Course Syllabus: AEB 5516

Quantitative Methods in Agribusiness Decisions (3 credits)

Summer B 2024—July 1 – August 9, 2024

Course Format:

Fully online, asynchronous class

Instructor:

Dr. Misti Sharp; mistisharp@ufl.edu; Student (i.e. office) hours Wednesday and Friday 10:00 – 11:00 am (Eastern time) and by appointment; office hours by https://ufl.zoom.us/j/3522947632 or in McCarty Hall A, room 1189

Course Description (from Catalog):

Introduction to a variety of quantitative methods with application to business decision-making contexts.

Communication:

E-mail (either to my email address or via canvas messaging) is the best way to reach Dr. Sharp. The summer teaching of this course goes very quickly and as such, you need to be very timely in your emails should issues arise. Any issues that require action must be handled by email so that there is a written record of need. I can meet with very little notice during regular business hours (M-F 8-5). 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.

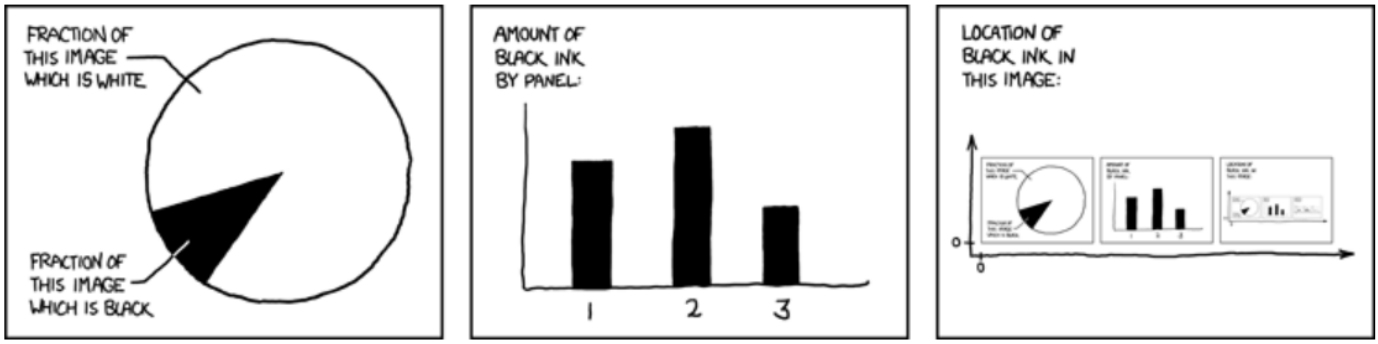
Course summary:

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, no matter your ultimate career path, it is essential that you develop the skills to summarize, assess, and make inferences from quantitative and qualitative data for decision making.

This class is a CORE class in the FRE master of agribusiness program. Mastery of the skills taught in this course is a pre-requisite for success in the program. 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 the field of agribusiness. For those not in the MAB program, this course serves as a firm foundation to applied data science in a convenient online format.

Image: Self-Description (XKCD) source: https://xkcd.com/688/



Expected Student Learning Outcomes:

After the successful completion of AEB 5516, a typical student should be able to:

Professional Development Learning Objectives:

- Identify different types of data and appropriate statistical methods;
- Analyze a data set using appropriate statistical software;
- Interpret statistical output to aid in economic decision making;
- Communicate the results of statistical analysis including writing professional reports;
- Become more comfortable with quantitative techniques and data science.

Statistical Knowledge Learning Objectives:

- Summarize data using numerical and graphical approaches;
- Test hypotheses given various probability assumptions using appropriate statistical software;
- Perform regression analysis under various assumptions for the regressand and regressors;
- Validate model assumptions and correct for common problems in regression analysis
- Interpret causal effects and use regression for prediction;
- Differentiate between different regression models and choose the most appropriate tool for the task at hand.

Prerequisites:

There are no pre-requisite classes for this course although it is a master's level course in statistics and will progress very quickly through basic statistics to more complex topics. We will be using Microsoft Excel with an option to use R/RStudio to do the applications in this class. While R is not required for this course, I highly recommend trying it out and thus will provide a 5 point bonus on projects for any work completed in R. If you have not had an introductory statistics course or it has been a while, I recommend several useful resources:

- Kahn Academy for a basic statistics and probability review: Statistics and Probability | Khan Academy
- RStudio webinars: RStudio Webinars - RStudio
- Getting Started with R and RStudio: Tutorial: Getting Started with R and RStudio – Dataquest

Required Course Materials:

Required Textbook: *Data Analysis for Business, Economics, and Policy* by Gábor Békés and Gábor Kézdi. Cambridge University Press, copyright 2021. ISBN: 978-1-108-48301-8 (Hardback) or 978-1-108-71620-8 (paperback). Data analysis business economics and policy | Econometrics, statistics and mathematical economics | Cambridge University Press

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 helpdes@ufl.edu.

Zoom: Office hours are conducted via zoom. To ensure privacy and security, please install the latest Zoom Client, and follow the security recommendations provided on the Keep Zoom Secure site.

RStudio: If you are interested in working in R, please download the latest version here: https://posit.co/downloads/

Class format:

This class is broken into 6 distinct modules which correspond to weeks of this UF Summer B course. Each module is worth 100 points and has the following flow:

Step 1: Watch the lectures for each module in a manner that suits your learning style.

Step 2: Read the textbook, look over/start the module project, and do the practice quiz on the module pages.

Step 3: Make your initial discussion post for the module and show up to office hours with any questions or concerns.

Step 4: Work on the module project and respond to a peer's discussion post by midnight on Thursday.

Step 5: Set aside 50 minutes and do the module quiz no later than Friday evening (quiz opens on Wednesday and once opened you must complete it in 50 minutes).

For a suggested course schedule, please visit the suggested course schedule page.

Course Assignments and Expectations:

Discussion post (best 5 of 6): Each module will have a discussion activity meant to help students engage with each other over the course content and connect course concepts to the real world. You are expected to do research on the discussion topic beforehand, create an original post, and comment on other people's posts. The rubric for these discussion posts will be provided in the discussion instructions.

Applications of Data Analysis (best 5 of 6): These application projects require the use of excel (or R if you so choose) to apply statistical methods to a real-world data set. While it is important to learn how to use software 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 Thursday midnight deadline). All analysis and written work in your final report MUST be your own. A rubric will be provided in the application project instructions.

Module Quiz (best 5 of 6): To solidify course concepts, interpretation of statistics, and application, each module will have a final open-book, open-note quiz exploring a unique dataset. Each quiz will have 10 multiple-choice questions worth 2 points each and two long-response questions (worth 5 points each). Once opened, you will only have 50 minutes to complete the quiz. These open on Wednesday and must be completed by midnight on Friday. There are practice quizzes from last semester to help you prepare for these quizzes. If you would like to go over these practice quizzes, please come to student hours!

Composition of Final Score:

Course Assignments	**Total Points**	**% of Total**
Discussion posts (best 5 of 6)	100 points (20 points each)	20%
Application projects (best 5 of 6)	250 points (50 points each)	50%
Module quizzes (best 5 of 6)	150 points (30 points each)	30%
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	≤ 59.9%	≤ 299	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.

Services for Students with Disabilities: 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. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Student counseling and support: If something happens in your personal life that has an impact on your academic life, you must go through the Dean of Students Office (contact below) for additional accommodations. If you are experiencing other forms of distress that do not impact your performance in my class, there are several resources available on campus for students (http://www.umatter.ufl.edu/)

Service	Location	Phone
GatorWell Health Promotions Services (works on time management, etc.) (gatorwell.ufsa.ufl.edu)	1st Floor, Reitz Union	273-4450
Dean of students (http://www.dso.ufl.edu)	P202 Peabody Hall	392-1261
Counseling and wellness center (http://www.counseling.ufl.edu/cwc/)	2190 Radio Road	392-1575
Sexual Assault Recovery Services (SARS)	Infirmary Building	392-1161
Student health care center (http://shcc.ufl.edu)	Infirmary Building	392-1161
University Police Department (police.ufl.edu)		392-1111
Career Resource Center (http://www.crc.ufl.edu)	1st Floor, Reitz Union	392-1601
UF Help Desk—Technical Support (helpdesk@ufl.edu)	1st Floor, the HUB	392-4357
Library Support (http://cms.uflib.ufl.edu/ask)	online	
Teaching Center (http://teachingcenter.ufl.edu/)	Broward Hall	392-6420
Writing Studio (http://writing.ufl.edu/writing-studio/)	online	846-1138

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/

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/ugrad/current/regulations/info/attendance.aspx

Netiquette Policy:

As in any class, it is expected that students treat their professors, teaching assistants and fellow students with respect and care. Dr. Sharp has a general policy: treat others as they would want to be treated. Do not assume that something that is funny to you is funny to someone else. In addition, do not assume that something which is clear to you is clear to someone else. In general, conduct yourself according to the advice provided in the UF Netiquette policy: http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf and in addition, understand that you may be put in a position to speak for your team and any representation of your team or own viewpoints which are inappropriate or disrespectful will be dealt with immediately and may include a reduction in points for the assignment in question.

Schedule:

Date	Suggested Study/Activity	Activity due
7/1/2024	Syllabus and Orientation (Module 0)	Introduction Discussion
7/2/2023	Module 1: An Introduction to Data Analysis	Discussion 1
7/3/2023	Module 1: An Introduction to Data Analysis	Discussion 1 (respond to peer)
7/4/2023	Independence Day—UF Holiday	
7/5/2024	Module 1: An Introduction to Data Analysis	Project 1 & Quiz 1
7/8/2024	Module 2: Summarizing Data (Descriptive Statistics)	
7/9/2024	Module 2: Summarizing Data (Descriptive Statistics)	Discussion 2
7/10/2024	Module 2: Summarizing Data (Descriptive Statistics)	Discussion 2 (respond to a peer)
7/11/2024	Module 2: Summarizing Data (Descriptive Statistics)	Project 2
7/12/2024	Module 2: Summarizing Data (Descriptive Statistics)	Quiz 2
7/15/2024	Module 3: Probability and Hypothesis Testing	
7/16/2024	Module 3: Probability and Hypothesis Testing	Discussion 3
7/17/2024	Module 3: Probability and Hypothesis Testing	Discussion 3 (respond to a peer)
7/18/2024	Module 3: Probability and Hypothesis Testing	Project 2
7/19/2024	Module 3: Probability and Hypothesis Testing	Quiz 3
7/22/2024	Module 4: Simple Linear Regression	
7/23/2024	Module 4: Simple Linear Regression	Discussion 4

7/24/2024	Module 4: Simple Linear Regression	Discussion 4 (respond to a peer)
7/25/2024	Module 4: Simple Linear Regression	Project 4
7/26/2024	Module 4: Simple Linear Regression	Quiz 4
7/29/2024	Module 5: Multiple Regression	
7/30/2024	Module 5: Multiple Regression	Discussion 5
7/31/2024	Module 5: Multiple Regression	Discussion 5 (respond to a peer)
8/1/2024	Module 5: Multiple Regression	Project 5
8/2/2024	Module 5: Multiple Regression	Quiz 5
8/5/2024	Module 6: Real World Applications	
8/6/2024	Module 6: Real World Applications	Discussion 6
8/7/2024	Module 6: Real World Applications	Discussion 6 (respond to a peer)
8/8/2024	Module 6: Real World Applications	Project 6
8/9/2024	Module 6: Real World Applications	Quiz 6

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 in class, via Gatorlink e-mail listserv, and/or posted 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!!****

I look forward to a fun and productive semester with you all!