Agricultural Data Analysis (3 credits) – Fall 2025

Course Time and Location: Period 6, Monday, Wednesday, & Friday 12:50 pm – 1:40 pm, location FLG 265

Instructor and Contact Information:

Dr. Misti Sharp, Instructional Associate Professor	Email: mistisharp@ufl.edu
Office: 1189 McCarty Hall A	Phone: 352-294-7632
Student hours: Wednesday and Friday from 9:00 – 10:00 am and Thursday from 1:00 – 2:30 pm	

Requests for appointments: If you request an appointment with me (Book an appointment with me or using QR code to the right) it will be held via zoom by default. Zoom room link: https://ufl.zoom.us/j/3522947632 If you would prefer an in-person appointment outside of my office hours, please send me an email and we will get it scheduled! I am generally in the office on Mondays, Wednesdays, Thursdays, and Fridays.	

Course Description (from Catalog): This course provides an introduction into analysis of agricultural data and incorporates statistical and agricultural economic theory into the analysis of agricultural problems.

Prerequisites: It is the expectation that students have completed introductory Food and Resource Economics coursework including AEB 3103 (Principles of FRE) and AEB 3510 (Quantitative Methods in FRE). It is further expected that students have taken STA 2023 (Introduction to Statistics).

Communication: E-mail (either to my email address or via canvas messaging) is the best way to reach Dr. Sharp. Any issues that require action MUST be handled by email so that there is a written record of need. For a private meeting to discuss grades or personal matters, it is best to schedule a meeting with my bookings site (see QR code above). Appointments are not necessary during office hours. Groups of students are welcome.

Make sure to enable emails for course announcements and read this syllabus thoroughly! I post important announcements sparingly (no more than 1 per day and usually much less).

Undergraduate Advisor: Ms. Michelle Baldwin; 1170B McCarty Hall A; (352) 294-7640;
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Undergraduate Coordinator: Dr. Misti Sharp; 1189 McCarty Hall A; (352)294-7632;
E-mail: mistisharp@ufl.edu; Schedule an appointment

FRE Technology Assistance: Dave Depatie; 1197 McCarty Hall A; (352) 394-7641;
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Teaching Assistants: Dinglin Duan; office hours: TBD
Email: d.duan@ufl.edu

Course summary: Unlike previous statistics courses you may have taken, this course is very much an APPLIED statistics course. You will be using real-world data relevant to agriculture, natural resources and the

economy. For some, applied statistics is easier than theoretical statistics; for others, it is incredibly difficult and may take a great deal of time to develop the skills necessary for applied data analysis.

Most real-world problems that are solved using data are not written in a textbook format. Research questions do not always follow intuitive patterns. Nevertheless, as an economist, it is essential that you develop the skills to do applied data analysis while at the same time understanding the theoretical underpinnings of statistical techniques.

This class is a CORE class in the FRE undergraduate program. Mastery of the skills taught in this course is a pre-requisite for upper-level course work in FRE classes. Previous students have found this course to be challenging and time-intensive; however, many of them agree that the rigor introduced in this class is critical in building a strong analytical skillset needed for success in upper-level course work such as price analysis, agricultural finance, econometrics, etc.

Expected Student Learning Outcomes: After the successful completion of AEB 3550, a typical student should be able to:

- Identify different types of data and appropriate statistical methods;
- Differentiate between descriptive and inferential statistics;
- Apply statistical techniques to a variety of economic data;
- Analyze a data set using tools provided in excel;
- Interpret statistical output to aid in economic decision making;
- Communicate the results of statistical analysis including writing professional reports;
- Succeed in the senior-level coursework in the Food and Resource Economics curriculum as students will have acquired the necessary statistical foundations and demonstrated competency in performing statistical analysis.

Course Topics: This course is broken into four main sections: basic statistics review, probability distributions, hypothesis testing and regression analysis. The first part of the course will largely be a review of descriptive statistics which are used to summarize data either graphically, numerically, or in tabular form. This is an essential first step in data analysis as it allows the researcher the become familiar with characteristics of the data that will be relevant for higher order inferential analysis. The second and third sections of the course apply inferential statistics to probability distributions. Inferential statistics involves generating, from a limited data set, information about statistical relationships and estimates about a population. The last part of the course takes inferential analysis a step further to look at associations between multiple variables which is a first step is discussing causal or correlative relationships. The course is cumulative in that a firm understanding of distributions and descriptive statistical techniques is a pre-requisite to inferential analysis.

Required Course Materials:

- **Required Text:** *Essentials of Modern Business Statistics with Microsoft Excel* by Anderson, Sweeney, Williams, Camm, Cochran, Fry and Ohlmann. Cengage Learning, copyright 2020. ISBN: **9780357131626**. **UF All Access Version is $30 and hard copy is $60.****
- **E-learning:** There is an E-Learning Canvas webpage for this course. E-learning can be accessed via http://elearning.ufl.edu using your Gatorlink username and password. If you are having difficulties accessing E-learning, please contact the UF Computing Help Desk by calling (352)-392-HELP or via email helpdesk@ufl.edu.

- ***Other***: This course combines statistical concepts with practical application and as such, students are required to have a basic knowledge of rudimentary applications of both. If you feel like you do not have an adequate background in statistics or the use of excel, please use resources such as Kahn Academy (https://www.khanacademy.org/math/statistics-probability) or Lynda.com (available from http://elearning.ufl.edu) to supplement the classroom materials.

Class Structure: There are 5 modules in this course. Each module will have a series of lectures, ending with a quiz and a problem-solving set. These quizzes and problem-solving sets will involve individual and team-based efforts. As such, I will sort you into teams early in the semester who you will be working with for the remainder of the semester. It is your responsibility to show up ready for the activities. For quizzes, you will need a writing utensil and a calculator of your choice. These quizzes are closed book, closed note assessments. For problem solving sets, you will need a computer with a functional version of Excel. This class makes heavy use of Microsoft Office 365 and Google Suite. While some class time will be devoted to fluency of these tools, it is expected that you will work outside of class in these programs to become proficient.

Course Assignments and Expectations:

Module quizzes (best 4 of 5): These 10-question multiple choice mini-tests will help to keep you on track in this course. If you do not perform well on them, this means that you may need to adjust your study strategy. Course resources such as concept maps and lectures emphasize main points; however, many questions will involve higher order problem solving and inference skills. These develop through effort inside the class (being an active participant in lectures) and outside of class (studying the concept maps, practicing using the practice questions, and asking questions in office hours).

Problem Solving Activity (Best 4 of 5): In addition to the quizzes there will be a Problem Solving prompt to be completed as a group for each module. This is meant to be an opportunity to apply what you have learned in the module to a real-world significant problem with each team coming to and defending a specific choice under simultaneous report. The grade you receive on this will be based on the timeliness of your responses in class (are you ready to defend your answers with the rest of the class) and on your submitted work. Each person should contribute significantly to group output bringing their strengths to bear on the activity.

Attendance: As economists, you will allocate your resources to the best of your ability. Unfortunately, often short-term gain outweighs long-term benefits due to discounting. To incentivize regular and active participation in lectures, 4% of your grade will be based on attendance. Bonus opportunities may also be provided on lecture days and will be in addition to regular attendance. There are no "freebie" days, and I will not entertain appeals to miss class without penalty. However, each day is worth less than 1 point in this class, and you are adults who weigh these points against other opportunities. Use your best judgment regarding your attendance.

Peer Review: Due to the emphasis on team-learning in this course, there will be peer reviews to discourage free-riding and improve inter-personal communication skills within teams. You will be graded based on participating in the peer reviews and fairly/accurately assessing your peers in those evaluations. The final peer assessment score will be largely based on how well you contributed to the team's success.

Applications of Data Analysis (best 4 of 5): These application projects require the use of excel to apply statistical methods to a real-world data set. While it is important to learn how to use excel to apply statistical techniques, interpretation of the data and statistical output will be emphasized in these assignments. The final output of these application projects will be a written report which should be typed and thorough. Late submissions will be penalized 5 points per day late. All work completed in excel and written in your final report

MUST be your own. These projects vary in difficulty, and you should plan to spend at least ten hours on each application project.

Exams (Best 2 of 3): Each exam (2 midterms and 1 final) will consist of 20 multiple-choice questions and will be administered during the regular class period (50 minutes). You will be allowed a 1-page (front only) self-prepared sheet of formulas/notes, a calculator, and probability tables. Questions on the midterm will be very similar to those posed in RATs, problem solving, and application projects.

Composition of Final Score:

Course Assignments	Total Points	% of Total
Quizzes (best 4 of 5)	100 points (25 points each)	20%
4S Problem Solving	80 points (20 points each)	16%
Attendance	20 points	4%
Peer Review	40 points	8%
Projects (best 4 of 5)	100 points (25 points each)	20%
Exams (best 2 of 3)	160 points (80 points each)	32%
Total	500 points	100%

Grades and Grade Points: Grades will be assigned as follows

Grade	Percentage	Total Points	Grade Points
A	93% or more	≥ 465	4.00
A-	90.0 – 92.9%	450 – 464	3.67
B+	86.0 – 89.9%	430 – 449	3.33
B	83.0 – 85.9%	416 – 429	3.00
B-	80.0 – 82.9%	400 – 415	2.67
C+	76.0 – 79.9%	380 – 399	2.33
C	73.0 – 75.9%	365 – 379	2.00
C-	70.0 – 72.9%	350 – 364	1.67
D+	66.0 – 69.9%	330 – 349	1.33
D	63.0 – 65.9%	316 – 329	1.00
D-	60.0 – 62.9%	300 – 315	0.67
E	$\leq 59.9\%$	≤ 299	0.00

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following 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.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, 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 assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code

Course Syllabus: AEB 3550

Tentative Schedule: Please note that the fall semester is a tricky semester to plan for due to unexpected hurricane events. If there is a hurricane or other event that causes a class cancellation, I will notify you as to the necessary schedule adjustments via course announcements. It is your responsibility to keep up with canvas announcements that indicate such a change.

Day	Date	Module	Topic	Assignments
Friday	22-Aug		Syllabus and Introductions	Introduction quiz
Monday	25-Aug	Module 1	Dataset and variable identification	
Wednesday	27-Aug	Module 1	Organizing data	
Friday	29-Aug	Module 1	Descriptive statistics	
Monday	1-Sep	Labor day holiday		
Wednesday	3-Sep	Module 1	Outliers	
Friday	5-Sep	Module 1	Quiz	RAT 1
Monday	8-Sep	Module 1	Problem solving	PS 1
Wednesday	10-Sep	Module 2	Probability terms	Project 1
Friday	12-Sep	Module 2	Joint probability	
Monday	15-Sep	Module 2	Discrete probability	
Wednesday	17-Sep	Module 2	Binary Probability	
Friday	19-Sep	Module 2	Continuous probability	
Monday	22-Sep	Module 2	Normal Probability	
Wednesday	24-Sep	Module 2	Quiz	RAT 2
Friday	26-Sep	Module 2	Problem solving	PS 2
Monday	29-Sep	Module 3	Sampling distributions	Project 2
Wednesday	1-Oct	Module 3	Sampling proportions	
Friday	3-Oct	Module 3	Confidence interval-z	
Monday	6-Oct	Module 3	Confidence interval-t	
Wednesday	8-Oct	Module 3	Making comparisons	
Friday	10-Oct	Module 3	Quiz	RAT 3
Monday	13-Oct	Module 3	Problem solving	PS 3
Wednesday	15-Oct	Module 3	Midterm review	Project 3
Friday	17-Oct	Homecoming		
Monday	20-Oct	Midterm 1	6 steps of hypothesis testing	Midterm 1
Wednesday	22-Oct	Module 4	Univariate tests	
Friday	24-Oct	Module 4	Bivariate z-test	
Monday	27-Oct	Module 4	Bivariate t-test	
Wednesday	29-Oct	Module 4	Testing proportions	
Friday	31-Oct	Module 4	ANOVA	

Monday	3-Nov	Module 4	Quiz	RAT 4
Wednesday	5-Nov	Module 4	Problem solving	PS4
Friday	7-Nov	Module 4	Deriving equations	Project 4
Monday	10-Nov	Module 5	Scatter plots	
Wednesday	12-Nov	Module 5	Excel and t-tests	
Friday	14-Nov	Module 5	Multiple regression	
Monday	17-Nov	Module 5	F-tests	
Wednesday	19-Nov	Module 5	Quiz	RAT 5
Friday	21-Nov	Module 5	Problem solving	PS 5
Monday	24-Nov	Thanksgiving		
Wednesday	26-Nov	Thanksgiving		
Friday	28-Nov	Thanksgiving		
Monday	1-Dec	Review	Peer Review	Project 5
Wednesday	3-Dec	Midterm 2		Midterm 2
Thursday	11-Dec	Final exam	12:30 pm - 2:30 pm	Final exam

This course adheres to all UF Academic Policies: https://go.ufl.edu/syllabuspolicies