ECON 4875, EMPIRICAL LINEAR MODELING
UNIVERSITY OF NORTH TEXAS
SPRING 2026

Classroom and time: Gateway 141; Wednesdays, 6:30 PM to 9:20 PM

Instructor: Dr. Margie Tieslau

office location: Wooten Hall 343

e-mail: Margie.Tieslau@unt.edu

office Hours: Wednesdays & Thursdays, 1:30 PM to 4:30 PM
Office hours also available via Zoom, at your request.

COURSE DESCRIPTION:

This course focuses on predictive analytics and develops the tools necessary to transform raw data into strategic insights that enhance decision making. We will explore an assortment of applied analytical problems that typically are encountered in real-world settings, with particular attention given to examples commonly found in business and economics.

At the completion of this course, successful students will have developed the following skills:

Ability to manage multiple priorities and meet deadlines in a dynamic and fast-paced environment.

Ability to clean, mine, and interpret data from multiple sources while also identifying limitations and quality concerns.

Ability to design, implement, and interpret A/B tests and experiments.

Segmentation and CHAID analysis.

Ability to analyze large complex data sets to recognize and identify trends, correlation and behavior.

Ability to understand business questions and objectives (or *any* research questions and objectives) and translate them into usable policy actions (develop data-driven strategies).

Model building (predictive modeling), model validation and robustness checks, and model scoring.

Ability to understand machine learning techniques and recognize their limitations and problems.

Location intelligence.

Ability design concise presentations and succinctly explain statistical results and technical concepts to both technical and non-technical audiences, including individuals at the most senior level.

Ability to propose strategic recommendations to management based on your econometric analysis.

Familiarity with programming languages (statistical software such as SAS) and algorithm development.

Collaborating with members of a group and being an integral member of a team.

Critical thinking, problem-solving, and the importance of intellectual curiosity.

REQUIREMENTS & COURSE PRE-REQUISITES:

The pre-requisites for this course are grades of "B" or better in both ECON 4870, Multiple Regression Analysis, and MATH 1710, Calculus I. In addition, **students are expected to know how to construct presentations in PowerPoint (Prezi is not permitted) and generate graphs in Excel** (in particular, line graphs, bar graphs, and pie charts). In addition, on the last night of the class, you will present your final Buxton Challenge project live, in front of an audience, and these presentations will be made virtually via Zoom. Therefore, **you MUST have access to Zoom and a computer (presentations CANNOT be made via cell phone), and a quiet and private space in which to make your presentation.**

USE OF ARTIFICIAL INTELLIGENCE:

Use of ANY type of artificial intelligence (AI) for assignments in this class is STRICTLY FORBIDDEN. That is, all work that you submit for credit must come from your own mind, written by your own hand, and NOT borrowed from any other resource or any other assignment or paper written by any other person, machine, or resource. You are required to create every word, table, statistic, etc. on your own. You are NOT permitted to use any type of paper writing services, AI services, Chap GPT (or other chat services), prompt engineering, or ANY similar resources.

If you violate this rule in any part or in any way, you will be considered in violation of the University's policy on cheating and plagiarism and you will receive a grade of zero for the assignment. In addition, further disciplinary action will be taken and you could be expelled from the university.

TEXT/READING MATERIAL:

This course will draw on material from the primary text from ECON 4870, *Introductory Econometrics*, 6th or 7th edition, by Jeffery Wooldridge (South-Western Cengage Learning, publishers. In addition, your notes from ECON 4870 should be a useful resource for reading material.

COURSE STRUCTURE:

Part of each class will be allocated to lecture, and part to computer lab work. You are required to work on material from the lecture during the lab period of class. In addition, you are expected to spend a considerable amount of time outside of class working in a computer lab.

NOTETAKING AND CLASS HANDOUTS:

You are expected to take notes, written by your own hand, for every lecture. Lecture outlines will be provided for each topic, and you should plan to write your notes on those outlines. **CAMERAS ARE NOT PERMITTED in this class.**

All class handouts will be made available on Canvas approximately three days before class meets. YOU are responsible for bringing a copy of the handout with you each night. The file name of the handout that you should bring to class is something such as: "Lecture outline for topic X.pdf," or "Lecture outline for topic X part 1.pdf," or "Lecture outline for topic X part 2.pdf," where X refers to the topic number. You might be able to print the handout once you are in the classroom, but there is no guarantee that the printers will be working. In addition, it is imperative that you **DO NOT PRINT ONCE CLASS BEGINS!**

GRADING SCHEME:

Grades for the course will be based on the total number of points accumulated, as follows:

Assignment:	Points:
Project #1	25 points
Project #2	20 points
Project #3	30 points
Project #4	15 points
Project #5	15 points
Project #6	10 points
BC Project #1	40 points
BC Project #2	30 points
BC Project #3	45 points
BC Project #4	25 points
BC Project #5	20 points
Presentation of BC Project #5	20 points
BC project #6	10 points

Total points possible = 305

If necessary, a curve will be applied to the final point total to ensure an average grade of at least 75%. Grades will be assigned in the traditional manner based on the curved point total (A = 90% +; B = 80% to 89%; C = 70% to 79%, and so on).

Projects:

Projects 1 through 6 are exercises that will reinforce the applied analytical material covered in class. Each project must be submitted to Dr. T. via email (at Margie.Tieslau@unt.edu), as noted in the directions for each assignment. You must submit your projects as PowerPoint presentations. More detailed information about each project will be provided as the semester progresses.

Buxton Challenge (BC) Projects:

"Buxton Co." is a Fort Worth-based consulting company that builds econometric models to help major companies make smarter business decisions in the areas of market planning, marketing, and merchandising, in order to help firms grow their businesses. For example, they forecast revenue potential of future retail sites for businesses such as FedEx, Quest Diagnostics, Bass Pro Shops, Black Rifle Coffee Company, and Marriott—just to name a few. For the "Buxton Challenge" project, you will be analyzing data from one of Buxton's recent clients, working on one of Buxton's actual consulting projects.

The six Buxton Challenge projects will be very similar to the six previous projects on which you worked, but on a much larger scale. Because of the size of the project, and at Buxton's request, you will work in teams during this part of the course and you will be graded on how well you cooperate with your team. This project will be introduced on the evening of **March 4th**, and more detailed information about each specific project will be provided each subsequent week.

On the last night of class (April 29th), you will present your BC project #5 (via Zoom) in front of the class and members of Buxton's analytics team.

ECON 4875 TENATVE COURSE SCHEDULE for SPRING 2026

DATE:	TOPIC OF DISCUSSION:	READINGS*:
Jan. 14	Topic #1, Part 1: Pre-Model Analysis on the Dependent Variable and Introduction to SAS	chapter 1
Jan. 21	Topic #1, Part 2: Pre-Model Analysis on Continuous Independent Variables; **Receive Project #1**	chapter 1, sections 2.4, 6.1 and 9.5
Jan. 28	**Project #1 due, via email, by 3 PM** Topic #2: Dummy Variables & Limited Integer Value Variables; **Receive Project #2**	chapter 7
Feb. 4	**Project #2 due, via email, by 3 PM** Topic #3: Model Selection & Inference in Regression **Receive Project #3**	"Cassandra" and ASA articles, and chapters 2–6
Feb. 11	**Project #3 due, via email, by 3 PM** Topic #4: Model Scoring & Sequential Regression **Receive Project #4**	"Cassandra" and ASA articles, and chapters 2–6
Feb. 18	**Project #4 due, via email, by 3 PM** Topic #5: Intrinsically Linear Non-Linear Models **Receive Project #5**	chapter 6 and section 9.1 section 7.5
Feb. 25	**Project #5 due, via email, by 3 PM; Receive Project #6**	
March 4	**Project #6 due, via email, by 3 PM** Introduction to the Buxton Challenge (BC) Project **Receive BC Project #1**	
March 11	**SPRING BREAK**	
March 18	**BC Project #1 due, via email, by 3 PM** Topic #6: Reading & Working with Data in SAS Topic #7: SAS Data Sets; **Receive BC Project #2**	handouts
March 25	**BC Project #2 due, via email, by 3 PM** Topic #8: Non-Random Sampling **Receive BC Project #3**	handout
April 1	open lab; work on BC Project #3	
April 8	**BC Project #3 due, via email, by 3 PM; Receive BC Project #4;** open lab	
April 15	**BC Project #4 due, via email, by 3 PM; Receive BC Project #5;** open lab	
April 22	**BC Project #5 (slides) due, via email, by 3 PM; receive BC project #6;** open lab	
April 29	**Presentations of BC Project #5, via Zoom, 6:30 PM to 9:30 PM**	
May 6	**BC Project #6 and corrections to BC Project #5 due, via email, no later than 10 PM**	

*Readings refer to both the 6th and 7th editions of the Wooldridge text.

ATTENDANCE POLICY:

Although you will not be graded on attendance, ***class attendance is not optional***. If you miss class it is **YOUR** responsibility to find out what was covered on that night and make up the missed material before the next class meeting.

MISSING CLASS AND USING INTERNET RESOURCES:

If you miss class for an valid reason, be forewarned that you cannot and should not expect to learn what was covered by looking it up on the internet. There is a great deal of incorrect and made-up information on the internet, especially AI driven information. If you use such information on any of your assignments, you will face harsh penalties in grading.

CLASSROOM POLICIES:

During class, students are forbidden to have or use electronic devices such as **cameras**, tablets, cell phones, headphones, earphones, ear buds or the like (except in special cases where students have a verified need that requires such devices).

COMMUNICATION EXPECTATIONS:

If Dr. T. needs to contact you to convey class-related information, in keeping with University policy, she will post announcements in Canvas and use your OFFICIAL UNT email address ONLY. Thus, it is YOUR responsibility to check your UNT email and the Canvas announcements for this class on a regular basis.

If you send an email to Dr. T., please only use your official UNT email account. In addition, Dr. T. typically receives a large volume of emails each day so it might not be possible to respond to all emails right away. To maximize the probability that she will read and respond to your email in a timely manner, please: (1.) use the words "ECON 4875" in the subject heading; (2.) include your full name in the "from" line; (3.) sign your email using your full name.

If you email Dr. T. questions about your SAS work, please cut and paste the contents of your log window into a Word file and send that with your questions.

SOFTWARE:

The software package used in this course is PC SAS, version 9.4 (or higher). **If you want to get the maximum benefit from this class, you should put a tremendous amount of effort into learning this software package!** You can use the lab run by the College of Arts & Sciences in room 330 of the GAB. This lab should be open on the following days and times: Mondays through Thursdays, 8 AM to 10 PM, Fridays from 8 AM to 5 PM, and Saturdays & Sundays from 12 PM (noon) to 8 PM. The lab is closed during spring break.

If you are a Windows user, directions on how to use the lab remotely, through "MyLab" can be found at: https://academictechnologies.unt.edu/services/computer-labs/request/remotely-connect-mylab-virtual-computer-lab.

As long as you have signed up for Duo Authentication, you also can access SAS through "desktop streaming" (for students of the College of Liberal Arts & Sciences) or "virtual lab" (for students in the College of Business). For more information on desktop streaming, please see: https://itservices.cas.unt.edu/services/computers/articles/access-desktop-streaming. For more information on "virtual lab," please see: https://cob.unt.edu/lab/virtual-lab. You should be able to access desktop streaming through a web browser. Note that "virtual lab" offers a much better experience so if you have that access, you should use it.

Note that when working with SAS via desktop streaming, it only is possible to work with data, programs, or log files when the files are stored on a share drive (such as the H drive) or on OneDrive. SAS cannot work with files that are stored locally (on your laptop or desktop or home computer). Also, files saved in local directories will be lost upon logging off. This means that you must use your OneDrive account to save your work. This drive usually is mapped to the O: (oh) drive on the computer that you are using. In addition, SAS is quite a bit slower when using desktop streaming, so be patient! It will work eventually, but it will take longer than you are accustomed to.

HEALH & SAFETY:

While attendance is expected as outlined above, it is important for all of us to be mindful of the health and safety of everyone in our community in light of COVID-19, the flu, and other such conditions. If you are sick, it may be in the best interests of everyone for you not to attend class. If you are experiencing any symptoms of the flu or COVID-19, please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

HOUSE RULES:

1. No food or drink in the lab.
2. Turn off cell phones and all electronic devices during class time.
3. **DO NOT USE THE COMPUTERS DURING LECTURE.**
4. Question everything! Always ask "Why?" and "Does this make sense?" Be curious!

UNT POLICIES:

Academic Integrity Policy:

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

Emergency Notification & Procedures:

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

ADA Policy:

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website at disability.unt.edu.

Technical Assistance:

At some point, it might be necessary for us to convert to remote delivery of this class. If that happens, here are some resources for you to help ease the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UNT Help Desk: UIT Student Help Desk site (http://www.unt.edu/helpdesk/index.htm)
Email: helpdesk@unt.edu
Phone: 940-565-2324
In Person: Sage Hall, Room 130
Walk-In Availability: 8 AM to 9 PM
Telephone Availability:

- Sunday: noon to midnight
- Monday-Thursday: 8 AM to midnight
- Friday: 8 AM to 8 PM

Saturday: 9 AM to 5 PM**Laptop Checkout**: 8 AM to 7 PM

For additional support, visit Canvas Technical Help
https://community.canvaslms.com/docs/DOC-10554-4212710328)

Your Mental Health:

Just as with your physical health, your mental health is VERY important to me. We are living in stressful and uncertain times. A great deal of attention has been paid, lately, to our physical health, but I want to remind you that there is help for our mental health too. UNT's Student Health & Wellness Center, the Counseling Center, and the Care Team are staffed with many wonderful people who wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Please do not be afraid to reach to these caring professionals during this very difficult time; it really can help. DO NOT feel ashamed if you experience a crisis or if you are stressed out! Nearly everyone goes through some type of mental health issue at some point in their life—even the people who seem to be completely in control and who look totally "normal." Begin with the links below:

Student Health & Wellness Center (https://studentaffairs.unt.edu/student-health-and-wellness-center)
Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
UNT Care Team (https://studentaffairs.unt.edu/care)
UNT Psychiatric Services (https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry)
Individual Counseling (https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling)

Sexual Assault Prevention:

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

Retention of Student Records:

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year.

Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

Acceptable Student Behavior:

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at deanofstudents.unt.edu/conduct.

Access to Information – Eagle Connect:

Students' access point for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail: eagleconnect.unt.edu/

Prohibition of Discrimination, Harassment & Retaliation:

Consistent with Policy 16.004, he University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

Rules of Engagement:

Rules of engagement refer to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:

- While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language on the basis of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law will not be tolerated.
- Treat your instructor and classmates with respect in any communication online or face-to-face, even when their opinion differs from your own.
- Ask for and use the correct name and pronouns for your instructor and classmates.
- Speak from personal experiences. Use "I" statements to share thoughts and feelings. Try not to speak on behalf of groups or other individual's experiences.
- Use your critical thinking skills to challenge other people's ideas, instead of attacking individuals.
- Avoid using all caps while communicating digitally. This may be interpreted as "YELLING!"
- Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
- Avoid using "text-talk" unless explicitly permitted by your instructor.
- Proofread and fact-check your sources.
- Keep in mind that online posts can be permanent, so think first before you type.

See Engagement Guidelines (https://clear.unt.edu/online-communication-tips) for more information.