

**University of Wyoming**  
**College of Business**  
**Department of Economics and Finance**

**ECON 5350**  
**Advanced Econometric Theory I**  
**Fall 2020**

**Instructor:** David Aadland

**Office:** BU 261

**Telephone:** Office #: 766-4931

**Office Hours:** TBD

**Email:** [aadland@uwyo.edu](mailto:aadland@uwyo.edu)

**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 (8<sup>th</sup> 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**

**COVID-19 Policies** – during this pandemic, you must abide by all UW policies and public health rules put forward by the City of Laramie (or by Natrona County if at UW-Casper), the University of Wyoming and the State of Wyoming to promote the health and well-being of fellow students and your own personal self-care. The current policy is provided for review at: <https://www.uwyo.edu/alerts/campus-return/index.html>

As with other disruptive behaviors, we have the right to dismiss you from the classroom (Zoom and physical), or other class activities if you fail to abide by these COVID-19 policies. These behaviors will be referred to the Dean of Students Office using the UWYO Cares Reporting Form for Student Code of Conduct processes ([https://cm.maxient.com/reportingform.php?UnivofWyoming&layout\\_id=5](https://cm.maxient.com/reportingform.php?UnivofWyoming&layout_id=5)).

**Syllabus Changes:** I will alert you to any possible course format changes in response to UW decisions about community safety during the semester.

**HyFlex, Zoom, and WyoCourses expectations:**

As with all UW coursework, this course will be educational and useful to you. I will respond to questions, concerns, and feedback in a timely manner.

Your responsibilities:

- Give and receive feedback from me and your classmates respectfully and constructively in all interactions. This includes in Zoom chats, on WyoCourses boards, and within physical classroom spaces.
- Actively engage in civil discourse in a respectful manner. Use professional language in all course related forums.
- Communicate professionally. Whenever you send class-related email or messages, please include a clear, specific subject line and use the body of the email or message to explain the purpose for the email and any attached materials. Conduct yourself professionally.
- Meet assignment deadlines. We expect that you're interacting with course material multiple times during the week.
- Ask for help when you need it. For academic assistance for this course please contact me for available resources. For Dean of Students assistance please see: <https://www.uwyo.edu/dos/student-resources/covid-19-student-resources.html>
- Please let us know if you notice another student who needs help in our (anonymous) WyoCares referral option (<https://www.uwyo.edu/dos/students-concern/index.html>).

**Information Technology (IT):** If you have any IT related challenges, please contact the UWIT Service Center:

<https://uwyo.teamdynamix.com/TDClient/1940/Portal/Requests/ServiceDet?ID=8890>