



**AG 506.01E – ADVANCED STATISTICAL METHODS IN AGRICULTURE
COLLEGE OF AGRICULTURAL SCIENCES AND NATUAL RESOURCES
SPRING 2019**

COURSE SYLLABUS

Instructor

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Class Time

WF 10:30 - 11:45 a.m., AGIT Room 148

Office Hours

For immediate consultation I will be available Mondays from 10:00 a.m. – 12:00 p.m. (noon), and Wednesdays and Fridays from 2:00 – 3:30 p.m. or by appointment. You are also welcome to stop by my office at any other time. If I am unable to meet with you at that time, send me an email and we will schedule an appointment. The best way to contact me is via email at Jose.Lopez@tamuc.edu. You can also email me from D2L (myleoonline.tamuc.edu). I generally answer emails within 48 hours. Students who email me after 5:00 PM can expect to receive a reply within 48 hours starting at 8:00 am of the next business day (M-F). Students who email me during holidays or over the weekend should expect a reply within 48 hours from 8:00 AM of the next regularly scheduled business day.

COURSE INFORMATION

Required Text

Little SAS Book: A Primer, Fifth Edition, by Lora D. Delwiche and Susan J. Slaughter. Cary, NC: SAS Institute Inc., 2012. (ISBN 9781612903439)

Software

Statistical Analysis System (SAS), Version 9.4.

Student SAS Order Form

If you are interested in ordering SAS for your personal computer, please fill out the Student SAS Order Form below and email it to sell@tamuc.edu or mail it to Texas A&M Software Center, 735 Lamar Street, MS 3363, College Station, TX 77843-3363.

Student SAS Order Form

<https://sell.tamu.edu/files/studentSASform.docx>

There is additional information on how to order SAS Student Software Licenses in the following website.

https://sell.tamu.edu/Personal/Student_Software_List/SAS_Student_Software_License.php

Please be aware that if you may have to download the 28 GB set of files, or provide the Texas A&M Software Center with 7 blank DVDs or a flash drive.

If you have any questions regarding how to fill out the form, please do not hesitate to contact me. Once you submit your Student SAS order form, please follow up directly with the Texas A&M Software Center at 979.845.8300 or sell@tamu.edu.

Prerequisites

AG 505 or Instructor's Approval.

Teaching Philosophy

1. A course must deliver information, concepts and methods that will be useful in the student's professional life. However, learning analytical reasoning skills and improving the ability to process and use information efficiently is more important than memorizing facts and formulas and performing procedures repeatedly.
2. Students learn best when theories, concepts and procedures are explained in plain language as well as formally, and are complemented with examples or applications that are relevant to the students.

Character Formation

It is important during your graduate education to learn the values and rewards of hard work, responsibility, and honesty. The professor will promote character formation while teaching the course.

Course Description

An advanced statistics course for students pursuing the Master of Science in Agricultural Sciences with a thesis option. Students will learn to work with various probability distributions as well as hypothesis tests, including advanced regression analysis, ANOVA, and non-parametric statistics. The course covers commonly used features and advanced statistical analysis using Statistical Analysis System (SAS) programming.

Student Learning Outcomes

Upon satisfactory completion of the course the students will be able to use SAS programming to:

- Prepare, organize, and manipulate data sets
- Summarize data sets
- Graphically analyze data sets
- Analyze data sets through descriptive statistics and correlation analysis
- Conduct regression analysis
- Conduct hypothesis testing
- Perform analysis of variance, multivariate analysis of variance, and repeated measures analysis of variance for balanced and unbalanced designs
- Perform mixed model analysis of variance and repeated measures analysis of variance

Topics

Chapter 1: Getting Started Using the SAS Software.

Chapter 2: Getting Your Data Into SAS.

- The Viewtable Window, the Import Wizard, telling SAS where to Find Your Raw Data, the INFILE Statement, Temporary versus Permanent SAS Data Sets, the LIBNAME Statements

Chapter 3: Working with Your Data.

- Creating and redefining variables; SAS Character Functions; SAS Numeric Functions; the IF-THEN Statements; the IF-THEN/ELSE Statements; Subletting Your Data; Date Informats, Functions, and Formats; the RETAIN and Sum Statements

Chapter 4: Sorting, Printing, and Summarizing Your Data

- Subsetting Your Data with the WHERE Statement; PROC SORT, PROC PRINT; PROC MEANS; PROC FREQ, PROC TABULATE; PROC REPORT

Chapter 6: Modifying and Combining SAS Data Sets

- The SET Statement, One-to-One Match Merge, One-to-Many Match Merge, Merging Summary Statistics with the Original Data, Using SAS Data Set Options, PROC TRANSPOSE

Chapter 8: Visualizing Your Data

- Bar Charts, Histograms and Density Curves, Box Plots, Scatter Plots, Series Plots, Fitted Curves, Controlling Axes and Reference Lines, Controlling Legends and Inserts, Customizing Graph Attributes

Chapter 9: Using Basic Statistical Procedures

- PROC UNIVARIATE, PROC MEANS, PROC TTEST, PROC FREQ, PROC CORR, PROC REG, PROC ANOVA

Additional Topics

- PROC MODEL, PROC GLM, PROC MIXED, PROC GLIMMIX

GRADING

Grading

Exam 1	25%
Exam 2	25%
Exam 3	25%
Lab Assignments/Quizzes/Homework	25%
	<hr/> 100%

Note: There would be an optional final comprehensive exam (Exam 4). The optional final comprehensive exam will replace your lowest exam grade (if you decide to take it).

Grading Scale

<u>Range</u>	<u>Grade</u>
90-100.00	A
80-89.99	B
70-79.99	C
60-69.99	D
Less than 60	F

Exams

No makeup exams will be offered. A grade of zero will be assigned to any missed exams. Make sure you arrive in time.

Lab Assignments

Computer lab assignments will be graded and discussed in class. Computer lab assignments will test your understanding of SAS programming. In these computer labs, you will learn the use SAS to solve practical problems and make informed decisions using data. Students will be required to submit their individual answers via eCollege.

Class Participation

Students should come to class prepared by reading and completing course assignments prior to class. It is the students' responsibility to be familiar with and understand all previously covered material prior to each new lecture.

TECHNOLOGY REQUIREMENTS

This course will be enhanced using Pearson LearningStudio, the learning management system used by Texas A&M University-Commerce. Students will be required to download PowerPoint presentations and other important class material from the Pearson LearningStudio website for the course. To access the material:

- You will need to use a current, Flash enabled browser. For PC users, the suggested browser is Internet Explorer 9.0 or 10. For Mac users, the most current update of Firefox is suggested.
- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
 - 512 MB of RAM, 1 GB or more preferred
 - Broadband connection required courses are heavily video intensive
 - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution
- You must have a:
 - sound card, which is usually integrated into your desktop or laptop computer
 - speakers or headphones.
- You might also need a:
 - webcam
 - microphone
 - headphones
- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. Java can be downloaded at: <http://www.java.com/en/download/manual.jsp>
- Current anti-virus software must be installed and kept up to date.

- You will need some additional free software for enhanced web browsing. Ensure that you download the free versions of the following software:
 - Adobe Reader
 - Adobe Flash Player
- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.
- For additional information about system requirements, please refer to Technology Requirements link at: <http://www.online.tamuc.org>

ACCESS, NAVIGATION, AND SUPPORT

Pearson LearningStudio Access and Log in Information

This course will be enhanced using Pearson LearningStudio, the learning management system used by Texas A&M University-Commerce. To access the ancillary material provided online, go to: <http://www.tamuc.edu/myleo.aspx>.

You will need your CWID and password to log in to the course. If you do not know your CWID or have forgotten your password, contact Technology Services at 903.468.6000 or helpdesk@tamuc.edu.

It is strongly recommended that you perform a “Browser Test” prior to the start of your course. To launch a browser test, login to Pearson LearningStudio, click on the ‘myCourses’ tab, and then select the “Browser Test” link under Support Services.

Pearson LearningStudio Student Technical Support

Texas A&M University-Commerce provides students technical support in the use of Pearson LearningStudio.

Technical assistance is available 24 hours a day/ 7 days a week.

If at any time you experience technical problems (e.g., you can't log in to the course, you can't see certain material, etc.) please contact the Pearson LearningStudio Help Desk, available 24 hours a day, seven days a week.

The student help desk may be reached by the following means 24 hours a day, seven days a week.

- **Chat Support:** Click on '*Live Support*' on the tool bar within your course to chat with an Pearson LearningStudio Representative.
- **Phone:** 1-866-656-5511 (Toll Free) to speak with Pearson LearningStudio Technical Support Representative.
- **Email:** helpdesk@online.tamuc.org to initiate a support request with Pearson LearningStudio Technical Support Representative.

Accessing Help from within Your Course: Click on the *'Tech Support'* icon on the upper left side of the screen inside the course. You will then be able to get assistance via online chat, email or by phone by calling the Help Desk number noted below.

Note: Personal computer problems is not an excuse for accessing the online class material. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, an Internet cafe, or a bookstore, such as Barnes & Noble, etc.

For assistance with the library: To access the Library databases and tutorials click on the Library link under Course Home or minimize your Pearson LearningStudio session and open another browser window going to the Library's web site directly, at the following link: <http://www.tamuc.edu/library> not from within Pearson LearningStudio.

Policy for Reporting Problems with Pearson LearningStudio

Should students encounter Pearson LearningStudio based problems while submitting any online assignment specified by the instructor, the following procedure **MUST** be followed?

1. Students must report the problem to the help desk. You may reach the helpdesk at helpdesk@online.tamuc.org or 1-866-656-5511
2. Students **MUST** file their problem with the helpdesk and obtain a helpdesk ticket number
3. Once a helpdesk ticket number is in your possession, students should email me to advise me of the problem and to provide me with the helpdesk ticket number
4. At that time, I will call the helpdesk to confirm your problem and follow up with you

PLEASE NOTE: Your personal computer/access problems are not a legitimate excuse for filing a ticket with the Pearson help desk. You are strongly encouraged to check for compatibility of your browser **BEFORE** the course begins and to take the Pearson LearningStudio tutorial offered for students who may require some extra assistance in navigating the Pearson LearningStudio platform. **ONLY** Pearson LearningStudio based problems are legitimate.

Internet Access

An Internet connection is necessary to download PowerPoint presentations and other important class material. View the requirements as outlined in Technology Requirements above for more information.

MyLeo Support

Your myLeo email address is required when you wish to contact the instructor via email. Please email helpdesk@tamuc.edu or call us at 903-468-6000 with any questions about setting up your myLeo email account. You may also access information at <https://leo.tamuc.edu>.

Learner Support

The following One Stop Shop online website (<http://www.tamuc.edu/admissions/onestopshop/>) was created to provide students with many resources. Similarly, this Academic Success Center link (<http://www.tamuc.edu/campusLife/campusServices/academicSuccessCenter/>) focuses on providing academic resources to help students achieve academic success.

Course Navigation

This course will be enhanced using Pearson LearningStudio, the learning management system used by Texas A&M University-Commerce. Students will be required to download PowerPoint presentations and other important class material from the Pearson LearningStudio website for the course. Your grades will also be available in Pearson LearningStudio.

The Pearson LearningStudio website for this course is divided up into the course sections that will be covered in this course. Each section will have (a)/(an) Overview, Objectives, Handout, Assignments, Practice Questions, and Review Questions. The Assignments section inside each Section tab will provide you with a list of everything you need to do to prepare for class and help you succeed in the course.

COMMUNICATION WITH INSTRUCTOR

Interaction with Instructor Statement

The primary form of communication with the class will be in class. Occasionally, I will post Announcements in the D2L website for the course and/or contact students via email. Any changes to the syllabus or other important information critical to the class will be announced in class.

During regular working days and hours (M-F from 8:00 AM – 5:00 PM), I generally answer emails within 48 hours. Students who email me outside of regular working days and hours can expect a reply within 48 hours from 8:00 AM of the next business day (M-F). Students who email me during holidays or over the weekend should expect a reply within 48 hours from 8:00 AM of the next regularly scheduled business day.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures

Academic Honesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including (but not limited to) receiving a failing grade on the assignment, the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. In **ALL** instances, incidents of academic dishonesty will be reported to the Department Head. Please be aware that academic dishonesty includes (but is not limited to) cheating, plagiarism, and collusion.

Cheating is defined as:

- Copying another's test or assignment
- Communication with another during an exam or assignment (i.e. written, oral or otherwise)
- Giving or seeking aid from another when not permitted by the instructor
- Possessing or using unauthorized materials during the test
- Buying, using, stealing, transporting, or soliciting a test, draft of a test, or answer key

Plagiarism is defined as:

- Using someone else's work in your assignment without appropriate acknowledgement
- Making slight variations in the language and then failing to give credit to the source

Collusion is defined as:

- Collaborating with another, without authorization, when preparing an assignment
If you have any questions regarding academic dishonesty, ask. Otherwise, I will assume that you have full knowledge of the academic dishonesty policy and agree to the conditions as set forth in this syllabus.

Attendance Policy

While this is an online course, students are expected to ‘attend class’ and actively participate. Student participation/activity will be monitored by the professor. Students should plan to dedicate approximately 15-20 hours/week of time to this course.

APA Citation Format Policy

It is very important that you learn how to cite properly. In some ways, citations are more important than the actual text of your paper/assignment. Therefore, you should take this task seriously and devote some time to understanding how to cite properly. If you take the time to understand this process up front, it will save you a significant amount of time in the long run (not to mention significant deductions in points).

In the social and behavioral sciences, we generally follow the APA (American Psychological Association) formatting style. As a rule of thumb, one cites whenever they are paraphrasing other people’s words or when they quote other’s words directly. You may learn to cite from a variety of different sources including the APA Tutorial and the sources listed below and in the Getting Started section of your course.

www.apastyle.org

<http://owl.english.purdue.edu/owl/resource/560/02/>

www.library.cornell.edu/resrch/citmanage/apa

It is the student’s responsibility to understand how to cite properly. If you have questions, feel free to ask.

Late Work

It is the student’s responsibility to plan accordingly and submit their assignments in a timely manner. Class assignments will be announced by the instructor during regular class time. The instructor reserves the right to assign a grade of zero to any late assignment.

Drop Course Policy

Students should take responsibility for dropping themselves from the course according to University policy should this become necessary.

University Specific Procedures

ADA Statement - Students with Disabilities:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library- Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

University Email address: StudentDisabilityServices@tamuc.edu

University Website address:

<http://www.tamuc.edu/campuslife/campuservices/studentDisabilityResourcesAndServices/default.aspx>

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. See Student's Guide Handbook, Rules and Procedures, Code of Student Conduct

(<http://www.tamuc.edu/CampusLife/documents/studentGuidebook.pdf>).

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <http://www.albion.com/netiquette/corerules.html>

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Counseling Center

A student that faces a crisis or a serious and unforeseeable event that affects his/her class performance must contact the Counseling Center, Student Services Building, Room 204, Phone (903) 886-5145. If important class material or course assignments are missed because of such crisis or event, the student must contact the instructor as soon as possible.

Campus Concealed Carry

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to

((<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>) and/or consult your event organizer). Pursuant

to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

IMPORTANT DATES

Jan 16 th , Wednesday	First day of this class.
May 3 th , Friday	Last day of this class.
May10, Wednesday	Optional Final Exam, 10:30 AM – 12:30 PM.

COURSE CALENDAR

Every effort will be made to adhere to the course calendar below. However, unforeseen circumstances may require changes to the course calendar. In that case, changes will be announced during regular class time. The professor reserves the right to change the course calendar if necessary and depending on the progress of the class.

AEC 506.01E ADV STAT METHODS IN AGRICULTURE
Course Calendar, Spring 2019
MW 10:30 - 11:45 AM

Week of	Subject/Material Covered
Week 1 Jan 16 + Jan 18	Syllabus CH01: Getting Started Using the SAS Software CH02: Getting Your Data Into SAS.
Week 2 Jan 23 + Jan 25	CH02: Getting Your Data Into SAS. CH03: Working with Your Data.
Week 3 Jan 30 + Feb 1	CH03: Working with Your Data. CH04: Sorting, Printing, and Summarizing Your Data.
Week 4 Feb 6 + Feb 8	Exam 1 (CH01 + CH02 + CH03 + CH04 up to Section 4.6)
Week 5 Feb 13 + Feb 15	CH04: Sorting, Printing, and Summarizing Your Data.
Week 6 Feb 20 + Feb 22	CH04: Sorting, Printing, and Summarizing Your Data.
Week 7 Feb 27 + Mar 1	CH04: Sorting, Printing, and Summarizing Your Data. CH08: Visualizing Your Data.
Week 8 Mar 6 + Mar 8	CH08: Visualizing Your Data.
Week 9 Mar 13 + Mar 15	Exam 2 (CH01 through CH08)
Week 10 Mar 20 + Mar 22	SPRING BREAK (No Class)
Week 11 Mar 27 + Mar 29	CH09: Using Basic Statistical Procedures

Week 12 Apr 3 + Apr 5	CH09: Using Basic Statistical Procedures
Week 13 Apr 10 + Apr 12	Exam 3 (CH01 through CH09)
Week 14 Apr 17 + Apr 19	Advanced Topics
Week 15 Apr 24 + Apr 26	Advanced Topics
Week 16 May 1 + May 3	Advanced Topics
Week 17 Wed May 10	Exam 4 - Optional Final Comprehensive Exam 10:30 AM - 12:30 PM