

University of Arkansas  
Fayetteville, Arkansas  
Spring 2008

AEAB  
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AGEC 2403  
Quantitative Methods  
1:30 – 2:20 p.m. MWF  
AGRI 301A

### Course Description

Modern agricultural business management requires quantitative reasoning and analysis in several dimensions. This course equips the student with the necessary tools to describe large numbers of observations in summary form both in the terms of parameters of interest such as measures of central tendency and dispersion, as well as how to graphically display characteristics of interest. Basic notions of probability are presented and applied to problems in agricultural business. Probabilistic concepts provide the foundation for statistical inference which is presented in such a way that the student will be capable of elementary statistical analysis. In the final part of the course concepts of optimization vital to managerial decision making are presented if time permits.

### Value of the Course

First is the ability to effectively condense a large number of observations into tables or graphs that clearly and persuasively characterize those aspects of data (distribution) that are relevant to the topic of interest. Second is the ability to understand the nature of probabilistic events and the expected outcomes and varieties of such events. Third is the ability to understand statistical inference and be able to effectively critique the applicability of the conclusions of a study. An important aspect of this is to understand sampling and the implications of sampling methods for a given experiment. Finally, optimization techniques are introduced if time permits.

### Course Objectives

Most students in this class will not become professional statisticians. But throughout your professional and personal lives you will have to interpret a constant stream of quantitative information and results of statistical inference. Benjamin Disraeli, a nineteenth century Prime Minister of England, is often quoted as having said: "There are three kinds of lies: lies, damned lies and statistics!". You will have to sort through many claims based on quantitative data and it is the goal of this course to make you a more informed consumer of the flood of quantitative information that is so characteristic of modern business and living.

### Web Site Information

This course is being taught in a quasi-electronic mode and all materials--syllabus, reading list, homeworks--will be on the WebCT. This can be accessed from any computer in the world that has Internet access. To do this you first type in:

[http://courses.uark.edu/webct/ticket/ticketLogin?action=print\\_login&request\\_uri=/webct/homearea/homearea%3F](http://courses.uark.edu/webct/ticket/ticketLogin?action=print_login&request_uri=/webct/homearea/homearea%3F)

and then log in and follow instructions to get to AGEC 2403. Note: the instructor will not give out his own lecture notes under any circumstances. If a student misses class, they can get notes from another student in the class or rely on the Power Point outline used in class and available on the CD-ROM in their textbook.

### Text

Lind, D. A., W. G. Marchal, and S. A. Wathen. *Statistical Techniques in Business & Economics*, 13<sup>th</sup> ed. McGraw-Hill Irwin, New York, 2008.

Reading Assignments: A reading list will be distributed. Students are urged to read assignments before the class period.

### Class Procedures

There will be three 50 minute lectures each week except those weeks having hourly exams. Quizzes will be given at the beginning of class on a sporadic, unannounced basis. There are no make-ups of missed quizzes (that is why students get to drop the three lowest of their quiz or homework scores, see below.)

### Cell Phones

Please turn off all cell phones before coming to class. Cell phones that ring may be confiscated for the remainder of class period.

### Office Hours

Formally my office hours are Tuesday, 1:30-2:30 p.m. and Wednesday, 10-11 a.m. However, feel free to 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. If you set an appointment and subsequently find out you cannot make it, please call my office and leave a message to that effect or send an e-mail.

### Attendance Policy

None. Take the quizzes, exams, and do the homework. If you are going to come to class late or leave early, please sit on the side of the classroom by the door.

### Quizzes and Examinations

There will be between eight to twelve quizzes, three midterm examinations and one final examination. The midterms will be 50 minutes on February 11, March 13-15, and April 9. The final exam will be two hours in length. The final will be given on Wednesday, May 8, from 3:00 a.m. to 5:00 p.m. All exams will be written and the student will be allowed to bring in one 8 and a half by eleven sheet of paper with notes as a "cheat sheet" for each midterm and two sheets for the final exam.

The final exam counts 40 percent of the grade. Each of the two highest midterm grades count 20 percent of the grade, quizzes and homework count 20 percent. Students will drop their low midterm score and three lowest homework/quiz scores. There will be **no** make-up midterms or quizzes. Homework will not be accepted any later than 4:45 p.m. of the date due. If you have a job interview, need to attend a conference or leave early for spring break in Aspen and thereby choose not to take an exam, this policy allows you that freedom but you effectively take a zero and lock yourself into the two other exams. Quizzes will be at the beginning of the class period. If you are not on time when the quiz begins, you do not take it!

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

|    |                  |
|----|------------------|
| A  | $S \geq 92$      |
| A- | $90 \leq S < 92$ |
| B+ | $87 \leq S < 90$ |
| B  | $82 \leq S < 87$ |
| B- | $80 \leq S < 82$ |
| C+ | $77 \leq S < 80$ |
| C  | $72 \leq S < 77$ |
| C- | $70 \leq S < 72$ |
| D+ | $67 \leq S < 70$ |
| D  | $62 \leq S < 67$ |
| D- | $60 \leq S < 62$ |
| F  | $S < 60$         |

The instructor reserves the right to add (but not subtract) points to exams and the homework/quiz grade if he thinks the observed grades are too low. Each student would get the same number of these additional points. **For the class grade the instructor reserves the right—but not the obligation—to round up as a function of participation on quizzes and homework.**

The actual mechanics of grading go like this: Each exam, quiz and homework is graded on a 100 point scale and then weighted in computing S. Suppose there are a total of 18 homework assignments and quizzes. The three lowest scores would be dropped. So the maximum score is 1500. Suppose after dropping the low three grades a student has 1350 points. This would be divided by 15 to get a 90 average on homework/quizzes (HW/Q below). Then S is defined as

$$S = .2*HW/Q + .2*HIGHMIDTERM + .2*MIDDLE MIDTERM + .4*FINALEXAM$$

**Word to the Wise: the scores on the homework are inevitably higher than those on the quizzes.**

### Homework

Homework will be assigned, usually on a weekly basis. Assignments are to be handed in at the end of lecture. Late assignments must be handed in by 4:45 p.m. on the date due and will have a ten point penalty for not being handed in by the end of lecture. Most assignments will involve the computer. Students are encouraged to work with other students in the class on homework assignments since group interaction often leads to greater learning for all involved. Nonetheless, each student must hand in a separate set of answers. For exercises involving the computer, please only report the requested information. **Printouts are not to be handed in unless requested.** Excel will be used for the class computer exercises. For those of you who do

not have a personal computer, you may go to the Agricultural Annex and use the computers there or any computer that has Excel and can read a CD-ROM.

### Academic Dishonesty

Do not cheat. If you have to cheat to get an acceptable grade in this class you will be miserable in the profession because that is a clear indication that your talents and/or motivation are way below the norm. If you are caught cheating, campus procedures will be followed to exact the appropriate punishment.

### Disclaimer

The instructor reserves the right to alter dates of topic coverage to adjust to the speed the class is moving.

### 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.

### Inclement Weather Policy

If the Fayetteville public schools are open, lecture will be given. However, each student must assess their own personal risk of coming to campus and moving around on campus. If there is inclement weather and the student believes it is unsafe for them to come to campus, then they should not come to campus. 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.