

# AGEC 740: Advanced Econometric Applications in Agribusiness Syllabus, Fall 2021

University of Tennessee, Martin

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Office Hours: By appointment  
Credits: 3.0  
Prerequisites:

## Course Description:

The advanced study of agribusiness research methodology using econometric tools to solve agribusiness problems. Advanced statistical methods, including multiple regression analysis, binary-choice models and other estimation techniques for agribusiness analysis will be presented; estimation issues such as multicollinearity, autocorrelation, heteroskedasticity, and related problems will also be addressed.

## Course Objectives and Learning Outcomes:

The primary objective of this course is to familiarize students with some of the econometric tools available to conduct empirical agribusiness research as well as the issues that can arise in this analysis. Upon successful completion of this course, students will:

- have a solid working knowledge of regression analysis, its strengths and shortcomings, and how to identify and resolve basic issues;
- have the ability to interpret results and critically evaluate outcomes;
- understand which econometrics models are best used, given the types of problems they hope to solve and the data that are available;
- have developed some basic tools and coding capabilities with one or more statistical packages; and
- be able to make use of econometric models in the context of answering specific research questions.

## Course Resources:

This course will require students to have access to a computer as well as access to high-speed internet. Students will need speakers for lectures, word-processing and statistical software, and any other materials traditionally required for an online course.

## Course Design:

This course will be taught online. New material will be assigned most weeks with occasional problem sets covering multiple sections. Exam weeks will be free of new content, but there may be deadlines for problem sets and research benchmarks that fall within those weeks. Plan ahead.

The instructor will be out of the country from September 15 to October 17. This should not affect online courses, but it is worth noting if responses lag slightly due to time zone differences.

### **Recommended Materials:**

#### Software:

This course will utilize Stata for instruction, and the department has opted to provide students in this course with a 6-month license to Stata (through your student fees). The instructor will not require that students use this software, but students must provide the name of the software package and the necessary code for any problem sets, etc., so that the instructor can replicate students' work. *The professor will not guarantee partial credit on assignments utilizing a statistical package with which he is unfamiliar or to which he does not have access.*

If you would like to use Stata as your statistical package for the semester, please email the instructor with your name, address, and a photo of your UT Martin Student ID card (or another form of UTM ID that verifies your active student status). Our staff will then notify you once a copy/license has been purchased on your behalf, and all the necessary instructions for download and installation will be provided at that time.

#### Recommended Texts:

*Any of these may be useful to students as the course will draw significantly from these (among other) resources.*

- ***Using Econometrics: A Practical Guide, 7<sup>th</sup> Edition. A.H. Studenmund. Pearson, 2017. \*\*this book is listed as a required text for this class***
- *Introduction to Econometrics, 4<sup>th</sup> Edition. James H. Stock and Mark W. Watson. Pearson, 2019.*
- *Mostly Harmless Econometrics: An Empiricist's Companion. Joshua D. Angrist and Jörn-Steffen Pischke. Princeton University Press, 2008.*
- *Guide to Econometrics, 6<sup>th</sup> Edition. Peter Kennedy. Wiley-Blackwell, 2008.*
- *Introduction to Modern Econometrics Using Stata. Christopher F. Baum. Stata Press, 2006.*

### **Additional Readings:**

Any other literature distributed throughout the semester is considered required unless otherwise stated by the instructor.

### **Assessments:**

Participation: Participation points will be available in two ways. The video lectures will have internal quizzes that will be included as participation points. You will have as many attempts as you like on these, so this is a very simple way to boost your participation score. There will also be group discussions in this course (as well as an initial participation exercise to be completed individually). Regarding group discussions, everyone is required to participate and grades will be

based on the quality and thoughtfulness of your engagement – a rubric will be attached to each discussion.

Problem Sets: There will be at least one problem set for each section (and possibly more). The problem set will require students to use statistical software to provide the answers to specific questions, and students will be required to turn in both written answers (with explanations) and their code and data. In other words, the instructor needs to be able to replicate the students' work and evaluate the process and explanation to help students learn and to assign grades. Requirements will be outlined in more detail in the individual problem sets.

Exams: There will be three *noncumulative* exams. The nature of the material covered in this course, however, is such that concepts build upon each other and material often is repeated throughout the term. To ensure student success in this course, it is essential that students keep up with the material. For example, students should expect that the third exam will include necessary content from the early sections of the course, but the questions will be tailored largely to the content in the third section of the course.

Research Project: This course will require students to conduct some independent econometric analysis and to write up preliminary results. This is not meant to be a finalized paper (though it may be), but the tools of the class should be utilized in an attempt to answer some formal question relating to food or agriculture that can be tested empirically. There will be multiple benchmarks throughout the semester to keep students on track to meet the final deadline. An empirical paper (or a draft) should roughly follow the outline provided in the supplemental handout.

*Benchmark #1: Research Topic.* In the first few weeks of class, students should submit a brief explanation of a topic area in which they would like to work. This is due on **Friday, September 24, 2021 at 5 p.m. Central Time.** The instructor will address these in a timely manner, offering suggestions where possible, to help students meet the second benchmark.

*Benchmark #2: Research Question and Data.* Students should narrow their research topic to a specific research question that they hope to answer. It is crucial that students find data ahead of time to make sure that the question can be answered empirically – using data – within the time constraints of this course. In other words, do not plan to create and administer a survey, code the data, and analyze the data within the confines of the semester unless you have already begun the process. Students should submit the one- or two-sentence research question in Canvas and upload the data by **Friday, October 15, 2021 at 5 p.m. Central Time.** For some students, this will be the most difficult component of the project. If you have questions or need advice, do not hesitate to contact me.

*Benchmark #3: Rough Draft and Preliminary Code.* Students must submit a rough draft of the paper as well as the preliminary code for whatever software package the student has selected (so that the instructor can replicate the econometric analysis) by **Friday, November**

**19, 2021 at 5 p.m. Central Time.** The goal here is to allow the instructor to observe each student's progress and to help guide each student toward a more robust analysis and a better overall paper.

*Benchmark #4: Final Draft and Code.* Students must submit a final draft and final code that incorporate the instructor's feedback from the initial submission of the rough draft and preliminary code. The final draft and code are due by **Friday, December 3, 2021 at 5 p.m. Central Time.**

Note that this paper is an excellent opportunity to develop your research for your master's thesis/project. Additionally, if the instructor finds your draft and the quality of your project to meet his standards for scholarship, he may request that you complete, revise, or extend this work to submit to academic conferences and/or academic publications. This will, of course, only occur with the express written consent of the student prior to any submission, and the student retains sole authorship/ownership unless collaboration is significant enough to warrant coauthorship with other students or faculty.

**Exam Dates (subject to change):**

Exam #1	Week 5, Sept. 20-26
Exam #2	Week 10, Oct. 25-31
Exam #3	Finals Week, Dec. 6-10

**Grading Policy:**

Participation	<b>25%</b>
Problem Sets	<b>10%</b>
Exams (3)	<b>30%</b>
Research Project	<b>35%</b>

Course grades will be determined using the following scale:

A	90–100%
B	80–89.99%
C	70–79.99%
D	60–69.99%
F	0–59.99%

Scores will be updated on Canvas on a regular basis.

**Contacting the Instructor:**

Students are encouraged to ask questions via the Discussion board in Canvas. This is important as students often have similar questions and the Discussion board provides the most efficient option for the instructor to answer questions for the entire class. Students may also ask questions during office hours and by email. **If you send an email, please include "AGEC740 (OL)" in the subject line.** The instructor will usually answer all emails within one business day (unless I

am away from the office). You should try to complete all assignments well in advance of deadlines in case you have questions.

### **Attendance Policy & Classroom Expectations:**

**Be Prepared:** Participation is included in the course grade, so skipping discussions or readings/lectures is usually a suboptimal decision. Students are expected to complete all assigned readings prior to the class period. Referring to lectures, videos, and any assigned readings will give students a better understanding of the course content and make for more active and meaningful class discussions. Class participation and discussion enhances student learning.

**Be Professional:** Each student is expected to be a positive member of and contributor to the class. Students are expected to be courteous and participate in a manner that facilitates a positive learning environment for everyone. Mutual respect and collaborative effort are essential. Regarding professional communication, emails (and written class discussions/communications) should *never* include text-like abbreviations or slang (for example, “LOL”). It is beneficial for you as a student to practice formal communication to better prepare for a professional career. An email should include a salutation or greeting, a body with proper and appropriate grammar, and a signature. Please practice formal communication with other students and certainly with all of your UTM professors!

**Be Honest:** In addition to the University policies outlined below, I include a comment on honesty. Cheating will not be tolerated in this course. This includes acquiring answers, using “cheat sheets,” cell/smart phones, or providing answers to others during examinations or assigned work, unless otherwise specified by the instructor. Presenting work or ideas of another individual without giving credit and proper documentation is plagiarism. According to Richard L. Saunders from the UTM Paul Meek Library, “Plagiarism is using others’ ideas or words without clearly acknowledging the source. Boiled down, plagiarism means passing off someone else’s work or ideas as your own, whether or not the source is identified. Copying all or part of a Website, document, or presenting an image without a correct citation, constitutes plagiarism.” Consult the following Website if you have questions about plagiarism: <http://www.utm.edu/departments/library/tutorials/plagiarism/>. Cheating or plagiarism is a serious offense. If you are caught cheating in any form you will receive an automatic failing grade for the course and the case will be referred to the Office of Student Conduct.

### **Instructor Responsibilities:**

The instructor agrees to be prepared, professional, respectful, honest, and fair. It is the instructor’s responsibility to ensure that students have the opportunity to gain a clear understanding of the course material and to be fair and consistent in grading. The instructor agrees to be available for additional help and to be conscious of the learning pace of the class (and adapt the pace as necessary). I am here to help you! Please do not hesitate to contact me if you need extra assistance.

### **Disclaimer:**

This syllabus may be adjusted during the semester at the instructor’s discretion.

## University Policies & Resources

**Academic Integrity:** The University of Tennessee at Martin has chosen as its primary objective quality undergraduate education. Commitment to this objective must include an obligation by all members of the University community to promote and protect the highest standards of integrity in study, research, instruction and evaluation. Dishonesty or unethical behavior does not belong at an institution dedicated to the promotion of knowledge and learning. Integrity of the academic process requires fair and impartial evaluation by faculty and honest academic conduct by students. Specific integrity attributes can be found at:

[http://www.utm.edu/departments/conduct/new\\_academic\\_integrity.php](http://www.utm.edu/departments/conduct/new_academic_integrity.php).

**Standard of Conduct:** When persons enroll in the University of Tennessee at Martin, they retain the rights and duties of a citizen. Additionally, they must assume the duties and observe the regulations imposed by the University community. Specific conduct attributes can be found at: <http://www.utm.edu/departments/conduct/conduct.php>.

**Disability Services:** The University of Tennessee provides reasonable accommodations (academic adjustments and auxiliary aids) to ensure equal access to educational content and university programs for students with disabilities. If you have a disability that may require assistance or accommodation, or if you have questions related to any accommodations for testing, notetaking, reading, etc., please speak with the instructor as soon as possible. Students who are eligible for and who request accommodations through the Office of Disability Services must provide instructors with a **letter of accommodation** (sent directly from the Student Success Center). If you need a letter of accommodation for the semester or if you think you may have a learning disability, contact the Office of Disability Services located in the Student Success Center, 203 Clement Hall, (731) 881-7605 (<https://www.utm.edu/departments/disabilities/>).

**Emergency Alerts:** Though the probability of incurring a campus emergency is minimal, students are encouraged to familiarize themselves with various emergency alerts and evacuation procedures in case of emergency. University alerts and guidelines are available at:

<https://www.utm.edu/alerts/> (Emergency Response Plan at [https://www.utm.edu/\\_pdfs/Emergency%20Response%20Plan%20-%20Revised%20Dec%202016%20-%20MEDIA%20Version.pdf](https://www.utm.edu/_pdfs/Emergency%20Response%20Plan%20-%20Revised%20Dec%202016%20-%20MEDIA%20Version.pdf)).

**Non-Discrimination Statement:** The University of Tennessee at Martin is an equal employment opportunity institution and does not discriminate based upon race, color, or national origin. The University's Office of Equity and Diversity has adopted a policy and procedures to provide students and employees, who feel that they have experienced discrimination but are uncertain as to whether a complaint is justified or whether they wish to initiate a formal complaint, the opportunity to discuss their concerns confidentially and informally with the Equity and Diversity Officer/Title VI Coordinator for prompt and equitable resolution of discrimination complaints.

All qualified applicants will receive equal consideration for employment and admission without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, genetic information, veteran status, and parental status. In accordance with the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, the University of Tennessee at Martin affirmatively states that it does not discriminate on the basis of race, sex, or disability in its education programs and activities, and this policy extends to employment by the university. Inquiries and charges of violation of Title VI (race, color, and national origin), Title IX (sex), Section 504 (disability), the ADA (disability), the Age Discrimination in Employment Act (age), sexual orientation, or veteran status should be directed to the Office of Equity and Diversity, 544 University Street, #303, Martin, TN 38238, telephone 731-881-3505. Requests for accommodation of a disability should be directed to the ADA Coordinator at the Office of Equity and Diversity (<https://www.utm.edu/departments/equalopp/>).

**Useful Resources:**

The **Hortense Parrish Writing Center** (<http://www.utm.edu/departments/writingcenter/>) offers free, non-credit, tutorial instruction to UTM students who need help with any stage of the writing process, including brainstorming, outlining, organization, drafting, revision, research, creative writing, source citation, and grammar. Walk-in and virtual tutoring appointments (via Zoom) are available, so feel free to stop by their office located at 209 Andy Holt Humanities Building, or send them a virtual-tutoring appointment request ([owl@utm.edu](mailto:owl@utm.edu)). Questions can be sent to the same email address or you can call (731) 881-7277.

The Paul Meek Library (<https://www.utm.edu/departments/library/information/>) is an excellent resource for students with skilled staff available to help students find what they need.

In addition to your department faculty advisor, the University offers Student Support Resources ([https://www.utm.edu/departments/ecos/student\\_support.php](https://www.utm.edu/departments/ecos/student_support.php)), including help and information on registration, fees, financial aid, and student health and counseling services. You are welcome to talk with your faculty advisor or any instructor regarding issues you may be facing.

# **AGEC 740: Advanced Econometric Applications in Agribusiness**

## **Tentative Course Schedule, Fall 2021**

### **Section I: Statistics and Linear Regression: Introduction to the Tools of Analysis**

- What is econometrics?
- Review of basic statistics and types of data
- Linear regression
  - Ordinary Least Squares
  - Specification

Exam #1

### **Section II: Issues in Regression Analysis: Problems and Resolutions**

- Heteroskedasticity and autocorrelation
- Instrumental variables
- Multicollinearity
- Dummy variables

Exam #2

### **Section III: Further Econometric Analysis: Techniques and Special Topics**

- Qualitative and limited dependent variables
- Time series analysis
- Panel data
- Other techniques and advanced topics relating to individual research projects

Exam #3

Material from Section III may change depending on students' individual research projects and general interest.