BUSA 537: Advanced Analytics
COURSE SYLLABUS: Summer I, 2023

Instructor: Syed Asif Raza, PhD

Office Hours: Since this is an online class, we will be using flexible emails for answering questions.
Email Address: syed.raza@tamuc.edu
Preferred Form of Communication: Email.
Response Time: I will reply everyone's emails within 48 hours.

Hello everyone,
Welcome to BUSA 537 Advanced Analytics class!

The attendance is NOT mandatory, but it is strongly encouraged. When you come to the classroom, please make sure to bring a PC or a Mac, so that I can help you to install the R software needed for class exercises and assignments.

To protect your academic privacy, please always send me emails from your tamuc.edu email. Please use emails to ask me questions. This is the fastest way to reach me. If you meet any questions during this semester, please feel free to email me. I'm here to help!

COURSE INFORMATION

Required Textbook

R for Everyone: Advanced Analytics and Graphics
by Jared P. Lander
ISBN: 978-0-321-88803-7

Recommended Textbook (Not required, but highly recommended)
Introductory Econometrics: A Modern Approach (4th Edition)
by Jeffrey M. Wooldridge
ISBN: 978-0324660548

Please make sure to download the data sets and R-script files from the online learning system (D2L).

COURSE DESCRIPTION

This course is designed to introduce the following advanced business analytics knowledge to students:

1. **Business analytics by using advanced statistics models**
2. **Statistics model implementation in the R software**

This course teaches graduate students the process of implementing advanced statistics models such as linear models and text mining in the R software. Fundamental statistics knowledge is required before taking this class.

Student Learning Outcomes

1. Students should be able to use the statistical models introduced in this class to resolve analytical questions assigned during this semester.
2. Students should be familiar to the R software interface and the data modeling processes in the software.
3. Students should be able to interpret the implications of data analysis results to business operations.

GRADING

Assignments (A Maximum of 30 Points)
Two assignments will be given during the semester. You can get a maximum of 15 points for each assignment. Assignments are very important to your final grade! Please be sure to complete and submit every assignment by the deadline.
- Assignment 1 (please visit D2L for schedule)
- Assignment 2 (Please visit D2L for schedule)

Exams (A Maximum of 70 Points)
Three exams will be given during the semester. Each exam will be open for one week in the online learning system. You can choose any time during the one-week period to take the online exam. Once you start the exam, you have three hours to complete the exam. You can't pause or retake the exam once it is started. The exam dates are:
- Exam 1 (10 points) (Please visit D2L for schedule)
- Exam 2 (30 points) (Please visit D2L for schedule)
- Exam 3 (30 points) (Please visit D2L for schedule)

Final Grade
At the end of this semester, if your total point is between 90 and 100, you will get an A; if it's between 80 and 89, you will get a B, and so on. **Please note that the actual points will be used to calculate your final grade.** No percentage or curving will be used in this class.

Points	Grade
90-100	A
80-89	B
70-79	C
60-69	D
below 60	F

TECHNOLOGY REQUIREMENTS

The following information is provided to assist you in successfully using technology to complete the assignments and class activities:

For the class exercises and assignments, you need the R language installation and R studio as well. If you don't have the software, please refer to page 1 to 33 of the textbook to download and install the software on your computer. The R language is a cross-platform system. Thus, it can be installed on Windows PC, Apple Mac desktop and laptop, and the Linux system.

You cannot install the R software on any smart phone, iPad, or tablet PC.

It is the best practice to use Firefox to access to the online class. This is applicable to both PC and Mac users. Please download either one if you don't have any of these Web browsers.

COMMUNICATION AND SUPPORT

If you ask me questions by emails, I will reply you in 24 hours. However, I usually answer them much faster than this.
If you have questions in software operations, please be sure to include the screenshots of the issues in the emails.
All assignment due dates, project deadlines, and exam time are central time in the United States.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Syllabus Change Policy
The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette
http://www.albion.com/netiquette/corerules.html

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

ADA Statement

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: Rebecca.Tuerk@tamuc.edu

Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice
Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Counseling Center
The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

COURSE OUTLINE / TENTATIVE CALENDAR

This is an online class. Online classes may be scheduled via Zoom. You STRONGLY encouraged attend online classes. Course dates are 6/5/2023 through 7/6/2023.

Week	Date	Unit # on my Leo D2L	Chapter # in the textbook	Online Weekly sessions
1	Jun5- Jun 9	Unit 1	Class Introduction Chapter 1 to 3: Introduction to R	TBA
1	Jun5- Jun 9	Units 2	Chapter 4: Basics of R Chapter 5: Advanced Data Structure Chapter 6: Reading Data into R	TBA
2	Jun 12 – Jun 16	Units 3 & 4	Chapter 7: Statistical Graphics ·Supplemental Content: Geographical Data Visualization (See MyLeo Unit 3) Chapter 8: Write R Functions Chapter 9: Control Statements	TBA
2	Jun 12- Jun 16	Unit 5	Chapter 11: Group Manipulation Chapter 12: Data Reshaping ==Exam 1 (Tentative)==	TBA
3	Jun 19 – Jun 23	Unit 6 & 7	Chapter 14: Probability Distribution Chapter 15: Basic Statistics & ANOVA test Chapter 16: Linear Regression Models	TBA
3	Jun 19 – Jun 23	Unit 8 & 9	Model Diagnostics Chapter 18 Logistic Regression Thanksgiving Break (Nov 24 and Nov 25)	TBA
4	Jun26- Jun 30	Unit 10	==Exam 2 (Tentative)== Chapter 20 Decision Trees Analysis Receiver Operating Characteristic (ROC) Curve Analysis Cross Validation	TBA
5	July 3- July 7	Unit 11 & 12	Chapter 21 Part 1: Time Series and Autocorrelation Chapter 21 Part 2: Time Series GARCH Model	TBA
			==Exam 3 (Tentative)==	