



Course MKT/BUAN 6337.003 Predictive Analytics using SAS
Professor B.P.S. Murthi
Term Spring 2022
Meetings Tuesday 4.00-6.45 p.m., JSOM 1.211

Professor's Contact Information

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Office Hours	Tue 11.00 – 12.30 pm or by appointment
Other Information	I don't usually read WebCt email, so please use my UTD email address murthi@utdallas.edu

General Course Information

Pre-requisites, Co-requisites, & other restrictions	Knowledge of basic statistics and some familiarity with computer based data analysis.
Course Description	This course prepares students for a career in marketing analytics. This involves analyzing data using a set of statistical tools to facilitate good decision making. The methods are commonly used in e-commerce, grocery stores, and in financial markets. Students will learn how to read, organize, clean, and store large datasets and use them in building models. They will learn how to predict outcomes (predictive analytics), segment and target profitable customers, manage marketing mix, and improve managerial decisions.
Learning Outcomes	• Students will understand how to discern and analyze relevant data in Marketing Analytics. • Students will explain and synthesize analytical techniques using SAS 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.
Required Texts & Materials	A Handbook of Statistical Analyses using SAS - Third edition by Geoff Der and Brian Everitt, Chapman and Hall/CRC Press.
Suggested Texts, Readings, & Materials	Marketing Analytics – Wayne Winston, Wiley Press

Assignments & Academic Calendar

Date	Topics	Submit	Chapters
Jan 18	Introduction to SAS – read, write, manage and merge data sets Review of Basic statistics - Hypotheses tests, ANOVA, Chi-square tests		Ch. 1-2
Jan 25	Overview of the Research Project Different types of data and what the data are used for		SAS Practice
Feb 1	SAS procedures – PROC MEANS, PROC FREQ, PROC REG, PROC CORR, PROC TTEST, PROC TABULATE	HW1	Ch. 3-5
Feb 8	Regression analysis using SAS – PROC REG Heteroscedasticity - Weighted Least Squares (WLS), Collinearity Diagnostics, Influence statistics, Dummy variable regressions		Ch. 6-7
Feb 15	Review class + short quiz (2% of CP grade)		
Feb 22	Forecasting models and Bass Model Basic time series	HW2	
Mar 1	DO Loops and Arrays in SAS Panel data - pooling cross sectional data with time series data Random effects and fixed effects regression models PROC PANEL, PROC MIXED	HW3	
Mar 8	Midterm exam		Ch. 16
Mar 15	SPRING BREAK	HW4	Ch. 17-18
Mar 22	Simultaneous system of equations PROC SYSLIN Seemingly unrelated regressions (SUR), Two-stage and three-stage least squares (2SLS and 3SLS)		
Mar 29	Predictive Discrete choice models Binary Logit - PROC LOGISTIC,	HW5	Ch. 8
Apr 5	Lift charts Multinomial logit - PROC MDC		
Apr 12	TOBIT and Selection Models Limited dependent variable (LDV) models	HW6	Ch. 15
Apr 19	CRM - Lifetime value models Survival analysis and hazard models - PROC PHREG, PROC LIFEREG, PROC LIFETEST		
Apr 26	Advanced Time Series Analysis		
May 3	Final Exam in class	Project	

Course Policies

Grading (credit) Criteria	Homework Assignments	30 %
	Class participation (5% Peer eval, 5% CP)	10 %
	Quiz (5%), Midterm (20%) and Final exams (20%)	45 %
	Project report	15%
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	One class absence with prior permission will be accepted.	
Classroom Citizenship	Students are expected to actively participate in classroom discussions and be prepared to present their homework solutions to the class.	
Student Conduct and Discipline	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.	
	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).	
	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.	
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 his or her scholastic work.	
	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. 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.
Email Use	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.
Withdrawal from Class	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.
Student Grievance Procedures	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>. 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 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. 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.
Incomplete Grades	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 F.
Disability Services	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. 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) 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. 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.
Religious Holy Days	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. 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. 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 take into account 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.

Off-Campus Instruction and Course Activities	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.
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These descriptions and timelines are subject to change at the discretion of the Professor.

COVID-19 Guidelines and Resources

The following guidelines and resources outline expectations for students and instructors of record during the Spring 2022 semester.

Instructor Resources

Faculty: Masks and Vaccinations

We strongly encourage all Comets to get vaccinated and wear face coverings as recommended by the CDC. The University of Texas at Dallas (UT Dallas) will continue to share more information and guidance as we get closer to the fall semester.

Classroom Safety and COVID-19

To help preserve the University's in-person learning environment, UT Dallas recommends the following: Adhere to the University's [CDC Updated Guidelines](#). All Comets are strongly encouraged to wear face coverings indoors regardless of vaccination status. Please note this represents a change in the [campus guidance](#) issued earlier.

Accommodations for Students Who Miss Class for Reasons Unrelated to COVID-19

Individual faculty maintain their discretion on whether and how to accommodate student absences unrelated to COVID-19.

Accommodations for Students Who Must Isolate or Quarantine Due to COVID-19

To keep the UT Dallas community as safe as possible, the University requires students who test positive for COVID-19 or who are close contacts as determined by the campus contact tracing program to isolate or quarantine as applicable. Faculty will be notified by the Dean of Students' Office if a student in their class has been required to isolate (positive case) or quarantine (exposed). Faculty must make lectures available for those students during the period the students must isolate or quarantine. Faculty who need assistance with providing these students access to course content can contact the eLearning Team at elearning@utdallas.edu. Faculty have the discretion to set an attendance policy for their in-person meetings, but the absences due to COVID-19 cannot be counted against an isolated or quarantined student.

Verifying COVID-19 Isolations or Quarantines

Students need to self-report COVID-19 positive results or exposures via an [online form](#) so that university campus tracers can verify, record, and take necessary campus precautions. When faculty are notified by students rather than by the Dean of Students' Office that the students are isolating or quarantining, the faculty should remind students to self-report via the form; students should not attend class until cleared by campus tracers.

Vaccinations are widely available, free and not billed to health insurance. The vaccine will help protect against the transmission of the virus to others and reduce serious symptoms in those who are vaccinated. You are encouraged to [get a COVID-19 vaccine](#) and register your vaccination status through the [voluntary vaccine report form](#).

Proactive Community Testing remains an important part of the university's efforts to protect our community. Tests are fast and free. Please check the [Comets United](#) webpage for additional information.

[Student Safety](#) remains an important part of the UT Dallas' efforts to protect our community. All students will adhere to the Comet Commitment. Unvaccinated Comets will be expected to complete the mandatory [Required Daily Health Screening](#). Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the [Student Code of Conduct–UTSP5003](#). All students are encouraged to read the [Recommendations for Students Returning to Campus](#) issued on August 2, 2021.

Visit [Comets United webpage](#) to obtain the latest information on the University's guidance and resources for campus health and safety.

[Previous Campus Communications](#): a list of university announcements made in 2020-2021.

[Registrar's Intranet](#): please log in with your UTD NetID and password to access this site. Information that faculty need about grading, scheduling, and other essential aspects of our responsibilities related to teaching are made available and updated regularly in the Registrar's Intranet. This source of information can only be accessed by logging in with your UTD NetID and password. Many important faculty questions are answered here, and this is information that faculty members are expected to know and understand.

[FERPA Guidelines](#): you will be asked to log in before you access the FERPA Guidelines webpage on the Registrar's Intranet. If faculty have additional questions about FERPA guidance, please contact the Office of the Registrar at records@utdallas.edu for the proper student consent forms and further instructions.

[Honorlock](#): Online proctoring tool will be available for fully online courses and for classes with enrolled international students who are not yet in the United States.

[UT System Resources for Creating Accessible Course Content](#): designed to assist faculty with developing course content

Student Resources

Students who have tested positive for COVID-19 or may have been exposed should not attend class in person and should instead follow required disclosure notifications as posted on the university's website (see "[What should I do if I become sick?](#)")

COVID-19 Resources

[Comets United webpage](#): check frequently

[FAQ](#): check out the FAQs and reach out to your instructor or academic advisor if answers are not included

[Student Resources](#): a variety of resources are available to help students to obtain counseling, health care, and academic support.