Dillard College of Business Administration

BUAD 5633: Business Process – Causal Inference
Fall 2025
Tuesdays 5:30-6:50pm in DB 329

Contact Information
Instructor: Dr. Andrew Holt
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Office: Dillard Building 217
Office Hours: Tuesday: 11am – 12:30pm
Wednesday: 12pm – 2pm
Thursday: 11am – 12:30pm
By appointment **online**.

The subject line of any email you send to me must start with "**BusProcess:"** that way I know what class you are in. So, for example, if you are wondering when the next exam is, then the subject line for the email should be "**BusProcess: Next Exam Date?**" If the subject line is wrong, then I will ignore your email or maybe I will ask you to resend your email with the correct subject line**.**

Course Materials

If you want to read a textbook, then I suggest the following two books; however, my lecture notes and slides will be available.

Introductory Econometrics: A Modern Approach by Jeffery Wooldridge
Using R for Introductory Econometrics by Florian

Download R for free here: https://cran.r-project.org/bin/windows/base/
Download RStudio for free here: https://posit.co/products/open-source/rstudio/

Course Description
Often, businesses want to know the effect their polices and decisions have on revenue, suppliers, customers; however, their policies cannot be implemented randomly. This poses a problem for a data scientist because most of the time non-random policies or decisions cannot be used to infer the effects of said policies or decisions.

This class is designed to teach students commonly used methods of causal inference that take advantage of quasi-natural experiments that allow for the analysis of business policies and decisions.

Objectives:
General Learning Goals: Students will be asked to demonstrate their critical thinking and problem-solving skills by applying statistical learning techniques in their homework assignments and exams. This course aims to contribute to developing students' ability to communicate their analyses in a

professional manner. Student's will have to integrate the statistical knowledge they acquire from this course with multiple business disciplines.

Course Specific Learning Goals: Students should learn how to perform data analysis in R. Students are expected to learn the following statistical techniques: Linear Regression, Conditional RCT, Difference-in-Differences, Regression Discontinuity.

Assessments:

1. Homework Assignments: The types of questions on the homework will be similar to the types of questions on the exams.
    a. Homework should be done *individually*.
    b. Students who submit work from previous semesters or who work together will receive a 0 on the assignment.
    c. All "writing" assignments must be printed off and answered by hand using a pen or pencil.
2. Exams: There will be one midterm exam and one final exam. Each exam is worth 30 points. Students are not allowed help from any other person for these exams. All electronic devices are banned. Students caught cheating on the exam will be given a 0 in the course.

Missed Exam Policy:

If you miss one of the midterm exams, then I will replace the missing grade with your final grade so long as you were excused. Unexcused midterm exam absences will result in only 90% of your grade on the final exam replacing the missing midterm grade.

Grading:

Assignment	Points
Homework Assignments	2 each
Midterm Exam	30
Final Exam	30

A= 89.5-100%   C =69.5-79.5%
B= 79.5-89.5%   D= 59.5-69.5%   F= <59.5%

Class Participation:

Students are expected to participate in all class discussions. Sleeping in class, using electronic devices, tardiness, and any class disruption will result in a lower grade. The instructor reserves the right to lower any student's final grade by a letter grade if the student failed to actively participate in class discussions. Because it is impossible to participate in class while not attending class, you must attend class to not receive a lower grade.

Cheating:

Cheating on an assignment will result in a 0 on the assignment and I will also report you to the Chair of the department.

Plagiarism Statement:

``By enrolling in this course, the student expressly grants MSU a "limited right" in all intellectual property created by the student for the purpose of this course. The "limited right" shall include by not be limited to the right to reproduce the student's work product in order to verify the originality and authenticity.''

Americans with Disabilities Act
This course follows the university policies and guidelines suggested by the Disability Support Services Office for qualified students. Students are referred to the Midwestern State University Undergraduate Catalog for details.

Campus Carry Policy
Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information regarding campus carry, please refer to the University's webpage at link to MSU campus carry rules and policies.

Syllabus Change Policy
This syllabus is a guide for this course and is subject to change with advanced notice.

Course Content

Week	Dates	Topic	Homework
1	August 24th – August 30th	Syllabus Week	
2	August 31st – September 6th	OLS	
3	September 7th – September 13th	OLS	HW 1 Due
4	September 14th – September 20th	Advanced Topics	HW 2 Due
5	September 21st – September 27th	Advanced Topics	HW 3 Due
6	September 28th – October 4th	Diagnostic Tests	HW 4 Due
7	October 5th – October 11th	Midterm Practice	HW 5 Due
8	October 12th – October 18th	Midterm Exam	HW 6 Due Exam 1
9	October 19th – October 25th	Causal Inference and DAGs	
10	October 26th – November 1st	Regression Discontinuity	HW 7 Due
11	November 2nd – November 8th	Regression Discontinuity	HW 8 Due
12	November 9th – November 15th	Difference-in-Differences	HW 9 Due
13	November 16th – November 22nd	Difference-in-Differences	HW 10 Due
14	November 23rd – November 29th	Holiday Break	
15	November 30th – December 6th	Final Exam Practice	HW 11 Due
16	December 7th – December 13th	Final Exam	HW 12 Due Exam 2