

MBC638

Data Analysis and Decision Making

Instructor: Leanne Martin (lead), see 2SU for your section instructor

E-mail: See instructor Announcement on 2SU Wall

Office Hours: See instructor Announcement on 2SU Wall

Course Description:

Concepts, principles, and methods to support scientific approach to managerial problem solving and process improvement. Basic statistical techniques, their appropriateness to situations and assumptions underlying their use.

Additional Course Description

This course will familiarize students with the assumptions underlying various statistical techniques and assist in identifying their appropriateness in a variety of situations. The student should be able to perform statistical analysis and interpret results in a meaningful way. Students are expected to relate results of such analyses to become an information-based decision maker.

Prerequisite / Co-requisite:

N/A

Audience:

MBA, Data Science, Business Analytics students

Credits: 3

Course Fees and/or Costs

Cost of 2 textbooks. See Syracuse Bookstore for details

Learning Objectives:

After completing this course, students should be able to:

- Help students understand the value of data collection and analysis in acquiring knowledge and making decisions in today's business environment.
- Students will be able to identify and apply the appropriate statistical technique for a given set of conditions in order to answer a particular question.

Required Texts / Supplies:

Discovering Statistics by Daniel T. Larose - 3rd edition

Package with loose-leaf text & Achieve Access (ONE TERM Access)

ISBN-13: 978-1-319-42419-0

OR

Achieve Access (ONE TERM Access)**ISBN-13: 978-1-319-40387-4**

*Choose either version: both contain the access code for the textbook's online resources including the full eBook. This is where you will find the **Achieve** homework assignments.*

Texts / Supplies – Additional:

Understanding Variation - The Key to Managing Chaos, 2nd edition By Donald J. Wheeler; SPC Press (ISBN: 0945320531)

Course Requirements and Expectations:**Participation:**

This is a required part of your grade. Participation will consist of attending weekly live sessions (class). Each class will be worth 1 point for a maximum participation total of 10 points. You must be in class (online) for more than half of the live session (greater than 45 minutes) in order for your attendance to count as being "in class" that day. You will be allowed one (1) unexcused absence per 10 week semester without penalty. For example, attending 9 or 10 sessions = 10 points, 8 sessions = 9 points, 7 sessions = 8 points, etc.

Quizzes:

We will have two online quizzes. Once you begin the quiz you will need to complete it within the designated time period. You cannot "save" your quiz and come back to it later. Please read all instructions carefully, entering your answers as required in the appropriate form.

Posting Assignments:

All assignments related to the project and Excel homework assignments will be submitted electronically. Please be sure to type your name either in the header or the footer of the paper/document. Please submit assignments as a single attachment (file). If you use multiple software applications to complete an assignment, please consolidate your work to one printable file.

Late Assignments:

Late assignments will be penalized with a 10% grade deduction for each day late. Deadlines will be defined as midnight EST. An assignment will not be accepted after 4 days late. If an assignment is submitted 5 days after the deadline you will not receive any credit for it. If you know you will be offline the day an assignment is due, please make sure to post it early. Extra credit will not be available so please pay close attention to assignment due dates.

Grading:

ASSIGNMENTS	No. of	Total Points
Class Participation	10	10
Quizzes	2	20
Homework Assignments	6	20
Problem Definition Worksheet	1	10
Process Improvement Project with Storyboard	1	20
Final Exam	1	20
Total Points		100

Grading Tables:

Grade	Percentage range
A	95-100
A-	90-94
B+	87-89
B	84-86
B-	80-83
C+	76-79
C	72-75
C-	66-71
F	<65

* Note: Partial points will be rounded to the nearest full point; for example, 83.4=83 which results in a grade of B- and 83.5=84 results in a grade of B.

Course Schedule:

Week	Topic (s) – see recordings on 2SU	Required Reading (Reference only, not required)	Assignment (Location)	Assignment due date
Week 1	Fundamentals	Discovering Statistics, Chapters 1, 2, 3	Problem Definition Worksheet (Assessments folder in 2SU)	3 days after Live Session 1
Week 2	Business Process		Quiz #1 (Assessment folder in 2SU)	3 days after Live Session 2
Week 3	Probability Distributions and Hypothesis Testing	Discovering Statistics, Chapters Ch.6 - skip sect. 6.3, Ch.7 - sect. 7.1 only	Homework #1: (worth 5 points) (<u>Achieve</u>) <ul style="list-style-type: none"> • Complete Learning Curve for Chapter 3. • Complete StatTutor (3 topics): Chapter 6 – Normal Distributions <ul style="list-style-type: none"> - The Standard Normal Distribution - Using the Standard Normal Table 	3 days after Live Session 3
Week 4	Categorical Data Analysis	Discovering Statistics, 9 – skip sect.9.2 & 9.6, Ch.11 – sect. 11.2 only)	Homework #2: (worth 3 points) (<u>Achieve</u>) <ul style="list-style-type: none"> • Chapter 9 Practice Quiz (unlimited attempts) • Complete StatTutor: Chapter 11 – Expected counts in 2-way tables 	3 days after Live Session 4
Week 5	Confidence Intervals and Sample Size	Discovering Statistics, Chapter 8 – skip sect. 8.4	Homework #3: (worth 2 points) (<u>Achieve</u>) Chapter 8 Practice Quiz (unlimited attempts)	3 days after Live Session 5
Week 6	Simple Linear Regression and Correlation		Quiz #2 , covers Chapters 3,6,8,9,11.2, (Assessments folder in 2SU)	3 days after Live Session 6
Week 7	Multiple Regression	Discovering Statistics, Chapters 4, Ch.13 – sect. 13.3 only	Homework #4: (worth 5 points) (<u>Achieve</u>) <ul style="list-style-type: none"> • Complete Learning Curve for Chapter 4. 	3 days after Live Session 7

Week	Topic (s) – see recordings on 2SU	Required Reading (Reference only, not required)	Assignment (Location)	Assignment due date
Week 8	Process Control Charts	Understanding Variation by Donald J. Wheeler	Homework #5: <i>(worth 3 points)</i> (Assessments folder in 2SU) Submit <u>one</u> Excel file containing this assignment: <ul style="list-style-type: none"> Complete Control Chart problems #1-10 on pgs 114 - 116 from the <i>Understanding Variation</i> Book. 	3 days after Live Session 8
Week 9	Time Series Analysis		Homework #6: <i>(worth 2 points)</i> (Assessments folder in 2SU) Submit <u>one</u> Excel file containing this assignment: <ul style="list-style-type: none"> Complete Time Series problems - <u>Excel data file</u> posted in the Assessments folder 	3 days after Live Session 9
Week 10	Review and Process Improvement Project Work		Process Improvement Project (with Storyboard) (Assessments folder in 2SU)	4 days after Live Session 10
Week 11	Final Exam		Final Exam (Assessments folder in 2SU)	During Live Session #11

Syracuse University Policies:

Syracuse University has a variety of other policies designed to guarantee that students live and study in a community respectful of their needs and those of fellow students.

University Attendance Policy

Attendance in classes is expected in all courses at Syracuse University. Students are expected to arrive on campus in time to attend the first meeting of all classes for which they are registered. Students who do not attend classes starting with the first scheduled meeting may be academically withdrawn as not making progress toward degree by failure to attend. Instructors set course-specific policies for absences from scheduled class meetings in their syllabi.

Accessibility and Disability-Related Accommodations

Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in

this course. I invite any student to contact me to discuss strategies and/or accommodations (academic adjustments) that may be essential to your success and to collaborate with the Center for Disability Resources (CDR) in this process.

If you would like to discuss disability-accommodations or register with CDR, please visit [Center for Disability Resources](#). Please call (315) 443-4498 or email disabilityresources@syr.edu for more detailed information.

The CDR is responsible for coordinating disability-related academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact CDR as soon as possible to begin this process. <https://disabilityresources.syr.edu/>

Discrimination or Harassment

Federal and state law, and University policy prohibit discrimination and harassment based on sex or gender (including sexual harassment, sexual assault, domestic/dating violence, stalking, sexual exploitation, and retaliation). If a student has been harassed or assaulted, they can obtain confidential counseling support, 24-hours a day, 7 days a week, from the [Sexual and Relationship Violence Response Team](#) at the Counseling Center (315-443-8000, Barnes Center at The Arch, 150 Sims Drive, Syracuse, New York 13244). Incidents of sexual violence or harassment can be reported non-confidentially to the University's Title IX Officer (Sheila Johnson Willis, 315-443-0211, titleix@syr.edu, 005 Steele Hall). Reports to law enforcement can be made to the University's Department of Public Safety (315-443-2224, 005 Sims Hall), the Syracuse Police Department (511 South State Street, Syracuse, New York, 911 in case of emergency or 315-435-3016 to speak with the Abused Persons Unit), or the State Police (844-845-7269). I will seek to keep information you share with me private to the greatest extent possible, but as a professor I have mandatory reporting responsibilities to share information regarding sexual misconduct, harassment, and crimes I learn about with the University's Title IX Officer to help make our campus a safer place for all.

Faith Tradition Observances

[Syracuse University's Religious Observances Policy](#) recognizes the diversity of faiths represented in the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their traditions. Under the policy, students should have an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors no later than the end of the second week of classes for regular session classes and by the submission deadline for flexibility formatted classes. Student deadlines are posted in MySlice under Student Services/Enrollment/My Religious Observances/Add a Notification.

Policy on Faculty Use of Student Academic Work

Academic work completed during a semester may be used by professors for educational purposes in courses during the semester. Students' registration and continued enrollment constitute consent for this purpose. Before using students' work

for educational purposes in subsequent semesters, professors will either request students' permission in writing and render the work anonymous by removing all personal identification.

Academic Integrity Policy

Syracuse University's Academic Integrity Policy reflects the high value that we, as a university community, place on honesty in academic work. You can read what students need to know here: <https://class.syr.edu/academic-integrity/policy/>

The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same work in more than one class without receiving written authorization in advance from both instructors. Under the policy, students found in violation are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered as described in the Violation and Sanction Classification Rubric. SU students are required to read an online summary of the University's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice.

The Violation and Sanction Classification Rubric establishes recommended guidelines for the determination of grade penalties by faculty and instructors, while also giving them discretion to select the grade penalty they believe most suitable, including course failure, regardless of violation level. **Any established violation in this course may result in course failure** regardless of violation level.

All academic integrity expectations that apply to in-person quizzes and exams also apply to online quizzes and exams. In this course, all work submitted for quizzes and exams must be yours alone. Discussing quiz or exam questions with anyone during the quiz or exam period violates academic integrity expectations for this course.

Using websites that charge fees or require uploading of course material (e.g., Chegg, Course Hero) to obtain exam solutions or assignments completed by others and present the work as your own violates academic integrity expectations in this course.

Use of Class Materials and Recordings

Original class materials (handouts, assignments, tests, etc.) and recordings of class sessions are the intellectual property of the course instructor. You may download these materials for your use in this class. However, you may not provide these materials to other parties (e.g., web sites, social media, other students) without permission. Doing so is a violation of intellectual property law and of the student code of conduct.