ECON 2823 | Applications of Economic Analysis Techniques

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This course moves beyond ordinary regression to look at more-specialized models and data that are important to economists. We will expand your knowledge of econometric methods to account for qualitative and selected dependent variables via maximum likelihood, and present more structured estimation models. Throughout, the focus is on building your experience with more advanced techniques, both for estimation and inferences; your understanding of the pros and cons of these methods; and, importantly, how best to extract insights from them to aid in decision making. Econometric methods are best learned through practice, so put in the time and reps to master them.

The class will meet in person in the MQE classroom, and attendance is expected. Announcements about any changes to this plan will be made via Canvas.

Course Resources

- **Canvas** is used primarily for announcements.
- **Gradescope** will be the portal to collect and return assignments.
- **Office Hours** are a great resource so come see me! Friday, 1:00 pm to 3:00 pm. Times are also listed on Canvas.

Software

Computer use during class is highly recommended. This class will use Python. Make sure you have it on your laptop. We will use the Anaconda distribution of Python and Jupyter, an interactive Python notebook environment that is commonly used by data scientists.

Class Schedule

1. Class 1: Introduction to Jupyter, numerical methods
2. Class 2: Numerical solution, Numerical optimization, APIs
3. Class 3: Optimization and Simulation
4. Class 4: Simulation and Data Search/Scrape
5. Class 5: Non-linear least squares, Quantile Regression
6. Class 6: Other Objective Functions, Cloud Computing
7. Class 7: Maximum Likelihood
8. Class 8: Maximum Likelihood, SQL
9. Class 9: Inference in Max Likelihood
10. Class 10: Inference in Max Likelihood
11. Class 11: Generalized Linear Models, Probit, Logit
12. Class 12: Binary outcomes, and Ordered Outcomes
13. Class 13: Choice models, Censoring & Selection
14. Class 14: Hazard Models

Disability Services

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services (DRS), 140 William Pitt Union, (412) 648-7890, drsrecep@pitt.edu, (412) 228-5347 for P3 ASL users, as early as possible in the term. DRS will verify your disability and determine reasonable accommodations for this course.

Email Policy

Don't hesitate to email me with questions. When you do, be considerate of a few things. First, I will try to respond to you as quickly as possible. It's easiest for me to respond if your email has a direct question. I get a considerable number of emails, so during busy times it may take longer than a day or two to get back to you. Second, I do not check emails outside of regular working hours, so if you email me at night or on the weekend, I likely won't see your email until later. This is a good practice I'd encourage for you too.

AI Policy

Artificial intelligence of all kinds is an increasingly powerful tool you will need to be familiar with in your life and work. This class does not prohibit use of AI. However, all work must be your own. Copying from an uncited source is a serious issue. That said, do not hesitate to use AI when it can be of use but I would encourage you to treat it as an instructor. Work with it to learn the skills; do not copy.

Academic Conduct Code

Students in this course will be expected to comply with the University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy.

All students are expected to adhere to the standards of the University of Pittsburgh's Policy on Academic Integrity. Any violation is a serious matter. Any student engaged in cheating, plagiarism, or other acts of academic dishonesty would be subject to disciplinary action, may 1) receive a zero on an assessment, or 2) receive an F in the class.

Grades

No matter your grade in the class, you belong in my classroom. All assessments are designed to push you to do excellent work and convince both you and me of your critical thinking skills with as little unpleasantness as possible. I've deliberately designed the class with no busywork, trick questions, or high-stakes exams. And in return I expect you to work hard.

Missed work cannot be made up post-hoc. Contact me before the due date to apply for an extension if you anticipate submitting late work.

Dates

Date	Details	Due
Fri Mar 27, 2026	Checkpoint 1	due by 5pm
Fri Apr 3, 2026	Checkpoint 2	due by 5pm
Fri Apr 10, 2026	Checkpoint 3	due by 5pm
Fri Apr 17, 2026	Checkpoint 4	due by 5pm
Fri Apr 24, 2026	Checkpoint 5	due by 5pm
	Final	

Final Notes

1. I care about your progress over the semester and will do everything I can to help you succeed. Please don't hesitate to stop by office hours or email me if you have any questions or concerns, or even if you just want to chat about the course.
2. I also encourage you to use some of the excellent learning tools available for free online for learning Python and econometric methods.