

Quantitative Methods in Agribusiness Decisions (3 credits)

Fall 2019

Period 3, Monday, Wednesday, & Friday 11:45 am - 12:35 pm

Monday Classroom: McCarty Hall B 3086

Wednesday Classroom: Online unless state otherwise

Friday Classroom: McCarty Hall A 1142

Instructor and Contact Information

Dr. Misti Sharp	Email: mistisharp@ufl.edu
Office: 1193 McCarty Hall A	Phone: 352-294-7632
In-office hours: Tuesday and Friday from 8:30 – 10:30 am and by appointment	
Zoom video conferences can be requested (meeting ID: 902 541 919 or +1 646-558-8656) https://ufl.zoom.us/j/902541919	

Course Description (from Catalog): Introduction to a variety of quantitative methods with application to business decision-making contexts.

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: Email is the best way to reach me. Any issues that require action MUST be handled by email so that there is a written record of need. Phone calls and after class conversations are not likely to result in action. I typically respond to emails within 24 hours if a response is required.

Class cancellations, changes in office hours, meeting locations and changes in the syllabus will be announced on e-learning. Be sure that you receive those notifications in a timely manner (controlled in your e-learning settings). Appointments are not necessary during office hours. Groups of students are welcome.

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: ddepattie@ufl.edu

Teaching Assistants: Mr. Moonwon Soh; 1094 McCarty Hall B;
E-mail: moonwon.soh@ufl.edu
Office Hours: Monday and Friday from 8:30 – 9:20 am

Course Syllabus: AEB 5516

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 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.

Expected Student Learning Outcomes: After the successful completion of AEB 5516, 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.

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 helpdes@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.

Evaluations: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

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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)	1 st 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)	Infirmery Building	392-1161
Student health care center (http://shcc.ufl.edu)	Infirmery Building	392-1161
University Police Department (police.ufl.edu)		392-1111
Career Resource Center (http://www.crc.ufl.edu)	1 st Floor, Reitz Union	392-1601
UF Help Desk—Technical Support (helpdesk@ufl.edu)	1 st 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:

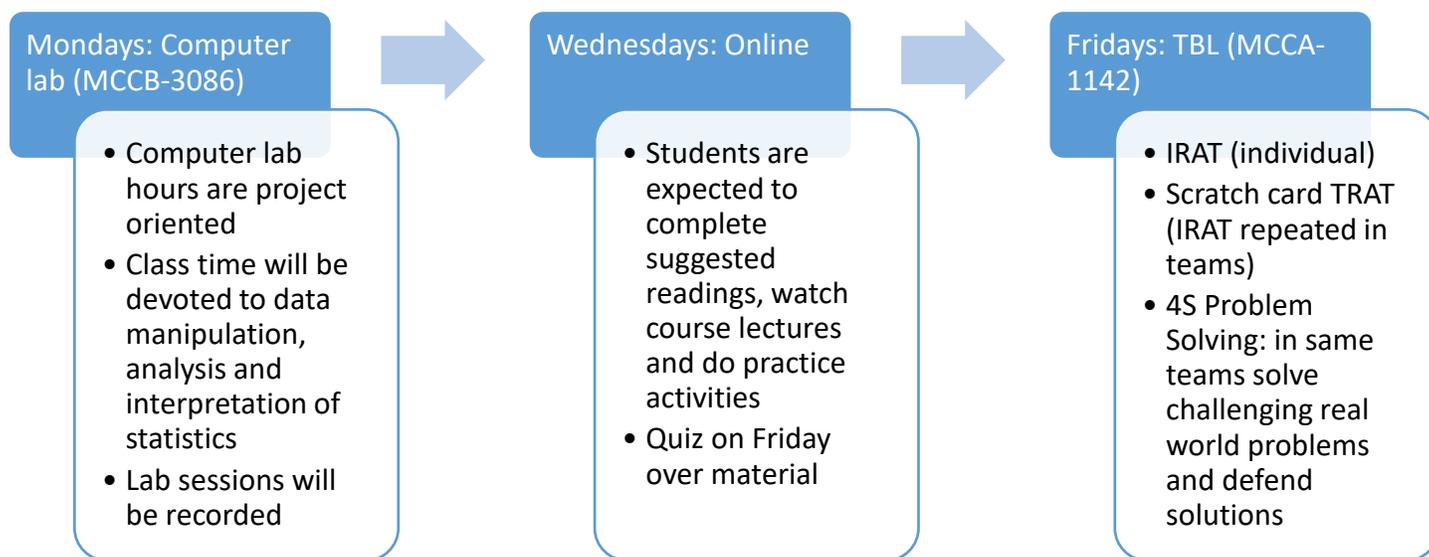
<https://sccr.dso.ufl.edu/process/student-conduct-code/>

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>

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Class Structure: This is considered a “flipped classroom;” more specifically, this class will be taught using “Team Based Learning-TBL,” a highly effective teaching paradigm that uses carefully designed small groups to facilitate learning and exploration of important course concepts (see the following video: <https://www.youtube.com/watch?v=QudVoyiacuw>). This means that students are expected to learn the course materials using multiple modes including a significant amount of outside of the classroom effort. In this classroom, the flow of each week will be as follows:



Course Assignments and Expectations:

Applications of Data Analysis (best 5 of 6): 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 immediately after the deadline). While collaboration is generally allowed on these assignments, you MAY NOT submit someone else’s work as your own. Any unauthorized collaboration will be addressed through the Dean of Students Conflict Resolution process which may result in a grade penalty, course penalty, and remediation related to plagiarism and unethical behavior.

Individual Readiness Assessment Test (IRAT) (Best 10 of 12): Each Friday, you are expected to complete an IRAT at the beginning of class. Tardiness and absenteeism will result in a grade of 0 on this assessment. This IRAT will include multiple choice questions related to assignments, readings and lectures. This means that you MUST do the assigned readings and watch the assigned lectures PRIOR to class on Friday. Each IRAT will be weighted equally, although some weeks will contain more content and difficulty varies significantly from week to week. The tested material will build on itself although the IRATs will not be *explicitly* cumulative. There are no excuses for missed IRATs as you get to drop 2 and they are the subject of class on Friday. It is in your best interest to do all IRATs as it affects your performance AND group dynamics.

Team Readiness Assessment Test (TRAT) (Best 10 of 12): These will be the same assessment as provided in class on Friday 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 on Friday, you will receive a zero on your TRAT for that day. There are no excuses for missed TRATs as you get to drop 2 and group work is not possible to redo.

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4S Problem Solving Activity (based on peer feedback): 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 earn for this portion will depend on the feedback you provide for your peers as well as the feedback peers provide for you.

Exams (best 2 of 3): There will be 2 midterms and one final exam. Each exam will consist of 20 multiple choice questions with space to show your work to earn partial credit for missed questions. If you miss an exam, that missed exam will be your dropped exam. The expected exam dates are Wednesday, October 2nd, Monday, December 2nd and Tuesday, December 10th (at 12:30 – 2:30 pm).

Final project: Your final project will require you to collect your own data set and analyze an economic phenomenon of interest to you. This final project should tell a story about food, agriculture and/or natural resources. It will involve use of statistical tools learned throughout the semester including descriptive and inferential statistical analysis.

Composition of Final Score:

Course Assignments	Total Points	% of Total
Applications (best 5/6)	125 points (25 points each)	25%
IRATs (best 10/12)	100 points (10 points each)	20%
Exams (best 2/3)	200 points	40%
Final project	75 points	15%
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

Your final letter grade will be posted on e-learning after the final exam. The professor has the right to change this point structure at any point so long as it improves the student's final score.

****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 there is an error in recording a grade, 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 as soon as possible. You have 7 days after a grade has been posted to voice your concern. After 7 days have passed, your posted grade will be assumed to be correct and accurate.**

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For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Academic Performance:

Your grade on e-learning throughout the semester may not reflect your true performance in the course. You will earn points every single week in this semester and it is crucial that you do not “check-out” at any point in the semester. If you fall behind, you **MUST** come to my office right 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 email correspondence.
- 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.

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 to 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 in 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.

Summary: Lectures and readings are provided online. Your grade is based on individual performance on Projects (Monday; location—MCCB 3086) including a final project, in-class activities including IRATs, TRATs, and 4S problem solving (Fridays—MCCA 1142), and exams (October 2nd, December 2nd and December 10th in MCCA-1142).

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 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!

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Tentative Course Schedule:

DOTW	Date	Content	Location	Content	Project	Week
Wed	8/21/2019	Syllabus and Course Expectations	MCCA 1142	Syllabus		1
Fri	8/23/2019	Data and Statistics	MCCA 1142	Module 1		1
Mon	8/26/2019	Project 1	MCCB 3086			2
Wed	8/28/2019	Descriptive Statistics: Tabular and Graphical	Online	Module 2		2
Fri	8/30/2019	Descriptive Statistics: Tabular and Graphical	MCCA 1142	Module 2		2
Mon	9/2/2019	No class--Holiday				3
Wed	9/4/2019	Descriptive Statistics: Numerical Measures	Online	Module 3		3
Fri	9/6/2019	Descriptive Statistics: Numerical Measures	MCCA 1142	Module 3		3
Mon	9/9/2019	Project 2	MCCB-G086		Project 1 Due	4
Wed	9/11/2019	Introduction to Probability	Online	Module 4		4
Fri	9/13/2019	Introduction to Probability	MCCA 1142	Module 4		4
Mon	9/16/2019	Project 2	MCCB-G086		Project 2 Due	5
Wed	9/18/2019	Discrete and Continuous Probability	Online	Module 5		5
Fri	9/20/2019	Discrete and Continuous Probability	MCCA 1142	Module 5		5
Mon	9/23/2019	Project 3	MCCB-G086			6
Wed	9/25/2019	The Normal and Sampling Distributions	Online	Module 6		6
Fri	9/27/2019	The Normal and Sampling Distributions	MCCA 1142	Module 6		6
Mon	9/30/2019	Project 3/Exam Review	MCCB-G086		Project 3 Due	7
Wed	10/2/2019	Midterm 1	MCCA 1142			7
Fri	10/4/2019	No class--Holiday				7
Mon	10/7/2019	Project 4	MCCB-G086			8
Wed	10/9/2019	Interval Estimation	Online	Module 7		8
Fri	10/11/2019	Interval Estimation	MCCA 1142	Module 7		8
Mon	10/14/2019	Project 4	MCCB-G086		Project 4 Due	9
Wed	10/16/2019	The z-test	Online	Module 8		9
Fri	10/18/2019	The z-test	MCCA 1142	Module 8		9
Mon	10/21/2019	Project 5	MCCB-G086			10
Wed	10/23/2019	The t-test and remainders from Ch. 9	Online	Module 9		10
Fri	10/25/2019	The t-test and remainders from Ch. 9	MCCA 1142	Module 9		10
Mon	10/28/2019	Project 5	MCCB-G086		Project 5 due	11
Wed	10/30/2019	Comparisons Involving Means and ANOVA	Online	Module 10		11
Fri	11/1/2019	Comparisons Involving Means and ANOVA	MCCA 1142	Module 10		11
Mon	11/4/2019	Project 6	MCCB-G086			12
Wed	11/6/2019	Simple Linear Regression, part 1	Online	Module 11		12
Fri	11/8/2019	Simple Linear Regression, part 1	MCCA 1142	Module 11		12
Mon	11/11/2019	No class--Holiday				13
Wed	11/13/2019	Simple Linear Regression, part 2	Online	Module 12		13
Fri	11/15/2019	Simple Linear Regression, part 2	MCCA 1142	Module 12		13
Mon	11/18/2019	Project 6	MCCB-G086		Project 6 due	14
Wed	11/20/2019	Multiple Regression	Online	Module 13		14
Fri	11/22/2019	Multiple Regression	MCCA 1142	Module 13		14
Mon	11/25/2019	Exam Review	MCCA 1142			15
Wed	11/27/2019	No class--Holiday				15
Fri	11/29/2019	No class--Holiday	MCCA 1142			15
Mon	12/2/2019	Midterm 2	MCCA 1142			16
Wed	12/4/2019	Final Exam Review	MCCA 1142			16
Tues	12/10/2019	Final Exam @ 12:30 - 2:30 pm	MCCA 1142			