



Course: BUAN/MKT 6337, Predictive Analytics

Professor: Shervin Shahrokhi Tehrani

Term: Spring 2023

TAs: Salar Nozari

Professor's Contact Information

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Office Location	JSOM 13.219
Email Address	Shervin.Tehrani@utdallas.edu
Office Hours	By appointment. Please send me an email.
Other Information	I don't read WebCt email, so please use my UTD email address Shervin.Tehrani@utdallas.edu

General Course Information

Pre-requisites, Co-requisites, & other restrictions	Knowledge of basic statistics and some familiarity with computer-based data analysis. Broadly, OPRE 6301 should be considered as the pre-requisite for this course at UTD.
Course Description	This course prepares students for a career in data analytics. This involves analyzing data using a set of statistical tools to facilitate good decision making. The methods are commonly used in e-commerce, marketing, and in financial markets. <i>They will learn how to predict outcomes (predictive analytics), segment and target profitable customers, manage marketing mix, and improve managerial decisions.</i>
Learning Outcomes	<ul style="list-style-type: none">• Students will understand how to discern and analyze relevant data in Marketing Analytics.• Students will explain and synthesize analytical techniques that will assist in data management and consumer segmentation.• Students will be proficient in the evaluation and use of data reduction techniques, response analysis, and customer classification.
Coding	This is not a course to teach you coding. You are free to use any software in this course. Our focus will be on the concepts and methods. However, I will provide SAS code for each lecture as a sample if you want to learn SAS.
Highly Suggested Reading	<u>An Introduction to Statistical Learning: with Applications in R</u> – James, G., Witten, D., Hastie, T., Tibshirani, R. I recommend to read the entire book for your future benefit.

Assignments & Academic Calendar

Week	Topics	Activity	Due Date
Jan 17	Martin Luther King Day. There is NO CLASS if the class is on Monday. Wednesday sections must be come to the class. <i><u>"You should read and watch sources to learn the introduction to basic SAS."</u></i> <i>However, you are free to submit your work in any software.</i>	You must review videos	
Jan 23	Introduction to Data Science (DO NOT miss this class)	Finding Group	Feb 1 st
Jan 30	Descriptive analysis, Hypotheses tests, ANOVA		
Feb 6	Regression analysis I		
Feb 13	Regression analysis II		
Feb 20	Regression analysis III		
Feb 27	Regression analysis IV		
March 6	Regression analysis V		Submitting First Group Project Report
March 13	Spring break. There is NO CLASS		
March 20	Panel data, Random effects, and fixed effects regression models / Causality vs. Correlation / Exam Review	Exam I	At the Exam Center
March 27	Predictive Discrete choice models I Multinomial Logit		
April 3	Predictive Discrete choice models II Multinomial Logit		
April 10	Conjoint analysis		
April 17	TOBIT and Selection Models Limited dependent variable (LDV) models		Submitting Second Group Project Report
April 24	Some machine learning methods/ Exam Review		
May 1	There is NO CLASS. You will work on the group project. I will help groups on the project during the class time. Group Project submission. You have time until 11:59 pm on May 8, 2021 to submit your group project by emailing your final group project report. Please see the last page for its format).	Exam II	At the Exam Center

Course Policies

Grading (credit) Criteria	<p>Midterm and Final exams: 50% (25% each)</p> <p>Currently, we are working for getting a dataset to have a hackathon competition during this class. Also, this will be your group project. All assignments will be in the direction of this group project. <u>(This marking scheme may change according to the final agreement with the firm.)</u></p> <p>First Project Report: 10% Second Project Report: 10 % Final Project Report: 30% (20% is the report + 10% slides)</p>	
	<p>You will have Four homework assignments. Assignments must be submitted electronically as ONE zipped file. Submissions must include all necessary program file, outputs as necessary to show the desired results (screen captures or as a text / word file). The program files should be able to run as is in the unzipped folder - include suitable library names definitions in the program file, and necessary data files in the zipped folder. You will receive a 0 credit for assignments submitted without the code and output. No exceptions.</p>	
Peer Evaluation	<p>Each member of a group will submit an evaluation of her/his group members. The evaluation is either approved or disapproved her/his group members' contribution DURING THIS COURSE. If a student receives more than 3 disapproval votes by other group members, she/he will face a 30%-50% penalties on ALL assignments and the group project mark.</p> <p style="padding-left: 40px;"> a) 30% for 3 disapproval votes b) 40% for 4 disapproval votes c) 50% for 5 or more disapproval votes </p> <p>Each student can send her/his votes privately to me by EMAIL. <u>If I receive no voting, I will assume every members of a group contributes perfectly.</u></p>	

Make-up Exams	There will be no make-up exams or quizzes
Extra Credit	No assignments for extra credit will be available
Late Work	Late work will not be accepted under any circumstance, except under medical emergencies (to be backed up by a doctor's certificate).
Class Attendance	DO NOT MISS ANY CLASSES. Try to be in all lectures. We will have a very active and energetic class. Be ready to challenge me and your friends' arguments! We learn TOGETHER. Laptops & Cellphones: please do NOT use laptops or any web surfing device in the class unless for course-related purposes. Also, please make sure that your cellphone is on silent in the class.
Classroom Citizenship	Students are expected to actively participate in classroom discussions and be prepared to present their homework solutions to the class. <u>We want to have an active and fun class to learn together and enjoy our time! Every of us should have great time in class and makes a great time for others.</u>
Student Conduct and Discipline	<p>The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, <i>A to Z Guide</i>, which is provided to all registered students each academic year.</p> <p>The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the <i>Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3</i>, and in Title V, Rules on Student Services and Activities of the university's <i>Handbook of Operating Procedures</i>. Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations (SU 1.602, 972/883-6391).</p> <p>A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.</p>
Academic Integrity	The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in

	<p>his or her scholastic work.</p> <p>Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one's own work or material that is not one's own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.</p> <p>Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university's policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.</p>
Email Use	<p>The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.</p>
Withdrawal from Class	<p>The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.</p>
Student Grievance Procedures	<p>Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university's <i>Handbook of Operating Procedures</i>.</p> <p>In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called "the respondent"). Individual faculty members retain</p>

	<p>primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent's School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean's decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the dean will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.</p> <p>Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.</p>
Incomplete Grades	<p>As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester's end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of <u>F</u>.</p>
Disability Services	<p>The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m.</p> <p>The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688 Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY)</p> <p>Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance.</p>

	<p>It is the student's responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.</p>
Religious Holy Days	<p>The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated.</p> <p>The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.</p> <p>If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must consider the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.</p>
Off-Campus Instruction and Course Activities	<p>Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm. Additional information is available from the office of the school dean.</p>

NOTE: The descriptions and timelines contained in this syllabus are subject to change at the discretion of the instructor. Contact the instructor right away in case of any questions, confusions or other issues.

Please note that the following link contains important information.

UT Dallas Syllabus Policies and Procedures:

Student Conduct & Discipline, Academic Integrity, and Other Policies Common across UT Dallas Campus: Please visit

<https://coursebook.utdallas.edu/syllabus-policies>

The Exam I and II:

Please note that all exams will be given in the exam center. The following points provide you information about exams in this class.

- Exam I will be given **3/20/2022 – 3/25/2022**
- Exam II will be given **5/1/2022 – 5/6/2022**
- Each exam is 120 min
- Both exams will be online and **MUST BE WRITTEN AT THE EXAM CENTER.**
- Please wait until Mid-February to see the exam on the system.

Please follow the following information to become familiar with the UTD exam center and RESERVE YOUR SEAT.

***Taking exams at UT Dallas Testing Center:**

- **ID requirement:** Accepting UTD Comet Card only. Students will not be admitted to test without a **PHYSICAL** Comet Card. **NO EXCEPTIONS!**
- **Student Guidelines:** Students should read the “**Student Guidelines**” prior to taking exams at the Testing Center posted at <https://ets.utdallas.edu/testing-center/students/>
- **Seat Reservation:** Strongly encourage students to reserve their seat during the **FIRST 2 WEEKS** of Spring semester.
- **72 hours registration cut-off deadline:** Students **MUST** reserve their seat early in advance, or no later than **72 HOURS** prior to exam time.

PLEASE NOTE: Beginning Spring 2021, strictly **NO WALK-INS**. Students who do NOT have an appointment will need to contact their professor directly to make other testing arrangements.

Welcome to Group X Consulting Group

Final Group Project Format:

Fifty percent of your mark is the group work. You must make a group as soon as possible. The deadline is February 1st.

I assume your group is a well-known consulting company. Imagine that they pay you millions of dollars to provide me data-driven strategies on an issue! Your work must include three components:

1. **A cleaned dataset:** We should be able to use the data to run your code and see your proposed analytics and results.
2. **A code:** This code should replicate the analysis, results, and tables which are reported in the consulting report. **Don't forget include all comments to guide us to your code. You can do your project with other programming language like SAS, R or Python. Also, you can use additional software like Tableau.**
3. **Presentation Slides:** You must submit a presentation slides that summarize your work in 10-15 min presentation.
4. **A professional consulting report:** You should imagine your group project is a multi-million dollars project which is requested by a firm on an issue. You are, as a **Data Science Corporation**, responsible to provide (A) a precise report and (B) strategies to solve the firm's issues. The Firm will file a law suit against you if you cannot provide your work correctly (since you waste multi-million dollars).
5. The Group project will be marked extremely competitive. **Start to work on it as soon as possible. You cannot handle it in a month.**

So, DO YOUR JOB PERFECTLY. GETTING A+ MEANS MULTI-MILLION DOLLARS. WE DO RELATIVE MARKING HERE. SO, YOU MUST BE THE BEST TO GET A+ IN PROJECT.

