

University of Wyoming
College of Business
Department of Economics and Finance

ECON 5350
Advanced Econometric Theory I
Fall 2023

Instructor: David Aadland

Office: BU 361

Office Telephone: 766-4931

Office Hours: MW 11:30 am – 1:00 pm

Class Zoom Room: <https://uwyo.zoom.us/j/93080343295>

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Class Homepage: <http://www.aadecon.com/classes/econ5350/>

Course Description: As necessary, the course will review topics in probability theory and mathematical statistics. The course will provide an introduction to the classical linear regression model, estimation, hypothesis testing, and prediction.

Course Prerequisites: Calculus and Basic Statistics.

Primary Texts:

Econometric Analysis by William H. Greene (8th edition)

Basic Econometrics by Damodar Gujarati and Dawn Porter

A Guide to Econometrics by Peter Kennedy

Course Objectives:

The primary objective of this course is to offer an advanced introduction to econometric theory and practice. Upon completion of the entire econometrics sequence, you should be able to (i) comprehend most of the applied econometrics found in scholarly journals and (ii) initiate applied econometric analysis within your own research program.

Course Requirements:

- Computer Software Package. We will be using Matlab extensively throughout the course. Matlab is a matrix-based language that is extremely flexible and allows the user to directly program routines that are often unobserved in “black-box” software packages.
- Examinations. There will be two in-class exams: a midterm and a comprehensive final.
- Problem Sets. There will be a total of eight problem sets, which will be made available on our class webpage. The due date will be clearly printed at the top of each assignment. No late assignments will be accepted. Collaborative work is encouraged; however, each student is required to turn in an independently composed set of answers.

Grading: Examinations and problem sets will be weighted as follows:

8 Problem Sets	(80 pts)	21.1%
Midterm Exam	(100 pts)	26.3%
Final Exam	(200 pts)	52.6%
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	(380 pts)	100%

Attendance Policy: Regular attendance/participation is expected.

Academic Dishonesty Policy:

UNIREG 802, Revision 2, defines academic dishonesty as “an act attempted or performed which misrepresents one’s involvement in an academic task in any way, or permits another student to misrepresent the latter’s involvement by assisting the misrepresentation.” Academic dishonesty will not be tolerated in this class; any instances will be referred to the university’s established procedure for judging such cases, with severe penalties as found appropriate.

Disclaimer:

Subsequent changes may be made to any aspect or detail of this Syllabus if and when necessary. Any changes will be announced in class as soon as practical.

Course Outline (tentative):

- Review of Probability and Distribution Theory (as necessary)
- Review of Statistical Inference (as necessary)
- Chapter 2. The Linear Regression Model
- Chapter 3. Least Squares
- Chapter 4. The Least Squares Estimator
- Chapter 5. Hypothesis Tests and Model Selection
- Chapter 6. Functional Form, Difference in Differences, and Structural Change

Midterm Exam

- Chapter 7. Nonlinear Regression Models
- Chapter 9. The Generalized Regression Model and Heteroscedasticity
- Chapter 10. Systems of Regression Equations
- Chapter 14. Maximum Likelihood Estimation
- Chapter 20. Serial Correlation

Final Exam