Testing	Confidence Interval Estimation	Chapter 8
4	13-Sep			Hypothesis Testing	Chapter 9
5	20-Sep	Descriptive Analytics		Continue Hypothesis Testing	Chapter 9
6	27-Sep		Review Session 1 (EXAM 1 opens from 9/29 through 10/1)		
7	4-Oct		Unit 3: Regression Analysis	Regression Analysis 1	Chapter 10
8	11-Oct			Continue Regression Analysis 2	Chapter 11
9	18-Oct		Unit 4: Time Series Analysis and Forecasting	Time Series & Forecasting	Chapter 12
10	25-Oct	Predictive Analytics		Time Series & Forecasting	Chapter 12
11	1-Nov		Review Session 2 (EXAM 2 opens from 11/3 through 11/5)		
12	8-Nov	Prescriptive Analytics	Unit 5: Optimization	Optimization Modeling I	Chapter 13, 14
13	15-Nov			Optimization Modeling II	Chapter 13, 14
	22-Nov	Thanksgiving Break			
14	29-Nov	Prescriptive Analytics	Unit 6: Advanced Topic	Simulation	Chapter 15
15	6-Dec		Review Session 3 (EXAM 3 opens from 12/8 through 12/10)		
16	13-Dec	Final Week			

Assessment/Grading:

Grading at a Glance:

	Date	Weight
Exam # 1	Sep 29-Oct 1	200 points--20%
Exam # 2	Nov 3-Nov5	200 points--20%
Exam #3	Dec 8-Dec 10	200 points--20%
Quizzes	~Weekly	100 points--10%
Homework Assignments	~Weekly	150 points--15%
Group Assignments /Computer Assignments/ Cases	TBA	150 points--15%

*There is an Optional Cumulative Final Exam which replaces lowest midterm exam score. If final exam score is lower than lowest midterm exam, it does not count. Students may choose not to take the final exam.

The exams 1-3 are not cumulative. However, some concepts from the beginning of the course will reappear throughout the course and will therefore also reappear on later exams. There is a strict time limit of 90 minutes on each exam. Exams will be administered through Canvas. The exams must be completed

individually, but you may use your notes. However, **to succeed on the exams, it is imperative that you know the material without the notes.** Students who attempt to look everything up during the exam will run out of time and will have a high likelihood of failing the exam.

**many extra credit opportunities are included in assignments, quizzes, and exams. Try to take advantage of them as they would enhance your learning experience as well as improve your overall grade at the end.
- One regular opportunity for the extra credit is the Q/A forum. If you correctly respond to a question on the forum, you are subject to receive extra credits. The instructor reserves the right to decide on the amount of credits and the grading components on which the extra credits will be applicable.
  - Note if the question is regarding the weekly assignment (before its due date), you are not allowed to give a complete answer to the question. But you may guide or explain the concept without giving the direct response.
  - You are not to ask or respond to questions on exams or quizzes before their due time.

Grading Scale:
Final letter grades will be assigned based on the following scale; however, the instructor reserves the right to modify the scale below based on class performance. Plus/minus grades will be assigned for scores within 2% points of the grade cutoff scores (e.g., 90-93.99 is an A-, 88-89.99 is a B+).

A = 100%	A- < 94%	B+ < 90%	B < 87%	B- < 84%	C+ < 80%
C < 77%	C- < 74%	D+ < 70%	D < 67%	D- < 64%	F < 61%

The UMSL Grading System is based on a four-point scale. The grade value for each letter grade is as follows:

A = 4.0	B- = 2.7	D+ = 1.3	EX = Excused
A- = 3.7	C+ = 2.3	D = 1.0	DL = Delayed
B+ = 3.3	C = 2.0	D- = 0.7	FN = Failure/Non
B = 3.0	C- = 1.7	F = 0.0	Participation

Assignments in Greater Detail:

Homework
- Homework will be assigned almost weekly. (Some weeks may not have a homework assignment.) Most homework assignments will be completed and submitted online through the MindTap platform accessible through Canvas. A few homework assignments will be directly submitted on Canvas.
- You will have an unlimited number of attempts on all homework problems. All homework must be completed individually, but you are allowed to discuss the concepts with other students.
- *Homework numbering will correspond with the week number on which it is assigned. Some weeks may have more than one homework assignment. In these cases, the assignments will be numbered HW 1.1, HW 1.2, HW 1.3, etc.*

Quizzes
quizzes are short, multiple choice/short-answer questions that correspond to the weekly material and its homework assignment. For example, Quiz 1 covers the content from HW 1. The quizzes are open-note. The best way to prepare for the quiz is to ensure that you understand all the concepts and

problems in both the weekly lecture and homework. The problem(s) on the quizzes will be similar in format and content to the homework, but conceptual questions from the lecture are also included. Weekly quizzes are always open on Friday at midnight through Monday by 11:59 pm.

Computer Lab Assignments Using Excel
- There will be three computer assignments using Excel throughout the course that involve some analysis in Excel and you may work in your group to submit them (the groups will be selected/assigned at the beginning of the semester).
- An Excel template will be given and you would need to fill it and submit. One submission per group suffices.
- There will also be conceptual questions to answer. You may fill the dedicated boxes in the template to type your answer using complete sentences.
- All short answer responses to the questions in the assignments must be completed individually or with your group partner and in your own words. Copying responses from another student/group is not acceptable. Instances of copying and suspected copying will be reported to the Vice Chancellor of Academic Affairs. Evidence of copying will result in a grade of "0" for the entire assignment for both students unless investigation by the Vice Chancellor of Academic Affairs recommends otherwise. Evidence of copying shall include, but not be limited to, any short answer response containing five consecutive words or more that are the same as another student's response.

Midterm Exams (1-3)
There will be three exams. The exams are not cumulative. However, some concepts from the beginning of the course will reappear throughout the course and will therefore also reappear on later exams. There is a strict time limit of 90 minutes on each exam. Exams will be administered through Canvas. The exams must be completed individually, but you may use your notes. However**, to succeed on the midterm exams, it is imperative that you know the material without the notes**. Students who attempt to look everything up during the exam will run out of time and will have a high likelihood of failing the exam.

Optional Final Exam
There will be an optional final exam that is cumulative. Students have the option of taking the final exam to replace one of their midterm exam scores. If a student scores lower on the final exam than the student's lowest midterm exam score, the final exam score will not count toward the final grade.

Supplemental, Ungraded MindTap Activities
The textbook publisher includes several activities for each chapter that you may find helpful in studying the course content. However, these are optional and do not count toward your grade. These activities will be marked as "ungraded" within MindTap.

Course Plan for the Unexpected:
Please stay informed about university policies, instructions and resources as they relate to the COVID-19 pandemic: https://www.umsl.edu/hcdas/coronaupdates.html

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It is important to me that you stay on track toward your degree completion. This section presents our course continuity plans for how we will handle situations to avoid disruption to your learning.

- In the event of having to switch to 100% online, all our Tuesday sessions will be synchronous Zoom sessions.
- If you are unable to attend the in-person or Zoom sessions due to illness, please communicate it with me as soon as possible so I can provide enough help and support needed to ensure your success after you get well.

COVID Related Issues:
Please follow all in-person safety procedures when attending in-person sessions and feel free to skip the in-person sessions and join via Zoom instead, if you are sick or have been in contact with someone who is sick. Accordingly, all office hours will be held via zoom to maintain the safety that we obtain by meeting online.

Should you become ill during the semester, please contact the instructor. Leniency on due dates will be extended for up to two consecutive weeks of assignments for students who become ill. Should an illness affect coursework beyond two weeks, the student will be referred to the UMSL CARE team that supports faculty with gathering medical documentation. It is strongly advised that students do not request an illness-related extension unless it is actually necessary given the difficulty of getting back on track with the course material. If it becomes evident that students might be abusing this policy, the leniency on due dates may be reduced to one week of assignments prior to referral to the UMSL CARE team.

Online Class Netiquette/Behavior:

Use effective communication.
- Be polite, understate rather than overstate your point, and use positive language.
- If you are using acronyms, jargon or uncommon terms, be sure to explain them so everyone can understand and participate in the discussion.
- Avoid the use of all caps or multiple punctuation elements (!!!, ??? etc).

Be self-reflective. Before you post an emotional response and reread what you have written to be sure it is positive. Think of your comments as printed in the newspaper. Your online comments will be seen, heard and remembered by others in the class.

Keep the conversation on topic. By responding to questions, adding thoughtful comments about the topics at hand. Online dialogue is like conversation. If there is a certain dialogue going on, please add to it, but if you have something new to say, please post it in another thread.

Foster community. Share your great ideas and contribute to ongoing discussions. Consider each comment you make as one that is adding to, or detracting from, a positive learning environment for you and your classmates.

Be constructive. You can challenge ideas and the course content, but avoid becoming negative online. When you disagree politely, you stimulate and encourage great discussion. You also maintain positive relationships with others with whom you may disagree on a certain point.

Do not forget to sign your name. It is easier to build a classroom community when you know to whom you are responding.

We will follow all policies in the UMSL *Student Conduct Policy:*
http://www.umsl.edu/~studentconduct/Student%20Conduct%20Policy/index.html

Also, please refer to the Support & Policies section on Canvas for additional info.