University of Pennsylvania
The Wharton School
WH 1508 Evaluating Evidence

Instructor
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Office hours: I am always happy to help and I am curious to hear your comments and suggestions!
Come up to my zoom office hours every Friday 9:30-12pm or email me to find a time to zoom. The link is on the canvas page (click on "zoom")

Canvas homepage link [URL TBC]

Course content
You will be confronted with empirical evidence and facts in your future careers. How do you evaluate it? How do you know you can trust conclusions drawn from data? How can you use evidence to your advantage? What if the evidence uses novel methods and tools beyond simple comparisons of means?
WH 1500 and WH1508 expose you to the broad portfolio of empirical approaches at the Wharton School.
It teaches you how to ask questions with data in complex and innovative ways.
You will learn how the giants of social sciences and business studies generate evidence.
You will see how to use AI and machine learning in research, how to design experiments, the ingenious ways we can leverage changes in policy and legislation as a natural experiment, or how to use qualitative interview data to learn about nascent phenomena.
We will have weekly guest speakers from across Wharton, exposing you to a fascinating array of topics and puzzles and how to pair the best data available with the right tools to analyze it.
Pedagogically, you will work on topical team assignments and projects in the classroom.
This course will equip you to become evidence-based business leaders.

WH 150 provides an introduction to all stages of the research *design* process for business topics including theory building; hypothesis development; choice of data analysis approach and data collection method (e.g., qualitative studies, surveys, laboratory and field experiments, and analysis of archival data); and data preparation (including methods for converting raw data, including qualitative data, into measurable constructs suited to statistical analysis). The course emphasizes the interplay between the nature of the research question/objective, experimental design, and about sampling/data collection methods. The course does not cover methods of data analysis in any detail; it only provides exposure to types of data analysis methods available or commonly used in business research.

Class sessions are dedicated to discussions of published research papers (or unpublished working papers). The studies are drawn from the ten Wharton departments: Accounting; Business Economics and Public Policy; Finance; Health Care Management; Legal Studies and Business Ethics; Management; Marketing; Operations, Information and Decisions; Real Estate; and Statistics. Students will read each of the ten research examples in advance of an in-class discussion of the study, and evaluate in a written homework team assignment, answering

questions about general research design issues and/or questions about specific data collection or analysis methods covered in preceding classes.

Course objectives

1) Develop critical thinking skills. A researcher's goal, particularly in causal research, is to provide the most compelling evidence about a hypothesis. Designing a study that can provide compelling evidence requires logical reasoning.

2) Create sophisticated research *consumers*. At a minimum, business students need to be able to digest research and critically evaluate the evidence as it pertains to their business decision. We live in an evidence-based world!

3) Prepare students to be research *producers*. The course provides a foundation for understanding how to develop testable research questions that can inform decision-making and how to design a study to test research questions. The course also introduces a variety of tools necessary for students to be able to collect data for research studies and evaluate research findings. A core learning experience is the **team-work** aspect of the weekly assignments.

This course is <u>not</u> intended to dig deeply into specific research methods or into the research of a specific discipline. It provides an introduction to design principles that are the foundation for research across business disciplines.

Pre-requisites
Data analysis is at a basic level. The level of exposure to statistics in STAT 100 is sufficient. I will review introductory econometrics in class

<u>Expectations: Preparation – Participation – Team Leadership</u>
Do the required reading prior to class.
Be on time and don't leave early.
All absences must be notified to me by email a minimum of 24 hours in advance and you need to fill out a course absence form.
No electronic devices in class.
Be a good citizen in class: listen to your classmates and participate in discussions.
Pay attention and take notes.

Course materials
Homework assignments and additional reading materials will be available on Canvas.

Readings & Schedule

The first weeks will cover foundations of research methods. All slides and materials will be posted on canvas.

There will also be presentations by our most impressive Wharton PhD students from multiple departments exposing you to the full spectrum of research topics and methodologies used in business research at Wharton.

Here is a *preliminary* schedule of topics and the list of speakers:

Lecture 1 Jan 18 Introduction: Why do we need data? How can we generate evidence?

Lecture 2&3 Jan 23&25:   The design of research papers: Question – Contribution – Methods – Results

Foundations of statistics and econometrics

How can you use AI in business research

Read: "Introduction to Econometrics" – slides on canvas

Individual assignment: CPS data exercise – gender, education and wage, difference-in-difference t-test

Lecture 4&5 Jan 30&Feb 1 PhD student presentation (Accounting): Surveys and OLS Regression Analysis

Joe Moran "Cascade Effects in Control Usage: Evidence from Front-Line Managers' Motivational Strategies" and is joint work between myself, Pablo Casas-Arce (ASU), Christopher Ittner (Wharton), and Asís Martínez-Jerez (Cornell).

Lecture 6&7 Feb 6 & Feb 8 Audit Studies: Evaluation of Policy Changes

Reading: Amanda Agan, Sonja Starr, Ban the Box, Criminal Records, and Racial Discrimination: A Field Experiment, The Quarterly Journal of Economics, Volume 133, Issue 1, February 2018, Pages 191–235, https://doi.org/10.1093/qje/qjx028

Kessler, Judd B., Corinne Low, and Colin D. Sullivan. 2019. "Incentivized Resume Rating: Eliciting Employer Preferences without Deception." American Economic Review, 109 (11): 3713-44.

Lecture 8&9 Feb 13 & 15 PhD student presentation (Management): Abductive Approach

Shun Yiu "Acquisitions and Organizational Purpose," joint with Claudine Gartenberg, *forthcoming* Strategy Science

Lecture 10&11 Feb 20 & 22 Difference-in-Difference Estimation The effect of minimum wage increases on employment.

Reading & Assignment Doruk Cengiz, Arindrajit Dube, Attila Lindner, Ben Zipperer, The Effect of Minimum Wages on Low-Wage Jobs, The Quarterly Journal of Economics, Volume 134, Issue 3, August 2019, Pages 1405–1454, https://doi.org/10.1093/qje/qjz014

Lecture 12&13 Feb 27 & 29 PhD student presentation (Accounting): OLS Observational Studies

Alex Coble "Public Firm Disclosure and Private Firm Capital Raising".

Spring Break March 2-10

Lecture 14&15 March 12 & 14: Regression Discontinuity Design

Reading & Assignment: Douglas Almond, Joseph J. Doyle, Jr., Amanda E. Kowalski, Heidi Williams, Estimating Marginal Returns to Medical Care: Evidence from At-risk Newborns, The Quarterly Journal of Economics, Volume 125, Issue 2, May 2010, Pages 591–634, https://doi.org/10.1162/qjec.2010.125.2.591

Lecture 16&17 March 19 & 21: Policy Evaluation and Synthetic Control: Intended and Unintended Consequences:

Reading & Assignment Scott Cunningham, Manisha Shah, Decriminalizing Indoor Prostitution: Implications for Sexual Violence and Public Health, The Review of Economic Studies, Volume 85, Issue 3, July 2018, Pages 1683–1715, https://doi.org/10.1093/restud/rdx065

Lecture 18&19 March 26 &28 PhD Student Presentation (Health Care Management): Propensity Score Matching

Mei Lynn Hua: "Managing Behavioral Hazard: Value-Based Insurance Design and Inertia"

Lecture 20&21 April 2 & 4 PhD Student Presentation (Business Economics and Public Policy): Instrumental Variables Regression

Tom Cui "The Emergence of Exclusionary Zoning Across American Cities"

Feyrer, James. 2019. "Trade and Income—Exploiting Time Series in Geography." American Economic Journal: Applied Economics, 11 (4): 1-35.

Lecture 22&23 April 9 & 11 PhD Student Presentation (OID): Experiments

Beidi Hu "Does Constructing a Belief Distribution Truly Reduce Overconfidence?" Joint with Joe Simmons

Lecture 24&25 April 16 & 18 PhD Student Presentation (Management): Natural Language Processing

Jaeho Choi "Using machine learning to revisit the diversification–performance relationship"

Lecture 26 April 23 PhD Student Presentation (OID): Structural Estimation

Christian Kaps "Privately Owned-Battery Storage – Reshaping the Way We Do Electricity" joint with Serguei Netessine

Lecture 27 April 25 Study design to generate evidence and inform policy changes: example of peer effects

Paper & Assignment Carrell, S.E., Sacerdote, B.I. and West, J.E. (2013), From Natural Variation to Optimal Policy? The Importance of Endogenous Peer Group Formation. Econometrica, 81: 855-882. https://doi.org/10.3982/ECTA10168

Lecture 28 April 30 Student Team Presentation of study designs for peer effects research project

Team-work

Except for occasional individual quizzes, assignments are based on team-work. You will be randomly matched with class mates in your section.
You will stay with a team for three weeks after which you will be randomly matched with new team-mates.
In business and academia evidence is created through team-work and it is important for you to practice it.

You have to meet in person with your team to review your assignments. You are jointly responsible for your assignments and you will all receive the same grade.
Being a good team-mate means to prepare the material prior to the team-meeting (read the paper, slides and the assignment sheet), come to the meeting, and contribute equally to the writing of the assignment.
The core to good team-work is communication to help everybody to participate.
Email me if you have difficulty in coordinating with a team-mate.

Grading
Grading will be determined based on a combination of homework assignments as well as class participation.
Absences will adversely affect your grade. There are no exams.

Plagiarism
Whenever you copy something without attribution you enter dangerous territory! Don't do it. No Ctrl-C-Ctrl-V. Ever.

Here is the definition of *to plagiarize* according to Merriam-Webster (source: https://www.merriam-webster.com/dictionary/plagiarize) "to steal and pass off (the ideas or words of another) as one's own : use (another's production) without crediting the source; […] to commit literary theft : present as new and original an idea or product derived from an existing source."

What this means in this course is very simple: You have to write everything in this course in your own words. That is true for all assignments, the quizzes and work done in class.

All assignments will be checked for plagiarism. All documented cases of plagiarism will be reported.

Attendance
Attendance is required to all classes. All unexcused and unannounced absences will affect the calculation of your final grade. The following are excused absences: medical and family emergencies, with documentation, and exams. The following are not excused absences: interviews, trips for private or academic reasons, visits from friends or family etc. If you are unsure, please ask me or email me!

If you think you can't come to class for any reason, email me.

- One unexcused absence will be used as a tie-breaker when you are between two grades.
- Two unexcused absences will lower your grade.
- Three absences will lead to an automatic fail.

Homework assignments (70%): Each week, students will complete an assignment. Some of these are individual Except for occasional individual comprehension quizzes; students will read a scholarly research study (published article or working paper) or a set of related studies. The research will be drawn from the topics studied by the ten Wharton departments. We will discuss the research in class. After class, students will complete a *team* homework assignment. The assignments throughout the semester will ask questions that relate to foundational principles that we cover in the course.

Assignments are due on canvas by Saturday 8pm.

If you miss class for a presentation, your individual score for that assignment is zero.

If you are not contributing equally to the team assignment, your grade for that assignment is zero.

Participation (30%): Class participation is based on:

The concept of good participation is very simple: Imagine you are attending an important business meeting or interview and think about the meeting the expected behavior in that meeting.
This includes but is not limited to:
-    attendance (see above),
-    being prepared i.e. reading the required papers in advance of the class.
-    being on time and not leaving early or for long brakes.
-    Paying attention
-    Taking notes.
-    Not using electronic devices
-    participation in class discussion,
-    etc.

A special note on sleep. If you are tired in class sleep more at home in your bed before coming to class. It works for me and I promise you that it will work for you as well.

The class discussion portion of the participation grade is improved by (a) asking questions that reflect preparation for class and (b) generating ideas related to issues that arise during the discussion.