SYA7933 Advanced Quantitative Methods
CCJ7742 Research Methods in Crime, Law, and Justice II
Fall 2024

Location: Matherly Hall 0251
Time: W Period 2-4 (8:30 AM - 11:30 AM)
Course website: https://ufl.instructure.com/courses/517958
Instructor: Won-tak Joo (3344 Turlington Hall / wjoo@ufl.edu)
Office hours: M 11:40 AM - 12:40 PM

COURSE DESCRIPTION
This course introduces advanced statistical methods in sociology and criminology. Students learn to 1) understand the motivations behind the methods, 2) estimate and interpret results, and 3) critically evaluate empirical articles that apply these methods.

PREREQUISITES
- Introductory (SYA 7933/CCJ 5934) and intermediate-level (SYA 6407/CCJ 6705) quantitative method courses
- Basic skills for the statistical analysis using STATA (or R)

REQUIRED TEXTS
- Wolf, C., & Best, H. (2013). *The SAGE Handbook of Regression Analysis and Causal Inference*. Sage Publications Ltd.
- Maydeu-Olivares, A., & Millsap, R. E. (2009). *The SAGE Handbook of Quantitative Methods in Psychology*. Sage Publications Ltd.
- Piquero, A. R., & Weisburd, D. (2010). Handbook of Quantitative Criminology. Springer.
- Hernán, M. A., & Robins, J. M. (2020). Causal Inference: What If. Chapman & Hall/CRC. (https://www.hsph.harvard.edu/miguel-hernan/causal-inference-book/)
- Angrist, J. D., & Pischke, J. S. (2009). *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press. (https://www.researchgate.net/publication/51992844_Mostly_Harmless_Econometrics_An_Empiricist's_Companion)

(All textbooks & weekly readings are freely accessible online through the George A. Smathers Libraries website)

COMMUNICATION
All inquiries concerning the course should be sent through Canvas or to wjoo@ufl.edu. Emails must include SYG2430 in the subject line. Please allow at least 24 hours during regular business hours (M - F, 9 AM - 5 PM) to respond to your email inquiries.

GRADING POLICY
- **Weekly response to weekly readings (20%)**: ≤1-page response to the readings (one per week, not per article) / 12pt, single space / summary (several important things you learned from the readings) + questions + research ideas (especially related to your final paper) / by **Saturday midnight**
- **Empirical research presentation (20%)**: pick one empirical research paper (with starts in the reading list) and present it as if you are an author of this paper / presentation should be focused on decisions and arguments regarding methods / sign up in this spread sheet
- **Research proposal (20%)**: ≤2-page proposal including short theoretical background +

data + analytic strategy (+ an extra page for the references) / explain what methods you choose and why they are suitable for your research goal (**Oct 6 11:59 PM**)
- **Final paper (40%)**: format follows your target journal / the paper includes theoretical background + data + analytic strategy + preliminary results + discussion + references / again, the theory part can be short but should include the argument about your methodological decisions (**Dec 11 11:59 PM**)

COURSE POLICIES
- Electronic devices are required.
- Any missed or late assignments will receive a score of 0 (zero) unless discussed in advance with the instructor.

EVALUATION POLICY
Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES
Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT
Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/.

GRADING SCALE

A	94-100	B+	87-<90	C+	77-<80	D+	67-<70	E	0-<61
A-	90-<94	B	84-<87	C	74-<77	D	64-<67		
		B-	80-<84	C-	70-<74	D-	61-<64		

For information on current UF grading policies for assigning grade points, see https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/#gradestext.

SCHEDULE

Date	Readings	Content
W1 Aug/19		(No class)
W2 Aug/26	The Sage Handbook of Regression Analysis and Causal Inference. C4 and C5. Handbook of Quantitative Criminology, C16.	Introduction Regression basics Type 1 & 2 errors
W3 Sep/2		(Holiday)
W4 Sep/9	Causal Inference, C1-C3 and C6-C9. *Freedman, D. A. (1991). Statistical models and shoe leather. *Sociological Methodology*, 291-313. *Abbott, A. (1998). The causal devolution. *Sociological Methods & Research*, 27(2), 148-181.	Causal inference DAGs
W5 Sep/16	Handbook of Quantitative Criminology, C31 and C32. *Gibson, C. L., Fagan, A. A., & Antle, K. (2014). Avoiding violent victimization among youths in urban neighborhoods: The importance of street efficacy. *American Journal of Public Health*, 104(2), e154-e161. *Cornwell, B. (2009). *Good health and the bridging of structural holes*. Social Networks, 31(1), 92-103.	Nonlinear regression
W6 Sep/23	The SAGE Handbook of Quantitative Methods in Psychology, C15 and C25. Bell, A., & Jones, K. (2015). Explaining fixed effects: Random effects modeling of time-series cross-sectional and panel data. *Political Science Research and Methods*, *3*(1), 133-153. *Kim, C., & Sakamoto, A. (2008). The rise of intra-occupational wage inequality in the United States, 1983 to 2002. *American Sociological Review*, *73*(1), 129-157.	Random & fixed effects Hierarchical linear models
W7 Sep/30	The SAGE Handbook of Quantitative Methods in Psychology, C16. Azur, M. J., Stuart, E. A., Frangakis, C., & Leaf, P. J. (2011). Multiple imputation by chained equations: what is it and how does it work? *International Journal of Methods in Psychiatric Research*, *20*(1), 40-49. *Mouw, T., & Kalleberg, A. L. (2010). Occupations and the structure of wage inequality in the United States, 1980s to 2000s. *American Sociological Review*, *75*(3), 402-431. *Sakamoto, A., & Kim, C. (2014). Is Rising Inequality Being Driven by Occupation? Further Results and Reflections on Mouw and Kalleberg (2010).	Resampling methods Multiple imputation
W8 Oct/7	(Oct 6 11:59 PM: research proposal) Winship, C., & Radbill, L. (1994). Sampling weights and regression analysis. *Sociological Methods & Research*, *23*(2), 230-257. Little, R. J., Carpenter, J. R., & Lee, K. J. (2022). A comparison of three popular methods for handling missing data: complete-case analysis, inverse probability weighting, and multiple imputation. *Sociological Methods & Research*. Austin, P. C. (2011). An introduction to propensity score	Weight Matching

	methods for reducing the effects of confounding in observational studies. *Multivariate Behavioral Research*, *46*(3), 399-424. *Massoglia, M. (2008). Incarceration, health, and racial disparities in health. *Law & Society Review*, 42(2), 275-306.	
W9 Oct/14	Mostly Harmless Econometrics, C4. Felton, C., & Stewart, B. M. (20214) Handle with care: A sociologist's guide to causal inference with instrumental variables. *Kirk, David S. 2009. A natural experiment on residential change and recidivism: Lessons from Hurricane Katrina. *American Sociological Review*, 74(3), 484-505. *Sampson, Robert J and Alix S Winter. 2018. Poisoned development: Assessing childhood lead exposure as a cause of crime in a birth cohort followed through adolescence. *Criminology,* 56(2), 269-301.	Instrumental variable
W10 Oct/21	Mostly Harmless Econometrics, C5. *Wu, G., Wen, M., & Wilson, F. A. (2021). Impact of recreational marijuana legalization on crime: Evidence from Oregon. *Journal of Criminal Justice, 72*, 101742.	Difference in differences Event study Synthetic control
W11 Oct/28	Mostly Harmless Econometrics, C6. *Desmond, M., Papachristos, A. V., & Kirk, D. S. (2016). Police violence and citizen crime reporting in the black community. *American Sociological Review*, *81*(5), 857-876. *Zoorob, M. (2020). Do police brutality stories reduce 911 calls? Reassessing an important criminological finding. *American Sociological Review*, *85*(1), 176-183. *Desmond, M., Papachristos, A. V., & Kirk, D. S. (2020). Evidence of the effect of police violence on citizen crime reporting. *American Sociological Review*, *85*(1), 184-190.	Regression discontinuity
W12 Nov/4	Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173. VanderWeele, T. J. (2016). Mediation analysis: a practitioner's guide. *Annual Review of Public Health*, *37*, 17-32. Causal Inference, C4 and C5. * Wodtke, G. T., Yildirim, U., Harding, D. J., & Elwert, F. (2023). Are neighborhood effects explained by differences in school quality?. *American Journal of Sociology*, *128*(5), 1472-1528.	Mediation & Moderation
W13 Nov/11		(Holiday)
W14 Nov/18	Molina, M., & Garip, F. (2019). Machine learning for sociology. *Annual Review of Sociology*, 45, 27-45. Kapoor, S., Cantrell, E. M., Peng, K., Pham, T. H., Bail, C. A., Gundersen, O. E., ... & Narayanan, A. (2024). REFORMS: Consensus-based Recommendations for	Introduction to machine learning

	Machine-learning-based Science. *Science Advances*, 10(18), eadk3452. * Mittleman, J. (2022). Intersecting the academic gender gap: The education of lesbian, gay, and bisexual America. *American Sociological Review*, 87(2), 303-335.	
W15 Nov/25		(Holiday)
W16 Dec/2	<mark>(Dec 11 11:59 PM: final paper)</mark>	Final presentation