Class Meeting:  Monday 6:00 pm to 8:50 pm  
Location:  Chilton Hall (CH), Room 270  
Instructor:  Linlang He, PhD  
Email:  linlang.he@unt.edu  
Office:  Room 204M, Chilton Hall  
Office Hours:  Monday from 5-6 pm and Tuesday 11am-12pm or by appointment  

Course Overview:
The course covers advanced quantitative approaches to the study of policy analysis, data management, and program evaluation. Balancing the teaching of statistical concepts with providing the practical applications in public administration contexts, this course aims to equip students with tools that can be used to meaningfully engage with and potentially inform practitioners regarding public administration practices. The first part of this course discusses why statistics for public managers and policy analysts are important, introduces concepts of research design, and builds on what was covered in the first research methods sequence, which stresses the use of descriptive and inferential statistics. The second part of the course extends the sequence by examining the basic assumptions of bivariate and multivariate analyses and discussing how to choose and design the most appropriate tools of analysis (e.g., ordinary least squares regression, logistic regression, instrumental variables design, regression discontinuity design, and propensity score matching) for real-life applications.  

Course Objectives:
1. To give students a conceptual understanding of statistical analysis and its practical application in public administration.
2. To equip students with a variety of tools to inform better administrative or policy decisions.
3. To develop students’ skills in effective writing and speaking.

Required Textbook:

Course Guide**:  https://guides.library.unt.edu/PADM5510  
** This library page has information on how to access some of the recommended readings.

Software:
SPSS / IBM: The school encourages remote access to applications provided by UNT online virtual lab powered by Citrix. Find the lab here: https://myuntlab.unt.edu/
Canvas:
Please familiarize yourself with the Canvas page for this course. The URL for our Canvas log in page is: https://unt.instructure.com/. You will find the course syllabus, required/recommended readings (if not available on the course guide), and assignments on the Canvas site. You will also submit your homework and project assignment through Canvas.

All new students should get a UNT account the first week of the class. If you need support or have any related questions, you can find information posted online here https://clear.unt.edu/services/lms-support.

Recommended Readings**:


Other selected journal articles (please see weekly schedule for details)

** Access to recommended readings will be given through the Course Guide page or Canvas.

Course Grading

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>30%</td>
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<td>(2 sets of homework, 15% each)</td>
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<tr>
<td>Exam</td>
<td>30%</td>
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<tr>
<td>Research Project</td>
<td>30%</td>
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<tr>
<td>Project summary (10%)</td>
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<td>Written report (15%)</td>
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<td>Presentation (5%)</td>
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<td>Class participation and discussions</td>
<td>10%</td>
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Grades Breakdown
A = 90% or above     B = 80%-89%     C = 70%-79%     D = 60%-69%     F = 59% and below
Course expectations:

**Attendance**
Students are expected to attend classes regularly and to abide by the attendance policy established for the class. This is an in-person class, so Zoom recording is not provided. If you are absent from the class or will miss a class, please ensure that you communicate with the instructor clearly before the class or as soon as possible. Students should contact the professor about such absences before the class (email is preferred). However, students who have more than 2 consecutive absences without any legitimate reasons or clear communications with the instructors will receive message from the UNT Eagle Alert.

**Class Participation and Discussion**
Active class participation and discussions are important parts of this course. Prior to each class meeting, you should read the required textbook chapters and other reading materials. This will give you the foundation to participate in class discussions.

**Policy on Cell Phone and Laptop in the Classroom**
The classroom setting at an institution of higher learning is intended to serve as a venue that permits the transfer of knowledge and facilitates the sharing of ideas. As such, it is imperative that any distractions from these stated objectives be avoided and kept to a minimum. Potential disruptions include modern electronic devices such as laptop computers and cell phones.

Students are allowed to take notes on personal laptop computers and computers in the classroom to enhance the learning process, but they should not use computers for non-academic purposes. Students should also avoid using cell phones to search the internet or text while class is in session. Please silence your phones.

**Work Submission**
All assignments are expected to be turned in on time (before class starts on the day of submission). Late homework will be penalized unless the student has a legitimate excuse or crisis causing the delay in completing work (i.e. illness, family death). Also, I will only grant incompletes or extension to students who have legitimate excuses or crises and who make requests prior to the end of the course.

If an extension is not granted or work is submitted late without a request being made before the deadline, points will be deducted as follows:
- Up to 24 hours late, loss of 1% of the graded score
- Over 24 hours late and up to 2 days late, loss of 5% of the graded score
- Over 3 days late and up to 7 days late, loss of 10% of the graded score
- Over 7 days late and up to 14 days late, loss of 20% of the graded score
- After 14 days, the assignment will not be accepted for marking and you will be recorded as having failed to submit the item of assessment.
Policy on Disability Accommodation:
Students with disabilities needing academic accommodation should (1) register with and provide documentation to the Office of Disability Accommodation (ODA); and (2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during office hours before the 12th class day of regular semesters.

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 Center for Student Rights and Responsibilities 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 www.unt.edu/csrr

Original Work and Plagiarism:
Unless explicitly assigned to work in groups, all students are expected to work independently. The assignments and exams should be the student’s own work. Working together where it is clearly indicated is entirely appropriate, but if you are preparing a written product that will be submitted for evaluation, that product is expected to be the result of your work alone. Where questionable situations arise, always ask the instructor for clarification. Also, students must cite their sources where relevant, and plagiarism will be not tolerated and will be penalized severely at UNT. You could also find information from the following website that defines academic dishonesty and available penalties:
https://policy.unt.edu/sites/default/files/untpolicy/pdf/7- Student_Affairs-Academic_Integrity.pdf

Student Perception of Teaching (SPOT)
SPOT is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. Once the SPOT becomes available via your my.unt.edu portal, please complete the survey as it will help in every effort to improve the instructor’s teaching skills.
<table>
<thead>
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<th>Week</th>
<th>Dates</th>
<th>Topics and Readings</th>
<th>Reminders</th>
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| Week 1 | Aug 21<sup>st</sup> | Introduction to public administration research – examples of quantitative, qualitative, and mixed-methods research; differences between descriptive statistics and inferential statistics; practice formulating research questions  
**Required readings:**  
Berman and Wang (2017): Chapter 1-2 | Check Canvas for syllabus |
| Week 2 | Aug 28<sup>th</sup> | Measurement theory; measurements reliability and validity; research design (quasi-experimental design & experimental designs); program evaluation methods; descriptive statistics and exploratory data analysis  
**Required readings:**  
Berman and Wang (2017): Chapter 3-4, 6-9 | Make sure to have access to SPSS and data files |
| Week 3 | Sept 4<sup>th</sup> | Labor Day – No Class |
| Week 4 | Sept 11<sup>th</sup> | Data collection; common data issues; hypothesis testing (one sample, difference between two groups), analysis of variance; nonparametric tests  
**Required readings:**  
Berman and Wang (2017): Chapter 5, 10-13 | Homework 1 due |
| Week 5 | Sept 18<sup>th</sup> | Correlation and Regression I – overview of different types of regressions; bivariate/simple linear regression  
**Required readings:**  
Berman and Wang (2017): Chapter 14  
UCLA Stata web books Chapter 1.0-1.3  
| Week 6 | Sept 25<sup>th</sup> | Correlation and Regression II – multiple regression analysis: OLS and its assumptions; models with interaction terms  
**Required readings:**  
Berman and Wang (2017): Chapter 15  
UCLA Stata & SPSS examples with annotated output  
SPSS: https://stats.oarc.ucla.edu/spss/output/regression-analysis/  
Stata: https://stats.oarc.ucla.edu/stata/output/robust-regression/  
Recommended readings:  
UCLA Stata web books Chapter 1.4  
https://stats.idre.ucla.edu/stata/webbooks/reg/chapter1/regressionwith-statachapter-1-simple-and-multiple-regression/ | Pay attention to Research Project instruction (discussed in class) |
| Week 7 | Oct 2<sup>nd</sup> | Correlation and Regression III – cross-sectional vs. panel data analysis; regression discontinuity and diff-in-diff  
**Required readings:**  
Chapter 6, 7  
**Recommended readings (pick at least one from the followings):**  
| Week 8  – Oct 9<sup>th</sup> | Correlation and Regression IV – instrumental variables and propensity score matching  
**Required readings:**  
Chapter 5, 8  
**Recommended readings (pick at least one from the followings):**  
| Week 9  – Oct 16<sup>th</sup> | Correlation and Regression V – regression models for categorical and limited dependent variables (e.g., probit and logit models)  
**Required readings:**  
Berman and Wang (2017): Chapter 16  
UCLA Stata & SPSS examples with annotated output  
Logistic regression: https://stats.oarc.ucla.edu/spss/output/logistic-regression/  
Multinomial logistic regression: https://stats.oarc.ucla.edu/spss/output/multinomial-logistic-regression/  
Ordered logistic regression: https://stats.oarc.ucla.edu/spss/output/ordered-logistic-regression/  
Probit regression: https://stats.oarc.ucla.edu/spss/output/probit-regression/  
**Recommended readings:**  
Long (1997): Chapter 3,4,5  
| Week 10 – Oct 23rd | Nonlinear regression models (e.g., models with quadratics and logarithmic functional forms); maximum likelihood and Bayesian estimation  
*Required readings:*  
  Mitchell M. (2021): Chapter 3  
*Recommended readings:*  
  Long (1997): Chapter 1.2 |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Week 11 – Oct 30th | Research design revisited – survey and case study design; common issues in time series analysis (e.g., sample attrition)  
*No reading assigned* |
| Week 12 – Nov 6th  | A brief survey of other techniques – structural equation modeling; statistical forecasting  
*Required readings:*  
  Berman and Wang (2017): Chapter 17 |
| Week 13 – Nov 13th |  
*Exam* |
| Week 14 – Nov 20th |  
*Thanksgiving break* |
| Week 15 – Nov 27th |  
*Student Presentations on Research Project* |
| Week 16 – Dec 4th  |  
*Project Writeup Due* |
PROGRAM EVALUATION PROPOSAL (Only for MPA Students)
You are asked to write a program evaluation proposal. You will be responsible for the development of a proposal to design and evaluate an intervention program of your choice. You are not expected to carry out the proposed scheme, but you should, however, be realistic in its proposal. The proposed plan will be strengthened by your familiarity with “real-life” contexts. If you do not have experience with existing programs or agencies, you may want to talk with people who work in such settings.

The guideline for a program evaluation proposal is provided below.

Two stages are involved when preparing for your final submission of project proposal**.

** Stage 1: Project Summary: You are expected to write a semi-formal summary of the program evaluation proposal and the chosen evaluation design. The summary should explain the specific aim of your project including background and significance (see more detailed guideline in the next section).

** Stage 2: You will present your program evaluation proposal in class. Your presentation will take 15-20 minutes. If changes need to be made, you will be asked to make them.

** The final proposal submitted should not exceed 15 pages (excluding tables and figures bibliography and appendices). The final draft of your proposal should be typed with 1.5 line spacing, 12-point font, and standard one-inch margins.

Acknowledgement: Credit to Dr. Simon Andrew for sharing this guidance on how to write a program evaluation proposal.
GENERAL GUIDELINES ON HOW TO WRITE A PROGRAM EVALUATION PROPOSAL:
It is expected that all program evaluation proposals will emphasize the methods you have learned in the research methods sequence. You will be required to present measures which you think could be employed in this research. Essentially, your group’s proposed plan should answer the following questions:

1. What do you intend to do? (Specific Aims)
2. Why is the work important? What has already been done? (Background and Significance)
3. How are you going to do the work? (Research Design)
4. How are you going to analyze the data? (Analysis)

Specific Aims: Describe the broad and/or brief objectives of the program to be evaluated, and what the specific proposed evaluation is intended to accomplish. The section typically begins with a general statement about the program to be evaluated, with a focus on a specific problem that needs to be evaluated, to be followed by the rationale or justification for the proposed evaluation. This section generally covers the following elements:

1. State the research problem, which is often referred to as the purpose of the evaluation proposal.
2. Provide the context and set the stage for your research question in such a way as to show the evaluation proposal is necessary and important.
3. Present the rationale of your proposed study and clearly indicate why it is worth doing.
4. Briefly describe the major issues to be addressed.
5. Identify the key independent and dependent variables. That is, state your hypothesis or theory, if any. (Please do not confuse the hypothesis with the statistical null hypothesis.)

Background and Significance: Briefly sketch the background leading to the present proposal, critically evaluate existing knowledge or literature, and specifically identify what are the main concerns according to program staff, clients, and others outside the program. State concisely the importance or relevance of the evaluation proposal by relating the specific aims of the proposal to the broad and main objective(s) of the program to be evaluated.

Note that I do not expect an extensive review of the current knowledge about the program you proposed to evaluate. However, I do expect some review of the existing literature regarding a particular program i.e., as a means to demonstrate your knowledge of the research problem, your understanding of the theoretical and research issues related to your research question, and your ability to critically evaluate relevant literature information. In short, your brief review of the current literature should convince your readers that your proposal will make a significant and substantial contribution to a particular program’s effectiveness.

It is also helpful to keep in mind that you are telling a story to an audience. Try to tell it in a stimulating and engaging manner. Do not bore them, because it may lead to rejection of your otherwise worthy proposal.

Research Design and Methods: The research design section is very important because it tells the audience how you plan to conduct your proposed evaluation of a program. It provides the audience with your work plan and describes the activities necessary for the completion of your project. So, in general, your group proposal should describe the evaluation design and the procedures to be used to accomplish the specific aims of the project. Address how the data will be collected, including measurement issues.
Specifically, for quantitative methods, the research design typically consists of the following:

1. Research Design: What kind of design will you choose? For example, will a control or comparison group be used? Is there a need for benchmarking or developing a baseline of current program performance? Are periodic or follow-up measurements foreseen and if so, over what time period?
2. Subjects or participants (unit of analysis): Who will take part in your study? What kind of sampling procedure will you use?
3. Instruments: What kind of measuring instruments or questionnaires will you use? Why did you choose them? What are the procedures to ensure they are valid and reliable?
4. Procedure: How do you plan to carry out your study? What activities are involved? How long will it take? As part of this section, you may provide a tentative sequence or timetable for the main activities involved and attach that in an appendix.

The guiding principle for writing the research design section is that it should contain sufficient information for the reader to determine whether the methodology is sound. Some even argue that a good proposal should contain sufficient details for another qualified researcher to implement the study. You need to demonstrate your knowledge of research methods and make the case that your approach is the most appropriate and most valid way to address your research question.

Please note that your research question may be best answered by qualitative research. However, there are no well-established and widely accepted canons in qualitative analysis; your method section needs to be more elaborate than what is required for traditional quantitative research. More importantly, the data collection process in qualitative research has a far greater impact on the results as compared to quantitative research. That is another reason for greater care in describing how you will collect and analyze your data using qualitative methods. When appropriate, you may want to consider using both, qualitative and quantitative methods.

**Analysis:** Describe what you will do both during and after your have collected the data to increase the utilization of the results of your evaluation. In other words, how are you going to analyze and interpret your data? Do the data meet the requirements of different statistical techniques? This is when your knowledge of the different research methods covered in class becomes very important.

**Acknowledgement:** Credit to Dr. Simon Andrew for sharing this guidance on how to write a program evaluation proposal.