Course Description
Prerequisites for Undergraduates: COSC 1342 and COSC 1343. Creating value from business data by converting it into meaningful and useful information for business decision making by using current industry business intelligence (BI) and business analytics (BA) tools and technologies.

Class Time
Online

Instructor Information
Christopher Shaw
Adjunct Lecturer, CS Dept.
cshaw@uttyler.edu

Office Hours
Virtual Office Hours: 8:30AM – 10:00AM; Wednesday
8:30AM – 10:00AM; Friday

Textbook Information
Data Mining and Business Analytics with R (Ledolter)
ISBN: 978-1-118-44714-7

Course Objective
- Identify the appropriate analytical tool based on the problem type and characteristics
- Properly conduct a collection and analysis of big-data
- Relate the tools learned to appropriate classes of problems
- Analyze a variety of business datasets for non-trivial patterns
- Predict future trends based on historical data
- Interpret results and appropriately explain them to business managers

Computer Account Access
Students will need a Patriot account and password for computer access. This information can be found at https://www.uttyler.edu/ccs

Course Documents and Slides
This class will use Canvas for course documents, slides, quizzes and other class-related materials. Students are encouraged to check the website frequently during the course of the semester to keep up to date about course activity.

Course Grading

Course evaluation will be based on the following:

COSC 4347:

Homework	25
Exam I	20
Exam II	20
Final Exam	20
Class Participation	15
Total Points	100

Grading Scale

A 85.0 points or more
B 70.0 to 84.999 points
C 55.0 to 69.999 points
D 40.0 to 54.999 points
F 39.999 points or less

Course Policies

1. Homework – Various homework will be assigned this semester. Each homework will prepare the student in exercising their analytical skills and demonstrate material mastery.

2. Exams – Three exams including a comprehensive final will be administered covering all material disseminated through the assigned readings as well as what was discussed in class. Exams are designed to measure the student's knowledge of the material as well as their ability to use these skills in an efficient manner. Examinations may consist of multiple-choice questions or application problems.

3. Class Participation – Class Participation points will be scored by the quantity of quality discussion a student contributes regarding relevant technology-related articles. The maximum points that can be earned is fifteen.

4. Make-up exams will be granted at the discretion of the instructor. Make-ups will be given only under extremely unusual circumstances, will be different from exams given during the regular class time and may be penalized up to 50% of the grade. *Permission for a makeup exam must be obtained* ***PRIOR*** *to the regular exam and must include written documentation of the student's absence.*

5. Missed Classes, Tests/Quizzes and Assignments – Students who miss class are responsible for getting missed materials and lecture information on their own time from their peers. Any tests/quizzes and/or assignments due during the student's documented absence will be due by 5pm of the day of their return with no penalty.

6. UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality

and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy. Refer to the About This Course section of the UT Tyler Syllabus Module for specific information on appropriate use of AI in your course(s).

Tentative Course Schedule and Assignments

Date	Concept	Assignments
Week 1	Introduction to Business Intelligence/A Data Science Overview	Arnyg Analytical Learning Quizzes I & II
Week 2	Basic Statistics Overview/ Using Excel for Statistics	Patterns and Me
Week 3	Introduction to R/ Linear Regression	RBN Art
Week 4	Polynomial and Multiple Regression/ Time-Series Analysis/ Measures of Correlation	R Basics/ Multiple Regression/ Stock Smoothing
Week 5	Analysis of Variance (ANOVA)/ Clean and Analyze Data	Exam I
Week 6	Data Visualization/ Visualization in R	
Week 7	Optimization and Linear Programming/ LP Exercises	Linear Programming
Week 8	Logistic Regression and Binary Classification/ Introduction to Machine Learning	Exam II
	SPRING BREAK!!!	
Week 9	Clustering and Knn/ Decision Trees	
Week 10	Naive Bayes/ Genetic Algorithms	
Week 11	Neural Networks/ Support Vector Machines	
Week 12	Machine Learning Exercises/ Text Analytics	
Week 13	Class Participation Assignment	Tech Stories
Week 14	Catch-Up Week	
Week 15		Final Exam