College of Arts and Sciences
Department of Political Science, International Affairs, and Public Administration

PSCI 3440 Research Methods

Course Description

In an increasingly data-driven world, understanding and utilizing quantitative research methods have become increasingly important skills for not only those involved in politics, but also for members of the polity who want to engage in civic life. This course is designed to introduce students to the social scientific process and basic quantitative methods that political scientists use to improve our understanding of political life. In our first few sessions, we consider how political scientists develop and test theories and the role that quantitative methods play in the social scientific process. Then, we examine how political scientists use quantitative data to describe and draw inferences about the world. In doing so, students will be instructed in the use of R, an open-source statistical software increasingly used by political scientists and those in cognate fields. At the end of the class, students should be able to critically assess data-based political arguments and apply quantitative techniques to real-world data.

Course Goals
Students who complete this course successfully will be able to:
- Apply the social scientific process to real-world phenomena to design and execute basic quantitative analyses.
- Conduct basic quantitative analyses, such as difference-in-means tests and ordinary least squares regression, in R.
- Evaluate the strength of descriptive and causal claims made in political discourse.

Required Texts, Materials, or Equipment

- Çetinkaya-Rundel, Mine and Hardin, Johanna. *Introduction to Modern Statistics*. Available on OpenIntro.
- Wehde, Wesley, Jenkins-Smith, Hank, Ripberger, Joseph, Copeland, Gary, Nowlin, Matthew, Hughes, Tyler, Fister, Aaron, and Davis, Josie. *Quantitative Research Methods*

for Political Science, Public Policy and Public Administration for Undergraduates: 1st Edition With Applications in R. Available at ETSU's Digital Commons.

Course Structure

Students will perform nearly all course tasks in groups. This structure provides students with ready-made partners who can collaborate on and help each other with understanding concepts and answering problems.

I will use students' self-reports of their proficiency in and comfort with mathematical and statistical concepts and computer programming skills to create balanced groups. I will assign groups before the first problem set is distributed. These groups will remain fixed throughout the semester unless extraordinary circumstances require me to modify them (e.g., disparities in group size caused by students entering/leaving the class, evidence of severe imbalance in aptitude across groups, etc.).

Through working in groups, it is expected that all group members contribute equitably to class assignments such as problem sets and exams. What "equitable" looks like might differ across groups and stages of the class. For instance, groups that divide the individual problems in a problem set among their members may be just as equitable as groups that divide tasks within problem sets (e.g., performing analyses, writing explanations, etc.) among their members.

However, whatever a group's arrangement, it is expected that all members contribute equal effort; freeriding will not be tolerated by me or by your group members. At the conclusion of the semester, I will ask everyone to evaluate their group members, and these evaluations will count towards 10% of students' grades. I encourage students to try to resolve any issues within their groups themselves; however, if problems within your group persist, please contact me and I may step in.

Assignments and Grading

Course grades will be determined by students' performance on the following assignments and tasks:

- Problem sets (45%): Each group will complete a weekly problem set. Problem sets will be distributed before class on Thursdays and will be due the following Tuesday before the start of class via D2L. All problem sets must be completed in R Markdown. Students are expected to contribute equitably to their group's problem sets, and all students in a given group will receive the same grade for each completed problem set.
- Exams (45%): Each group will complete "take-home" midterm and final exams. All exams must be completed in R Markdown and submitted via D2L. Students are expected

to contribute equitably to their group's exams, and all students in a given group will receive the same grade for each completed exam.

- Peer evaluations (10%): At the end of the semester, I will ask everyone to evaluate their group members' contributions to the group's assignments, such as their attentiveness to group communications and their level of effort. These peer evaluations will be confidential.
- Extra credit (?): I reserve the right to provide opportunities for extra credit throughout the semester. Extra credit opportunities may consist of finding examples of class concepts in the news and attending civic engagement events on campus or remotely. The value of each extra credit opportunity towards students' final grades will be provided in writing when each opportunity is announced (or shortly thereafter).

Final grades will be assigned according to the following cutoffs:

Score	Grade	Score	Grade	Score	Grade	Score	Grade
≥ 94	A	≥ 83	B	≥ 73	C	≥ 60	D
≥ 90	A-	≥ 80	B-	≥ 70	C-	< 60	F
≥ 87	B+	≥ 77	C+	≥ 65	D+		

Course Policies

- A link to the current version of the course syllabus will be posted on my website and on the course's D2L page. Please refer to the most current version of the syllabus for information about the course schedule, course policies, etc.
- Core course readings will come from the required textbooks, which are both open source and available for free at the links above. All other course readings will be made available through either the course syllabus and/or the course D2L page at least one week in advance of the class for which they are expected to be completed.
- All readings, problem sets, and exams are due at the beginning of class on the day specified on the course syllabus and/or by the instructor in class. Late problem sets and exams will be accepted, but will be assessed a 10% penalty for each 24 hour period the assignment is late.
- *Communication Outside of Class*
  - I encourage you to contact me to discuss topics we are covering in class, concerns about the course, or other related issues outside of class. The primary mode of communication outside of class will be email. When you email me, please include the course code in the subject line. I will do my best to reply to emails within 24 hours, and I will *not* respond to emails about problem sets or exams sent less than 24 hours before they are due.

- ○ Office hours scheduling will take place via Calendly. If you would like to come to office hours, please visit my Calendly schedule and reserve an available time for us to meet. If there are no available appointments or if you are not able to see me during office hours, please contact me so that we can find an alternative time to meet.
- *Technology*
  - ○ Phone use is strictly prohibited without prior approval of the instructor. Please be sure to silence your phones before class begins and keep them stored for the duration of class in order to facilitate an environment conducive to learning.
  - ○ If any students would like to record lectures, please speak with me in advance to obtain permission.
- *Academic Integrity:* Students are expected to abide by the ETSU Honor Code and to act with honor, integrity, and civility in all matters. The course instructor has the primary responsibility for maintenance of academic integrity. Students guilty of academic misconduct, either directly or indirectly, through participation or assistance, are immediately responsible to the course instructor. Any form of academic misconduct (plagiarism, cheating, etc.) is subject to disciplinary action. Sanctions for a violation may vary with the severity of the offense. The instructor may reduce a grade up to and including assignment of an "F" or a zero ("0") for the exercise/examination or an "F" in the course. If a sanction is imposed then the instructor must begin the academic misconduct procedures and notify both the student and the Dean/Designee. Students may appeal a grade assignment associated with a finding of academic misconduct, as distinct from a student disciplinary or grade appeals process, through the University's Academic Misconduct Procedures. The student will not be subjected to any form of pressure to coerce admission of guilt or information about his/her conduct or that of others. For more information, please consult ETSU's Academic Integrity and Misconduct Policy.

Information and Resources for Students

- *Inclusive Learning Environment*: East Tennessee State University recognizes that the pursuit of knowledge and understanding is enriched by an environment in which people of diverse backgrounds learn together and from each other, and participate in free and genuine exchange of views. It recognizes that all members of the University community benefit from diversity and that the quality of learning, research, scholarship and creative activities is enhanced by a campus climate of inclusion, understanding, and appreciation of differences and the full range of human experience. ETSU must prepare students to function successfully in a diverse society. A university diverse in its people, curricula, scholarship, research, and creative activities expands opportunities for intellectual inquiry and engagement, helps students develop critical thinking skills, and prepares students for social and civic responsibilities.

  ETSU aspires to be an institution that celebrates diversity by welcoming all students, faculty, administrators and staff as respected and valued participants in the University's educational mission. Therefore, ETSU welcomes people of different races, ethnicities, religions, creeds, national origins, genders, sexual orientations, physical abilities, ages, veteran status, and social, economic, or educational backgrounds. ETSU is particularly committed to welcoming groups that have been traditionally underrepresented or excluded. The University also supports and encourages the promotion of diversity in its curricula, programs, faculty research, scholarship, and creative activities.

- *Disability Resources*: It is the policy of ETSU to accommodate students with disabilities, pursuant to federal law, state law and the University's commitment to equal educational opportunities. Any student with a disability who needs accommodations, for example, note taking assistance, exam time adjustment or seating placement, should meet with Disability Services. Faculty accommodation forms are provided to eligible students and should be shared with the instructor as early in the semester as possible. Disability Services can be reached via telephone at 423-439-8346, or on its website.

- *Accommodations Based Upon Sexual Assault*: East Tennessee State University is committed to fostering a safe learning environment. Sexual misconduct and/or gender-based discrimination of any kind is prohibited. ETSU investigates cases of sexual misconduct (including, but not limited to sexual assault, sexual harassment, dating violence, domestic violence, and stalking) and may take steps to protect the parties involved from harassment, retaliation, or negative impacts from the incident or complaint.

  Complaints may be made directly to ETSU's Title IX Coordinator, Garrison Burton, via email burtong@etsu.edu, or phone at 423-439-8544, or by filing a Report of Discrimination, Harrassment and/or Retaliation. All secual misconduct complaints are handled by the Office of Compliance.

If you wish to speak confidentially about an incident of sexual misconduct, contact the ETSU Counseling Center at 423-439-3333. After hours calls may be directed to Bucs Press 2 by dialing the same number and then "pressing 2." ETSU encourages anyone who has experienced sexual misconduct to talk to someone about what happened so they can get the support they need.

If you would like to learn more about sexual misconduct or how to report an incident please visit the university's Title IX Office. Click here to review the ETSU Student Sexual Misconduct policy.

- *Bias Reporting***:** The University has a process through which students, faculty, staff and community members who have experienced or witnessed incidents of bias, prejudice or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. See: brss.wustl.edu

- *Mental Health***:** The ETSU Counseling Center provides many counseling services to serve student needs. The Counseling Center currently offers both in-person and online Single Session Therapy and Let's Talk consultations. Please visit the Counseling Center's website for the most up-to-date information on the availability of these programs. BucsPress2, a 24/7/365 telephone mental health helpline, can be reached by calling 423-439-4841 (then press "2"). All of the above services are free to ETSU students.

Syllabus Attachment

- To review other applicable university policies, please see ETSU's syllabus attachment.

Disclaimer

I reserve the right to make modifications to this information throughout the semester. In the event of a conflict between syllabus versions, the most recent version will always supersede previous versions.

Preliminary Schedule of Topics, Readings, and Assignments[1]

DATE	LECTURE/LAB TOPIC	READINGS & ASSIGNMENTS
August 24	Introductory Session Theories and Social Science	QRM Chapter 2
August 26	Getting Started with R	QRM Chapter 5 Hands-On Programming Appendix A*
August 30	Research Design Causal Inference	IMS Chapter 2.1* IMS Chapter 2.2-2.4 QRM Chapters 2 & 3
September 2	Getting Started with R Markdown	R Markdown Tutorial*
September 7	Causal Inference Data	Causal Inference: The Mixtape Chapters 1 & 4* IMS Chapter 1.1.-1.2.3 QRM Chapter 4* **PROBLEM SET 1 DUE**
September 9	Lab 1: Data	
September 14	Descriptive Statistics	QRM Chapter 6 **PROBLEM SET 2 DUE**
September 16	Lab 2: Descriptive Statistics	
September 21	Probability/Inference	IMS Chapters 13-14, 16-17, 19-20* QRM Chapters 7 & 8 **PROBLEM SET 3 DUE**
September 23	Lab 3: Probability/Inference Part I	
September 28	Probability/Inference	IMS Chapters 13-14, 16-17, 19-20* QRM Chapters 7 & 8 **PROBLEM SET 4 DUE**

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[1] All readings and assignments are due at the beginning of class on the date specified. Readings denoted with an asterisk (*) are recommended and may be helpful to consult if you need more information on the concepts covered for that class session but are not required.

September 30	Lab 3: Probability/Inference Part II	
October 5	Association of Variables	IMS Chapter 18* QRM Chapter 9 **PROBLEM SET 5 DUE**
October 7	Lab 4: Association of Variables	**MIDTERM EXAM DISTRIBUTED**
October 12	**FALL BREAK (NO CLASS)**	
October 14	**MIDTERM**	
October 19	Introduction to OLS	IMS Chapter 7.1-7.2* QRM Chapter 10 **MIDTERM EXAM DUE**
October 21	Lab 5: Introduction to OLS	
October 26	Hypothesis Testing, Model Fit, and Predictions	IMS Chapter 24.4-24.5* QRM Chapter 11 **PROBLEM SET 6 DUE**
October 28	Lab 6: Hypothesis Testing, Model Fit, and Predictions	
November 2	Multivariate OLS	IMS Chapter 8.1-8.3* QRM Chapters 13, 14, & 15 **PROBLEM SET 7 DUE**
November 4	Lab 7: Multivariate OLS	
November 9	Multivariate OLS	IMS Chapter 8.1-8.3* QRM Chapters 13, 14, & 15
November 11	**VETERANS DAY (NO CLASS)**	
November 16	Lab 8: Multivariate OLS	
November 18	OLS Diagnostics	IMS Chapters 7.3, 24.6* QRM Chapter 12 **PROBLEM SET 8 DUE**
November 23	Lab 9: OLS Diagnostics	
November 25	**THANKSGIVING (NO CLASS)**	

November 30	Advanced Topics Sampler	TBD **PROBLEM SET 9 DUE**
December 2	Lab 10: Advanced Topics	**FINAL EXAM DISTRIBUTED**
December 9	**FINAL EXAM**	**FINAL EXAM DUE BY 12:30 PM ET**