

ANSC/NRM 3308 – Agricultural Statistics Course Syllabus - Fall 2021

Instructor

Name: Mr. Richard Mrozinski
Office: RAS 113 on M, W, F | FH 204 on T, R
Main Phone: 432.294.5315 (cell, 9-4 daily, best way to reach me quickly via texts and calls)
Email: richard.mrozinski@sulross.edu (checked daily)
Office Hours: M, W, F | 1:00-2:00 | RAS 113 (and virtual)
Tue, Thu | 9:00-12:00 and 2:00-3:00 | FH 204 (and virtual)
Appointments (face-to-face or virtual) can always be made via e-mail or text.
I also have "Open Door Office Hours". Feel free to come in anytime you see me in my office.

Teaching Assistant

Name: Kelsey Wogan
Office: RAS 118, WSB Herbarium
Office Hours: Tue-Fri 3:30-5:00 (Kelsey has "open door office hours" as well)
Phone: 305.905.9360 (cell)
Email: kaw18bi@sulross.edu

Course Description

An introduction to statistical concepts as applied to agricultural and biological systems. The course introduces the scientific method, inferential theory, data types, descriptive statistics, goodness of fit, the normal distribution, hypothesis testing and linear regression.

Enhanced Course Description

H. G. Wells argued that "statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write." Due to its importance to the everyday person, some (e.g. Arthur Benjamin) are currently advocating for courses in statistics to replace algebra courses in high school.

Statistical proficiency is even more important to the scientist, as good science employs statistical knowledge in every step of the scientific method. Statistics is the tool used to discern truth from fiction, and science is all about finding the truth. Statistics is so fundamental to sound science, that Karl Pearson described statistics as the "grammar of science." Whether you go on to be a technician, a researcher, a manager, or a professor, the knowledge you gain in this course will be critical to your success.

A chief complaint from hiring managers of new hires concerns graduates' lack of statistical ability. So please take this course very seriously. Your future employers will want to know if you know your statistics!

Let's be frank. Statistics can be an intimidating subject. My promise is to walk with you every step of the way. I have been teaching graduate and undergraduate statistics and helping students with their research at Sul Ross since 2015. Prior to coming to Sul Ross, I had 20-years of experience applying statistical principles as an aerospace engineer at NASA for our nation's human spaceflight programs. Life then brought me to West Texas, and I could not be happier. I LOVE teaching statistics, and plan to help each of you become statistically competent by the end of this semester.

Now, let's go delve in and tackle some statistics!

Objectives and Outline

Course Objectives

At the completion of the course, the learner will be able to:

1. Discuss the importance of statistics in agriculture and natural resources.
2. Identify parametric and nonparametric tests, descriptive statistics and inferential statistics
3. List the basic assumptions involved in statistics.
4. Solve basic statistical tests.
5. Interpret statistical results.

Course Outline (Numbers given are the associated chapters in the textbook)

- | | |
|--|---|
| 1. Statistics and Problem Solving | 9. Samples and Sampling Distributions |
| 2. Data, Reality, and Problem Solving | 10. Estimation: Single Samples |
| 3. Visualizing Data | 11. Hypothesis Testing: Single Samples |
| 4. Describing and Summarizing Data from One Variable | 12. Inferences about Two Samples |
| 5. Discovering Relationships | 13. Regression, Inference, and Model Building |
| 6. Probability, Randomness, and Uncertainty | 14. <skipped> |
| 7. <skipped> | 15. Analysis of Variance (ANOVA) |
| 8. Continuous Probability Distributions | 16. Looking for Relationships in Qualitative Data |
| | 17. <skipped> |

ANSC Student Learning Objectives

Student will demonstrate that he/she is able to:

1. Recognize and be able to utilize animal breeds from a variety of domestic species.
2. Comprehend the role of nutrition in the production of food animals.
3. Understand the processes involved in producing meat products from a variety of domestic food animals.
4. Select breeding animals using genetic information.

NRM Student Learning Objectives

Student will demonstrate that he/she is able to:

1. Identify species of wildland plants and wildlife common to the western United States and describe their natural history.
2. Demonstrate knowledge of the elements of an ecosystem.
3. Communicate about natural resources and conservation both verbally and in writing.
4. Conduct range and wildlife inventories in a team setting.
5. Apply knowledge about elements of an ecosystem into an appropriate conservation management plan.

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 BS Marketable Skills

Students will acquire these marketable skills:

1. Students acquire knowledge of techniques and equipment for planting, growing, and harvesting food products (both plant and animal) for consumption, including storage/handling techniques.
2. Students acquire knowledge of plant and animal organisms, their tissues, cells, functions, inter-dependencies, and interactions with each other and the environment.
3. Students demonstrate understanding the implications of new information for both current and future problem solving and decision-making.
4. Students use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
5. Students identify complex problems and reviewing related information to develop and evaluate options and implement solutions. Communicating findings in both oral and written form at a level appropriate for the needs of the audience.

Range and Wildlife Management BS Marketable Skills

Students will acquire these marketable skills:

1. Students will demonstrate knowledge of key NRM topics.
2. Students will be able to apply knowledge to projects that include biostatistics, research methods, and scientific writing.
3. Students will demonstrate skills in scientific writing and analysis.

Logistics / Materials

Class Meeting Time/Place

Lecture: MWF 2:00 pm - 2:50 pm in RAS 130 (physical) or by Blackboard (virtual)

Text and Supplies

1. Hawkes Online Software Access Code (online learning system plus an e-book of Item #2) (**Required**)
2. Hawkes, J. S. (2019). *Discovering Statistics and Data* (3rd ed.). Mount Pleasant, SC. Hawkes Learning / Quant Systems.
 - An electronic version (e-book) is **required** (and is automatically included with Item 1 above). A physical hardcopy is optional but encouraged. See “Bundle Options” below for more information.
3. Statistics-capable calculator (**required**)
 - I recommend getting a TI-83, TI-83 Plus, TI-84, TI-84 Plus, or TI-84 CE. Silver editions are great (more memory, more tools) but definitely not necessary and not needed for this course. Many other calculators would work, but the book and website we will be using specifically has instructions for the TI-83/84 family of calculators. Some notes:
 - These can be expensive to buy new, so *the NRM department has available a limited supply of calculators that students can borrow for the semester, on a first-come-first-served basis*. Students must come in-person to the NRM department to check out a calculator, then return it at the end of the semester. Failure to return a borrowed calculator will result in a Hold being placed on your SRSU account until the calculator is returned, or the student has paid SRSU the cost of replacement for a new calculator.
 - If you cannot borrow an NRM calculator, then many students choose to buy used, which is a great option. You could also rent a calculator (go online and google “calculator rental” to see several rental options).
 - Finally, the book and website we’ll be using also have instructions for Microsoft Excel, so it’s possible to complete the course using Excel, if you have access to that software.

NOTES:

- **Regarding Items 1 and 2:** When you go to the SRSU bookstore website, you’ll see two items listed for this course. Both are actually “bundles” of multiple items. The first bundle is labeled “Required Option 1”, and the other is labeled “Required Option 2”. **It is required that you purchase one bundle OR the other, BUT NOT BOTH!**
 - The “Required Option 1” bundle (ISBN 9781642770155) is Item #1 above, i.e. it includes an access code for the online software (<http://www.hawkeslearning.com/>) that we’ll be using in the course, AND electronic e-book access (via the Hawkes’ website) to the course text.
 - The “Required Option 2” bundle (ISBN 9781642770117) includes Item #1 AND #2 above, i.e. it adds an optional hardcopy of the course text to “Required Option 1”. The only reason to spend more for this bundle option is if you want a physical hardcopy of the course text in addition to the e-copy.
 - You must have purchased online software access (a Hawkes license) by class time no later than the 3rd class day. **If you have not purchased your Hawkes access by the end of the second week of class, you will be dropped from this class with an “F.”**
 - For help with Hawkes access, please contact Hawkes Technical Support: M-F, 7:00 AM to 9:00 PM (Central Time), 843-571-2825, <http://support.hawkeslearning.com/supportcenter/>.

Grading Information / Course Policies

Course Grade

Exam I	20%
Exam II	20%
Exam III	20%
Exam IV (Final Exam)	20%
Homework	20%

Grade Assignment

<60 = F, 60-69 = D, 70-79 = C, 80-89 = B, 90-100 = A.

Readings

The course and its material are organized by chapter. Each chapter has a reading assignment that explains the material. ***The assigned readings are essential; completing 100% of the assigned readings is expected.***

Homework

- Homework will be completed in Hawkes. It is considered completed when a 90% mastery level is achieved in the Hawkes certify mode for that lesson. A zero is earned if the mastery level of 90% is never reached in Hawkes Certify mode.
- If the 90% mastery level is achieved, and the homework is completed on time, a score of 100 is earned. However, students are highly encouraged to achieve 100% mastery in all lessons, as all lesson material is potential exam material.
- If the mastery level is achieved, but the homework is 0-1 days late, a score of 75 is earned.
- If the mastery level is achieved, but the homework is 1-2 days late, a score of 50 is earned.
- If the mastery level is achieved, but the homework is 2-3 days late, a score of 25 is earned.
- For 3 or more days late, the earned score will be zero, regardless of mastery level achieved.
- Therefore, the only possible homework scores are 0, 25, 50, 75, and 100.

Exams

Four exams will be given in the course (see schedule). Exams are not cumulative in the sense that Exam II does not test the material tested on Exam I, and Exam III does not test material tested on Exams I and II, etc.; however, concepts from throughout in the course will always be needed to complete every exam. **No make-up exams will be given for an unexcused absence. Use of internet-capable devices (e.g. smartphones) is not allowed for exams.**

Participation

- I expect a high level of engagement to enhance everyone's learning. This includes interacting with the instructor and other students, asking questions during class, posting in the Blackboard discussion forums, writing entries in Blackboard journals, attending office hours (in-person and/or online), completing outside of class assignments and readings, and being prepared to participate in class discussions.
- Online participation: Any time you attend class online (via Blackboard Collaborate Ultra), you are required to be properly dressed, avoid video distractions, and keep your microphone muted except to ask questions or request clarification. **Anyone causing distractions may be muted, have their video shut off, and/or removed from the session without warning, at the instructor's discretion.**

Due Dates/Times/Extensions

All graded work, including exams, are expected to be on-time. **No due dates for ANY graded work, including exams, will be extended without PRIOR e-mail arrangements** initiated by the student, and only for valid reasons. **Before an accommodation (e.g. extended due date) can be granted for a COVID-related reason, students are required to first submit the SR COVID-19 Self Report form found at <https://srinfo.sulross.edu/covid-19/self-report/>.**

Academic Integrity

Academic dishonesty hurts everyone and reduces the value of college degrees. Doing someone else's work, presenting the ideas and work of others as your own, submitting the same paper for multiple classes, and/or failing to cite your sources when you utilize the ideas of others, are all examples of academic dishonesty. 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/page/2454/student-handbook> (page 80). In addition, please note that plagiarism detection software will be used in this class for written assignments, as well as monitoring software for any online exams. **Any student shown to violate academic integrity will receive no credit (0) for work done and/or may be penalized in accordance with published University Rules.**

Communication

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

Attendance

- Students are expected to attend every class. If class must be missed, the student is expected to find out what was missed, and it is advised you obtain any hand-taken notes from a classmate. As much information as possible from lectures (PowerPoints, announcements, etc.) will be posted in Blackboard but it is not guaranteed that everything will make it to Blackboard.
- Roll WILL be taken every lecture for the face-to-face students, attendance will be automatically recorded for those joining live lecture online, and viewing of recorded lectures will also be automatically recorded by Blackboard.
- It is policy of this class to **drop a student with a grade of ``F" if 9 hours or more of class are missed**. Any time class is missed, for any reason, it will be recorded as an absence. Any time class is missed, for any reason, it will be recorded as an absence, unless an absence can be shown to be due to a college-related event.
- Students are expected to arrive to class on time. If a student is perpetually late, they will be asked to not attend class unless they can arrive on time. If tardiness becomes a problem for the class as a whole, people who arrive late will not be permitted to enter the class. If this stricter policy becomes necessary, there will be an announcement made in class.

Electronics in the Classroom

The use of personal laptops, cell phones, iPads, and other electronic devices can create distractions for learning, both for yourself and others. However, such devices can also be great tools to aid learning. Therefore, using electronic devices for class purposes (e.g. taking notes, working out problems, searching the internet) is allowed in silent mode. If you choose to use electronic devices in class, do so in a professional manner that does not impede others' learning. **The use of internet-capable devices (e.g. smartphones) is not allowed for exams. Headphones will not be allowed in class for any reason.**

General Expectations

Statistics can be a very intimidating subject. However, you cannot survive in the biological sciences without knowing statistics. To maximize learning in this course, we should have some expectations of each other.

I expect from you:

- ASK whenever something is unclear. Preferably in class, as it is likely that others have the same question. **THIS IS YOUR MOST IMPORTANT JOB!**
- ATTEND lecture; be on time as a courtesy to others.
- PARTICIPATE in class.
- READ the required sections from the text. If you come to me with a question and it is clear that you haven't read the book or the lecture notes, I will direct you to the reading first.
- DO all assignments, do them in a timely manner, and ensure I can read them! Parts of assignments that I can't read will not be graded. If you are late with assignments, it prevents me from returning others' assignments until I have yours in-hand.
- BE HONEST in all of your work.

What you can expect from me:

- GIVE 100% effort in teaching you the best I can.
- Make myself AVAILABLE to help outside of class.
- ANSWER all of your questions to the best of my knowledge, and if I don't know the answer I will find out.
- Be FAIR in all grading.
- Provide you with timely, constructive FEEDBACK regarding your work.

Learning Environment, and Life

I aim to create a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, socioeconomic class, age, nationality, etc.). I also understand that the crisis of COVID, economic disparity, and health concerns, or even unexpected life events could impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create an inclusive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you

Resources and Assistance

SRSU Library Services

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, <https://library.sulross.edu/>. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

Tutoring

SRSU tutoring will be available shortly after the semester starts. Contact Anita Banegas (432-837-8992, abanegas@sulross.edu) or Mabel Garcia (432-837-8629, mag15bf@sulross.edu) to get information or to request an appointment.

Blackboard's Support Desk

If you have any technical issues with Blackboard itself, e.g. if you are having issues submitting a document, getting videos to play, or you are dealing with a technical error in the course, then the Blackboard Support Desk is ready to help you. The 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. As always, academic questions about course assignments, due dates, and general course questions should be directed to your instructor.

SRSU Disability Services

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. Students seeking accessibility / accommodations services must contact Rebecca Greathouse Wren, LPC-S, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and they will get back to you as soon as they can during working hours), or e-mail rebecca.wren@sulross.edu. The office is located on the first floor of Ferguson Hall (Suite 112), and the mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

Tentative Course Schedule (Subject to Change)

Week #	Dates	Due Monday	Reading Assignment	Pages	Due Friday
1	08/23-08/27	-	1.6-1.8	9	-
2	08/30-09/03	HW Ch 1	2.1-2.2	26	-
3	09/06-09/10	HW Ch 2 (Tue)	3.1-3.5	45	-
4	09/13-09/17	HW Ch 3	4.1-4.3	43	-
5	09/20-09/24	HW Ch 4	5.1-5.3	48	Exam 1 (Ch 1-4)
6	09/27-10/01	HW Ch 5	6.1-6.3	34	
7	10/04-10/08	HW Ch 6	7.1-7.3, 8.1-8.4	45	HW Ch 7
8	10/11-10/15	HW Ch 8	9.1-9.3, 9.5	23	
9	10/18-10/22	HW Ch 9	10.1-10.2	18	Exam 2 (Ch 5-9)
10	10/25-10/29	HW Ch 10	11.1-11.3, 11.6	40	
11	11/01-11/05	HW Ch 11	12.1-12.2	42	
12	11/08-11/12	HW Ch 12	13.1-13.3	28	Exam 3 (Ch 10-12)
13	11/15-11/19	HW Ch 13	15.1-15.3	39	
14	11/22-11/26	HW Ch 15	16.1-16.3	24	-
15	11/29-12/03	HW Ch 16	N/A	0	Exam 4 (Ch 13, 15-16)

Holidays

Mon	09/06	Labor Day holiday (no classes)
Wed-Fri	11/24-26	Thanksgiving Day holiday

Exam Schedule

Exam I (Chapters 1-4)	Friday, September 24 (tentative)
Exam II (Chapters 5-6, 8-9)	Friday, October 22 (tentative)
Exam III (Chapters 10-12)	Friday, November 12 (tentative)
Final Exam (Chapters 13, 15-16)	Tuesday, December 07 (3:00-5:00)