Agricultural Data Analysis – Fall 2021

Class time: Monday, Wednesday and Friday, Period 5 (11:45 am – 12:35 pm)	Classroom: Keene-Flint 101
Make an appointment: 	Dr. Misti Sharp, Lecturer and Undergraduate Coordinator, Food and Resource Economics. Office: McCarty Hall A, room 1189 Sharp Office Hours: Tuesday from 3:00 – 4:30 and Friday from 9:30 - 11:30 am. Email: mistisharp@ufl.edu Phone: 352-294-7632

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. I will not jump into my zoom meeting room if I see you there without advance notice of a proposed meeting; it is best to schedule a meeting with my bookings site (see QR code above).

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) and will not answer questions by email that are already answered via canvas announcements or the course syllabus.

Undergraduate Advisor:	Ms. Danielle Shu; 1170B McCarty Hall A; (352) 294-7640; E-mail: dshu@ufl.edu Office Hours: daily-- 9:00 am – 12:30 pm and 1:30 pm – 4:30 pm
FRE Technology Assistance:	Dave Depatie; 1197 McCarty Hall A; (352) 394-7641; E-mail: ddepatie@ufl.edu
Teaching Assistant:	Edgar Marcillo-Yepez; emarcilloyepez@ufl.edu OH: Tuesday 10 – noon Office: McCarty Hall B room 1088. Brian Ziegler; brianziegler@ufl.edu; OH in Marston on Thurs. from 4 - 5

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:

- **Text:** *Essentials of Statistics for Business and Economics*, 7th edition by Anderson, Sweeney, Williams, Camm and Cochran. Cengage Learning, copyright 2010. ISBN: 9781133629658.
- **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.
- **Microsoft Office 365:** This class makes use of Microsoft excel for applied data analysis and Microsoft word for written reports. You have access to Microsoft Office 365 as a free download: https://it.ufl.edu/services/gatorcloud-microsoft-office-online

- ***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 LinkedIn Learning (available from http://elearning.ufl.edu) to supplement the classroom materials. Students often find that it is convenient to become excel certified during or immediately after my course as the course relies heavily on excel for analysis (a tool commonly used in agribusiness).

Class Structure: This is a face-to-face class meaning that you are expected to be in class each day to ensure you have accurate notes, to work on active learning assignments, and to take assessments. The class meets for 50 minutes, starting promptly at 11:45 am and ending at 12:35 pm. Although this class is during lunchtime, it is the expectation that students will not eat or drink in the classroom as it is prohibited; additionally, it is expected that students will wear masks over their mouths and noses throughout the class time to protect themselves and the UF community from illness. If you feel sick, you should let me know that you will not be in class and, once a doctor's note is provided, you will be provided a recording of the notes for the classes missed and an opportunity to make up any classwork missed.

Additionally, team-work is a large component of this course. Team-based learning (TBL) is a highly effective teaching paradigm that uses carefully designed small groups to facilitate learning and exploration of important course concepts. For this class, there will be several TBL sessions throughout the semester where students will take a "readiness assurance test-RAT" over the course lecture content. Students will repeat this RAT as a team using scratch cards in an answer-until-correct format. Additionally, all problem-solving sets will be completed as a team. If you miss class due to verified illness or a university excused absence, you will be given an opportunity to make up your iRAT and problem-solving exercise. Your tRAT score will simply be your iRAT score. Application projects are due online by midnight and exams will be given in person on the dates listed in the schedule at the end of this syllabus.

Course Assignments and Expectations:

Individual Readiness Assurance Test (IRAT) (8): This IRAT will include 5 multiple choice questions and should take students between 5 - 10 minutes to complete. You must be on time as extra time will not be given to students who are tardy. Each IRAT will be weighted equally, although some RATs will contain more content and difficulty varies significantly from subject to subject. The tested material will build on itself although the IRATs will not be *explicitly* cumulative. If you miss an IRAT for an excused absence, you may make up the IRAT in office hours. It is in your best interest to do all IRATs as it affects your performance AND group dynamics.

Team Readiness Assurance Test (TRAT) (8): These will be the same assessment as the IRAT but they will be completed/discussed as a group. You will be scored based on the group performance on the TRAT. If you do not show up for class, you will receive a zero on your TRAT for that day. If you have an excused absence, your IRAT score will count as your TRAT score.

4S Problem Solving Activity (8): In addition to the TRAT there will be a 4S Problem Solving prompt to be completed as a group. 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 quality of your team's contribution to the discussion.

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 (beginning 24 hours after the deadline). All work completed in excel and written in your final report MUST be your own.

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 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.

Peer Review: Due to the emphasis on team-learning in this course, there will be regular peer reviews in order 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.

Composition of Final Score:

Course Assignments	Total Points	% of Total
IRATs	40 points (5 points each)	10%
TRATs	40 points (5 points each)	10%
4S Problem Solving	40 points (5 points each)	10%
Projects (best 4 of 5)	100 points (25 points each)	25%
Exams (best 2 of 3)	160 points (80 points each)	20%
Peer Review	20 points	5%
Total	400 points	100%

Student Evaluation: Grades will be assigned as follows

Grade	Percentage	Total points	Grade Points
A	93% or more	≥ 372	4.00
A-	90.0 – 92.9%	360 - 371	3.67
B+	86.0 – 89.9%	344 - 359	3.33
B	83.0 – 85.9%	332 - 343	3.00
B-	80.0 – 82.9%	320 - 331	2.67
C+	76.0 – 79.9%	304 - 319	2.33
C	73.0 – 75.9%	292 - 303	2.00
C-	70.0 – 72.9%	280 - 291	1.67
D+	66.0 – 69.9%	264 - 279	1.33
D	63.0 – 65.9%	252 - 263	1.00
D-	60.0 – 62.9%	240 - 251	0.67
E	59.9% or less	≤ 239	0.00

Please note that grades are not 'rounded' or 'adjusted' at the end of the term. The professor has the right to change this point structure at any point so long as it improves the student's final score.

Grades and Grade Points: For information on current UF policies for assigning grade points, see
https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

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:
https://sccr.dso.ufl.edu/process/student-conduct-code/

Examples of cheating: copying the homework of a peer, copying and pasting from a source without quotations and source attribution, paying someone else to do your homework/project/exam, dividing work amongst you and your peers and then all submitting the same document, giving or receiving material from peers…

Attendance and Make-Up Work: Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/ In general, you are expected to be in class each day and submit all work on time on e-Learning.

Academic Performance:

Your grade on e-learning throughout the semester may not reflect your true performance in the course. You will have regular assignments that may require quick turnaround in this class and it is crucial that you do not "check-out" at any point in the semester. If you fall behind, you MUST communicate with me when you realize this is happening. Do NOT wait until the end of the semester as there is nothing I can do to help at that point. It is my goal to teach students and not to "give grades" as I believe grades are earned. As such, consider the following guidelines when you have questions about your grade or class performance:

- If you have any questions about your score at any point, you may come to the professor during office hours to clarify the number of points you have and what points will be required to achieve your desired grade.
- Do NOT ask for clarification of your grade in class or after class. This type of discussion is reserved for office hours or scheduled meetings. Please note that I cannot communicate grade information over email. All grades are posted in e-learning in a timely fashion; please let the instructor know if this is not the case.
- Do NOT email me or come to office hours expecting to change your score on a given assignment unless an egregious error has been made in entering your grade into canvas (i.e. you failed to get credit for a completed assignment or an exam grade was entered incorrectly).

- Do NOT ask for additional points throughout the semester. It may be the case that bonus opportunities to gain additional points will be available; however, this is determined solely by the professor based on an assessment of the relevance of additional activities to course materials and learning objectives.

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students are notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled.

The only allowable purposes are: (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The Conduct Code specifies a number of behaviors that are in violation of this code and the

possible sanctions. Click here to read the Conduct Code. If you have any questions or concerns, please consult with the instructor or TAs in this class.

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. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see the Notification to Students of FERPA Rights.

Campus Resources:

Health and Wellness

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

Academic Resources

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: Visit the Student Honor Code and Student Conduct Code webpage for more information.

On-Line Students Complaints: View the Distance Learning Student Complaint Process.
Lauren's Promise: I will listen and believe you if someone is threatening you.

Lauren McCluskey, a 21-year old honors student athlete, was murdered on October 22, 2018, by a man she briefly dated on the University of Utah Campus. We must all take actions to ensure this never happens again. Any form of sexual harassment or violence will not be excused or tolerated at the University of Florida.

If you are experiencing sexual assault, relationship violence, or stalking, you can take the following actions:

- If you are in immediate danger, call 911.

- Report it to me, and I will connect you to resources.

- Seek confidential sources of support and help:

    - UFPD Office of Victim Services: 51 Museum Road, 352-392-5648

    - Sexual Assault Recovery Services (SARS): Infirmary Building, 352-392-1161

    - Alachua County Rape Crisis Center (confidential): 352-264-6760

Diversity, Equity, and Inclusion: The University of Florida's College of Agricultural and Life Sciences (CALS) supports the University of Florida's commitment to diversity, equity, and inclusion. By fostering a sense of belonging for students, staff, and faculty, while leveraging the uniqueness of the people who study and work at the university, we believe our campus community is enriched and enhanced by diversity, including but not limited to, race, ethnicity, national origin, gender, gender identity, sexuality, class, and religion. This course will support an understanding of the diversity of our distance and campus communities as well as our agricultural and natural resource communities, locally and globally.
This course will strive to create a learning environment for students that supports a diversity of thoughts, perspectives, and experiences while honoring your identities. In this class we will take the following approaches to help achieve this:
- All course participants will use the names and pronouns provided by students for use in class. If these differ from those that appear in official university records, you can change your Display Name at One.UF.
- If your performance in this course is being impacted by your experiences inside and/or outside the classroom, do not hesitate to contact the instructor and/or teaching assistant (TA). Instructors in CALS are a great resource for you and you may provide feedback anonymously. Feedback may result in general announcements to the class, if necessary, or reporting to appropriate UF personnel to address your concerns.
- CALS instructors and TAs like many people, are still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that makes you feel uncomfortable, please discuss with your instructor or TA or contact the CALS Dean's Office (cals-dean@ufl.edu).

Note: The instructor reserves the right to change the terms and dates stated in this course syllabus at any time. Any changes will be communicated on e-learning as an announcement. It is solely the student's responsibility to stay informed of any changes.

*****By enrolling in this course, you are agreeing to the terms outlined in this syllabus!!*****

Course Syllabus: AEB 3550

DOTW	Date	Topic	Activity
AEB 3550: Agricultural Data Analysis			
DOTW	Date	Topic	Activity
Mon	8/23/2021	Syllabus and Introductions	Intro Quiz
Wed	8/25/2021	Chapter 1: Data and Statistics	Lecture
Fri	8/27/2021	Chapter 2: Descriptive Statistics: Tabular and Graphical Approaches	Lecture
Mon	8/30/2021	Team Formation/Contracts	TBL Contract
Wed	9/1/2021	Chapter 2: Descriptive Statistics: Tabular and Graphical Approaches	Lecture
Fri	9/3/2021	Module 1 and 2 iRAT/tRAT and Problem Solving	RAT 1/PS 1
Mon	9/6/2021	Labor Day holiday	
Wed	9/8/2021	Chapter 3: Numerical Descriptive Statistics	Lecture
Fri	9/10/2021	Chapter 3: Numerical Descriptive Statistics	Lecture
Mon	9/13/2021	Chapter 3 iRAT/tRAT	RAT 2
Wed	9/15/2021	Chapter 3 Problem Solving/ Project 1	PS 2/Project 1
Fri	9/17/2021	Chapter 4: Introduction to Probability	Lecture
Mon	9/20/2021	Chapter 4: Introduction to Probability	Lecture
Wed	9/22/2021	Chapter 5: Discrete Probability	Lecture
Fri	9/24/2021	Chapter 4 and 5 iRAT/tRAT	RAT 3
Mon	9/27/2021	Chapter 4 and 5 Problem Solving/ Project 2	PS 3/Project 2
Wed	9/29/2021	Chapter 6: Continuous Probability	Lecture
Fri	10/1/2021	Chapter 6: Continuous Probability	Lecture
Mon	10/4/2021	Chapter 7: Sampling Distributions	Lecture
Wed	10/6/2021	Chapter 6 and 7 iRAT/tRAT and Problem Solving	RAT 4/PS 4
Fri	10/8/2021	Homecoming Holiday	
Mon	10/11/2021	Midterm 1 Review + Mid-Semester Peer Evaluation	
Wed	10/13/2021	Midterm 1	Midterm 1
Fri	10/15/2021	Chapter 8: Interval Estimation	Lecture
Mon	10/18/2021	Chapter 8: Interval Estimation	Lecture
Wed	10/20/2021	Chapter 8 iRAT/tRAT and Problem Solving	RAT 5/PS 5
Fri	10/22/2021	Chapter 9: Hypothesis Testing, Part 1	Lecture
Mon	10/25/2021	Chapter 9: Hypothesis Testing, Part 1	Lecture
Wed	10/27/2021	Chapter 9: Hypothesis Testing, Part 2	Lecture
Fri	10/29/2021	Chapter 9 iRAT/tRAT	RAT 6
Mon	11/1/2021	Chapter 9 Problem Solving/Project 3	PS 6/Project 3
Wed	11/3/2021	Chapter 10: Comparison of Means and ANOVA	Lecture
Fri	11/5/2021	Chapter 10: Comparison of Means and ANOVA	Lecture
Mon	11/8/2021	Chapter 10 iRAT/TRAT	RAT 7
Wed	11/10/2021	Chapter 10 Problem Solving	PS 7
Fri	11/12/2021	Chapter 12: Simple Linear Regression, part 1	Lecture
Mon	11/15/2021	Chapter 12: Simple Linear Regression, part 1	Lecture
Wed	11/17/2021	Project 4	Project 4
Fri	11/19/2021	Chapter 12: Simple Linear Regression, part 2	Lecture
Mon	11/22/2021	Chapter 12: Simple Linear Regression, part 2	Lecture
Wed	11/24/2021	Thanksgiving holiday	
Fri	11/26/2021	Thanksgiving holiday	
Mon	11/29/2021	Chapter 13: Multiple Regression	Lecture
Wed	12/1/2021	Chapter 12 and 13 iRAT/tRAT and problem solving	RAT 8/PS 8
Fri	12/3/2021	Midterm 2 Review and Project 5	Project 5
Mon	12/6/2021	Midterm 2--Modules 8 through 12	
Wed	12/8/2021	Final Exam Review	
Wed	12/15/2021	Final Exam--3:00 - 5:00 pm	