COURSE OBJECTIVES:
This course focuses on empirical applications of non-linear and non-ideal regression models. The objective is to provide students with the tools necessary to organize, analyze, and interpret data using non-linear regression analysis, and write an applied research paper. Students will explore an assortment of applied problems that are typically encountered in accounting, economics, finance and political science. At the completion of the course, students will develop proficiency in the following areas: (1.) developing a research question; (2.) applying appropriate estimation techniques; (3.) interpreting econometric results and computer output; and (4.) writing and explaining econometric results in a manner accessible to non-experts. In addition, students will gain familiarity with the statistical software packages Stata and SAS (Statistical Analysis System).

PRE-REQUISITES:
The pre-requisite for this course is a grade of "B" or better in ECON 5650, Advanced Econometrics.

TEXTBOOK:
The recommended text for this course is the same one that you used for ECON 5650: *Econometric Analysis*, by W. Greene (publisher: Pearson). Both the 8th edition and the 7th edition are acceptable.

GRADING POLICY:
Grades for this course will be assigned based on your cumulative point total as follows:

- Homework #1: 20 points
- Homework #2: 40 points
- Homework #3: 50 points
- Homework #4: 15 points
- Part 1 of research paper: 30 points
- Full research paper: 70 points
- Final Exam: 100 points

Total: 325 points
Students who accumulate 90% or more of the total points possible will earn a grade of "A;" students who accumulate 80% to 89% of the total points possible will earn a grade of "B."

The homework assignments will focus on successively larger applied research projects, where you are provided with the research question, the data, and all necessary computer code. You will run the computer code, interpret the results, and write a paper that explains various aspects of the projects. For the research paper, you are to develop your own research question, collect your own data, and write your own computer code. You will then run the computer code, interpret the results, and write a paper that explains everything about the project.

The final will take place on the Monday night of finals week, at the usual class time, in the usual class location. A formula sheet will be provided.

CLASS HANDOUTS:
On the first night of class, a copy of the lecture outline will be provided for you. After that, YOU are responsible for bringing all of the handouts yourself. The plan is to make all handouts for a given Monday night available on Canvas by noon on the preceding Wednesday.

Note: The handout that you should bring to class each night always is called something such as: "Lecture outline for topic XX.pdf," or "Lecture outline for topic XX part 1.pdf," or "Lecture outline for topic XX part 2.pdf," where XX refers to the topic number.

ATTENDANCE POLICY:
Although you will not be graded on attendance, attendance will be taken every night and class attendance is not optional.

A WORD OF WARNING ABOUT THIS CLASS CONVERTING TO REMOTE DELIVERY:
Given the uncertainty of our world today, it is possible that this class could be converted into an on-line format at any time. If that happens, all lectures will be delivered at the normal class time via Zoom. Therefore, you must have access to a computer with a camera (webcam) & microphone, and a quiet place to view the lecture. Information on how to be successful in a remote learning environment can be found at https://online.unt.edu/learn.

EMAIL POLICY:
If I need to contact you to convey class-related information, in keeping with University policy, I ONLY will use your official UNT email address. Thus, it is YOUR responsibility to check your UNT email on a regular basis. If you send an email to me, please only use your official UNT email account. In addition, I typically receive 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 I will read and respond to your email in a timely manner, please: (1.) use the phrase "ECON 5670" in the subject heading; (2.) include your full name in the "from" line; (3.) sign your email using your full name.

If you email me a question about your SAS work, please cut and paste the contents of your log window into a Word file and send that to me.
INTERNET RESOURCES:
Be forewarned: If you use the internet as a source to learn material for this class, you are strongly cautioned to do so at your own risk! There is a wealth of information on the internet that is NOT correct, even though it appears to be. If you collect information from sources other than refereed journal articles, that information might be incorrect and it might cost you points on graded assignments.

STATEMENT ON FACE COVERINGS:
UNT encourages everyone to wear a face covering when indoors, regardless of vaccination status, to protect yourself and others from COVID infection, as recommended by current CDC guidelines. Face covering guidelines could change based on community health conditions.

COVID-19 IMPACT ON ATTENDANCE:
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, especially given concerns about COVID-19. Please contact Dr. T. if you are unable to attend class because you are ill, or unable to attend class due to a related issue regarding COVID-19. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

If you are experiencing any symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) 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. UNT also requires you to contact the UNT COVID Team at COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

HOUSE RULES:
1. Masks/face coverings are strongly encouraged.
2. No food or drink in the lab.
3. Turn off cell phones and all electronic devices during class time.
4. DO NOT WORK ON YOUR COMPUTER DURING LECTURE.
5. Only print material related to this class in this lab. DO NOT print once class begins.
6. Question everything! Always ask "Why?" and "Does this make sense?" Be curious!
7. When working in SAS, always check the log window FIRST (starting at the TOP).
SOFTWARE:
The software packages used in this course are Stata, version 13 (or higher), and PC SAS, version 9.4 (or higher). If you want to get the maximum benefit from this class, you should put a lot of effort into learning these software packages! Below are the hours and location of each of the general access labs supported by the College of Arts & Sciences.

LOCATION AND HOURS OF OPERATION* OF CAS GENERAL ACCESS LABS:

<table>
<thead>
<tr>
<th></th>
<th>GAB 330</th>
<th>GAB 550</th>
<th>Terrill 220</th>
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</thead>
<tbody>
<tr>
<td>Monday - Thursday</td>
<td>8 AM – 10 PM</td>
<td>8 AM – 10 PM</td>
<td>8 AM – 10 PM</td>
</tr>
<tr>
<td>Friday</td>
<td>8 AM – 5 PM</td>
<td>8 AM – 5 PM</td>
<td>8 AM – 5 PM</td>
</tr>
<tr>
<td>Saturday</td>
<td>12 noon – 8 PM</td>
<td>closed</td>
<td>closed</td>
</tr>
<tr>
<td>Sunday</td>
<td>12 noon – 10 PM</td>
<td>closed</td>
<td>closed</td>
</tr>
<tr>
<td>Exceptions</td>
<td>closed Sep. 6; closes 10 PM Nov. 24; closed Nov. 25–27 open 8 AM on Dec. 7 closed Dec. 4 onward</td>
<td>closed Sep. 6; closed Nov. 24–27 closed Dec. 4 onward</td>
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</tr>
</tbody>
</table>

*Times and dates are subject to change without notice; please check the official schedule at: https://itservices.cas.unt.edu/services/labs

If, in the future, this class switches to “fully remote” or if you cannot attend lectures in person, it is critically important that you have personal access to SAS. Therefore, at your earliest possible convenience, please try to access SAS through “desktop streaming.” You should be able to do this either through a web browser or through the VMware Horizon Client. It might be easier and less cumbersome to use the VMware method since, by this method, you have a separate program for accessing the software, rather than working within a web browser. To do that, go to: https://view.euc.untsystem.edu/portal/webclient/index.html#. Detailed instructions on how to access “desktop streaming” (and “virtual lab”) are available at: https://itservices.cas.unt.edu/services/computers/articles/access-desktop-streaming. If you have any difficulty, please let me know so that we can work to get the problem straightened out.

If you are a student in the College of Business, or if you currently are enrolled in any class offered by the College of Business, you have access to SAS through their “virtual lab.” When running the SAS software, you will have a MUCH better experience if you use the “virtual lab” rather than “desktop streaming.” Instructions on how to do that also can be found at the link above.

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 a bit slow when using desktop streaming so be patient! It will work eventually, but it will take longer than you are accustomed to.
TENTATIVE COURSE SCHEDULE AND REQUIRED READINGS:

AUGUST 23:

Topic #1: Introduction

Receive Homework #1

Readings: Lecture notes from ECON 5650, and:


AUGUST 30:

Homework #1 due by email, no later than 3 PM

Topic #2: Maximum Likelihood Estimation

Readings: Lecture notes from ECON 5650, chapter 14 of Greene, and:


SEPTEMBER 6:
Labor Day holiday; class does not meet.

SEPTEMBER 13:
Receive graded copy of Homework #1; review Homework #1
Receive Homework #2
Topic #3: Censored Regression
Readings: Lecture notes from ECON 5650, sections 19.1 – 19.3 of Greene, and:

SEPTEMBER 20:
Homework #2 due by email, no later than 3 PM
Receive Homework #3
Topic #4: Probit & Logit
Readings: Lecture notes from ECON 5650, sections 17.1 – 17.4 of Greene, and:

SEPTEMBER 27:
Receive graded copy of Homework #2; review Homework #2
Topic #5, part 1: Ordered Multivariate Response Models and Ordered Probit
Readings: Lecture notes from ECON 5650 and section 18.3 of Greene, and:
Topic #5, part 2: Unordered Response Models and Multinomial Logit
Readings: Lecture notes from ECON 5650, sections 18.1 & 18.2 of Greene, and:


**OCTOBER 4:**

**Homework #3 due by email, no later than 3 PM**

Topic #6: Panel Data

Readings: chapter 11 of Greene, and:


**OCTOBER 11:**

Receive graded copy of Homework #3; review Homework #3

Receive Homework #4 and instructions for research papers.

Topic #7: Count Data

Readings: Notes from ECON 5650, section 18.4 of Greene, and:


**OCTOBER 18:**

Topic #8: Fractional Response Models

Readings: handout and:


**OCTOBER 25:**

**Homework #4 due by email, no later than 3 PM**

Topic #9: Heteroskedasticity & Robust Standard Errors

Readings: Notes from ECON 5650 and chapter 9 of Greene.


**NOVEMBER 1:**

**Part 1 of research paper due by email, no later than 3 PM**

Topic #10: Applications

Readings: Handout, and:


NOVEMBER 8:

Receive graded copy of part 1 of research paper.

Topic #11: Non-constant Parameters & Structural Change

Readings: Section 6.6 of Greene, and:


Scott, C.P. (2012), "Using Time Varying Monetary Policy Parameters to Identify Asymmetric Preferences," Kansas State University working paper

NOVEMBER 15:

OPTIONAL: "First read" of research paper due by email, no later than 3 PM

Work on research papers.

NOVEMBER 22:

Receive practice final exam. Work on research papers.

NOVEMBER 29:

Question & Answer session for final exam.

DECEMBER 6:

Full research papers (and clean copy of data set) due by email, no later than 3 PM.

Final exam, 6:30 PM to 8:30 PM, Gateway 141
# COURSE OUTLINE AT A GLANCE, FALL 2021:

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 23</td>
<td>Topic #1: Introduction to Applied Research, SAS &amp; Stata; receive homework #1</td>
</tr>
<tr>
<td>Aug. 30</td>
<td><strong>Homework #1 due by 3 PM;</strong> Topic #2: Review of MLE</td>
</tr>
<tr>
<td>Sep. 6</td>
<td><strong>LABOR DAY; CLASS DOES NOT MEET</strong></td>
</tr>
<tr>
<td>Sep. 13</td>
<td>Receive graded copy of homework #1; review homework #1; Topic #3: Censored Regression; receive homework #2</td>
</tr>
<tr>
<td>Sep. 20</td>
<td><strong>Homework #2 due by 3 PM;</strong> Topic #4: Probit &amp; Logit; receive homework #3</td>
</tr>
<tr>
<td>Sep. 27</td>
<td>Receive graded copy of homework #2; review homework #2</td>
</tr>
<tr>
<td></td>
<td>Topic #5, part 1: Ordered Multivariate Response Models and Ordered Probit</td>
</tr>
<tr>
<td>Oct. 4</td>
<td><strong>Homework #3 due by 3 PM;</strong> Topic #6: Panel Data</td>
</tr>
<tr>
<td>Oct. 11</td>
<td>Receive graded copy of Homework #3; review homework #3; Topic #7: Count Data</td>
</tr>
<tr>
<td>Oct. 18</td>
<td>Topic #8: Fractional Response Models</td>
</tr>
<tr>
<td>Oct. 25</td>
<td><strong>Homework #4 due by 3 PM</strong></td>
</tr>
<tr>
<td></td>
<td>Topic #9: Heteroskedasticity &amp; Robust Standard Errors</td>
</tr>
<tr>
<td>Nov. 1</td>
<td>Part 1 of research paper due by 3 PM, via email; Topic #10: Applications</td>
</tr>
<tr>
<td>Nov. 8</td>
<td>Receive graded copy of part 1 of research paper; Topic #11: Non-constant Parameters &amp; Structural Change</td>
</tr>
<tr>
<td>Nov. 15</td>
<td>Optional “first read” of research paper due by 3 PM, via email. Work on research papers</td>
</tr>
<tr>
<td>Nov. 22</td>
<td><strong>Receive practice final exam;</strong> work on research papers.</td>
</tr>
<tr>
<td>Nov. 29</td>
<td>Question &amp; Answer session for final exam</td>
</tr>
<tr>
<td>Dec. 6</td>
<td><strong>Final research paper &amp; clean data set due by 3 PM, via email.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>FINAL EXAM, 6:30 PM to 8:30 PM, Gateway 141</strong></td>
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</tbody>
</table>
ADA STATEMENT / DISABILITY ACCOMMODATION:
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 (https://disability.unt.edu/).

PROHIBITION OF DISCRIMINATION, HARASSMENT & RETALIATION (Policy 16.004):
The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, gender, 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.

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.

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.
ACADEMIC INTEGRITY, CHEATING AND PLAGIARISM:

The UNT Department of Economics adheres to the University's Policy on Cheating and Plagiarism. To view the complete policy, go to www.vpaa.unt.edu.

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 (see details below). A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

The minimum penalty for cheating and/or plagiarism is a grade of "F" in the course. The maximum penalty is expulsion from the University. Anyone suspected of cheating and/or plagiarism will be reported to the Office of Student Rights and Responsibilities, and cheating and/or plagiarism will be prosecuted to the fullest extent allowable.

Cheating: The use of unauthorized assistance in an academic exercise, including but not limited to:

1. giving or receiving of any unauthorized assistance during exams or other assessments;
2. dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems or carrying out other assignments;
3. acquisition, without permission, of tests, notes or other academic materials belonging to a faculty or staff member of the University;
4. dual submission of a paper or project, or re-submission of a paper or project to a different class without express permission from the instructor;
5. any other act designed to give a student an unfair advantage on an academic assignment.

Plagiarism: Use of another's thoughts or words without proper attribution in any academic exercise, regardless of the student’s intent, including but not limited to:

1. the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement or citation.
2. the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials.

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. Visit UNT’s Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.
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.

RULES OF ENGAGEMENT:
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.

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

YOUR MENTAL HEALTH:
We are living in stressful and uncertain times. A great deal of attention has been paid, lately, to our physical health, and 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)
SURVIVOR ADVOCACY:
UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as 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. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-5652648.

CLASS RECORDINGS:
If the semester proceeds as normal, this is a live face-to-face class and it will NOT be delivered through Zoom nor will it be recorded. However, if the situation changes and there is a need to switch to remote delivery, then be advised that class recordings are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes. Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.