Quantitative Reasoning in Political Science
POL 138-001 · Winter 2024-2025

3 credit hours. Online in Canvas. Four weeks: Mon 16 Dec 2024 to Fri 10 Jan 2025
Instructor: L.J Zigerell (ljzigerell@ilstu.edu)
Office hours in Zoom by appointment. Online Office Hours Link

How this course is set up

This course is online asynchronous through Canvas, with a schedule on the final page of this syllabus. Course notes are across 16 chapters. For each chapter, students are assigned to read the chapter and/or watch a corresponding chapter video, if available, and to submit in Canvas the assignments for that chapter. Each week ends with an exam. Practice exams and keys are available, but practice exams are not required to be submitted. Most or all assessments for a week should be available in Canvas by the Monday of the week, so students can work ahead. Assessments for a day are due at 10pm. At least one bonus assignment (B01) will be available.

Help with course material

Students who would like more help understanding course material are encouraged to email the instructor questions or to request a meeting in Zoom. If requesting a meeting, please provide dates and times when you are available to meet. If a list of questions emailed to the instructor might require an extensive response, the instructor might request a Zoom meeting to answer the questions.

Prerequisites and required technology

Required textbooks	No required textbooks. Course notes are at www.ljzigerell.com/pol138winter2024/, and videos of the instructor discussing the course notes are at this YouTube playlist
Prerequisite courses	None
Prerequisite knowledge	High school math skills and English language ability
Required technology	Access to the internet, Microsoft Word and Microsoft Excel (at 365.ilstu.edu if needed), a PDF reader, the statistical program R (available on campus computers and through websites such as WebR), technology to make a video, technology to take a photo or to scan a paper, and technology to combine photos or scans into a single PDF

Major course-level learning outcomes

1. Know how to make correct inferences from data.
2. Know how to identify incorrect inferences from data.
3. Improve understanding of how to use Microsoft Excel for data analysis.

Course catalog description
Uses a classroom laboratory approach to develop skills in statistical reasoning and method.

Course grades
Final course grades will reflect student performance on these assessments:

#	Assessment	% of final grade
1	Assignments	50
2	Exam 1	10
3	Exam 2	10
4	Exam 3	10
5	Cumulative final exam	20

The course grading scale is: 90.000 and above → A; 80.000 to 89.999 → B; 70.000 to 79.999 → C; 60.000 to 69.999 → D; and less than 60.000 → F.

Academic honesty rules
Below are the course rules about academic honesty. Any violation of these rules might result in a failing grade or other sanctions as permitted by university policy.

For exams

For exams, **students are not permitted to work with others, students are not permitted to use artificial intelligence such as ChatGPT that can generate a response to prompts, and students are not permitted to use materials other than the materials indicated below**. Students are permitted to use a calculator or statistical software, course notes and course videos, the student's handwritten notes, and other hard copy or electronic materials or internet sites other than artificial intelligence such as ChatGPT that can generate a response to prompts. Students are also permitted to ask the instructor to clarify exam items.

For assignments

The academic honesty rules for assignments are the same as the academic honesty rules for exams, except that, for assignments, students are permitted to work with others. **But students are required to submit assignment work in their own words and to not merely copy the work of others**.

Technical issues
Feel free to email me regarding technology issues. If I can't solve the issue, please report the issue at https://help.illinoisstate.edu/get-it-help and include "Winter Session" as the subject line.

Missed assessments
For submitting assessments, feel free to contact me if you need an accommodation or an extension. However, submissions will not be accepted late unless the lateness is due to an approved reason. Moreover, absent an incredibly strong justification, makeup work will not be

accepted for credit for a student after that student's final exam has been submitted; this incredibly strong justification cannot be to improve the student's grade.

Notes

1. I hope to grade assignment submissions each evening or the morning afterwards. Multiple-choice items will autograde, but other items will not be graded until I read and grade the items. For any non-multiple-choice response that a student does not receive full credit for, I plan to leave a comment in Canvas, if the student has provided a response; if not, feel free to email me.

2. For communication about this course, please use one email thread, unless there is a good reason not to; that makes it easier for me to see our past messages. Feel free to follow up if I do not respond to an email within 24 hours during the week.

3. Requests for individual extra credit assignments will not be granted.

4. Please alert me to any errors in course materials. Feel free to send me comments and/or suggestions about the course.

5. Course policies might be revised in reflection of student feedback or for other reasons.

6. Your official final grade for the course should be posted at the conclusion of Winter session.

Important dates

M 23 Dec 2024: Last day to drop a Winter Session class with no grade assigned and a full tuition adjustment. **W 8 Jan 2025:** Last day to withdrawal from a Winter Session class with a withdrawal grade (WX) assigned; there will be no adjustment of charges/refund. **W 8 Jan 2025:** Last day to add or remove Pass/No Pass from a Winter Session class.

Students should email Registrar@IllinoisState.edu with any questions regarding registering or dropping a course.

Accommodations

Per the standard Illinois State University course statement:

> Any student needing to arrange a reasonable accommodation for a documented disability and/or medical/mental health condition should contact Student Access and Accommodation Services at 308 Fell Hall, Office Phone (309) 438-5853, Video Phone (309) 319-7682 or visit the website at StudentAccess.IllinoisState.edu

Mental health resources

Per the Student Counseling Services syllabus statement:

> Life at college can get very complicated. Students sometimes feel overwhelmed, lost, experience anxiety or depression, struggle with

relationship difficulties or diminished self-esteem. However, many of these issues can be effectively addressed with a little help. Student Counseling Services (SCS) helps students cope with difficult emotions and life stressors. Student Counseling Services is staffed by experienced, professional psychologists and counselors, who are attuned to the needs of college students. The services are FREE and completely confidential. Find out more at counseling.illinoisstate.edu or by calling (309) 438-3655.

Student bereavement policy

Per suggested syllabus language reflecting the student bereavement policy:

> Students who experience the death of an immediate family member or relative as defined in the University Student Bereavement Policy will be excused from class for funeral leave, subsequent bereavement, and/or travel considerations. Students are responsible for providing appropriate documentation to the Dean of Students office and for contacting the instructor as soon as possible to make arrangements for completing missed work. More information is available in the Student Bereavement Policy.

General education learning outcomes for the course

GenEd learning outcomes (from General Education at Illinois State University) for this course:

> II. Intellectual and practical skills, allowing students to
> - Make informed judgments
> - Analyze data to examine research questions and test hypotheses
> - Report information effectively and responsibly
>
> IV. Integrative and applied learning, allowing students to
> - Identify and solve problems
> - Transfer learning to novel situations

Course topics

1 Basic tools of quantitative reasoning

- 1.1 Quantitative reasoning
- 1.2 Measures of central tendency
- 1.3 Outliers
- 1.4 Standard deviation
- 1.5 Histograms
- 1.6 Proportions, percentages, and percentage points
- 1.7 Percentiles
- 1.8 Weighted means

2 Sampling

- 2.1 Sampling error
- 2.2 Law of Large Numbers
- 2.3 Imbalanced sample sizes
- 2.4 Relatively small samples can be useful
- 2.5 Sampling weights
- 2.6 The normal distribution
- 2.7 Confidence intervals
- 2.8 Margin of error

Course schedule

Date	Learning activities	Assessments(s) due at 10pm
M Dec 16	Review the syllabus Read/watch Chapter 01	☐ A00 Syllabus ☐ A01a ☐ A01b
T Dec 17	Read/watch Chapter 02	☐ A02a ☐ A02b
W Dec 18	Read/watch Chapter 03	☐ A03a ☐ A03b
R Dec 19	Read/watch Chapter 04	☐ A04a ☐ A04b
F Dec 20	Complete Practice Exam 1 and check the key	☐ Exam 1
M Dec 23	Read/watch Chapters 05 and 06	☐ A05a ☐ A05b ☐ A06a ☐ A06b
T Dec 24	Read/watch Chapter 07	☐ A07a ☐ A07b
W Dec 25	---	---
R Dec 26	Read/watch Chapter 08	☐ A08a ☐ A08b
F Dec 27	Complete Practice Exam 2 and check the key	☐ Exam 2
M Dec 30	Read/watch Chapter 09	☐ A09a ☐ A09b
T Dec 31	Read/watch Chapter 10	☐ A10a ☐ A10b
W Jan 1	---	---
R Jan 2	Read/watch Chapters 11 and 12	☐ A11a ☐ A11b ☐ A12
F Jan 3	Complete Practice Exam 3 and check the key	☐ Exam 3
M Jan 6	Read Chapter 13 and read/watch Chapter 14	☐ A13 ☐ A14a ☐ A14b
T Jan 7	Read/watch Chapter 15	☐ A15 R
W Jan 8	Read/watch Chapter 16 Complete Practice Final Exam and check the key	☐ A16 Video
R Jan 9	---	☐ Final Exam Part 1
F Jan 10	---	☐ Final Exam Part 2