

University of Florida
Food and Resource Economics Department

AEB3550 Agricultural Data Analysis

Fall Term 2015

Section: 1G07
3 Credit Hours

Monday, Wednesday, Friday 9:35 – 10:25am
Turlington Hall L011

Instructor and Contact Information

Instructor: Dr. Mikael Sandberg
Office: 1177 McCarty Hall A
Phone: (352) 294-7621
Office Hours: Monday, Wednesday, Friday 10:40 – 11:30am
Tuesday 1:30 – 3:30pm.
Other times by appointment.
E-mail: sandberg@ufl.edu

Given other teaching, research, and administrative responsibilities this semester, availability will be greatly limited outside of posted Office Hours. However, please feel free to e-mail me for an appointment.

Many students find that e-mail is an efficient and fast way to ask questions. Please note that I do not utilize the e-mail tool within E-Learning Sakai. When e-mailing me, please indicate in which class you are enrolled so that I can more effectively address your concerns – I am teaching multiple classes. Courteous and professional e-mails can expect a prompt reply. Undergraduate academic advising is handled by Mr. Michael Fitzgerald, see contact information below.

FRE Program Assistant: Ms. Kathy Green; 1170 McCarty Hall A; (352) 294-7640;
E-mail: kagreen1@ufl.edu

Undergraduate Advisor: Mr. Michael Fitzgerald; 1170 McCarty Hall A; (352) 294-7638;
E-mail: mgfitzgerald@ufl.edu

Teaching Assistant: Ms. Zahra Tayebi; Office and Office Hours: TBA
E-mail: ztayebi@ufl.edu



Dr. Sandberg reserves the right to change the terms and dates stated in this Course Syllabus at any time. Any changes will be communicated in class, via the Gatorlink e-mail listserv, and posted on E-Learning Sakai. It is solely the student's responsibility to stay informed of any changes.

General Course Information

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

- You will need a copy of the book.
- Older editions to the book, as it is very expensive, can suffice.

E-Learning Sakai: There is an E-Learning Sakai web-page for this course. To access E-Learning Sakai, you will need your Gatorlink username and password. E-Learning Sakai can be accessed via <https://lss.at.ufl.edu/>. If you are having difficulties accessing E-Learning Sakai, please contact the UF Computing Help Desk by calling (352) 392-HELP or via e-mail helpdesk@ufl.edu. You will need your UFID when contacting them. The E-Learning Sakai page should be operational by the end of the first week of class.

Course Description: Introduction to analysis of agricultural data. Incorporates statistical and agricultural economic theory into the analysis of agricultural problems. Knowledge in use of spreadsheets is assumed.

...which means: AEB3550 is an applied statistics course. This course is designed to familiarize students in the FRE program with the statistical tools and methods used by managers in a variety of contexts. Students should note, however, that AEB3550 is not a management course nor is it an agricultural course per se. Rather, it is a foundation course that provides students with the statistical methods successful agribusiness managers should be familiar with. Emphasis will be placed on the use of the statistical analysis tool within Microsoft Office Excel. Throughout the semester we will focus on the application of statistical techniques, NOT statistical theory or mathematical proofs.

This is an upper-division course and it will be structured and taught accordingly. The rigorous nature of this course means you should plan on spending about, on average, two hours of studying outside of class for every hour of lecture time. Thus, given that this is a three-credit course, you should plan on spending about six hours per week studying for AEB3550. During exam weeks this time-commitment will be significantly higher. A lower study input will more than likely adversely affect your grade in this course.

It is recommended that students form study groups independently or secure a 'study buddy.' Working through the material, both the statistical methods introduced as well as direct applications using Microsoft Excel with your study group or 'study buddy,' will greatly assist you in excelling in this course.

Prerequisites: AEB3103 *Principles of Food and Resource Economics*, AEB3510 *Quantitative Methods in Food and Resource Economics*, and STA 2023 *Introduction to Statistics*, or their equivalents. This course will be taught on the assumption that students are familiar with the material covered in these courses.

Attendance and related issues: Attending class is a prerequisite for doing well in this course. We are going to proceed at a rather quick pace. Given the nature and quantity of material covered, missing class will detrimentally impact your performance in this course. It is further assumed that students will arrive to class on-time. Class will start promptly at 9:35am. Arriving late or leaving early without prior consent is considered unprofessional behavior.

Course Structure and Material Covered

Expected Student Learning Outcomes: After the successful completion of AEB3550, the typical student should be able to:

- ...demonstrate an understanding of basic statistical concepts, including statistical sampling, simple and multiple regression, and probability;
- ...apply statistical tools in a variety of business decision-making contexts;
- ...conceptualize managerial problems using quantitative and statistical frameworks;
- ...develop correct inferential techniques for statistical analysis, including confidence intervals and hypothesis testing to evaluate different business and agricultural scenarios;
- ...effectively communicate the result of the application of mathematical and statistical tools in non-mathematical, professional terms.

Brief Course Outline: Please note that the instructor reserves the right to change this outline at any time. We are planning on covering (more or less) the entire textbook (with the notable exception for Chapter 11, which we are not covering this term). We will cover some chapters rapidly and superficially, while other chapters will be covered more rigorously and in great detail. Any changes and alterations will be announced in class.

Chapter 1. Data and Statistics

- Introduction to the field of statistics
- Data and data sources
- Populations
- Samples
- Descriptive statistics vs. Inferential statistics

Chapter 2. Descriptive Statistics: Tabular and Graphical Presentations

- Summarizing data for a single variable: categorical variables and quantitative variables
- Frequency distributions
- Graphical analysis
- Summarizing data for two variables

Chapter 3. Descriptive Statistics: Numerical Measures

- Central tendency measures: Mean, median, mode
- Variation measures: Range, variance, standard deviation, coefficient of variation
- Skewness and symmetry
- Z scores
 - Detection of outliers
- Empirical rule

Chapter 4. Introduction to Probability

- Counting rules: combinations
- Experiments, outcomes, and assigning probabilities
- Events
- Assigning probabilities

Chapter 5. Discrete Probability Distributions

- Random variables: discrete variables vs. continuous variables
- Discrete probability distributions and probability functions
- Expected value and variance
- Binomial probability distributions
 - o Binomial experiments

Chapter 6. Continuous Probability Distributions

- Probability density function
- Uniform probability distribution
- Normal probability distribution
 - o Standard normal probability distribution
 - o Z-distribution

Chapter 7. Sampling and Sampling Distributions

- Sampling
 - o Random samples
- Point estimation
- Sampling distributions
 - o Expected value

Chapter 8. Interval Estimation

- Marginal of error and confidence intervals
- Determination of appropriate sample size
- Z-distribution vs. t-distribution

Chapter 9. Hypothesis Tests

- Null and alternative hypotheses
- Type I and Type II errors
- One-tailed and two-tailed tests
 - o Testing using Z-distribution and t-distribution

Chapter 10. Comparisons Involving Means, Experimental Design, and Analysis of Variance

- Interval estimation
- Differences across population means
- Analysis of variance
- F-distribution

Chapter 12. Simple Linear Regression

- Regression models and regression equations
- Least squares estimation method
- Coefficient of Determination
- Testing for significance (t-test)
- Prediction and forecasting

Chapter 13. Multiple Regression

- Multiple regression models
- Least squares method
- Coefficient of Determination
- Testing for significance (t-test and F-test)
- Prediction and forecasting

Evaluation of Performance and Grading

Grades: You have the *opportunity* to earn up to 400 points throughout the semester. Your final grade in AEB3550 will be based on the following:

Exam 1	100 possible points
Exam 2	100 possible points
Exam 3	100 possible points
<u>Homework Assignments</u>	<u>100 possible points</u>
TOTAL	400 possible points

Final course grades will have the following benchmarks out of the 400 possible grade points:

A	(≥ 372)	C	(292 - 307)
A-	(360 - 371)	C-	(280 - 291)
B+	(348 - 359)	D+	(268 - 279)
B	(332 - 347)	D	(252 - 267)
B-	(320 - 331)	D-	(240 - 251)
C+	(308 - 319)	E	(≤ 239)

Please note that grades are not 'rounded' or 'adjusted' at the end of the term. Hagglng over grades at the end of the semester is NOT entertained. Of course, if I did a mistake in grading your exam I will gladly give you the correct points. If you believe that your exam is incorrectly graded or that your grade is incorrectly posted, please contact me via e-mail (i.e., in writing) as soon as possible. You have 7 days after the grade has been posted to voice your concern. After 7 days have passed, your posted grade will be assumed to be correct and accurate.

For general information about grading and grading policy at the University of Florida, please refer to: <http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>.

Exams: There will be three regular exams offered during the semester for AEB3550. Each exam is worth 100 points. The exams will consist of multiple-choice questions, problem solving and applications, and essay/short-answer/questions. The exams are closed book and closed notes. A simple calculator may be used. However, **graphing calculators, cell phones, touch-screen devices, calculators with more than one display row, or other devices with the capability to store formulae are not allowed.** This policy will be STRICTLY enforced during exams. Sharing calculators during an exam is not allowed. Thus, if you do not own a simple calculator, you will need to purchase one. If you are unsure whether or not your calculator is acceptable for use in AEB3550, please consult Dr. Sandberg as soon as possible. **Early or late exams are not given.**

Final Exam: A comprehensive **optional Final Exam** is given during the final exam week, **Thursday December 17 at 12:30pm.** Please make note of the date and the time. The Final Exam will exclusively consist of multiple-choice questions. The Final Exam is given in our regular classroom. The Final Exam will last for two hours. **Early or late exams are not given.** The optional Final Exam will replace your lowest test score out of the three regularly scheduled mid-term exams, if it is to your advantage. Taking the Final Exam can never count against you.

Make-Up Exams: If you miss any of the regular two exams regardless of reason, the Final Exam will count in its place. Make-up exams are, therefore, generally not entertained. Early or late exams are not given. However, university athletes are allowed make-up exams missed due to official university sporting events pending ample WRITTEN notification in advance (at least 7 days prior to a scheduled exam).

Exam Dates:

Exam 1:	Wednesday September 30
Exam 2:	Wednesday October 28
Exam 3:	Monday December 7
Final Exam (optional):	Thursday December 17 @ 12:30 – 2:30pm

The instructor reserves the right to change these dates as appropriate. Any changes will be communicated via E-Learning Sakai and via the Gatorlink listserv.

Exam day policy: It is expected that all students be on time to exams. Please arrive early, if possible, to get seated and get your books/bags stowed away so that the exam can be started on the stated time. If you need to use the restroom, please do so before the exam begins. Students are not allowed to leave the classroom during exams and re-enter the classroom. No one will be allowed to enter the classroom to begin the exam after the first student has turned in their finished exam. This policy also applies to the Final Exam.

Homework Assignments: There will be five take-home homework assignments throughout the semester. Each homework project will be worth 25 points. Your lowest homework score will be dropped; thus only your four highest homework scores will count towards your course grade. These projects will be announced in class and will be posted on E-learning Sakai. Homeworks may be assigned on short notice. These are individual assignments – submitting an identical assignment to someone else in class, or an assignment that is “too similar for comfort” to some other student’s will be considered cheating and will be treated as such! All assignments must be typed – further information will be provided in class. Since you are generously allowed to drop your lowest homework score, late homework submissions are not accepted and there are no make-up opportunities given. If you need to miss class on the due date, you may turn in your homework early (or have it turned in by a friend).

Professional Etiquette: In order to provide a productive environment conducive to everyone’s learning, adherence to the following guidelines is expected:

- Cellular phones are to be turned off, as it is very disruptive when these devices ‘go off’ during class. No txt-ing or any other use of cellular devices is permitted or tolerated in class. So please take a moment to turn off your devices before the class begins;
- You should discontinue the use of any tablets, laptops, and touch-screen devices once the class begins;
- Students are expected to be on-time for class. It is disruptive when students arrive late – not to mention disrespectful to myself and your fellow students;
- Leaving class early without prior permission is not tolerated;
- You should avoid talking amongst each other once the lectures begin (this includes conversations about the material and the class itself). Please raise your hand if you have any questions;
- While laptops, tablets, or similar devices are wonderful study tools and invaluable assets in our modern world, they are not allowed in class (not even for note-taking). Please respect this request.

If you cannot comply with these simple expectations, you may be asked to leave the classroom and you will be counted as absent. Dr. Sandberg reserves the right to penalize any student violating these rules by deducting points from the student’s grade as appropriate.

Other Important Information

Students are responsible for all deadlines/critical dates and policies set forth by the University of Florida. Deadlines/critical dates are published on the University of Florida Office of the University Registrar's web-site, <http://www.registrar.ufl.edu/>. Current academic policies are presented in the University of Florida Undergraduate Catalog, <https://catalog.ufl.edu/ugrad/current/Pages/home.aspx>.

Students Requesting Classroom Accommodation: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Please contact this office at 0020 Reid Hall, 392-8565, www.dso.ufl.edu/drc/. Any student requesting accommodation will have to provide documentation from the Disability Resource Center.

UF Counseling Services: The life of a college student can sometimes be overwhelming. Resources are available on-campus to help students manage personal issues or gain insight into career and academic goals. Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's various counseling resources. The following resources are available for all UF students:

- For general student affairs: Dean of Students Office, 392-1261 (after hours, please call 392-1111);
- For mental health consultations: Counseling & Wellness Center, 392-1575 (24/7 phone access);
- For students experiencing distress: U Matter, We Care, 294-2273, www.umatter.ufl.edu;
- For physical health consultations: Student Health Care Center, 392-1161;
- For victims of sexual assault: Office of Victim Services, 392-5648 (after hours, please call 392-1111);
- For career guidance: Career Resource Center, 392-1602, www.crc.ufl.edu.

Software Use: All faculty, staff, and students of the University of Florida 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.

Academic Honesty: In 1995 the UF student body enacted an honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students. In their words, **the Honor Code Preamble:** In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor Pledge: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."** The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole

process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Student Responsibility: Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean or Student Honor Court.

Faculty Responsibility: Faculty members have a duty to promote honest behavior and to avoid practices and environments that foster cheating in their classes. Teachers should encourage students to bring negative conditions or incidents of dishonesty to their attention. In their own work, teachers should practice the same high standards they expect from their students.

Administration Responsibility: As highly visible members of our academic community, administrators should be ever vigilant to promote academic honesty and conduct their lives in an ethically exemplary manner. This policy will be vigorously upheld at all times in this course.

This policy will be vigorously upheld at all times in this course.

Any instances of academic dishonesty will be reported to Student Judicial Affairs.

By enrolling in this course you are agreeing to the terms outlined in this syllabus.

I wish everyone a rewarding and productive semester ☺

GO GATORS!!!