ANSC/NRM 3308 – Agricultural Statistics
Fall 2025 – Syllabus

Course Information

Lecture
MWF at 2:00 – 2:50pm in RAS 130

Instructors

Dr. Maureen Frank
RAS 113
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(830) 261-0539 (8-5 daily, can text/call)

Mr. Caleb Hughes
HSB 116
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Office Hours
Dr. Frank: MWF 10:00am – 12:00pm
Mr. Hughes: MWF RAS: 3:00pm-4:00pm
            TTh HSB 3:00pm – 5:00pm

Anytime our doors are open, you are welcome to come in! You can also email one or both of us to make an appointment. Sometimes, field work will conflict with student hours. When this happens, we will give you as much advance notice as possible, through a Blackboard announcement.

Course Description
This course is an introduction to statistical concepts that are applied to agricultural and biological systems. The course focuses heavily on statistical thinking rather than computation. Topics include the scientific method, sampling distributions, confidence intervals, comparing two populations, p-values, study design, and science communication.

Enhanced Course Description
Forget what you've heard about this course – we have completely revamped it to better align with the standards of the American Statistical Association. That means we won't be teaching you how to draw a histogram. We won't ask you to calculate a p-value by hand (or even with a calculator, for that matter. Our relationship with p-values is… complicated). But we will be teaching you how statistics actually applies to your life – the good, the bad, and the ugly.

In this course, you will learn more about how the human brain works, and why we like to find patterns when there aren't any. You will learn about good science, and bad science. You will learn about how to share everything you learn with others! Many students do not look forward to taking a statistics course, and this probably won't be your favorite course this semester. But we hope you will see this as the most important course you take this semester. Our goal is to make this course applicable, understandable, and fun!

So, why do statistics matter? Here are a few of the questions we will explore:

- Does eating meat help or harm the environment?
- Is chocolate good for you?
- How much of a threat to the U.S. are the "super pigs" (feral hogs) in Canada?
- Why is climate change one of the biggest science communication failures?

Knowing statistics can help you answer these questions, make decisions, and communicate your decisions in a world where many daily interactions can be scrutinized on a large scale.

Oh, and while we're at it… we are going to teach you the basics of coding!

Course Objectives
At the completion of the course, the student will be able to:
1. Discuss the importance of statistics in agriculture and natural resources.
2. Calculate basic descriptive statistics using the computer program R.
3. Be able to make informative graphics with data using program R.
4. List the basic assumptions involved in statistics.
5. Describe the life cycle of science.
6. Analyze, interpret, and explain statistics from a case study.

Student Learning Objectives
Student will demonstrate that he/she is able to:
1. Use the scientific method to approach problems and questions.
2. Apply statistical concepts and procedures to real-life data.
3. Evaluate and explain data and information.
4. Execute interpretable code in the R programming language.
5. Explain how relevant R code produces their results and graphics.

TEA AFNR Educator Standards
The AFNR teacher understands:
1. The foundations of agricultural education
   a. (Competency I: F and G) Understands the use of scientific principles, methods, measurements and calculations in agriculture and agricultural education, and

b. Collects organizes, displays and analyzes data according to an orderly plan, using data, tables, graphs, narrative descriptions and other methods as appropriate.

ANSC and NRM BS Marketable Skills

Students will acquire these marketable skills:

1. Students evaluate new information for applicability to current and future problem-solving and decision-making.
2. Students will use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
3. Students identify complex problems and review related information to develop and evaluate options and implement solutions.
4. Students apply knowledge to projects that include biostatistics and research methods.

Course Materials and Policies

Textbook and Supplies

There is not a textbook for this class! We will assign readings from popular articles and the scientific literature. These will be provided to you via Blackboard.

Some work in this class will require the use of a personal laptop. If you do not have a personal laptop, you can get one through the university. Please see instructions on Blackboard.

You must use the program R for this course. R is a programming language that is rapidly becoming a standard tool in many fields for data science, statistical analysis, and graphics. Before class on Sept. 3, please download and install program R as well as RStudio, a convenient interface for R. When installing, accept all default settings.

- To install R: https://cloud.r-project.org/
  - Click the link for your operating system (Windows, MacOS).
    - Windows Users: On the next page, click the link titled "install R for the first time". On the next page, click "Download R-4.X.X for Windows".
    - Mac Users: On the next page under the centered title "Latest release:", click the link called "R-4.X.X-arm.pkg".

- To install RStudio: https://rstudio.com/products/rstudio/download/
  - Windows Users: Click the blue box "Download RStudio Desktop for Windows".
  - Mac Users: Scroll down to the first table of links and click the link next to "MacOS 13+" in the Download column.

Grade Breakdown		Grading Scale
Quizzes/Assignments	20%	A: 89.5 – 100%
Exam I	20%	B: 79.5 – 89.4%
Exam II	20%	C: 69.5 – 79.4%
Exam III	20%	D: 59.5 – 69.4%
Final Project	20%	F: below 59.4%

Please do not ask us what your grade is – check Blackboard! If you do have a question, you **must** send a Blackboard message. Due to privacy concerns, we cannot discuss grades over email.

Attendance

Students are expected to attend every class and arrive on time. If class must be missed, the student is expected to find out what was missed, including asking a classmate for hand-taken notes. Most information from lectures (slides, announcements, etc.) will be posted in Blackboard, but this will not include notes from the board. Roll will be taken every lecture.

It is the policy of this class to drop a student with a grade of "F" if the student has 9 or more absences. Any time class is missed, for any reason other than a university-approved event, it will be recorded as an absence.

Participation

This class requires you to engage with the instructors and your fellow students. This includes asking questions during class, attending office hours, completing readings and assignments, and being prepared to participate in class discussions and activities.

Group work will be assigned during this course, including the final project. All students must participate in group work.

Quizzes and Assignments

Each week, you will have a quiz, an assignment, or both, depending on the subject material that week and what method the instructors have determined will best evaluate what you have learned. Quizzes will be completed in class. Assignments will be completed outside of class and submitted via Blackboard. Some assignments will be individual; others will be done in groups. Altogether, quizzes and assignments will be 20% of your grade.

If you will be absent, you must take your quiz or turn in your assignment BEFORE your absence. Late assignments will have a 10% grade deduction for each day late up to 5 days. After 5 days, late assignments will receive a grade of zero. Late quizzes will only be administered in the case of a legitimate unexpected absence (e.g., illness). You must contact your instructor before the end of the day that you miss class to arrange a makeup quiz. Makeup quizzes will be different than the quiz given in class.

Exams

Three exams will be given in the course (see schedule). Each exam is worth 20% of your grade. Exams are cumulative because concepts in this course build on each other. If you will be absent, you must take the exam BEFORE your absence. No make-up exams will be given for an unexcused absence. Use of internet-capable devices (e.g. smartphones, laptops) is not allowed for exams.

Final Project

There is not a final exam for this course. Instead, at the beginning of the third unit, you will be assigned to a group to complete a comprehensive project that ties together everything we have learned in the course. Your group will present to the class on the university-assigned final exam date. This final project is worth 20% of your grade. More information will be given in class.

Communication

You are required to check your Sul Ross email and Blackboard announcements several times per week. We do not use the personal or preferred email addresses that you may have on record with the university.

Academic Integrity

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused. Academic dishonesty hurts everyone and reduces the value of college degrees.

Examples of academic dishonesty include but are not limited to:

- Turning in work as original that was used in whole or part for another course and/or professor
- Turning in another person's work as one's own
- Copying from professional works or internet sites without citation
- Collaborating on a course assignment, examination, or quiz when collaboration is forbidden

Generative AI may not be used unless specifically allowed for an assignment.

It is your responsibility to read and understand the university's policy on academic dishonesty in the SRSU Student Handbook, as all violations will be taken seriously and handled through the appropriate university process. The Student Handbook can be found at: https://www.sulross.edu/wp-content/uploads/2020/09/Student-Handbook-24-25-1.pdf.

Any student shown to violate academic integrity will receive no credit (score of 0) for work done and/or may be penalized in accordance with published University Rules.

Electronics in the Classroom

Cell phones and other electronic devices can create distractions for learning, both for yourself and others. Because this class uses laptops as a tool, you will have access to this device for taking notes and searching the internet for relevant material. Therefore, cell phones and other electronics may not be used. Laptops may not be used for activities that do not directly relate to class. The use of internet-capable devices (e.g., smartphones) is not allowed for exams. Headphones/earbuds will not be allowed in class for any reason.

General Expectations

We expect students to:

- ASK whenever something is unclear. Preferably, ask your question in class, as it is likely that others have the same question.
- ATTEND lecture and be on time.
- PARTICIPATE in class.
- READ the required assignments.
- COMPLETE all assignments in a timely manner.
- BE HONEST in all of your work.

Students can expect us to:

- GIVE our best effort in teaching you.
- BE AVAILABLE to help outside of class.
- ANSWER all of your questions to the best of our knowledge – if we don't know the answer, we will find out.
- BE FAIR in all grading.
- PROVIDE timely, constructive FEEDBACK regarding your work.

Resources

SRSU Disability Services (ADA Statement)

Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Alpine Students seeking accessibility/accommodations services must contact Mary Schwartze, LPC, SRSU's Accessibility Services Coordinator at 432-837-8203, or email mschwartze@sulross.edu. Our office is located on the first floor of Ferguson Hall – room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

Counseling Services

Sul Ross State University (SRSU) has partnered with TimelyCare, which is an online mental health support platform, and all SRSU students will have access to nine free counseling sessions. These can be accessed by visiting https://timelycare.com/srsu. Counseling is also offered in Ferguson Hall Room 112 in Alpine, and via telehealth Zoom sessions for remote students.

Library Information

The Bryan Wildenthal Memorial Library in Alpine offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, library.sulross.edu. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

Tutoring

The Lobo Den Tutoring Center offers FREE tutoring support to help you excel in your courses.

- Drop-in and scheduled appointments offered, Monday–Friday, 8:00 AM – 5:00 PM
- Location: BWML Room 128
- Regularly hosted academic workshops on STEM topics and professional development,

For more information or to book an appointment, email tutoring@sulross.edu or call (432) 837-8726.

Tutor.com offers FREE 24/7 online tutoring in over 200 subjects, including specialized support for ESL and ELL learners with native Spanish-speaking tutors. Log in through your Blackboard account.

Blackboard Support Desk

If you have any technical issues with Blackboard itself, the Blackboard Support Desk is open 24 hours a day, 7 days a week. You can reach the support desk by calling (888) 837-6055, emailing blackboardsupport@sulross.edu, using resources from the Technology Support tab within Blackboard, or clicking the Support Desk graphic on the course homepage.

Tentative Course Schedule

Please note that this schedule is subject to change. Any changes will be communicated in class and via Blackboard.

Week	Dates	Topic(s)	Monday	Wednesday	Friday
1	8/25 – 29	How the brain works	Lecture	Lecture	Lecture
2	9/3 – 5	Basic math overview	–	Quiz, lecture	Lecture
3	9/8 – 12	Basics of R	Quiz, lecture	Lecture	Lecture
4	9/15 – 19	Populations and samples	Assign. due, lecture	Lecture	Lecture
5	9/22 – 26	Confidence intervals	Quiz, lecture	Review	Assign. due, Exam I
6	9/29 – 10/3	Comparing two pop.	Lecture	Lecture	Lecture
7	10/6 – 10	*P*-values	Quiz, lecture	*TSSRM*	Lecture
8	10/13 – 17	Permutations, effect sizes	Assign. due, lecture	Lecture	Lecture
9	10/20 – 24	Life cycle of science	Quiz, lecture	Lecture	Assign. due, lecture
10	10/27 – 31	Public speaking	Quiz, review	Exam II	Lecture
11	11/3 – 7	Study design, big data	Lecture	Lecture	Lecture
12	11/10 – 14	Science communication	Quiz, lecture	Lecture	Assign. due, lecture
13	11/17 – 21	Case study	Quiz, lecture	Lecture	Lecture
14	11/24	Review	Assign. due, review	–	–
15	12/1 – 3	Practice!	Exam III	Practice	*Finals*
Finals Week		Group Presentations			

Holidays

Labor Day (no classes)	Monday, Sept. 1
Thanksgiving (no classes)	Wednesday – Friday, Nov. 26-28