Course Syllabus
MIS/BUAN/OPRE 6356 Business Analytics with R
The Naveen Jindal School of Management
The University of Texas at Dallas

Course Information

Course

Course Number	BUAN 6356/MIS 6356/OPRE 6356
Course Title	Business Analytics with R
Term and Dates	Fall 2022

Professor Contact Information

Professor	Vijay Koju, Ph.D.
Email Address	vijay.koju@utdallas.edu
Office Location	JSOM 3.604
Office Hours	I'm available via email, MS Teams

Course Modality and Expectations

The course is officially registered as a traditional, classroom-based course and live, in-person attendance is required. Changes to this schedule may occur and will be communicated via UTD email. Active participation in class on a weekly basis is one of the best predictors of class performance. Students are strongly encouraged to attend class every week and actively participate in class discussions.

About the Instructor

Vijay Koju is an adjunct professor at the University of Texas at Dallas, where he teaches graduate courses on data science and business analytics. He also works as a full-time data scientist at Parkland Health. He has 5 years of experience as a data scientist in industries such as Oil & Gas, Retail, and Healthcare. He holds a Ph.D. in Computational Science from Middle Tennessee State University.

Course Description

This course covers theories and applications of business analytics. The focus is on extracting business intelligence from firms' business data for various applications, including (but not limited to) customer segmentation, customer relationship management (CRM), personalization, online recommendation systems, web mining, and product assortment. The emphasis is placed on the 'know-how' -- knowing how to extract and apply business analytics to improve business decision-making. Students will also acquire hands-on experience with business analytics software in the form of R.

Student Learning Objectives/Outcomes

- To gain a general understanding of business intelligence/data mining, and to appreciate the data rich environment of today's global economy.
- To gain a practical understanding of many key methods integral to data mining.
- To gain an understanding of when to use which technique.
- To become aware of some current trends in the use of BI.
- To gain the intellectual capital required to provide business analytics services.

Recommended Textbooks and Materials

- Data Mining for Business Analytics: Concepts, Techniques, and Applications R Edition (2017), by Shmueli, Bruce, Yahav, Patel and Lichtendahl Jr. Wiley, ISBN-13: 978-1118879368
- R for Data Science by Grolemund and Wickham http://r4ds.had.co.nz/index.html
- Data Mining Techniques, 3rd Edition, by Linoff and Berry. Wiley, ISBN-10: 0470650931, ISBN-13: 978-0470650936 (available as an eBook from the library)

Recommended textbooks may be ordered online through Off-Campus Books http://www.offcampusbooks.com or the UT Dallas Bookstore http://www.bkstr.com/texasatdallasstore/home.

Required Software

- R (http://cran.us.r-project.org/)
- R-Studio (Free-version) (https://www.rstudio.com/products/rstudio/download/)

Course Policies

Make-up exams, Extra Credit and Late Work

There will be **three exams** during the semester. For each exam, students will be responsible for making themselves familiar with the materials discussed in the lectures, the lecture slides, all assigned readings, and any additional content discussed and/or posted on the E-learning site. The exam is specified in the academic calendar below. **Note that the exams are to be taken at the Testing Center** and students must comply with all Testing Center guidelines to secure their seat for the exam. The exam must be **completed in a single attempt in the length of time specified** for that exam.

A make-up exam can only be given for medical reasons certified by a doctor. However, such an exam may have different questions/format than the original quiz.

There will be **NO extra-credit** in this course.

Late assignment submissions will be penalized at 10% reduction per day.

Class Participation

You are expected to actively participate in the discussion of readings, contribute to the learning experience of the class, and meaningfully contribute to all group work, if any. Live polling services such as (Poll Everywhere or Mentimeter) will be used to help assess class participation.

Weekly Schedule

Week (Class Date)	Topics/Lecture	Assignments
1 (8/24)	Introduction, Intro to Business Analytics	
2 (8/31)	Data Mining Process and Overview of R	Assignment 1
3 (9/7)	Exploratory Data Analysis (EDA) and Visualization	Assignment 1 due, Assignment 2
4 (9/14)	Linear Regression	
5 (9/21)	Logistic Regression	Assignment 2 due
6 (9/28)	**Exam 1**	
7 (10/5)	Evaluation Metrics for Classification	Assignment 3
8 (10/12)	Classification & Regression Trees	
9 (10/19)	Neural Networks	
10 (10/26)	Clustering Analysis	Assignment 3 due
11 (11/2)	**Exam 2**	
12 (11/9)	Handling Time Series	Assignment 4
13 (11/16)	Regression-based Forecasting	
14 (11/23)	Fall Break	
15 (11/30)	Review for Exam 3	Assignment 4 due
16 (12/7)	**Exam 3**	

NOTE(s):
(1) There will be no classes during exam weeks.
(2) The schedule provided is tentative and subject to minor changes at the discretion of the instructor.

Student Assessments

Grading Information

3 Exams (20% each)	60%
4 Homework assignments (10% each)	40%
Total	100%

GradingScale

Scaled Score	Letter Equivalent
>= 93	A
>= 89 and < 93	A-
>= 86 and <89	B+
>= 83 and < 86	B
>= 79 and < 83	B-
>= 76 and < 79	C+
>= 69 and < 76	C
Less than 69	F

Accessing Grades

Students can check their grades by clicking “My Grades” under Course Tools after the grade for each assessment task is released.

Assignment submission instructions

You will submit your assignments (in the required file format with a simple file name and a file extension) by using the Assignments tool on the course site. Please see the Assignments link on the course menu or see the icon on the designated page. You can click each assignment name link and follow the on-screen instructions to upload and submit your file(s). Please refer to the Help menu for more information on using this tool. **Please note**: each assignment link will be deactivated after the assignment due time. After your submission is graded, you may click each assignment’s “Graded” tab to check the results and feedback.

Scholastic Honesty

The University has policies and discipline procedures regarding scholastic dishonesty. Detailed information is available on the UTD Judicial Affairs web page. All students are expected to maintain a high level of responsibility with respect to academic honesty. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Since such dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced.

Course Evaluation

As required by UTD academic regulations, every student must complete an evaluation for each enrolled course at the end of the semester. An online instructional assessment form will be made available for your confidential use. A link to an online instructional assessment form will be emailed to you for your confidential use.

University Policies

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policiesfor these policies.

These descriptions and timelines are subject to change at the discretion of the Professor.