

ECON 4820 – ECONOMETRIC MODELS II
SPRING 2021 SYLLABUS
DEPARTMENT OF ECONOMICS, THE UNIVERSITY OF TOLEDO

Class Time: MW 12:55pm-2:15pm, 5820 students also meet W 2:20pm-3:10pm
Classroom: Off-campus remote learning
Course website: <https://blackboard.utdl.edu>
Instructor: Dr. James Bland
University Hall 4140-D
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<https://sites.google.com/site/jamesbland/home>
Office hours: TRF 9am-3pm by appointment

This document was last updated on January 11, 2021

1 SPECIAL COURSE EXPECTATIONS DURING COVID-19

This class is listed as a synchronous online class. As such, we will be meeting via WebEx at the scheduled class times. I will use a combination of webcam, whiteboard, screen-sharing, and a document camera to deliver the material. I will record all content during class, and post it to Blackboard.

If my childcare constraints change, I may switch some classes to asynchronous learning.

Classes will involve discussions, and require participation. To fully participate in class, you will therefore need a computer with reliable internet access and a microphone. A webcam is encouraged, but not needed. All software used in this course will be either freely available, or accessible through the UToledo virtual lab.

I am available for office hours during the times listed above, but due to childcare constraints, I will need to make an appointment with you. If you would like to book in a meeting, please just send me an email.

Below is the UToledo Syllabus language specific to COVID-19, but not specific to this course.

1.1 ATTENDANCE

The University of Toledo has a missed class policy. It is important that students and instructors discuss attendance requirements for the course. Students must perform a daily health assessment, based on CDC guidelines, before coming to campus each day, which included taking their temperature. Students who are symptomatic/sick should not come to class and should contact the Main Campus Health Center at 419-530-3451. Absences due to COVID-19 quarantine or isolation requirements are considered excused absences. Students should notify their instructors and these absences may not require written notice.

1.2 FACE COVERINGS

All students must wear face coverings while on campus, except while eating, alone in an enclosed space, or outdoors practicing social distancing. NO students will be permitted in class without a

face covering. If you have a medical reason that prevents you from wearing a face covering due to a health condition deemed high-risk for COVID-19 by the Centers for Disease Control and Prevention (CDC), you should submit a request for an accommodation through the Student Disability Services Office (SDS) by completing the online application. Students will need to provide documentation that verifies their health condition or disability and supports the need for accommodations. If a student is already affiliated with SDS and would like to request additional accommodations due to the impact of COVID-19, should contact their accessibility specialist to discuss their specific needs.

1.3 SOCIAL DISTANCING

Students should practice social distancing inside and outside the classroom please follow signage and pay attention to the seating arrangements. Do not remove stickers or tape from seats and/or tables, this is there to provide guidance on the appropriate classroom capacity based on the recommended 6 feet of social distancing between individuals. Please be conscious of your personal space and respectful of others. Also be cognizant of how you enter and exit the room; always try to maintain at least 6 feet of distance between yourself and others.

1.4 DESKS AND WORK SPACES

Students will need to sanitize their desks and/or work space before class with the University provided sanitizing spray and paper towels their desks.

1.5 SPECIAL NOTES

It's important to note that based on the unpredictability of the COVID-19 virus things can change at any time so please be patience and understanding as we move through the semester. I also ask that you keep me informed of concerns you may have about class, completing course work/assignments timely and/or health concerns related to COVID.

2 Course overview

This is an advanced undergraduate/first-year graduate course in theoretical and applied econometrics. This course will aim to build on econometric modelling skills learned in ECON 4/5810. We will focus on fixes for problems with OLS identified in the ECON 4/5810 course. In particular, this will involve problems where we cannot interpret OLS estimates as representing the causal effect of X on Y. We will learn about another important use of data: forecasting. We will learn about panel and time series data techniques, then move to other extensions that may include, but are not limited to, regression discontinuity, natural field experiments, randomized controlled trials, and structural econometrics.

You will learn to apply econometric techniques to real-world data using a popular econometrics/statistical package (STATA). An Econ 5810 session on Thursdays will cover additional topics and theory, teach programming tools, and organization and writing of an academic paper. A series of short student presentations will be scheduled at the end of the semester.

3 Student learning outcomes

1. **Identification abilities.** Students will demonstrate the ability to identify and describe economic phenomena using economic terms and concepts from the provided information and data.
2. **Analytic and quantitative abilities.** Students will demonstrate the ability to analyze an economic model and its implications using graphical and quantitative tools. Students will demonstrate the ability to analyze economic data.
3. **Application abilities.** Students will demonstrate the ability to apply economic theory to a range of economic problems.
4. **Communication skills.** Students' written work and/or oral presentations will demonstrate the ability to convey, interpret, and summarize ideas effectively in terms of content, clarity, syntax, and organization of information.

4 Prerequisites and co-requisites

ECON 4810 with a minimum grade of D-

5 Instructional material

5.1 Required

- Bailey, M. A. (2019). *Real econometrics: The right tools to answer important questions*. Oxford University Press.

This is the same text as we used in ECON4/5810. The 1st and 2nd editions of this book are both suitable for this course.

- Cunningham, S. (2018). Causal inference: The mixtape (v.1.7)

Available legally and free online here: <https://www.scunning.com/mixtape.html>

- Hyndman, R. and G., A. (2018). *Forecasting: principles and practice, 2nd edition*. OTexts: Melbourne, Australia. [OTexts.com/fpp2](https://otexts.com/fpp2)

- Econometrics Models I-II: Supplementary material

This is a collection of notes I have produced. A pdf version is available here: <https://github.com/JamesBlandEcon/EconometricsNotes/raw/master/JBlandEconometricsNotes.pdf>. This document gets updated frequently, so please make sure you're working off the latest version.

5.2 Additional material

I will not assume that you have a copy of these, but if you are looking for some more reading, these might be a good place to start.

- Wackerly, D., Mendenhall, W., and Scheaffer, R. (2007). *Mathematical statistics with applications*. Nelson Education.

A great introduction to probability theory and one-parameter estimation. Most of the early material in 4/5810 that is not covered in Bailey is covered here.

- Wooldridge, J. M. (2015). *Introductory econometrics: A modern approach*. Nelson Education.
The most commonly used text for this material at this level. It is reasonably intuitive and exhaustive.
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press
If you do a Ph.D. in Economics, you will probably become acquainted with this
- Koop, G., Poirier, D. J., and Tobias, J. L. (2007). *Bayesian econometric methods*. Cambridge University Press
When/if I go on a rant about Bayesian econometrics, this is what I'm talking about
- Wheelan, C. (2013). *Naked statistics: Stripping the dread from the data*. WW Norton & Company

6 University policies

6.1 Academic accommodations

The University of Toledo is committed to providing equal opportunity and access to the educational experience through the provision of reasonable accommodations. For students who have an accommodations memo from Student Disability Services, it is essential that you correspond with me as soon as possible to discuss your disability-related accommodation needs for this course. For students not registered with Student Disability Services who would like information regarding eligibility for academic accommodations due to barriers associated with a potential disability, please contact the Student Disability Services Office.

6.2 Policy Statement on Non-Discrimination on the basis of Disability (ADA)

The University is an equal opportunity educational institution. Please read The University's Policy Statement on Nondiscrimination on the Basis of Disability Americans with Disability Act Compliance

7 Academic policies

As a student in my course and enrolled at The University of Toledo you should be familiar with the policies that govern the institution's academic processes, for example, Academic Dishonesty, Enrollment Status, and Grades and Grading. Please read the Undergraduate Academic Policies.

7.1 Missed class policy

Students are expected to attend every class meeting of courses in which they are registered. Please read the Missed Class Policy.

8 Overview of course grade assignment

8.1 Problem sets

There will be up to 15 problem sets. They will be posted on the class website along with their due dates. The lowest problem set grade will be dropped and the remaining problem sets will weigh 30% of your final grade. Problems will include both theoretical and practical questions. Problem sets will have strict due date and time. Late submissions without a legitimate and properly documented reason will receive zero points.

You can use economic lab (UH 4150) computers to complete assignments. Different versions of problem sets will be administered to 4820 and 5820 sections. The answers to problem set questions should contain your own work; group submissions are not permitted, but group learning is encouraged!

Each problem set shall have equal weight. The instructor reserves the right to grade any problem set for either correctness or completion, or a convex combination thereof.

8.1.1 Discussion of a problem set question

Each student shall present their solutions of one problem set question to the class.

8.2 Exams

There will be two non-cumulative exams. These exams will test theoretical, computational, and practical econometrics skills. Different versions of the exams will be administered to 4820 and 5820 students.

8.3 Summary of assessment

Assessment	Weight
Problem sets	25%
Discussion of problem set	5%
Computational Exam	15%
Written Exam 1	20%
Written Exam 2	20%
Presentation	15%

8.4 Missed exam and quiz policy

If you miss an exam or a quiz for a legitimate and properly documented reason, you will be excused from that exam and you will be allowed to make up the exam. Otherwise your score for a missed exam or quiz will be recorded as zero. All absences should be communicated to me verbally, in writing, or via e-mail. For the definition of qualifying reasons for absences refer to the UT Missed Class Policy at http://www.utoledo.edu/facsenate/missed_class_policy.html.

8.5 Attendance

Your attendance to all classes is strongly encouraged, but not required. However, by missing class you are missing out on the opportunity to reconcile important questions that might appear on the

exams. If you miss a class, you are still responsible for any material covered in it. Class attendance is mandatory for the class sessions when an exam is given.

8.6 Grading scale

	-		+
A	88-91	92-100	N/A
B	76-79	80-83	84-87
C	64-67	68-71	72-75
D	50-54	55-59	60-63
F		<50	

9 Academic support services

For a list of academic support services available to UT students, please see <http://www.utoledo.edu/offices/student services/learningresources.html>

10 Safety and health services for UT students

For a comprehensive list of safety and health services available to UT students, please see <http://www.utoledo.edu/offices/provost/utc/docs/CampusHealthSafetyContacts.pdf>

11 Tentative course outline

Module	Topic	Reading
1	DIRECTED ACYCLIC GRAPHS (DAGs) FOR CAUSAL INFERENCE Chapter in <i>Causal Inference: The MixTape</i>	
2	PANEL DATA	B08
3	TIME SERIES Time series Forecasting	B13 H&A
1	LATENT VARIABLE MODELS Probit & Logit WRITTEN EXAM 1 ABOUT HERE	B12
4	OTHER TOPICS IN ECONOMETRICS Regression discontinuity Instrumental variables Experiments	B11 B09 B10
5	CLASS PRESENTATIONS	
WRITTEN EXAM 2 ABOUT HERE		