AGEC 54003: Quantitative Methods for Agribusiness
COURSE SYLLABUS

Instructor: Dr. Jada Thompson
Office: 216 Agriculture Building
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Class hours: MWF 8:35 –9:25 pm, AGRI 301A
Office hours: Monday, 2:00 to 3:00 p.m. or by appointment (email for appointment).

Student Learning Objectives

- **Understand and apply major quantitative tools** used by applied economists, business consultants, and researchers in agricultural business, farm firms, corporations, and public sector policy. Tools include:
    - Regression analysis
    - Mathematical (linear) programming
    - Stochastic simulation modeling (risk analysis)
    - Simulated optimization
- **Develop hands-on experience** with these tools through application-oriented problem solving using decision-making software.
- **Gain conceptual knowledge** linking quantitative tools to economic theory, enhancing the understanding of their practical use in real-world scenarios.
- **Build marketable skills** by learning sophisticated quantitative techniques needed in complex economic and business systems.
- **Apply economic theory** to problem-solving research through three major quantitative techniques:
    - **Linear regression models** (Ordinary Least Squares, OLS) to estimate and interpret economic and business relationships.
    - **Mathematical programming** (linear programming) to solve complex optimization problems using the simplex algorithm, demonstrating marginal analysis.
    - **Stochastic simulation** (Monte Carlo) and other methods (E-V analysis, decision theory, stochastic dominance) to analyze risk and uncertainty when perfect knowledge assumptions are invalid.
- **Prepare for future roles** as analysts and managers by understanding how to read, interpret, and apply research findings, literature, and consultant reports in agricultural and business economics.

Required Prerequisite(s): Graduate Standing

What I expect from <u>YOU</u>:	**What you should expect from <u>ME</u>:**
• Attend class regularly • Participate in discussions • Complete all assignments before class • Treat your classmates with respect • Honor deadlines	• Come to class prepared • Make the class interesting and engaging • Treat you fairly and respectfully • Be clear about assignments and grading

Grading
The final grade will be assigned using the following scale. The instructor reserves the right to these curve standards but there is no guarantee this will happen.

Grade Scale

A	90-100%	D	60-69%
B	80-89%	F	<60%
C	70-79%		

Your grade will be based on quizzes/homework, in-class discussions, and projects. The weights assigned to these are as follows:

Item	Weight
Homework and Quizzes	50%
Project and Written Reports	50%
Total	**100%**

Exams:
No exams in this course. Grades are assigned on homework and projects

Quizzes and/or Homework Assignments:
Homework assignment and/or quizzes will be given throughout the semester. Quizzes may be unannounced. Given the fact this class is empirically based, most of the earned grade will come from analyzing and synthesizing datasets.

Conditions regarding late work: Late work will be penalized 25% per day and will not be accepted after the beginning of the next class period on which they were due.

Projects:
There will be multiple projects throughout the semester dealing with each of the quantitative tools covered in this course, which will require students to (1) develop and synthesize a problem of their choosing, (2) find data to analyze said problem, and (3) develop a written synopsis of the problem. There are no set guidelines of what a project should mirror, that is up to the student with the notion they are being graded against their peers. Thus, hard work and professionalism pay off. Projects are intended to replace exams in that students are required to take the knowledge they have learned on a topic and apply it to real-world situations. Unlike exams where there is typically a right or wrong answer, these projects are designed to analyze: (1) the student's skill set using quantitative tools (2) the students' knowledge of how to apply those tools in real-world situations, and (3) the student's ability to transfer the somewhat obtuse notion of quantitative economics into a professional report.

Email Policy
If you talk to me about something in class that required action, you are expected to follow-up with an email. This provides a trail for both of us. If there isn't an email, you cannot guarantee any action on my part.

Changes to Course
The instructor reserves the right to revise the course during the semester with adequate notice to the students.

Academic Integrity
As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and integrity prevail. Each University of Arkansas student is required to abide by the University's 'Academic Integrity Policy' which may be found at here.

Artificial Intelligence

Students have permission to use generative artificial intelligence tools to complete academic work in this course but must provide any prompt used and appropriately cite. More than 50% of any text should be original writing. Please be aware of the limitations of such tools. Additionally, you are expected to properly attribute any content generated by artificial intelligence tools using Chicago format. Please refer to the examples/guidance provided by this Guide on AI for more information. The use of content generated by AI, without proper citation, will be considered academic dishonesty and reported to the Office of Academic Initiatives and Integrity.

Disability Services
Any student who feels they may need an accommodation based on the impact of a disability should contact the Center for Educational Access (CEA). Please request your accommodations letter early in the semester and contact me privately, so that we have adequate time to arrange your approved academic accommodations.

If you have not yet established services through CEA but have a documented disability and require accommodations (conditions include but not limited to: mental health, attention-related, learning, vision, hearing, physical, health or temporary impacts), contact CEA directly to set up an Access Plan. CEA facilitates the interactive process that establishes reasonable accommodations. For more information on CEA registration procedures contact 479–575–3104, ada@uark.edu or visit https://cea.uark.edu.

If you got this far, email a photo of a cute animal by the end of the first week of classes and get 1 bonus point on the first homework.

Emergency Procedures
Many types of emergencies can occur on campus; instructions for specific emergencies such as severe weather, active shooter, or fire can be found at https://safety.uark.edu/emergency-preparedness/

Inclement Weather
Classes will be canceled if the university closes. Alerts for this go out through RazAlert, learn more and to sign up here.

Technology
If you have technology issues, contact 575-2905 or 575-4357.

You can check out equipment and you can get access to free software at https://help.uark.edu/ using the Get Software link including Office 365 suite (e.g., Word, PowerPoint, Excel, Teams).