

ECON 5343: Causal Inference for Business Decisions
Fall 2017

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Office Hours: T-Th 4:00-5:00

Section Information: 001

Time and Place of Class Meetings: 139 Business Building T-Th 7:00pm-9:50pm

Description of Course Content: Addresses how firms distill useful business intelligence from various sources of raw data. Introduces various methods to determine what results of strategic interventions were caused by, rather than merely correlated with them. The course examines threats to causal identification such as reverse causality, sample selection bias, and unobserved covariates. Topics may include: Randomized Experiments and Quasi-Experiments, Sample Selection Models, Propensity Score Matching, Instrumental Variables Methods, Differences-in-Differences, and Regression Discontinuity.

Prerequisite: ECON 5336 or BSAD 6317 and ECON 5339 or BSAD 6318

Student Learning Outcomes: Students will understand the major threats to identifying causal effects from a treatment to an outcome. They will learn methods of describing causal and non-causal relationships using potential outcomes modeling, dyadic cyclic graphs, and structural equation modeling. Finally students will learn common methods to draw causal inferences from empirical analysis including: Randomized Control Trials (RCT), Natural Experiments, Control Variables, Matching, Instrumental Variables (IV), Regression Discontinuity (RD), and Difference-in-Difference (DND).

Required Textbooks and Other Course Materials:

Counterfactuals and Causal Inference: Methods and Principles for Social Research (Analytical Methods for Social Research) 2nd Edition, by Stephen L. Morgan and Christopher Winship

Recommended Textbooks and Other Course Materials:

Mastering Metrics: The Path from Cause to Effect 1st Edition, by Joshua D. Angrist and Jörn-Steffen Pischke

30-Aug – Introduction

M&W Chapter 1

A&P Introduction

Matt Masten videos on [Introduction to Causal Inference](#)

6-Sep – Potential Outcomes

M&W Chapter 2

A&P Chapter 1

13-Sep – Causal Graphs

M&W Chapter 3

20-Sep – Identification

M&W Chapter 4

27-Sep – Randomized Control Trials (RCTs)

A&P Chapter 1

Willard G. Manning, Bernadette Benjamin, Howard L. Bailit, and Joseph P. Newhouse. 1985. “The demand for dental care: evidence from a randomized trial in health insurance”

Marit Hinnoosaar, Toomas Hinnoosaar, Michael Kummer, and Olga Slivko. 2015. “Does Wikipedia Matter? The Effect of Wikipedia on Tourist Choices”

Navdeep S. Sahni, Dan Zou, Pradeep K. Chintagunta. 2017. “Do Targeted Discount Offers Serve as Advertising? Evidence from 70 Field Experiments.” *Management Science* 63(8):2688-2705.

Matt Masten videos on [Experiments](#)

4-Oct – Natural Experiments

Wesley R. Hartmann and Daniel Klapper. 2015. “Super Bowl Ads”

Stephan Seiler, Song Yao, and Wenbo Wang. 2016. “Does Online Word-of-Mouth Increase Product Demand? Evidence from a Natural Experiment”

Kenneth Younge and Matt Marx. 2016. “The Value of Employee Retention: Evidence From a Natural Experiment,” *Journal of Economics & Management Strategy*, 25(3), 652–677

11-Oct – Matching

M&W Chapter 5

Evan Rawlev and Timothy S. Simco. 2010. "Diversification, Diseconomies of Scope, Contracting: Evidence from the Taxicab Industry," *Management Science*, 56(9), 1534-1550.

Donald B. Rubin (2001) "Using Propensity Scores to Help Design Observational Studies: Application to the Tobacco Litigation," *Health Services & Outcomes Research Methodology* 2:169–188.

Anjana Susarla and Anitesh Barua. 2011. “Contracting Efficiency and New Firm Survival in Markets Enabled by Information Technology,” *Information Systems Research*, 22(2), 306-324.

Michael R. Ward. 2010. “Video Games and Adolescent Fighting.” *Journal of Law and Economics*, 53(3), 611-628.

18-Oct – EXAM 1

25-Oct – Regression

M&W Chapter 6

A&P Chapter 2

Rachna Shah, George P. Ball, Serguei Netessine. 2017. “Plant Operations and Product Recalls in the Automotive Industry: An Empirical Investigation.” *Management Science* 63(8):2439-2459.

Brett Gordon, Florian Zettelmeyer, Neha Bhargava, Dan Chapsky. 2016. “A Comparison of Approaches to Advertising Measurement: Evidence from Big Field Experiments at Facebook”

Michael R. Ward and Glenn A Worroch. 2010, “The Effect of Prices on Fixed and Mobile Telephone Penetration: Using Price Subsidies as Natural Experiments.” *Information, Economics and Policy*, 22(1). 18-32.

Matt Masten videos on [Regressions](#)

1-Nov – Selection

M&W Chapter 8

8-Nov – Instrumental Variables (IV)

M&W Chapter 9

A&P Chapter 3

Matthew Goldman and Justin M. Rao, “Experiments as Instruments: Heterogeneous Position Effects in Sponsored Search Auction”

Patrick Gaulé. 2016. “Patents and the Success of Venture-Capital Backed Startups: Using Examiner Assignment to Estimate Causal Effects”

Miguel Godinho de Matos, Pedro Ferreira, and David Krackhardt. 2014. “Peer Influence in the Diffusion of Iphone 3G over a Large Social Network.” *MIS Quarterly* Vol. 38 No. 4, pp. 1103-1133.

Eduardo Melero, Neus Palomeras, and David Wehrheim. 2017. “The Effect of Patent Protection on Inventor Mobility”

Matt Masten videos on [Instrumental Variables](#)

15-Nov – Instrumental Variables (IV)

(cont.)

22-Nov – Thanksgiving

29-Nov – Regression Discontinuity Design (RDD)

M&W Chapter 11

A&P Chapter 4

Tor-Eric Bakke and Tomi M. Whited. 2012. “Threshold Events and Identification: A Study of Cash Shortfalls” *The Journal of Finance*, LXVII(3), 1083-1111.

Vincente Cunat, Mieia Gine, and Maria Guadalupe. 2012. “The Vote Is Cast: The Effect of Corporate Governance on Shareholder Value,” *The Journal of Finance*, LXVII(5).

Guido Imbens and Karthik Kalyanaraman. 2009. “Optimal Bandwidth Choice for the Regression Discontinuity Estimator”

Michael Luca. 2016. “Reviews, Reputation, and Revenue: The Case of Yelp.com”

Bradley T. Shapiro. 2016. “Positive Spillovers and Free Riding in Advertising of Prescription Pharmaceuticals: The Case of Antidepressants”

Matt Masten videos on [Regression Discontinuity](#)

6-Dec – Difference-in-Difference (DND)

M&W Chapter 11

A&P Chapter 5

Dan Amiram, Andrew M. Bauer, and Mary Margaret Frank. 2016. “Tax Avoidance at Public Corporations Driven by Shareholder Taxes: Evidence from Changes in Dividend Tax Policy”

Brett Danaher, Samita Dhanasobhon, Michael D. Smith, Rahul Telane. 2010 “Converting Pirates Without Cannibalizing Purchasers: The Impact of Digital Distribution on Physical Sales and Internet Piracy,” *Marketing Science* 29(6), 1138-1151.

Avi Goldfarb and Catherine E. Tucker. 2011. "Privacy Regulation and Online Advertising," *Management Science*, 57:1, 57-71.

Brad N Greenwood Sunil Wattal. 2015. "Show Me the Way to Go Home: An Empirical Investigation of Ride Sharing and Alcohol Related Motor Vehicle Homicide"

Matt Masten videos on [Difference in Difference](#)

13-Dec – EXAM 2 8:15-10:45

Assignments and examinations:

Homework	30%
Paper Presentation	20%
Exams	50%

Attendance: Attendance is not required but is strongly encouraged.

Grading:

A	90-100%
B	80-89.99%
C	70-79.99%
D	60-69.99%
F	50-59.99%

While I have had to assign Ds and Fs for poor performance in the past, I hate doing so. I will try to insure that no student has to earn a poor grade. All students are welcome to come to office hours. However, students who are struggling with course materials the most have priority over my time and office hours. Please contact me if you think you are in this situation.

Expectations for Out-of-Class Study: This course will require substantial out-of-class study time. All homework will have some data analysis aspects to them. Exam questions will require students to apply concepts in common settings.

UT Arlington Boilerplate

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA)*, *The Americans with Disabilities Amendments Act (ADAAA)*, and *Section 504 of the Rehabilitation Act*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD)**. Students experiencing a range of

conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364.
Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671.

Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit www.uta.edu/titleIX.*

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

The English Writing Center (411LIBR): Hours are 9 am to 8 pm Mondays-Thursdays, 9 am to 3 pm Fridays and Noon to 5 pm Saturdays and Sundays. Walk In *Quick Hits* sessions during all open hours Mon-Thurs. Register and make appointments online at <http://uta.mywconline.com>. Classroom Visits, Workshops, and advanced services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information.