LINEAR STATISTICAL MODELS
& ASSOCIATED TECHNIQUES (PADP 8130)

Course Instructor:

Dr. George A. Krause
280G Baldwin Hall (Office)
gkrause@uga.edu (E-mail)

Course Information:

Time: Thursday 3:55pm-6:45pm
Where: 101B Baldwin Hall
Office Hours: Friday: 2:00pm-5:00pm
**   or by Scheduled Appointment**

NOTE: The best way to contact me is via e-mail (gkrause@uga.edu) directly from your own UGA student e-mail account (and NOT via the e-mail function within eLC since I am unable to send a reply message to you from my Outlook e-mail account). In addition, I am very willing to have Zoom appointments (both scheduled office hours and non-scheduled office hours by mutual instructor consent) with students who seek 'dialogue-based' assistance. Students can normally expect me to respond to e-mails within 24 hours. If I do not respond within the time frame, please do send me a polite e-mail reminder.

COURSE DESCRIPTION

This course provides an introduction to linear regression analysis and associated statistical techniques for Ph.D. students in the Department of Public Administration and Policy. Specifically, this course provides an intensive introduction to elementary linear regression analysis (OLS estimation), followed by nonparametric regression alternatives to overcome the limitations of linear regression analysis, and then analyses of pane data. The course concludes with discrete choice models covering binary, as well as categorical (ordinal and multinomial choice) outcome variables. The aim is to enhance each student's quantitative data analysis toolkit with the methods covered in this course as they develop original research projects during their time in the Ph.D. program, and beyond.

The prerequisites for this course are PADP 8120: *Data Analysis and Statistical Inference* (**Each student is expected to have a working knowledge of this material upon entering this course**). Although the course focuses on data applications using Stata statistical software, it will be preceded by the theoretical basis of the statistical models and methods covered in this course. To make learning the material easier, students should have read and feel comfortable with the assigned readings ahead of its coverage in a given class session. When applicable, students should read any assigned journal article materials that contain applications of any statistical methods covered in the course, with special attention to the statistical methodology and its application to the substantive problem at hand.

The course will involve performing applied data analysis using **Stata (19 version)** statistical software during the semester. Although students are encouraged to purchase a copy of Stata for their own professional UGA purposes (i.e., work computer). Stata can also be used via the UGA

virtual lab (http://vlab.uga.edu). Although I will often point students to the necessary Stata program commands to execute problem set assignments & their own research projects, students are ultimately responsible for becoming proficient in using Stata by learning it on their own outside of class. Stata is very easy to use from a programming-syntax orientation and has a terrific set of online tutorials, help menus, manuals, and user-created (*.ado*) program files that should be able to assist you in most instances. However, I will be glad to assist students with computer–related questions outside of class sessions. These times can include office hours, a scheduled appointment, or by sending an e–mail message.

The following course text materials are required for each student taking this course:

REQUIRED TEXTBOOKS

Jeffrey M. Wooldridge. 2025. *Introductory Econometrics: A Modern Approach*. Eighth Edition. Boston, MA: Cengage Learning.

SUPPLEMENTARY TEXTBOOKS

The following textbooks are useful for students who deem that they would benefit from additional Stata resources, above those presented within the Stata Help PDF Manual, or online Stata resources (e.g., https://stats.oarc.ucla.edu/stata/)

- A. Colin Cameron and Pravin K. Trivedi. 2022. *Microeconometrics Using Stata, Second Edition, Volumes 1 & 2*. College Station, TX: Stata Press.

- Michael N. Mitchell. 2021. *Interpreting and Visualizing Regression Models Using Stata*. College Station, TX: Stata Press.

For those interested, an excellent 'philosophy of science' approach to understanding the relationship between theory and causal inference, can be found from Scott Ashworth, Christopher R. Berry, and Ethan Bueno De Mesquita. 2021 *Theory and Credibility: Integrating Theoretical and Empirical Social Science*. Princeton, NJ: Princeton University Press (Paperback Version).

Additional supplementary readings are offered for topics covered in this course. These items can be obtained through electronic links provided by the instructor at the end of the course syllabus, or by student-initiated inquiries in selected instances (with or without instructor assistance).

COURSE OBJECTIVES

1. *Understand the concepts underlying linear and related statistical models covered in this course and be able to competently execute these techniques, including diagnostic tests, substantive interpretation of relationships and effects, and sensitivity analyses. This includes both written, graphical, and oral presentation of these models and the statistical results produced by them.*

2. *Advancing a promising original scholarly research project that is well-thought out, theoretically informed, and empirically crafted in an appropriate manner.*

3. *Provide effective, constructive feedback on a classmate's research that will facilitate the development of the next stage of their research project.*

The attainment of these course objectives will primarily occur through assigned readings, class session lectures, problem sets, research projects, and consultation with the instructor.

CLASS STRUCTURE

- **SESSION A: 3:55pm – 5:15pm (80 minutes): Approximate & May Vary**

- **BREAK: 5:15pm–5:25pm (10 minutes): Approximate & May Vary**

- **SESSION B: 5:25pm – 6:45pm (80 minutes): Approximate & May Vary**

CLASSROOM RESPECT & ATTENDANCE POLICIES

It is essential to maintain a healthy learning environment so that everyone can feel free to participate. All members of the class are expected to behave in both a respectful and civil manner towards one another. To ensure that we get through the material of the course, I encourage students to ask questions, but as instructor I reserve the right to meet up with students outside of class sessions who are in need of additional assistance beyond what can be offered during the allotted class time. **My scheduled office hours will be held on Friday afternoons from 2:00pm–5:00pm & by Scheduled Appointment**. In addition, in select weeks we will not have class session but will meet either as a group or hold required/mandatory one-on-one student meetings.

These sessions are scheduled for the following days during the semester:

- **Class Session: Friday February 27, 2026 (3:00pm-6:00pm)**, and

- **Individual Student-Instructor Meetings: Tuesday April 14, 2026 (9:00am-4:00pm)**.

When seeking my assistance during office hours, please either stop by my office or send me a Zoom meeting room link and Outlook invitation for a specific time to meet. If I decline the invitation, I will propose an alternative time in the event I have already scheduled a meeting with one of your classmates or someone in my other course this semester. I encourage each of you to reach out to me during scheduled office hours on a regular basis to discuss the course content that we are covering, as well as the development of your original scholarly research projects for this course.

Students seeking to miss a class for health, professional, or emergency reasons are required to obtain an excused absence by notifying the instructor sufficiently in advance and supplying *verifiable documentation* of the class absence in a timely manner. The instructor reserves the right to approve or deny excused absences based on the circumstances of each request. ***Students will be penalized by 10.00% (i.e., 0.10) of their final course total weighted points for each unexcused absence.***

STUDENTS WITH DISABILITIES

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Disability Resource Center, Clark Howell Hall at UGA Athens campus (https://drc.uga.edu/) within the first two weeks of the term so that accommodations can be investigated on your behalf. Disability Resource Center will verify your disability and determine reasonable accommodations for this course.

ACADEMIC HONESTY

Cheating, plagiarism, and unauthorized assistance will not be tolerated. Students suspected of violating the University of Georgia's *Academic Honesty Policy:* https://honesty.uga.edu/Academic-Honesty-Policy/) will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score (F grade) for any given assignment, and possibly an F course grade, will be imposed.

Violations of this policy relating to unauthorized assistance includes, but is not limited to, the unauthorized use of artificial intelligence or word mixing software to execute any aspect of any assignment (e.g., compose your paper, perform data analysis, or disguise plagiarized work). Please see GAI Policies below in this course syllabus.

MENTAL HEALTH AND WELLNESS REOUSRCES

If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit https://sco.uga.edu/. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services. UGA has several resources for a student seeking mental health services (https://www.uhs.uga.edu/bewelluga/bewelluga) or crisis support

(https://www.uhs.uga.edu/info/emergencies). If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (https://www.uhs.uga.edu/bewelluga/bewelluga) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center. Additional resources can be accessed through the UGA App. In addition, more resources are offered to student seeking assistance.

- Counseling and Psychiatric Services (CAPS) is your go-to, on-campus resource for emotional, social and behavioral-health support: https://caps.uga.edu/

- TAO Online Support (https://caps.uga.edu/tao/), 24/7 support at 706-542-2273. For crisis support: https://healthcenter.uga.edu/emergencies/.

- The University Health Center also offers FREE workshops, classes, mentoring and health coaching led by licensed clinicians or health educators: https://healthcenter.uga.edu/bewelluga/.

PREFERRED NAME AND PRONOUNS

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I am eager to address you by your preferred name and/or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. As in the case of learning both first names and surnames for an entire class, I request your patience, as well as to kindly remind me if I accidently make a mistake in the use of preferred names and/or or gender pronouns when I am addressing you.

PROHIBITION ON BOTH VIDEO AND AUDIO RECORDING OF LECTURES

In the absence of written authorization from the UGA Disability Resource Center (https://drc.uga.edu/), students may not make a visual or audio recording of any aspect of this course. Students who have a recording accommodation agree in writing that they:

- Will use the records only for personal academic use during the specific course.

- Understand that faculty members have copyright interest in their class lectures and that they agree not to infringe on this right in any way.

- Understand that the faculty member and students in the class have privacy rights and agree not to violate those rights by using recordings for any reason other than their own personal study.

- Will not release, digitally upload, broadcast, transcribe, or otherwise share all or any part of the recordings. They also agree that they will not profit financially and will

not allow others to benefit personally or financially from lecture recordings or other course materials.

- Will erase/delete all recordings at the end of the semester.

- Understand that violation of these terms may subject them to discipline under the Student Code of Conduct or subject them to liability under copyright laws.

USE OF AI FOR COURSEWORK POLICIES[1]

Generative Artificial Intelligence (GAI) tools provide both new opportunities for teaching and learning, and new challenges. As you consider your course policies related to AI, think about what will contribute most to your students' learning, combined with how you will or will not be able to enforce your policy. Also consider how to make your expectations clear for students, in ways that help them understand your reasoning and navigate differences between courses and instructors.

The use of Generative AI (GAI) tools is not generally permitted in this course, but some exceptions are permitted, these include the following items per the guidelines noted below:

- GAI Checks and Corrections for Grammar & Prose Based on Student Author-Generated Composition [**NOTE:** *GAI-based Composition is Strictly Prohibited!*];

- GAI based assistance with Program and Computing Tasks in Statistical Programs [*But These Must be Supported with in Conjunction with Corroborative Efforts at Student Inspection of the Appropriate Reference Manuals & Related Content such as journal articles, etc…*].

If you are uncertain about using a particular tool to support your work, please consult with the instructor before using it.

In addition, students cannot represent output generated by a GAI tool as their own work. Any such use of GAI output must be appropriately cited or disclosed, including quotation marks and in-line citations for direct quotes. Including anything you did not write in your assignment without proper citation will be treated as an academic misconduct case. Suspected unauthorized assistance, plagiarism, or other violations of UGA's "*A Culture of Honesty*," will be reported to the Office of Academic Honesty. For full details on how to properly cite AI-generated work, please see the APA Style article, How to Cite ChatGPT.

---

[1] Much of this section's content on AI Policies is taken and adapted from *UGA Policy on Sample Syllabus Policies* (https://ctl.uga.edu/teaching-resources/establishing-your-syllabus/samplesyllabuspolicies/). Retrieved on December 26, 2025.

If you are unsure where the line is between collaborating with GAI and copying from GAI, I recommend that you do not have your assignment and the GAI tool open on your device at the same time. Instead, take notes in your own words while you interact with the GAI tool, then use your notes to remind you of what you've learned and to inform your work. Never copy output from GAI tools into your assignment. Instead, use your interaction with the tool as a learning experience, then close the interaction down, open your assignment, and let your assignment reflect your improved understanding. (*Sidenote: This advice extends to AI assistants that are directly integrated into a composition environment or grammar modulation tool.*)

Finally, GAI is highly vulnerable to inaccuracy and bias. You should assume GAI output is wrong unless you either know the answer or can verify it with another source. It is your responsibility to assess the validity and applicability of any GAI output used.

REQUIRED ASSIGNMENTS

(1) **Three Problem Sets: Stata Statistical Database Applications: 45% (UNIT 1: 15%; UNIT 2: 15%; UNIT 3: 15%)**

Students will be graded on problem sets covering material from each of the three units of the course (*Principles of Linear Regression & Nonparametric Methods [UNIT 1]; Panel Designs & Models [Unit 2], and Discrete Choice Models [UNIT 3]*). These problem sets will entail Stata software applications (graphical and/or statistical) and written analyses of statistical findings and results from the various techniques, models, and tests covered during class sessions. The problem set assignments are due at the time assigned by the instructor [this information will appear on each assignment problem set] – without obtaining formal consent from the instructor, late work will be penalized by 50% for each regular day that it is late. Each problem set will constitute 15% of each student's final course grade. Submitted problems sets must consist of a written analysis of the work, plus Stata program output **.smcl* files (with Stata program **.do* files embedded within the corresponding output file). Assignments are evaluated on the ability to perform and present required statistical analysis in a clear and accessible manner, as well as the interpretation and analysis of statistical findings produced within the assignment's guidelines. **Although student interaction is encouraged on the problem set assignments, each student must perform their own work when completing assignments – and responsible for their own assignment work.**

(2) **An Original Scholarly Research Paper: 40% (15% Draft Version; 25% Final Version)**

Each student will be required to develop a suitable original **_solo-authored_** scholarly empirical-oriented research paper of 30-40 pages in length (double-spaced, 12 point font) using quantitative data during the semester, subject to the instructor's approval. All formatting requirements should conform to current *American Journal of Political Science* guidelines (American Political Science Association's *Style Manual for Political Science* (revised August, 2006)). ***Students are fully responsible for choosing their own research projects and the resulting product that is the outcome of this process. Students are***

required to discuss their topic(s) with the instructor to assess suitability for this course, and is also subject to instructor approval. Students need not be limited to statistical material covered by the time of this deadline (nor the course syllabus) – as long as it is broadly related to the content covered by this course. This is an important element of the course since it encourages the practice of developing and executing their own research projects, with the possibility that it can be further developed into an eventual scholarly publication at some later date.

The research paper will consist of an original scholarly inquiry into a substantive problem relating to the topics broadly covered in the course. This paper must be sufficiently distinct from other papers being used to satisfy course requirements, as deemed by the instructor. This paper should be written as a journal-style article manuscript and must comprise the following components:

(1) Stating a research puzzle/question and substantive contribution [in relation to existing research and articulating why it is a compelling contribution];

(2) A theory used to explain the puzzle/question (including central hypotheses);

(3) Substantive information on the empirical laboratory used to analyze the linkage between theory and puzzle/question;

(4) Empirical Strategy [Design, Data, Ancillary Hypotheses, and Research Methods];

(5) Empirical Findings [written, tabular, and graphical presentation and interpretation]; and

(6) Conclusion/Implications.

- o **Approval of Written Research Proposal**: **Must be Approved by the Instructor (and not merely submitted) by <u>no later</u> than Friday February 6, 2026 at 3:00pm**. *Failure to meet this deadline without instructor approval will result in a penalty of 10% of one's final course grade being set equal to zero (0%).* Students are strongly encouraged to get their paper projects approved <u>***prior***</u> to this date. Student research papers can overlap with research papers being written for other seminars, as long as they are substantively distinct from one another (e.g., pose a different question, use different data to answer the question, employ different methods). This determination will be made by the instructor on a case-by-case basis after consulting with both the student and other affected instructor(s). The written research proposal should be 4-5 single-spaced pages and outline the research question that the paper seeks to answer, its significance/importance, theory and resulting hypotheses used to explain/answer the research question, and empirical strategy (i.e., research design, measurement & statistical models/procedures). ***This proposal is viewed as commitment on the part of the student pursuing this project during the course for their research paper project – so please be sure that all loose ends are completed in advance (including data acquisition needed to complete the study) before seeking instructor approval).***

- o **<u>Research Paper Completed Draft Version (15%)</u>: Due by no later than Tuesday April 7, 2026 at 12:00pm**. Electronic file copy submitted to the instructor (either MS-WORD [preferred option] or LaTex-generated PDF file). *Failure to obtain instructor approval by this deadline results in a 50% penalty per day of one's final course grade derived from this assignment (i.e., 0 points for 2 days late).*

- o **<u>Research Paper Final Version (25%)</u>: Due by no later than Thursday April 23, 2026 at 12:00pm (submit an electronic file format copy to both the instructor and your assigned classmate discussant)**. Copy submitted to the instructor. *Failure to obtain instructor approval by this deadline results in a 50% penalty per day of one's final course grade derived from this assignment (i.e., 0 points for being 2 days late).*

(4) Discussant on a Classmate's Research Paper: 15%

The final portion of each student's course grade will be determined by their ability to provide constructive feedback to a classmate's research paper. The instructor will be responsible for matching paper authors and discussants. **The paper presentations and discussant remarks will be shared in our final class session on Monday April 27, 2026 [UGA Last Day of Spring 20206 Semester Classes]**. We will try to simulate a professional scholarly panel (e.g., PMRC, MPSA) where a paper will be presented by its author (12 minute time limit range), followed by an audience Q&A discussion of the paper (7-8 minutes). This format will be replicated by the number of students taking this course who have completed a research paper.

- o The discussant is expected to produce constructive type-written feedback patterned after a quality manuscript review at an academic journal that is intended to improve the author's research project moving forward. This assignment is **due by no later than Monday April 27, 2026 at the beginning of Research Symposium session (submit a file copy to both your assigned classmate discussant and the instructor)**. Copy submitted to the instructor. *Failure to obtain instructor approval by this deadline results in a 50% penalty per day of one's final course grade derived from this assignment (i.e., 0 points for being 2 days late).*

Final Research Paper Presentation Symposium:
MONDAY APRIL 27, 2026 @ 9:00am — 11:30am
<u>*Scholar-in Residence Guest:*</u> *Dr. Manuel P. Teodoro,*
Robert F. & Sylvia T. Wagner Professor of Public
Affairs, La Follette School of Public Affairs,
University of Wisconsin-Madison
https://lafollette.wisc.edu/people/teodoro-manuel/

GRADING SCALE

I will grade individual assignments on the following letter/point system, and each item will be weighted by the stated proportions for each assignment noted above:

ASSIGNMENT GRADE DISTIRBUTION

Letter Grade	Points	Letter Grade	Points
A+	4.25	B− −/C+	2.625
A+/A	4.125	B−/C+	2.50
A	4.00	B−/C++	2.375
A/A−	3.875	C+	2.25
A−	3.75	C+/C	2.125
A− −/B+	3.625	C	2.00
A−/B+	3.50	C/C−	1.875
B++	3.375	C−	1.75
B+	3.25	C− −/D+	1.625
B+/B	3.125	C−/D+	1.50
B	3.00	C−/D++	1.375
B/B−	2.875	D+	1.25
B−	2.75	D+/D	1.125
		D	1.00
		F	0.00

The "in-between" grades on individual assignments are intended to minimize rounding effects regarding performance on individual assignments.

Because the final grade distribution is based on a series of assignments (as opposed to a single item), the final course grade distribution based on your weighted course average from all assignments is given below as follows (***with no rounding up***):

FINAL WEIGHTED COURSE GRADE DISTIRBUTION

Letter Grade	Points	Letter Grade	Points
A+	4.00 – 4.25	C	2.25 – 2.49
A	3.75 – 3.99	C−	2.00 – 2.24
A−	3.50 – 3.74	D+	1.75 – 1.99
B+	3.25 – 3.49	D	1.50 – 1.74
B	3.00 – 3.24	D−	1.25 – 1.49
B−	2.75 – 2.99	F	0.00 – 1.24
C+	2.50 – 2.74		

COURSE OUTLINE & TIMETABLE

NOTE: *The tempo may vary throughout the semester, subject to the Instructor's discretion.*

Any makeup classes will occur on Fridays 3:00pm-6:00pm as mutually agreed upon by Students

Session	Date	Course Topics/Subject Material	Required & Supplementary Readings
		UNIT 1: LINEAR REGRESSION, ETC…	
1	1/15/2026	**GENERAL LINEAR REGRESSION, I:** **(Assumptions & Solutions/Estimates)**	*Wooldridge (Chapters 1-2); Cameron and Trivedi (Chapters 1-2)*
2	1/22/2026	**GENERAL LINEAR REGRESSION, II:** **(Interpretation and Functional Form)**	*Wooldridge (Chapters 3-5, 7); Cameron and Trivedi (Chapters 4.4 & 4.5)*
3	1/29/2026	**GENERAL LINEAR REGRESSION, III:** **(Diagnostics, I)**	*Wooldridge (Chapter 6); Cameron and Trivedi (Chapters 3)*
4	2/5/2026	**GENERAL LINEAR REGRESSION, IV:** **(Diagnostics, II & Heteroskedastic Regression)** *[RESEARCH PAPER APPROVAL REQUIRED: ON 2/06/2026 @ 3:00pm]*	*Wooldridge (Chapters 8-9, 12); Cameron and Trivedi (Chapters 6.3 & 6.4)*
5	2/12/2026	**NONPARAMETRIC METHODS:** **(Odd Cases, Functional Form, Local Linear Regression, & Quantile Regression)**	*Wooldridge (Chapters 13-14); Cameron and Trivedi (Chapters 14.5 –14.7, 15, 27.1-27.3); See also, Nonparametric Regression & Quantile Regression Links in Syllabus*
		UNIT 2: PANEL DATA DESIGNS & MODELS	
6	2/19/2026	**BASICS: Pooling, Between Effects, Random Effects, and Fixed Effects** *[PROBLEM SET # 1 DUE ON 2/19/2026 @ 3:00pm: WEEKS 1 – 5]*	*Wooldridge (Chapters 13-14); Cameron and Trivedi (Chapter 8)*
7	2/26/2026	**ADVANCED: Causal-Based Effects from Panel Decompositions; Hybrid Panel Models, Dynamic Panel Models**	*See Panel Models Covered in PADP 8130 (Non-Textbook Content) Links in Syllabus*
8	2/27/2026	***RESEARCH PAPER WORKSHOP # 1*** ***[FRIDAY: 3:00pm-6:00pm]***	
9	3/05/2026	**NO CLASS SESSION** **[IN LIEU OF RESEARCH PAPER WORKSHOP # 1 ON 02/27/2026]** *[PROBLEM SET # 2 DUE ON 3/06/2026 @ 12:00pm: WEEKS 6 & 7]*	
	3/12/2026	**UGA SPRING BREAK HOLIDAY (NO CLASS)**	

		UNIT 3: DISCRETE CHOICE MODELS	
10	3/19/2026	**MAXIMUM LIKELIHOOD THEORY & BINARY CHOICE MODELS: Linear Probability, Logit, Probit, & Complementary Log-Log**	*Wooldridge (Chapter 17.1); Cameron and Trivedi (Chapter 10.1-10.5, 17)*
11	3/26/2026	**MODELS OF ORDINAL CHOICE: Ordinal Logit, Ordinal Probit, Partial Proportional Odds (PPO), and Generalized Ordered Logit & Generalized Ordered Probit Models**	*Cameron and Trivedi (Chapter 18.9)*
12	4/2/2026	**MODELS OF MULTINOMIAL CHOICE: Multinomial Logit, Multinomial Probit, Nested Logit, and Mixed Logit**	*Cameron and Trivedi (Chapter 18.1-18.8)*
13	4/9/2026	***RESEARCH PAPER WORKSHOP # 2*** **[DRAFT RESEARCH PAPER DUE ON 4/7/2026: @ 12:00pm]**	
14	4/16/2026	**NO CLASS SESSION** **[IN LIEU OF INDIVIDUAL MEETINGS ON 04/14/2026]** **[PROBLEM SET # 3 DUE ON 4/17/2026: @ 4:00pm]**	
	4/23/2026	**NO CLASS SESSION: Final Research Papers Submitted to Instructor and Assigned Student Discussant @ 12:00pm**	
15	4/27/2026	**RESEARCH SYMPOSIUM [LAST DAY OF CLASSES]** *[DISCUSSANT COMMENTS DUE ON MONDAY 4/27/2026 Prior to Research Symposium Session: 9:00am-11:30am]*	

SUPPLEMENTARY MATERIALS

- *Nonparametric Regression: Local Linear Regression & B-Splines:*
  - *https://blog.stata.com/2017/06/27/nonparametric-regression-like-parametric-regression-but-not/*

  - *http://cameron.econ.ucdavis.edu/nhh2017/norway04_nonparametric.pdf*

  - *Application [B-Splines]: Administrative Task Performance Timeliness: Krause and Hong. (2025, Journal of Public Administration Research and Theory)*: https://doi.org/10.1093/jopart/muaf018

- *Quantile Regression:*
  - *https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.15.4.143*

  - *http://fmwww.bc.edu/EC-C/S2013/823/EC823.S2013.nn04.slides.pdf*

  - *Application: Budgeting Policy: Breunig & Koski (2020, Policy Studies Journal)*: https://onlinelibrary.wiley.com/doi/abs/10.1111/psj.12247

  - *Application: Retraction of Policy Benefits: Krause & Zarit (2022, Public Administration Review)*: https://doi.org/10.1111/puar.13310

- *Panel Models Covered in PADP 8130 (Non-Textbook Content):*

  - *Causal-Based Panel Decompositions (Isolating Mechanisms from Panel Models): Krause and Lofton **nd.** Political Science Research and Methods (Early View: https://doi.org/10.1017/psrm.2025.30)*

  - *Hybrid Effects Models (Joint Modeling Between/Within/Random Effects): Bell and Jones (2015 Political Science Research and Methods): https://doi.org/10.1017/psrm.2014.7*

    Bell, Fairbrother, and Jones (2019: Quality & Quantity): https://link.springer.com/article/10.1007/s11135-018-0802-x

    Schunck and Perales (2017 Stata Journal) Stata Journal Application & Program Code Execution: https://journals.sagepub.com/doi/pdf/10.1177/1536867X1701700106 & net sj 18-4 st0468_1.

  - *Generalized Autoregressive Distributed Lag (p,r)–Error Correction Model [Static versus Dynamic Effects]: Application: Krause and Zarit (2020 Economics & Politics): https://doi.org/10.1111/ecpo.12142.*

**FOLLOWING CONTENT FOR INFORMATIONAL PURPOSES ONLY
[THE CONTENT BELOW IS BEYOND THE PURVIEW OF THIS COURSE]**

- *Semi-Parametric Fixed Effects Estimation via Baltagi and Li (2002): Estimation of Nonlinear Covariate of Primary Interest using B–Splines (Nonparametric Estimate Based on Piecewise Linear Functions): Baltagi and Li (2002) article: http://www.aeconf.com/Articles/May2002/aef030106.pdf. Libois & Verardi (2013) Stata Journal Application and Program Code Execution: https://journals.sagepub.com/doi/pdf/10.1177/1536867X1301300207 & net sj 13-2 st0296.*

- *Kernel Regularized Least Squares:*
  - *https://www.jstatsoft.org/article/view/v079i03*

  - *Stata Program Code: net describe krls, from (http://fmwww.bc.edu/RePEc/bocode/k).*

  - *Executive Appointee Loyalty Application: Hollibaugh and Krause. 2024. "Executive Appointee Reliability under Separated Powers: Senatorial Constraints on Executive Branch Leadership Appointments in U.S. Federal Agencies." Journal of Political Institutions and Political Economy. (**see Krause for current version**) https://nowpublishers.com/article/Details/PIP-0107*

- *Differences-in-Differences Designs ("Treatment" Interventions, Foundations):*

  - *The Most Basic Set-Up: http://www.princeton.edu/~otorres/DID101.pdf.*

  - *Stata 17 [relevant for Stata 19 as well] DiD Modeling Capabilities Slides from Pinzon/Stata Corp (August 2021): https://www.stata.com/meeting/us21/slides/US21_Pinzon.pdf*

  - *A recent summary of DiD Modeling (Technical, but Good Topical Covrage): https://pedrohcgs.github.io/files/RSBP_DiD_Review.pdf*

  - *A more sophisticated example that relaxes the parallel trend assumption using unit-specific trends and matching on observables between treatment and non-treatment groups: https://www.cambridge.org/core/services/aop-cambridge-core/content/view/1A366C3B5FBD35A4CDAEC8EC453FA353/S1537592716000050a.pdf/deterring_wage_theft_altlabor_state_politics_and_the_policy_determinants_of_minimum_wage_compliance.pdf*

  - *Abadie's (2005) Semiparametric Differences-in-Differences Estimation when Parallel Trends Assumption is Violated and Propensity Score Balancing on Observed Covariates: https://academic.oup.com/restud/article-abstract/72/1/1/1581053?redirectedFrom=fulltext. Kenneth Houngbedji (2016) Stata Journal Article & Program Code: https://journals.sagepub.com/doi/pdf/10.1177/1536867X1601600213 & net sj 16-2 st0442. Application: Administrative Reforms Differential Effects on Organizational Designs: Evaluation of Budgetary Performance by Krause and Jin (2020: Governance): https://onlinelibrary.wiley.com/doi/abs/10.1111/gove.12435*

- *Additional Content of Differences-in-Differences Designs (Recent Developments):*

  - *Decomposition of Treatment Effects Under Differential Treatment Timing: Goodman-Bacon (2021 Journal of Econometrics article): https://doi.org/10.1016/j.jeconom.2021.03.014. Goodman-Bacon (2019 Stata Conference Presentation Slides): https://www.stata.com/meeting/chicago19/slides/chicago19_Goodman-Bacon.pdf.*

  - *Callaway & Sant'Anna Method for Modeling Heterogeneous & Dynamic Treatments within a DiD Framework: Calloway & Sant'Anna 2021 Journal of Econometrics Article: https://doi.org/10.1016/j.jeconom.2020.12.001.*

Rios-Avila, Callaway, and Sant'Anna 2021 Stata Conference Presentation Slides on "csdid" Program Code: https://www.stata.com/meeting/us21/slides/US21_SantAnna.pdf.

o *Gardner's Two-Stage Estimation Approach for Modeling Heterogeneous & Dynamic Treatments within a DiD Framework: John Gardner. 2021 Typescript. University of Mississippi. https://jrgcmu.github.io/2sdd_current.pdf & https://neilthakral.github.io/files/papers/2sdd.pdf Stata Program Code: ssc install did2s, from https://github.com/kylebutts/did2s_stata*

o *Wooldridge's Extended Two–Way Fixed Effects (ETWFE) Model ("Mundlak Style Saturation" Regression):*
   ❖ *Linear Models: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3906345*
   ❖ *Nonlinear (GLM-Parametric) Models: https://doi.org/10.1093/ectj/utad016*

o *Amanda Weiss' Comparison of Staggered/Multiple Period DiD Modeling Approaches when N = 50 in Panel Design Models (e.g., American states represent the cross-section unit of analysis): https://doi.org/10.31219/osf.io/bqmws*

- *Regression Discontinuity Designs ("Threshold Interventions" – Supplementary Resource to the Material **NOT** Covered in Class):*
   o *https://www.stata.com/meeting/chicago16/slides/chicago16_cerulli.pdf (TED)*

   o *https://mdcattaneo.github.io/papers/Calonico-Cattaneo-Farrell-Titiunik_2017_Stata.pdf*

   o *https://mdcattaneo.github.io/papers/Cattaneo-Jansson-Ma_2018_Stata.pdf*

   o *https://www.tandfonline.com/doi/abs/10.1080/01621459.2019.1635480*

- *Synthetic Control Designs (Supplementary Resources):*
   o *https://www.tandfonline.com/doi/abs/10.1198/jasa.2009.ap08746*

   o *https://doi.org/10.1111/ajps.12116*

   o *Public Management Application: Managerial Discretion under Performance Management: Birdsall (2016, International Public Management Journal): https://www.tandfonline.com/doi/full/10.1080/10967494.2015.1121178?scroll=top&needAccess=true*