Course Syllabus

Course Information

BUAN 6356; Business Analytics with R; Spring 2023

BUAN 6356.005	Thursday 1-4pm	Flex
BUAN 6356.0w1	Thursday 8-10pm	Online

Professor Contact Information

Jason Parker

Email:	jason.parker@utdallas.edu
Office:	JSOM 3.807
Office number:	(972) 883-5141
Online office hours:	Tues 10am-12pm Thurs 10am-12pm

To join the online office hours, simply go to Blackboard Collaborate on the elearning Platform and click "Join Course Room". From there you can talk with me and share your screen so that I can help you to master the material.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

No courses are required; although a background competency in mathematics and computers is assumed.

Co-requisite: **OPRE 6301 – Statistics and Data Analysis or BUAN 6359 (OPRE 6359) – Advanced Statistics for Data Science**

Course Description

BUAN 6356 - Business Analytics With R (3 semester credit hours) 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. Credit cannot be received for both courses, BUAN 6324 and BUAN 6356. (3-0) Y

Student Learning Objectives/Outcomes

- To gain an in-depth knowledge of prediction, classification, clustering, and missing data methodology and the various R packages used to analyze and visualize data.

- To use control structures and programming to write own-code for solving problem set questions in R.
- To be able to interpret and evaluate models for solving homework and test problems without the aid of instructor-defined variables.

Required Textbooks and Materials

Access to a computer which can run the R statistical computing software.

For this course, we will be using the current version of CRAN R (https://cran.r-project.org/) and the R Studio IDE (https://www.rstudio.com). You should download **both** of these programs.

No textbooks are required for this course.

Suggested Course Materials

Many textbooks relevant to this course can be found online for free from their publishers. Two examples include:

1. A difficult, but thorough text is
   James, Gareth, Daniela Witten, Trevor Hastie, and Robert Tibshirani. *An introduction to statistical learning.* Vol. 112. New York: springer, 2013.
2. An introductory text is
   Wickham, H., & Grolemund, G. (2016). *R for data science: import, tidy, transform, visualize, and model data.* O'Reilly Media, Inc.

One book that I will draw on heavily for the first half of this course is *Introductory Econometrics* by Jeffrey Wooldridge. You may find that having a copy (online or in print) of this book is helpful to you.

Grading Policy

50% Problem sets (5 total, equally weighted)
50% Exams (2 total, equally weighted)

Grading is on an absolute scale: A= 93.5 and above, A-=89.5 to 93.5, B+= 87.5 to 89.5, etc.

Assignments & Academic Calendar

Exams will be taken though Lockdown Browser on the computer. You are allowed to bring a 1 page cheat sheet. Details on this will be provided in the weeks before the test.

Week	Material	Monday
1	Introduction to R	16-Jan
2	Programming	23-Jan
3	Linear models	30-Jan
4	Endogeneity	6-Feb

5	Hypothesis testing	13-Feb
6	Time series	20-Feb
7	Panel data	27-Feb
8	Generalized LMs	6-Mar
9	Exam 1	20-Mar
10	Tree-based models	27-Mar
11	Clustering	3-Apr
12	PC analysis	10-Apr
13	Fall break	17-Apr
14	Missing data	24-Apr
15	Exam 2	1-May

Course & Instructor Policies

Extra credit is not available for this course. Make-up exams will not be given. With clear, physical proof for an excused absence in an exam (e.g., hospitalization or death of an immediate family member), an exam may be dropped (i.e., the other exam will count double). Classroom attendance will not be taken, but attendance is highly encouraged.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

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-policies for these policies.