Dillard College of Business Administration
SYLLABUS: Introduction to Business Analytics
MIS 5113, Section X70, Fall 2023
M 5:30 pm – 6:50 pm
DB 306

Contact Information
Instructor: Dr. Grace Zhang, Professor of Management Information Systems
Office Hour: DB 273, MW 9:30-11:30am, TR 12:30-1:00pm, also by appointments
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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.
- **Our students will communicate at a professional level.** The class assignments and group projects require students to communicate at a professional level. There are written reports required for group assignments.

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 hybrid class meets once a week. Therefore, we need to prepare for additional self-study and work time outside the classroom. An ample time window will be provided to take exams, finish in-class/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. Written reports are required for group submissions.
5. **Attendance and Participation**: Absences will be excused only for approved school trips and severe health issues. Class participation in all formats (questions, answers, comments, and feedback) is highly encouraged to achieve a good participation grade.

Points will be allocated using the following scheme.

Element	Points	Grades will be assigned using the following scheme.	
Exam (3)	40	A	90-100
RapidMiner Online Learning	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	In Class Topic	RapidMiner Online Assignments	Class Assignments
1	28-Aug	Mon	1	Overview of Business Intelligence, Analytics, Data Science, and Artificial Intelligence		
2	4-Sep	Mon		Labor Day Holiday	RapidMiner Account Set Up and Studio Installation	Syllabus Quiz, Self Introduction,
3	11-Sep	Mon	3	Nature of Data, Statistical Modeling, and Visualization / SQL Tutorial	Machine Learning (ML) - Welcome	
4	18-Sep	Mon	3	Nature of Data, Statistical Modeling, and Visualization / SQL	ML Course - Intro to ML (part 1)	
5	25-Sep	Mon	4	Data Mining Process, Methods, and Algorithms	ML Course - Intro to ML (part 2)	**Codecademy Learn SQL**
6	2-Oct	Mon	4	Data Mining Process, Methods, and Algorithms		**Group Assignment 1 & Exam 1**
7	9-Oct	Mon	5	Machine-Learning Techniques for Predictive Analytics	ML Course - Supervised Learning (part 1)	
8	16-Oct	Mon	5	Machine-Learning Techniques for Predictive Analytics	ML Course - Supervised Learning (part 2)	
9	23-Oct	Mon	6	Deep Learning and Cognitive Computing	ML Course - Supervised Learning (part 3)	
10	30-Oct	Mon	6	Deep Learning and Cognitive Computing	ML Course - Scoring	**SQLZoo Assignment 1**
11	6-Nov	Mon	7	Text Mining, Sentiment Analysis, and Social Analytics		**Group Assignment 2 & Exam 2**
12	13-Nov	Mon	7	Text Mining, Sentiment Analysis, and Social Analytics	ML Course - Unsupervised Learning (part 1)	
13	20-Nov	Mon	8	Prescriptive Analytics: Optimization and Simulation	ML Course - Unsupervised Learning (part 2)	
14	27-Nov	Mon	8	Prescriptive Analytics: Optimization and Simulation	ML Course - Feature Engineering	
15	4-Dec	Mon	9	Big Data, Cloud Computing, and Location Analytics	ML Course - Auto Model	**SQLZoo Assignment 2**
Final	11-Dec	Mon	Finals		ML professional certification test	**Group Assignment 3 & Exam 3**