

**Economics 705
Econometrics II (Second Half)**

**Course Outline
Department of Economics - University of Wisconsin
Spring 2018
Version of March 18, 2018**

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Course meetings: MW 9:30-10:45 Psychology 105

Course description

This is the second course in a three-course sequence in Masters-level econometrics. This half of the course covers randomized control trials and related issues, duration models, quantile regression, matching and weighting estimators, and model selection and justification.

Grades

The grade for this half of the course will depend on three problem sets and a final exam. The average of the three problem set grades will count for 20% of the final grade, while the final exam will account for 80%.

Problem sets

The topics for the problem sets will be:

Randomized control trials
Quantile regression
Non-parametric regression and matching

The problem sets will consist mainly of analyzing data using the Stata statistical software package and interpreting the results.

Your write-ups for the problem sets should consist of two portions:

1. Answers to the questions, with whatever text is required to explain them. The idea is to practice writing up empirical analyses as you would for a paper.
2. A well-commented and easy-to-read Stata log file showing how you got the answers to the empirical questions.

Problem set write-ups not in this format will receive substantial grade penalties. Submit completed problem sets via canvas.

Statistical software

You can find lots of information on Stata here: <http://www.stata.com/links/resources1.html>

The following books provides useful guides to the basics of Stata:

Acock, Alan. 2016. *A Gentle Introduction to Stata, 5th Edition*. College Station: Stata Press.

Baum, Christopher. 2006. *An Introduction to Modern Econometrics Using Stata*. College Station: Stata Press.

In contrast, this book provides a Stata-centric view of some more advanced topics:

Cameron, Colin and Pravin Trivedi. 2009. *Microeconometrics Using Stata*. College Station, TX: Stata Press.

You can order this book and many others at the Stata web page: www.stata.com.

Students with disabilities

“The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.”

Students with religious observance conflicts

Please contact the instructors during the first two weeks of the semester if you have a religious observance conflict on certain dates this semester for which you will need relief.

Grievance procedure

The Department of Economics has developed a grievance procedure through which you may register comments or complaints about a course, an instructor, or a teaching assistant. The Department continues to provide a course evaluation each semester in every class. If you wish to make anonymous complaints to an instructor or teaching assistant, the appropriate vehicle is the course evaluation. If you have a disagreement with an instructor or a teaching assistant, we strongly encourage you to try to resolve the dispute with him or her directly. The grievance procedure is designed for situations where neither of these channels is appropriate.

If you wish to file a grievance, you should go to Social Science Room 7238 and request a Course Comment Sheet. When completing the comment sheet, you will need to provide a detailed statement that describes what aspects of the course you find unsatisfactory. You will need to sign the sheet and provide your student identification number, your address, and a phone where you can be reached. The Department plans to investigate comments fully and will respond in writing to complaints.

Your name, address, phone number, and student ID number will not be revealed to the instructor or teaching assistant involved and will be treated as confidential. The Department needs this information, because it may become necessary for a commenting student to have a meeting with the department chair or a nominee to gather additional information. A name and address are necessary for providing a written response.

Academic misconduct

“By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison’s community of scholars in which everyone’s academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.”

Examples of academic misconduct include, but are not limited to: cheating on an examination (e.g. copying from another student’s paper, referring to materials other than those explicitly permitted, continuing to work on an exam after the time has expired, turning in an exam for regrading after making changes to the exam), copying the homework of someone else, submitting for credit work done by someone else, stealing examinations or course materials,

tampering with the grade records or with another student's work, or knowingly and intentionally assisting another student in any of the above. Students are reminded that online sources, including anonymous or unattributed ones like Wikipedia, still need to be cited like any other source; and copying from any source without attribution is considered plagiarism.

The Department of Economics will deal with these offenses harshly following UWS14 procedures: 1. The penalty for misconduct in most cases will be removal from the course and a failing grade. 2. The department will inform the Dean of Students as required and additional sections may be applied. 3. The department will keep an internal record of misconduct incidents. This information will be made available to teaching faculty writing recommendation letters and to admission offices of the Schools of Business and of Engineering.

If you think you see incidents of misconduct, you should tell your instructor about them, in which case they will take appropriate action and protect your identity. You could also choose to contact our administrator Tammy Herbst-Koel at therbst@wisc.edu and your identity will be kept confidential.

Institutional statement on diversity:

"Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world." <https://diversity.wisc.edu/>

General readings and textbooks

The following textbooks cover some or all of the material in this half of the course. I have arranged them by their level of technical ambition, starting with the lowest. The first two are popular undergraduate texts.

Wooldridge, Jeffrey. 2015. *Econometrics: A Modern Approach*, 6th Edition. South-Western.

Stock, James and Mark Watson. 2017. *Introduction to Econometrics*, 3rd Edition. Addison-Wesley International.

Angrist, Joshua and Jörn-Steffen Pischke. 2009. *Mostly Harmless Econometrics*. Princeton: Princeton University Press.

Cameron, Colin and Pravin Trivedi. 2005. *Microeconometrics: Methods and Applications*. Cambridge University Press.

Goldberger, Arthur. 1991. *A Course in Econometrics*. Cambridge, MA: Harvard University

Press.

Greene, William. 2017. *Econometric Analysis*, 8th Edition. Pearson.

Wooldridge, Jeffrey. 2010. *Econometric Analysis of Cross Section and Panel Data*, 2nd Edition. Cambridge, MA: MIT Press.

The following handbook chapters also cover some of the material in the course.

Heckman, James, Robert LaLonde and Jeffrey Smith. 1999. "The Economics and Econometrics of Active Labor Market Programs." In Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Volume 3A. Amsterdam: North-Holland, pp. 1865-2097.

Angrist, Joshua and Alan Krueger. 1999. "Empirical Strategies in Labor Economics." In Orley Ashenfelter and David Card, eds., *Handbook of Labor Economics*, Volume 3A. Amsterdam: North-Holland, pp. 1277-1366.

These two (relatively) recent surveys are also very relevant:

Imbens, Guido and Jeffrey Wooldridge. 2009. "Recent Developments in the Econometrics of Program Evaluation." *Journal of Economic Literature* 47(1): 5-86.

Blundell, Richard and Monica Costa-Dias. 2009. "Alternative Approaches to Evaluation in Empirical Microeconomics." *Journal of Human Resources* 44(3): 565-640.

Readings in history, philosophy and interpretation

Enjoyable and interesting background reading for the course is provided by:

Stigler, Stephen. 1990. *The History of Statistics: The Measurement of Uncertainty Before 1900*. Harvard University Press.

Howson, Colin and Peter Urbach. 1993. *Scientific Reasoning: The Bayesian Approach*, 2nd Edition. Open Court Publishing Company.

The following methods debate has attracted a lot of interest and discussion. It provides some conceptual background for some of the topics considered in the Masters econometrics sequence.

Heckman, James. 2010. "Building Bridges Between Structural and Program Evaluation Approaches to Evaluating Policy." *Journal of Economic Literature* 48(2): 356-398.

Imbens, Guido. 2010. "Better LATE than Nothing: Some Comments on Deaton (2009) and Heckman and Urzua (2009)." *Journal of Economic Literature* 48(2): 399-423.

Deaton, Angus. 2010. "Instruments, Randomization and Learning about Development." *Journal*

of Economic Literature 48(2): 424-455.

And you might like:

Kennedy, Peter. 2002. "Sinning in the Basement: What are the Rules? The Ten Commandments of Applied Econometrics." *Journal of Economic Surveys* 16(4): 569-589.

The Spring 2010 issue of the *Journal of Economic Perspectives* is also devoted to a discussion of current "big picture" issues in applied econometrics.

Humor

The following paper should provide some much-needed, but still related, smiles at the end of a hard day:

Smith, Gordon and Jill Pell. 2003. "Parachute Use to Prevent Death and Major Trauma Related to Gravitational Challenge: Systematic Review of Randomized Control Trials." *British Medical Journal* 327: 1459-1461.

Reading list by topic

Readings for each topic are contained in the lecture notes themselves.

Course schedule

- 3/15 Introduction / treatment effects
- 3/19 Randomized control trials
- 3/21 Randomized control trials / multiple comparisons
- 3/26 Spring break – no meeting
- 3/28 Spring break – no meeting
- 4/2 Duration models
- 4/4 Duration models
- 4/9 Quantile regression
- 4/11 Quantile regression
- 4/16 Non-parametric regression
- 4/18 Matching and weighting estimators
- 4/23 Matching and weighting estimators
- 4/25 Matching and weighting estimators

- 4/30 Justifying conditional independence / model selection
- 5/2 Justifying conditional independence / model selection
- 5/7 Final exam