

**AEB 5516**  
**Quantitative Methods in Agribusiness**  
**Summer B, 2016**

**INSTRUCTOR**

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**CLASS TIMES & LOCATION**

Monday-Friday (Every Weekday) 11:00am-12:15pm  
Room: MCCB 1108  
No class on July 4, August 1-3

**OFFICE HOURS**

After class & by appointment  
I have an open door policy, feel free to knock on my door, email or call me anytime. I'm gladly meet with you. If you want to make sure I am there when it is convenient for you, please set up an appointment. Many students find that email is an efficient and fast way to ask questions.

**COURSE DESCRIPTION & OBJECTIVES**

This course is an applied statistics course and designed to provide students with statistical and regression tools for analyzing the agricultural market. The skill set is applicable to individual and business decision making beyond agricultural markets. Students will learn how to develop and test hypotheses, run regressions, interpret the results, and forecast. At the end of this class, each student should be able to apply graphical, statistical, and regression tools to available data and forecast value of a variable of interest. We will focus on the practical application of statistical techniques and uses of analysis tools within Microsoft Excel.

**TEXTBOOK & MATERIAL**

Essential of Statistics for Business and Economics, 7<sup>th</sup> edition, by David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, Jeffrey D. Camm, and James J. Cochran. Cengage Learning. Copyright 2015. ISBN: 9781133629658

- This book is very expensive, so it is not required and all course materials will be available from the course site on Canvas. But you are encouraged to get older editions for reference and exercises

You will need Microsoft Excel for assignments and projects. The laptops should only be used for note-taking and in-class assignments during the class. If the use of the laptop become a distraction to other students or the instructor, the student will be asked to turn off the device.

**GRADING AND ACTIVITIES**

The scale used will be:

	A	93% or above	A-	90-92.9%
B+	B	83-86.9%	B-	80-83.9%
C+	C	73-76.9%	C-	70-73.9%
D+	D	63-66.9%	D-	60-63.9%
E		Less than 60%		

## Grading Summary

Homework	35%
Exam 1	15%
Exam 2	15%
Project	35%
Total	100%

### ***In-class/ take home homework***

There will be five assignments, typically once a week. Assignments will be assigned during the class and due a week after the assignment is given. Late assignments are not acceptable. You are encouraged to discuss the questions with others, but what you turn in must be your own work (i.e., do not share or copy files).

### ***Exam***

There will be two in-class exams for this course. Exam dates will be announced in advance. There will be no make-up exams.

### ***Project:***

You will be responsible for finding a publically available dataset for this project (minimum 20 observations). The details and a few deadlines will be given through the semester, and you will submit different parts of the project as a part of assignments. You will present your project in the last week of the class. Of 100 points, 30 will be assigned to intermediate deadlines, and 70 to the presentation and final project. Your presentation will be evaluated by both instructor and your classmates.

## **UNIVERSITY POLICIES**

### **Academic Honesty, Software Use, Services for Students with Disabilities, UF Counseling Services**

The University of Florida requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF they commit themselves to honesty and integrity. Your instructor fully expects you to adhere to the academic honesty guidelines you signed when you were admitted to UF.

As a result of completing the registration form at the University of Florida, every student has signed the following statement:

*“I understand the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.”*

Furthermore, on work submitted for credit by UF students, the following pledge is either required or implied:

*“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”*

It is to be assumed all work will be completed independently unless the assignment is defined as group project, in writing by the professor. This policy will be vigorously upheld at all times in this course.

### **Software Use:**

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal

penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

### **Campus Helping Resources**

Students experiencing crisis or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. Both the Counseling Center and Student Mental Health provide confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal or lacking clear career and academic goals, which interfere with their academic performance. The Counseling Center is located at 301 Peabody Hall (next to Criser Hall). Student Mental Health is located on the second floor of the Student Health Services in the Infirmary.

1. *University Counseling Center*, 301 Peabody Hall, 392-1575; personal and career counseling: [www.counsel.ufl.edu](http://www.counsel.ufl.edu)
2. *Student Mental Health*, Student Health Care Center, 392-1171, personal counseling: [www.hsc.ufl.edu/shcc/smhs.htm](http://www.hsc.ufl.edu/shcc/smhs.htm)
3. *Sexual Assault Recovery Services (SARS)*, Student Health Care Center, 392-1161, sexual assault counseling; and
4. *Career Resource Center*, Reitz Union, 392-1601, career development assistance and counseling.

### **Students with Disabilities Act**

The Dean of Students Office coordinates the needed accommodations of students with disabilities. This includes the registration of disabilities, academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services, and mediating faulty-student disability related issues. *Dean of Students Office*, 202 Peabody Hall, 392-7066, [www.dso.ufl.edu](http://www.dso.ufl.edu).

### **BRIEF COURSE OUTLINE**

Please note that the instructor reserves the right to change this outline at any time.

#### ***Chapter 1. Introduction***

- a. Introduction to the field of statistics.
- b. Qualitative and Quantitative data
- c. Population and samples
- d. Descriptive statistics
- e. Inferential statistics

#### ***Chapter 2. Descriptive Statistics: Tabular and Graphical Presentations***

- a. Summarizing data for a single variable
- b. Frequency distributions
- c. Graphical analysis
- d. Summarizing data for two variables

#### ***Chapter 3. Descriptive Statistics: Numerical Measures***

- a. Central tendency measures
- b. Variation measures
- c. Skewness and symmetry
- d. Z score
- e. Empirical rule

#### ***Chapter 4. Introduction to Probability***

- a. Counting rules
- b. Experiments, outcomes, and assigning probabilities

- c. Events and assigning probabilities

**Chapter 5. Discrete Probability Distributions**

- a. Random variables: discrete variables vs. continuous variables
- b. Discrete probability distributions and probability functions
- c. Expected value and variance
- d. Binomial probability distribution

**Chapter 6. Continuous Probability Distributions**

- a. Probability density function
- b. Uniform probability distribution
- c. Normal probability distribution
- d. Standard normal probability distribution and Z-distribution

**Chapter 7. Sampling and Sampling Distributions**

- a. Sampling
- b. Point estimation
- c. Sampling distributions

**Chapter 8. Interval Estimation**

- a. Marginal of error
- b. Confidence intervals
- c. Determination of appropriate sample size
- d. T-distribution vs. Z-distribution

**Chapter 9. Hypothesis Tests**

- a. Null and alternative hypotheses
- b. Type I and Type II errors
- c. One-tailed and two-tailed tests

**Chapter 10. Comparisons involving Means and Analysis of Variance**

- a. Interval estimation
- b. Differences across population means
- c. Analysis of variance
- d. F-distribution

**Chapter 12. Simple Linear Regression**

- a. Regression models and regression equations
- b. Least squared estimation method
- c. Coefficient of determination
- d. Testing for significance (t-test)
- e. Prediction and forecasting

**Chapter 13. Multiple Regression**

- a. Multiple regression models
- b. Least squares method
- c. Coefficient of determination
- d. Testing for significance (t-test and F-test)
- e. Prediction and forecasting