

AGEC 2403. Quantitative Tools for Agribusiness

Instructor: Qiuqiong Huang

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Office hours (@ 221 Agriculture Building): Flexible. Usually afternoons [2-5pm] before problem set due dates.

By Appointment [You can always stop in and ask questions anytime the light is on in my office. If I am busy when you stop by, we will arrange for a mutually convenient time to meet. It is also a good idea to email or phone to schedule appointments].

TA: Yefan Nian // ynian@uark.edu

Email TA if there is an error in grading (e.g., points added up incorrectly; you think you did not get partial credits).

Lecture hours: Tuesdays and Thursdays, 9:30AM - 10:45AM Graduate Education 0343

Objectives of the course: Understand basic statistical terms such as mean and standard deviation; Learn basic statistical analysis skills including data description, hypotheses testing and linear regressions; Correctly interpret statistical results and apply statistics to examine real-world problems.

Prerequisites: Principles of Microeconomics (AGEC 1103 or ECON 2023 or ECON 2143); Survey of Calculus (MATH 2043) or Finite Mathematics (MATH 2053).

Required Textbook: Lind, D. A., W. G. Marchal, and S. A. Wathen. *Statistical Techniques in Business & Economics*, 16th ed. McGraw-Hill Irwin, 2014

Note you could alternatively use the 14th or 15th edition of this textbook. Table of Content of the 16th edition is posted on Blackboard for you to check page numbers of different editions.

Textbook Learning Resources:

- Answers to odd-numbered exercises are at the end of the textbook.
- The textbook publisher provides online multiple choice quizzes for each chapter. Your answers will be graded automatically. It is a good way to test your knowledge. Below is the link:
http://highered.mheducation.com/sites/0078020522/student_view0/index.html

Software: Excel will be used for the class computer exercises. For those of you who do not have a personal computer, you may go to any of the labs on campus and use the computers there or any computer that has Excel. Excel version 10 or above is recommended.

Course website: Most course materials will be posted on **Blackboard** (Syllabus, Class notes, Problem Set answers, In-class exercises answers, Exam info etc.)

Class marks/grades are recorded on Blackboard so that students can verify that the marks have been recorded correctly. But, a current class grade is not reported on Blackboard so do not even look for it. With my drop policy, it is too difficult to get an up-to-the-moment exact grade. Because the course is at the 2000 level, an early grade will be issued around the 6th or 7th week of the semester.

Problem Sets (8 Problem Sets)

- **LATE PROBLEM SETS:** In order to allow me to post answer keys promptly on Blackboard and allow the TA to return graded Problem Sets quickly, **LATE PROBLEM SETS WILL NOT BE ACCEPTED IN GENERAL.** If you have some justifiable reasons such as medical reasons (doctor's proof required) **AND WITH MY PERMISSION**, I will allow late Problem Sets up to the time the graded Problem Sets are returned by the TA and the score on your late Problem Set will be discounted by 50%. Problem Sets **ARE NOT ACCEPTED** once answers are posted on Blackboard.

In-Class Exercises: In most classes, short exercises will be provided. See Guideline for In-Class Exercise. Notice this is also my way to check your attendance. If you do not attend a class, your score for the in-class exercise is zero. If you have some justifiable reasons such as medical reasons (doctor's proof required) **AND WITH MY PERMISSION**, you will be given a make-up in-class exercise later in the semester.

EXAMS

- Exams will be in class and closed books. Students must take the exams at the designated time unless under extreme conditions such as medical reasons (doctor's proof required) **AND WITH MY PERMISSION.** Arrangements will be made for you to take the exam (usually before the exam date) after you have obtained my permission. **IF YOU SKIP ANY EXAM WITHOUT OBTAINING MY PERMISSION BEFOREHAND, YOUR DEFAULT GRADE FOR THE EXAM IS ZERO.**

Class Project: A project that uses all the data skills learned in the class to answer a question. Project guideline will be provided later.

Grading policy

Total points for the class

Problem Sets	24
In-class Exercises	13
3 EXAMS	15×3
Class Project	18
Total Points	100

- ❖ Please note the TA can deduct your points if your handwriting is not legible.

The course is graded on the following scale where S is the student's class score:

A	$S \geq 90$
A-	$87 \leq S < 90$
B+	$83 \leq S < 87$
B	$80 \leq S < 83$
B-	$77 \leq S < 80$
C+	$73 \leq S < 77$
C	$70 \leq S < 73$
C-	$67 \leq S < 70$
D+	$64 \leq S < 67$
D	$62 \leq S < 64$
D-	$60 \leq S < 62$
F	$S < 60$

- Each Problem Set is 3 points. There are 8 problem sets in total. The lowest problem set score will be dropped. Total = 3×10 Problem Sets = 30.
- Guideline for In-Class Exercise explains the grading of in-class exercises.
- Students will be allowed to bring in a **"cheat sheet"** for each EXAM (one 8.5 x 11 inches sheet of paper, front and back).
- The class grade calculated as of December 15 is FINAL. No change will be made.

Tentative Schedule and Due Dates

Dates		Due Date	Topic	Textbook chapter
T	Aug 23		Introduction	Chap 1
Th	Aug 25		Describe Frequency of Data using Tables and Charts (PS 1)	Chap 2
T	Aug 30		Describe Frequency of Data using Tables and Charts (PS 1)	Chap 2
Th	Sep 1	PS 1	Describe Central Tendency and Dispersion of Data (PS 2)	Chap 3
T	Sep 6		Describe Central Tendency and Dispersion of Data (PS 2)	Chap 3
Th	Sep 8		Describe Relative Position of Data (Percentiles) (PS 2)	Chap 4
T	Sep 13	PS 2	Review for EXAM 1	
Th	Sep 15		Basics of Probability; Discrete Probability Distributions (PS 3)	Chaps 5& 6
T	Sep 20	EXAM 1 (Covers Chapters 2 – 4)		
Th	Sep 22		Discrete Probability Distributions (PS 3)	Chap 6
T	Sep 27	PS 3	Continuous Probability Distributions (PS 4)	Chap 7
Th	Sep 29		Continuous Probability Distributions (PS 4)	Chap 7
T	Oct 4		Continuous Probability Distributions (PS 4)	Chap 7
Th	Oct 6	PS 4	Sampling Distribution; Central Limit Theorem (PS 5)	Chap 8
T	Oct 11		Estimation and Confidence Intervals (PS 5)	Chap 9
Th	Oct 13	PS 5	Review for EXAM 2	
T	Oct 18	Fall Break		
Th	Oct 20	EXAM 2 (Covers Chapters 5 – 9)		
T	Oct 25		One-Sample Tests of Hypothesis (PS 6)	Chap 10
Th	Oct 27		One-Sample Tests of Hypothesis (PS 6)	Chap 10
T	Nov 1		One-Sample Tests of Hypothesis (PS 6)	Chap 10
Th	Nov 3	PS 6	Correlation and Linear Regression (PS 7)	Chap 13
T	Nov 8		Correlation and Linear Regression (PS 7)	Chap 13
Th	Nov 10	PS 7	Multiple Regression Analysis (PS 8)	Chap 14
T	Nov 15		Multiple Regression Analysis (PS 8)	Chap 14
Th	Nov 17	PS 8	Review for EXAM 3	
T	Nov 22		Class Project Guideline /Lab Session	
Th	Nov 24	Thanksgiving Holiday		
T	Nov 29	EXAM 3 (Covers Chapters 10, 13,14)		
Th	Dec 1		Project Lab Session	
T	Dec 6		Project Presentation	
Th	Dec 8		Project Presentation	
Th	Dec 15	8:00 - 10:00am	Project Presentation	

PS is short for Problem Set.

Please hand in your Problem Sets to the instructor **before class** on due dates.

Coverage of each lecture and Due dates may vary depending on the progress of the class.

Textbook Readings you can **SKIP**

Chap 1	Levels of Measurement
Chap 3	The Weighted Mean; The Geometric Mean; The Mean and Standard Deviation of Grouped Data
Chap 4	Dot Plots; Stem-and-Leaf Display; Skewness; Relationship between Two Variables; Contingency Tables
Chap 5	Rules of Addition for Computing Probabilities Rules of Multiplication to Calculate Probability Contingency Tables Bayes' Theorem Principles of Counting
Chap 6	Hypergeometric Probability Distribution Poisson Probability Distribution
Chap 7	The Normal Approximation to the Binomial The Family of Exponential Distributions
Chap 8	Sampling methods
Chap 9	Sections on pages 297-306
Chap 10	Type II Error
Chap 13	Interval estimates of Prediction
Chap 14	Sections on pages 494-507

Classroom Rules

- If you are late, please come in quietly (but do not skip any class even if you are late). You should remain in the classroom until the instructor indicates the class is over. If you have a particular reason to leave early, you should ask for the instructor's permission first before class begins.
- During classes, please turn off any devices such as laptop, tablet, iPad or phones. No chatting is allowed, especially when I am speaking.
- Questions relevant to classes are more than welcome. We will have plenty of time for discussions and practices in class.
- **Academic Integrity—Academic Honesty.** "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 individual integrity prevail. Each University of Arkansas student is required to be familiar with and abide by the University's '[Academic Integrity Policy](#)' at honesty.uark.edu. Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor." Any scholastic dishonesty of yours will result in points taken off your Problem Sets or exams or even an F for the class grade. If you are caught cheating, campus procedures will be followed to exact the appropriate punishment.

To do well in the class:

- Attend every class.
- Read the textbook chapter before classes.
- Read the class notes posted on the class Blackboard site before classes.
- Ask questions in class. Remember the "No question is stupid" rule.
- Work on problem sets and turn them in on time.
- Visit office hours whenever you have questions.
- Communicate with the instructor about any difficulties you encounter or any suggestions you have to improve the class.

Emergency Preparedness— The University of Arkansas is prepared for a wide range of emergencies. Detailed information and contact numbers: <http://emergency.uark.edu/>

Inclement Weather— We will follow the campus's inclement weather policy (link below). If campus is closed, no lecture will be given. No assignment would be graded down in such a case and an exam would be re-scheduled. During inclement weather the instructor will try to communicate with students via e-mail. <http://emergency.uark.edu/>

RazALERT— The University of Arkansas has a campus-wide alert system for any hazardous conditions that may arise on campus. To learn more and to sign up: <https://emergency.uark.edu/emergency-notification-system/index.php>

Academic Support— A complete list and brief description of academic support programs can be found on the University's Academic Support site, along with links to the specific services, hours, and locations. The instructor can assist you with finding and using the support services that will help you be successful. <http://www.uark.edu/academics/academic-support.php>

Learning Disabilities— Students with learning disabilities will be accommodated in accordance with campus policies. Students with such disabilities should contact the instructor early in the semester so that the means of accommodation can be arranged.