



# BUSA 537: Advanced Analytics

SPRING 2020

**Instructor:** DR. ZAKI MALIK

**Office Location:** BA 323

**Office Hours:** 10 AM - 11 AM Wednesday, 3 PM – 5 PM Thursday, or by appointment

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Please use emails to ask me questions, and use BUSA-537 in the subject line of the email. This is the fastest way to reach me.

## COURSE INFORMATION

### ***Textbook(s) Required***

R for Everyone: Advanced Analytics and Graphics  
by Jared P. Lander

**ISBN:** 978-0-321-88803-7

### ***Software Required***

- For the class exercises and assignments, you need the R software. 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 software 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 a graduate-level class. Students are expected and responsible to make sure the software is installed and working in the first week of the semester!

### ***Optional Texts and/or Materials***

- R is implementation-oriented. Meaning, the more you write R code, the better you get at it. Students are encouraged to consult other online sources for learning and practicing R.

### ***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

*The syllabus/schedule are subject to change.*

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.

## **COURSE REQUIREMENTS**

### ***Minimal Technical Skills Needed***

- Be able to take screenshots and use MS. Word and PowerPoint, using presentation and graphics programs, etc.
- Be able to follow instructions in installing the required software.
- Be able to troubleshoot software problems (e.g., by consulting online sources using Google etc).

## **GRADING**

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

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## Assessments

- **Exams/Projects:** Two exams/projects will be given during the semester. You can get a maximum of 30 points for each exam.
- **Application Assignments:** 7 to 10 labs/assignments will be given during the semester. You can get a maximum of 40 points for these. Please see the submission deadlines in the tentative class calendar on D2L.
  - Please note: Assignments/labs are very important to your final grade! Please be sure to complete and submit every assignment/lab by the deadline.

## Student Responsibilities/Tips for Success in the Course

1. Students are expected to:
  - a. Read the text related to the topic listed for each week on D2L.
  - b. Complete all required assignments as scheduled
  - c. Watch any tutorial/recorded videos as posted
  - d. Read the slides for each week/topic
2. This syllabus is tentative for the semester. Certain topics maybe stressed more, or less than indicated in the schedule. Depending on the class progress, certain topics may be omitted or added.
3. Behavior: "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Book). During your collaboration with me and your fellow students online or in class, professionalism and respect will be expected.
4. Any form of cheating – copying, sharing files, submitting the work of another as your own – is not permitted. Students who participate (as givers/receivers) in any form of cheating will fail the course.

## TECHNOLOGY REQUIREMENTS

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

- The course may require you to download and install open-source software. Specifically, you may be asked to install Virtual Machines. It is the student's responsibility to follow the given instructions and get the system ready in due time. You cannot come to the instructor only a few days before the assignment is due and say that you have NOT installed the required software. You WILL HAVE ample time for all tasks !
- To fully participate in online courses you will need to use a current Flash enabled internet browser.
- You will need regular access to a computer with a broadband Internet connection. The

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minimum computer requirements are:

- 512 MB of RAM, 1 GB or more preferred
- Broadband connection required
- courses are heavily video intensive
- Video display capable of high-color 16-bit display 1024 x 768 or higher resolution
- You must have a:
  - Sound card, which is usually integrated into your desktop or laptop computer
  - Speakers or headphones.
  - \*For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.
- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.
- For additional information about system requirements, please see: <https://secure.D2L.com/tamuc/index.learn?action=technical>

## **LMS**

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

[https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

## **ACCESS AND NAVIGATION**

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

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**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

### **Technical Support**

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

## **COMMUNICATION AND SUPPORT**

- If you ask me questions by emails, I will reply within 48 hours. However, I usually answer them much faster than this.
- If you have questions about software operations, please be sure to include the screenshots of the questions in the emails.
- All assignment due dates, project deadlines, and exam time are central time in the United States.

## **COURSE AND UNIVERSITY POLICIES**

### ***Course Specific Procedures/Policies***

The class schedule will be provided and updated in D2L. A tentative topics list with each week is listed at the end of this document. Each assignment will be listed with its due date. Since assignments make up the majority of your grade, you should make every effort to complete them on time. Late assignments are **highly** discouraged. For each day an assignment is late it will be deducted 15%. Under **NO** circumstances will I accept an assignment more than FOUR DAYS late.

### **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.

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## **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:

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## **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](mailto:Rebecca.Tuerk@tamuc.edu)

<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.

<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.

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## COURSE CALENDAR (Tentative)

Due to the shorter semester (FLEX), some weeks will be condensed.

Week	Topics	Chapter Readings	Exams
1	Course Introduction Software installation - Introduction to R	Chapter 1 - 3	
2	Basics of R	Chapter 4	
3	Advanced Data Structures Reading Data into R	Chapter 5, 6	
4	Statistical Graphics	Chapter 7	
5	Write R Functions	Chapter 8	
6	Control Statements Loops	Chapter 9, 10	
7	Group Manipulation	Chapter 11	
8	Review		Mid-term Exam
9	Data Reshaping Manipulating Strings	Chapter 12, 13	
10	Spring Break	-	
11	Probability Distribution	Chapter 14	
12	Basic Statistics	Chapter 15	
13	Linear Models & Social Media Analysis	Chapter 16	
14	Advanced Topic: Data Mining & Forecasting	Notes	
15	Review		Final Exam

This is only a tentative class schedule. Updates will be communicated and maintained in D2L

Note: Assignments will likely be due almost every week, so plan accordingly.

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