Dillard College of Business Administration
SYLLABUS: Introduction to Business Analytics
MIS 5113, Section X20, Spring 2023

Contact Information

Instructor: Dr. Grace Zhang, Professor of Management Information Systems
Office Hour: DB 273, MW 9:30-11:30 am, TR 11:00-11:30 am, or by appointments
Zoom Link for virtual office hour: https://msutexas-edu.zoom.us/j/97233807819
Texting or Cell: (206)-724-1509
Email: grace.zhang@msutexas.edu

Course Materials:

- *Analytics, Data Science, & Artificial Intelligence: Systems for Decision Support, 11th edition*, by Ramesh Sharda, Dursun Delen, Efraim Turban. Pearson Publishing.
- Lecture notes and other materials will be provided in class and on D2L. D2L is the primary communication channel for the course.
- RapidMiner Studio is required for most hands-on assignments. RapidMiner Studio can be downloaded with a one-year **educational** license for free. Please use your .edu email address to sign up at: https://rapidminer.com/
- Codecademy Learn SQL unit and various tutorials on SQLZoo.

Course Description:

This course provides an overview of the business analytics ecosystem with introductions to three types of analytics: descriptive, predictive, and prescriptive. Applications and tools of business analytics are the focus. In addition, data foundations, as well as big data concepts, are also discussed.

Course Prerequisite:

Consent of the Graduate Coordinator.

Learning Goals

I. **General Learning Goals**:

- **Our students will exhibit the characteristics of leadership.** The class has group work requiring students to evaluate each team member based on the DCOBA common rubric. The leadership rubric includes participation, teamwork, organization skills, character, and communication items.
- **Our students will produce creative responses to business situations**. The group assignments require students to apply descriptive, predictive, and prescriptive analytics to case studies. Various class activities will also require students to respond to business situations.

These general learning goals are among those established by the Dillard College of Business Administration. General learning goals represent the skills that graduates will carry into their careers. While assessing student performance in obtaining these general learning

goals, Dillard College is assessing its programs. The assessments will assist us as we improve our curriculum and curriculum delivery.

II. **Course-Specific Learning Goals**: After completing this course, students should be able to:
- Understand the different types of analytics and review selected applications
- Learn about descriptive and inferential statistics
- Understand the importance of data/information visualization
- Learn the standardized data mining processes
- Learn different methods and algorithms of data mining for predictive analytics
- Understand different methods and algorithms of machine learning for predictive analytics
- Become familiar with different types of deep learning methods for predictive or cognitive analytics
- Know the process of text mining for business analytics
- Understand the applications of prescriptive analytics techniques using optimization and simulation
- Become familiar with the wide range of enabling technologies for Big Data analytics
- Learn and practice the basic syntax of SQL SELECT statements and subqueries, joins, and aggregate functions.

Course Policies

Missed Examination, assignments, and class activities Policy: This is an online course spanning sixteen weeks. Therefore, we need to emphasize self-study routine and planning on finishing course assignments. Please allocate **at least 2-3 hours to study this course each week.** An ample time window will be provided to take exams, finish online activities, and submit assignments. Written verification is mandatory for late or missing work. The instructor must be contacted by the day of the scheduled activity, or makeup will be allowed. A deduction may be assessed for a late exam or assignment at the instructor's discretion.

Grading and Evaluation: Students' performance will be assessed using the following elements.

1. **Exams (3)**: D2L Exams are in the open book format and have open references. The exam will be **auto-submitted** once time runs out.
2. **RapidMining online learning hands-on**: Online learning videos for hands-on exercises are required every week using RapidMiner Studio. Students are responsible for walking through the learning demonstrations. There is also a certification test at the end of the semester.
3. **SQL online learning**: There are three SQL online learning assignments. One is to finish the Codecademy "Learn SQL" unit, and the other twos are the learning tutorial from SQLZoo.
4. **Group assignments**: Students work in groups to apply business analytics to assignments posted on D2L. Students are required to explore options for data analysis, model building, and evaluation in terms of descriptive, predictive, and

prescriptive analytics. This can be a challenging component given the online class format, I highly encourage you to have regular group meetings in order to finish the group assignments. **The individual grade for assignments will be the group grade multiplied by the peer evaluation percentage**. For example, if your group score is 8, and your peer evaluation has 80%, then you will get 6.4 for this assessment.

5. **Participation**: Online class participation in all formats (syllabus quiz, self-introductions, questions, answers, comments, and feedback) is highly encouraged to achieve a good participation grade.

Points will be allocated using the following scheme.

Element	**Weight**	**Grades will be assigned using the following scheme.**	
Exam (3)	40%	A	90-100
RapidMiner Online Learning Hands-on	25%	B	80-89
Group Assignments	20%	C	70-79
SQL Learning	10%	D	60-69
Attendance and Participation	5%	F	<=59
Total Points	100%		

Course Content and Outline: See the attached content outline/schedule.

Academic Integrity
Students are referred to as the "Student Honor Creed" of the Midwestern State University Graduate Catalog regarding academic honesty. Academic dishonesty (cheating, collusion, and plagiarism) is taken seriously and will be investigated. The minimum penalty is an "F" in this course and referral to the Dean of Students for disciplinary action, resulting in expulsion from the University. **All assignments and exams are expected to be done with integrity. Sharing computer files to assist another student is considered a violation of academic integrity for BOTH students.**

Americans with Disabilities Act
Suppose a student has an established disability defined in the Americans with Disabilities Act and would like to request accommodation. In that case, that student should please contact me as soon as possible (i.e., within the first two weeks of the semester). Refer to my office hours and phone number are shown on page 1. This class follows the guidelines suggested by the Center for Counseling and Disabilities Services for those students who qualify for disability services. Please refer to the details in the Midwestern State University Graduate Catalog.

Campus Carry
Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, following state law. For more information regarding campus carry, please refer to the University's webpage for details. If you have

questions or concerns, please contact MSU Chief of Police Patrick Coggins at patrick.coggins@mwsu.edu.

Midterm Progress Report

To help students keep track of their progress toward course objectives, I might provide a "Midterm Progress Report" through the student's WebWorld account. The reported grade will be ONLY for at-risk students identified around the Midterm. The midterm grades will not be reported on the student's transcript, nor will they be calculated in the cumulative GPA. They give students an idea of where they stand at the semester's midpoint. Students earning below a C at the midway point should schedule a meeting with the professor to plan for improvement during the rest of the semester.

Syllabus Change Policy

This syllabus is a guide for the course and is subject to change. It is not a contract. Syllabus changes will be communicated by notification on D2L and may or may not result in document changes. The student's sole responsibility is to find out if anything affecting the course requirements has changed. **Please check D2L and school emails regularly!**

Tentative Schedule: Please keep this syllabus as a reference!

Week	Date	Day	Chapter	Study Topic	RapidMiner Online Assignments	Class Assignments
1	16-Jan	Mon		MLK Holiday		
	22-Jan	Sun			RapidMiner Account Set Up and Studio Installation	Syllabus Quiz, Self Introduction,
2	23-Jan	Mon	1	Overview of Business Intelligence, Analytics, Data Science, and Artificial Intelligence		
	29-Jan	Sun			Machine Learning (ML) - Welcome	
3	30-Jan	Mon	3	Nature of Data, Statistical Modeling, and Visualization / SQL Tutorial		
	5-Feb	Sun			ML Course - Intro to ML (part 1)	
4	6-Feb	Mon	3	Nature of Data, Statistical Modeling, and Visualization / SQL Tutorial		
	12-Feb	Sun			ML Course - Intro to ML (part 2)	**Codecademy Learn SQL**
5	13-Feb	Mon	4	Data Mining Process, Methods, and Algorithms		
	19-Feb	Sun				**Group Assignment 1 & Exam 1**
6	20-Feb	Mon	4	Data Mining Process, Methods, and Algorithms		
	26-Feb	Sun			ML Course - Supervised Learning (part 1)	
7	27-Feb	Mon	5	Machine-Learning Techniques for Predictive Analytics		
	5-Mar	Sun			ML Course - Supervised Learning (part 2)	
8	6-Mar	Mon	5	Machine-Learning Techniques for Predictive Analytics		
	12-Mar	Sun			ML Course - Supervised Learning (part 3)	
9	13-Mar	Mon		Spring break		
	19-Mar	Sun				
10	20-Mar	Mon	6	Deep Learning and Cognitive Computing		
	26-Mar	Sun			ML Course - Scoring	**SQLZoo Assignment 1**
11	27-Mar	Mon	6	Deep Learning and Cognitive Computing		
	2-Apr	Sun				**Group Assignment 2 & Exam 2**
12	3-Apr	Mon	7	Text Mining, Sentiment Analysis, and Social Analytics		
	9-Apr	Sun			ML Course - Unsupervised Learning (part 1)	
13	10-Apr	Mon	7	Text Mining, Sentiment Analysis, and Social Analytics		
	16-Apr	Sun			ML Course - Unsupervised Learning (part 2)	
14	17-Apr	Mon	8	Prescriptive Analytics: Optimization and Simulation		
	23-Apr	Sun			ML Course - Feature Engineering	
15	24-Apr	Mon	8	Prescriptive Analytics: Optimization and Simulation		
	30-Apr	Sun			ML Course - Auto Model	**SQLZoo Assignment 2**
16	1-May	Mon	9	Big Data, Cloud Computing, and Location Analytics		
	7-May	Sun			ML professional certification test	
Final	8-May	Mon				**Group Assignment 3 & Exam 3**