

ECON 300: Regression Analysis

Course Syllabus

Fall 2026 • University of Evansville

MWF, 2pm-2:50pm • SOBA 71

ECON 300: Regression Analysis (3 credit hours)

Schroeder Family School of Business Administration, University of Evansville

Fall 2026 semester: classes Aug 26 – Dec 9; no final exam (final paper due Mon Dec 14)

Schroeder School of Business Mission Statement

We prepare undergraduate students in a liberal arts framework to become globally aware business professionals. We are distinctive in experiential learning, career support, and a complementary mix of faculty who pursue their passions through scholarly and professional activities in and out of the classroom.

1 Instructor Information

Instructor: Prof. Alexander Taylor
Office: SOBA 121
Email: at154@evansville.edu
Walk-in hours: MW 12pm–2pm
Virtual hours: T 9am–3pm (by appointment)

2 Course Description

Second course in applied statistics for students in economics and other social sciences, business administration, mathematics, or natural sciences. Topics include simple and multiple regression analysis, extensions of the classical regression model, and problems associated with forecasting. Assigned work exposes students to problems from a wide range of applications. This course includes introduction to econometric software and experiments involving a variety of real world data sets.

Prerequisites: Complete QM-227, MATH-466 or another course in principles of statistics with a minimum grade of C-.

3 Learning Objectives

By the end of this course, you will be able to:

- Describe and visualize data using appropriate tables, summary statistics, and graphs, recognize misleading presentations of data, and apply the logic of sampling, confidence intervals, and hypothesis tests—including two-group (A/B test) comparisons—to draw conclusions about populations from samples.

⁰Virtual office hours are by appointment: book a slot using the link on Blackboard or at [this link](#).

- Estimate and interpret simple and multiple regression models in R—including coefficients, standard errors (classical and heteroskedasticity-robust), R^2 , and t - and F -tests—and use dummy variables, interactions, logarithms, and quadratics to model categorical variables and nonlinear relationships, explaining the results in plain business language.
- Diagnose when a regression supports a causal claim—and when omitted variables, reverse causality, or measurement error undermine it—and explain what would be needed to make the claim credible.
- Use an agentic AI coding assistant (Claude Code) as a professional analysis tool: plan and delegate well-scoped empirical tasks, read and critique the code and output the agent produces, verify its results independently, and document AI assistance honestly and reproducibly.
- Conduct an independent empirical project from research question to data to results, writing clean, reproducible R code, and communicate the findings in writing with well-constructed tables and figures for an audience of managers and colleagues.

4 Required Materials

- **Textbook:** Mark V. Sieglar, *Introduction to Data Analysis and Econometrics*, 1st edition, W. W. Norton & Company, 2026. ISBN 978-1-324-10338-7.
- **Software: R and RStudio Desktop.** Both are free. We will walk through installation together in the Week 2 lab, and a step-by-step install guide will be posted on Blackboard in Week 1. The textbook’s Appendix A (“Getting Started with R”) is assigned reading for that lab.
- **A laptop** on lab and activity days (any laptop that can run RStudio is fine). If you do not have access to a laptop, contact me in Week 1 and we will work something out.

5 Grading

Components

Component	Weight	Notes
Problem sets (6, lowest dropped)	20%	mix of analytical + R questions
In-class activities (12, lowest 2 dropped)	10%	graded for good-faith completion
Midterm 1 (Sep 30)	25%	Ch. 1–4
Midterm 2 (Nov 13)	25%	Ch. 5–8
Empirical paper project	20%	proposal 3% + data memo 3% + paper 14%

There is **no final exam** in this course — the two midterms carry the exam weight. The final paper is due **Monday, December 14 at 2:00pm** on Blackboard (the registrar’s finals slot for this class).

Letter scale

A	≥ 93	B+	87–89	C+	77–79
A–	90–92	B	83–86	C	73–76
		B–	80–82	C–	70–72
D+	67–69	D	60–66	F	below 60

What each component involves

Problem sets (20%). Six problem sets, mixing “by hand” questions with R exercises on the course datasets. You submit a write-up plus your .R script to Blackboard. Your lowest problem-set score is dropped. Due dates appear in the weekly schedule below.

In-class activities (10%). Twelve hands-on activities done individually during class—simulations, A/B tests, regression scavenger hunts, and, after Midterm 2, four Claude Code labs (Activities 9–12). Activities are graded for good-faith completion, not correctness: show up, engage seriously, and turn in your work. The lowest two activity scores are dropped.

Midterms (25% each). Two in-class, 50-minute exams: Midterm 1 (Wednesday, September 30) covers Chapters 1–4; Midterm 2 (Friday, November 13) covers Chapters 5–8. Each includes multiple choice plus multi-part problems, including at least one “interpret the R output” question with genuine output.

Empirical paper project (20%). The capstone of the course: you pose a research question, find data, run and interpret regressions, and write up your findings as a short empirical paper. The project has three graded milestones: a **project proposal** (3%, due Friday, October 30), a **data memo** (3%, due Friday, November 20) describing your dataset and preliminary analysis, and the **final paper** (14%, due Monday, December 14 at 2:00pm on Blackboard).

6 Course Policies

Attendance and participation

This course is built around in-class work: labs, activities, and discussion. You are expected to attend every session. Because activities depend on in-class collaboration, **they cannot be made up** except for university-excused absences—this is precisely why the lowest two activity scores are dropped. If you must miss class, check Blackboard and ask a classmate for notes before contacting me.

Late work

Problem sets and project milestones lose **10% of the earned score per day late**, up to three days; after three days, the assignment receives a zero. In addition, every student gets **one no-questions-asked 48-hour extension token** to use on any single problem set or project milestone during the semester (except the final paper)—just email me before the deadline to redeem it. Beyond that, extensions are granted only for documented, university-excused circumstances.

Exam makeup policy

Makeup exams are given **only for university-excused absences** (documented illness, university-sponsored travel, family emergency, and the like), and must be **arranged in advance** whenever possible. If an emergency makes advance notice impossible, contact me as soon as you are able. An unexcused missed exam receives a zero.

Collaboration on problem sets

You are **encouraged to discuss** problem sets with classmates—explaining ideas to each other is one of the best ways to learn. But you must **write up your own solutions and write your own code**.

AI tools policy (phased)

AI assistants (ChatGPT, Claude, Copilot, and similar) are now part of many analysts' toolkits, and learning to use them well—and honestly—is an explicit goal of this course: after Midterm 2 we study agentic AI directly in the Claude Code unit. Because the course changes at Midterm 2, the AI rules change there too.

Phase 1 (through Midterm 2, Nov 13): AI may help you learn; it may not do your work for you.

- **Permitted, with disclosure:** using an AI assistant like a tutor—asking it to explain a concept, clarify an error message, suggest why *your own* R code is not working, or quiz you before an exam. If AI assistance contributed to a submission, add a brief note (e.g., “I used ChatGPT to help debug my `lm()` call in Question 3”).
- **Not permitted:** pasting a problem-set question or project task into an AI tool and submitting its answer, code, or prose as your own. That is academic dishonesty, exactly as if a classmate had done the work for you.
- **Exams are closed-AI:** no AI tools of any kind may be used during in-class exams.

Phase 2 (after Midterm 2): AI-assisted analysis, with disclosure and verification. In the Claude Code labs (Activities 9–12), using the AI agent as directed *is* the assignment. For the remaining project milestones (the data memo and the final paper) you *may* use Claude Code or similar tools for analysis tasks—writing and running R code, robustness checks, formatting tables and figures—under three conditions:

1. **Disclose & Discuss:** if you use an AI agent or other tool in any part of your project, you must disclose and discuss it in your paper;
2. **Verify:** you must be able to run, explain, and defend every number and claim you submit;
3. **Write your own prose:** the text of your memo and paper must be yours.

Using AI without disclosure is academic dishonesty in both phases, exactly as if a classmate had done the work for you.

Honor Code

You will be expected to adhere to the University honor code:

I will neither give nor receive unauthorized aid, nor will I tolerate an environment that condones the use of unauthorized aid.

Violations—including plagiarism, collusion, unauthorized AI use, and unauthorized aid on exams—will be reported and handled under university procedures.

Communication Policy

While I will communicate major announcements in class, it is your responsibility to periodically check your UE email and the course Blackboard page for announcements and other important information. **You must use your UE email account for all communications. I will not respond to emails from non-UE accounts.** I will respond to emails within 24 hours, except on weekends. If you have not received a response within 24 hours, please follow up.

I also expect you to use basic email etiquette appropriate for a professional environment. This includes using a clear subject line, addressing me by name, and signing your emails with your name. Please no text-speak or emojis, though I will allow “lol”s, “haha”s, and crying laughing emojis when I say something funny.

Office Hours

During office hours, I will be available to answer any question you may have related to the course. Feel free to come by and ask questions about course content, chat about the economic news of the day, or anything else you may want to discuss. These are your hours, so be sure to take advantage of them.

I have two types of office hours. Walk-in hours in my office (SOBA 121) are **12-2pm on Mondays & Wednesdays**. I will also hold virtual office hours **by appointment on Tuesdays from 9am-3pm**. You can schedule a virtual appointment using the link on Blackboard or at [this link](#).

7 University Policies & Resources

Disability Accommodations

The University of Evansville is committed to providing an accessible and supportive environment for students with disabilities. It is the policy and practice of the University of Evansville to make reasonable accommodations for students with properly documented disabilities. Students should contact Disability Services at 812-488-2663 to seek services or accommodations for disabilities. Written notification to faculty from Disability Services is required for academic accommodations.

For more information, visit: <https://www.evansville.edu/counseling/disability/index.cfm>

Institutional Equity and Title IX

UE is committed to fostering an atmosphere free from harassment and creating an inclusive campus for all members of the University community regardless of their sex, sexual orientation, gender identity, race, religion, ethnicity, country of origin, ability, or veteran status. All Faculty members are considered Responsible Employees and required to report instances of discrimination, harassment, or sexual violence to the Office of Institutional Equity.

You may also choose to speak to a Confidential Resource about your experience. Confidential Resources at the University include:

- Counseling Services: 812-488-2663, counselingservices@evansville.edu
- Crayton E. and Ellen Mann Health Center: 812-488-2033, healthcenter@evansville.edu
- Spiritual Formation Coordinator: 812-488-5265, spiritualformation@evansville.edu

If you or someone you know has been harassed, assaulted, or discriminated against you can find the appropriate resources by contacting the Assistant Director of Institutional Equity and Title IX Coordinator:

- Email: titleix@evansville.edu
- Phone: 812-488-5261

For more information, visit: <https://www.evansville.edu/offices/titleix/policy.cfm>

Non-Discrimination Statement

The University of Evansville expects all members of its community to treat each other with respect and civility. Harassing behaviors directed towards any member of our community will not be tolerated. As part of its commitment to non-discrimination, the University specifically prohibits harassment based on any other characteristics set forth in its nondiscrimination statement as follows: including race, color, gender, gender identity and expression, sexual orientation, creed or religion, national origin, age, disability, veteran status and all federally protected groups/classes. Any form of harassment undermines the mission of the University and negatively impacts the University community as a whole. For more information contact the [Center for Inclusive Excellence](#).

Campus Safety

All members of the UE community are automatically enrolled in the Ace Alerts Emergency Alert System. When the system is activated, emergency notification information is sent in the following manner: calls to campus IP phones, text messages, emails, campus housing speaker system, active threat sirens (non-weather related), digital signage, and AlertUS desktop on campus-owned computers. **To contact the Office of Public Safety:**

- **Emergencies:** 812-488-6911
- **Non-Emergencies:** 812-488-2051

Complaints, Grievances, and Appeals

The University of Evansville seeks to resolve all student concerns in a timely and effective manner through policies and processes documented in the University [Course Catalog](#) and [Student Handbook](#).

8 Student Resources

Access the links below to connect with departments and resources that are here to support all UE students.

Academic Services

Contact the Center for Academic Advising to connect with academic support services including supplemental instruction, tutoring, and time management and study skills help.

Blackboard Guides

Blackboard is the University of Evansville's course management system for online courses. Guides on using Blackboard can be found within [MyUE](#).

Writing Center

The Writing Center provides access to writing resources, appointments for one-on-one writing help, and assistance with any stage of the writing process.

Counseling Services

Counseling Services provides general, short-term counseling that assists students in identifying barriers and setting goals while improving coping strategies to achieve personal and academic goals.

University Libraries

Conduct research, access resources, and contact librarians for any research related help.

9 Weekly Schedule

The schedule below is the authoritative calendar for the course. Readings are from Siegler unless noted; complete the reading *before* the listed session. All deliverables are due on Blackboard by the start of class on the date shown. Any changes will be announced in class and on Blackboard.

Wk	Date	Session topic	Reading	Due
1	W Aug 26	Course intro; why regression analysis; the empirical workflow	Ch. 1	—
1	F Aug 28	Causality vs. correlation; types of economic data	Ch. 1	—
2	M Aug 31	Lab: Getting started with R/RStudio (Activity 1) (install, scripts, objects, importing data)	App. A	—
2	W Sep 2	Describing data I: tables, graphs, distributions	Ch. 2	—
2	F Sep 4	Describing data II: center, spread, z -scores	Ch. 2	—
3	M Sep 7	<i>No class — Labor Day</i>	—	—
3	W Sep 9	Correlation; index numbers; misleading graphs; Activity 2	Ch. 2	—
3	F Sep 11	Probability and random variables	Ch. 3	PS 1
4	M Sep 14	The normal distribution	Ch. 3	—
4	W Sep 16	Sampling distributions; LLN & CLT (simulation: Activity 3)	Ch. 3	—
4	F Sep 18	Estimation, standard errors, confidence intervals	Ch. 4	PS 2
5	M Sep 21	Hypothesis testing: t -tests and p -values	Ch. 4	—
5	W Sep 23	Two-sample tests; Activity 4 (A/B testing)	Ch. 4	—
5	F Sep 25	Ch. 4 wrap; catch-up & review (Ch. 1–4)	Ch. 4	PS 3
6	M Sep 28	<i>No class</i>	—	—
6	W Sep 30	Midterm 1 (Ch. 1–4)	—	—
6	F Oct 2	Correlation & causation; the simple regression model	Ch. 5	—
7	M Oct 5	OLS: mechanics and interpretation	Ch. 5	—
7	W Oct 7	Goodness of fit; units of measurement	Ch. 5	—
7	F Oct 9	Activity 5 (Guess the Line)	Ch. 5	—
8	M Oct 12	<i>No class — Fall Break (Oct 10–13)</i>	—	—
8	W Oct 14	Inference in simple regression; when is it causal?	Ch. 5	—
8	F Oct 16	Multiple regression: motivation & OVB	Ch. 6	PS 4
9	M Oct 19	Multiple regression: interpretation, fit, F -tests	Ch. 6	—
9	W Oct 21	Multicollinearity; Activity 6	Ch. 6	—
9	F Oct 23	Dummy variables	Ch. 7	—
10	M Oct 26	<i>No class</i>	—	—

continued on next page

Wk	Date	Session topic	Reading	Due
10	W Oct 28	Interactions	Ch. 7	PS 5
10	F Oct 30	Functional forms: logs & quadratics; Activity 7	Ch. 7	Project proposal
11	M Nov 2	Model specification: choosing variables	Ch. 8	—
11	W Nov 4	Outliers, proxies, and data problems	Ch. 8	—
11	F Nov 6	Heteroskedasticity & robust SEs	Ch. 8	—
12	M Nov 9	Activity 8 (Robust or Bust) ; specification checklist	Ch. 8	—
12	W Nov 11	Catch-up & review (Ch. 5–8)	—	PS 6
12	F Nov 13	Midterm 2 (Ch. 5–8)	—	—
13	M Nov 16	Data memo workday (in-class work session on your project data)	—	—
13	W Nov 18	Claude Code I: meet your AI research assistant	—	—
13	F Nov 20	Activity 9 (Hello, Claude Code)	Setup guide	Data memo
14	M Nov 23	Activity 10 (Delegate and Verify)	—	—
14	W Nov 25	<i>No class — Thanksgiving Break (Nov 25–29)</i>	—	—
14	F Nov 27	<i>No class — Thanksgiving Break (Nov 25–29)</i>	—	—
15	M Nov 30	Paper workday (in-class work session on your draft)	—	—
15	W Dec 2	Claude Code II: prompting as management (live demo)	—	—
15	F Dec 4	Activity 11 (Trust but Verify)	—	—
16	M Dec 7	Activity 12 (Claude Code on Your Paper)	—	—
16	W Dec 9	Claude Code III: working with AI honestly; course wrap (last day of class)	—	—
—	Mon Dec 14	Final paper due on Blackboard by 2:00pm — registrar's slot for MWF 2pm classes; no exam meeting	—	Paper