ANSC/NRM 3308 – Agricultural Statistics
Course Syllabus - Fall 2020

Instructor

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Office Hours: Mon & Wed | 3:00-4:00 | RAS 113 (and virtual)
Tue & Thu | 10:00-11:30 | FH 204 (and virtual)
Friday | 11:00-12:00 | RAS 113 (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: Joshua Coward
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Office Hours: M-F 9:00-10:00 (Josh has "open door office hours" as well.)
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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 (a.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.

In the short term, statistical knowledge will inform most decision you make in every stage of your graduate research, and will in large part affect the success of your research. Then you will be going to job interviews, where a chief complaint from hiring managers of new hires concerns their lack of statistical ability. So please take this course very seriously. Your graduate committee and 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 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 couldn't 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
2. Data, Reality, and Problem Solving
3. Visualizing Data
4. Describing and Summarizing Data from One Variable
5. Discovering Relationships
6. Probability, Randomness, and Uncertainty
7. <skipped>
8. Continuous Probability Distributions
9. Samples and Sampling Distributions
10. Estimation: Single Samples
11. Hypothesis Testing: Single Samples
12. Inferences about Two Samples
13. Regression, Inference, and Model Building
14. <skipped>
15. Analysis of Variance (ANOVA)
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.

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***)

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/
- **Regarding Item 3**: **a statistics-capable calculator is REQUIRED** for the course. 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'll be using specifically has instructions for the TI-83/84 family of calculators. Some notes:
    - These can be expensive to buy new, so the SR Bookstore has offered **20% off** any new calculators you buy there, if you just mention my name.
    - Due to the cost, many students choose to buy used, which is a great option.
    - It's also possible to rent a calculator (if you go online and google "calculator rental" you'll 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.

Grading Information / Course Policies

Course Grade

Exam I	20%
Exam II	20%
Exam III	20%
Exam IV (Final Exam)	20%
Homework	10%
Module Quizzes	5%
Participation/Readings	5%

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.
- Exams will be completed outside of class, online in Hawkes, ***using a strict honor code***.
- Mastery levels are not utilized for exams in Hawkes.
- Late exams will incur a 10%-per-day late penalty.
- Therefore, all scores between 0% and 100% are possible for exams.

Module Quizzes

Most modules (lectures/chapters) will have very short (5 minute) embedded quizzes to check understanding periodically as the course progresses and to ensure students are engaged throughout the semester.

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.
- Although there are many dimensions to participation, participation grades will be determined by two:
    1. Blackboard journal entries will be periodically required, and graded based on how well instructions were followed, whether minimum word requirements were met, and whether proper grammar and spelling was used.

2. Students will be required to post a minimum of four questions during the semester to the Blackboard discussion forums, and will receive full credit for one with each substantive statisics-related question.

- 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.**
- **Distractions**: Any repeated distractions either in the classroom or online will lead to a zero for the participation grade for the entire course, regardless of how many points were achieved up to that point.

Due Dates/Times/Extensions

All graded work, including exams, are expected to be on-time (11:59 pm central time on due date). **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.

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.

Resources and Assistance

SRSU Library Services
The Sul Ross Library 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. Appointments to access the building are required (see https://sulross.libguides.com/covid19/building). The library also offers curbside delivery of physical resources (see https://sulross.libguides.com/covid19/curbside). Off-campus access requires your LoboID and password. Check out materials using your photo ID. 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
Since the library can be visited by appointment only, there will be no drop-in tutoring, nor can face-to-face tutoring be done safely during COVID-19. So, all tutoring will be online. Tutoring will be available starting on August 31. Contact Anita Banegas (**432-837-8992**, **abanegas@sulross.edu**) or Mabel Garcia **432-837-8629**, **mag15bf@sulross.edu**) to get an e-mail invitation for either group or individual tutoring, or to request an appointment.

Blackboard's Support Desk
SR has moved its Blackboard site to the Texas State University System's (TSUS) Blackboard Environment. Sul Ross' Blackboard login page will take you straight into the new TSUS Blackboard environment from the Sul Ross website. It may look slightly different to you, and may want to tweak some of your settings that you had previously. If you have any technical issues with the new system or 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.

Americans With Disabilities Act
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 someone will get back to you as soon as possible during working hours), or email **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.

Distance Education
- Students enrolled in distance education courses have equal access to the university's academic support services, such as Smarthinking, library resources, such as online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website.
- Students should correspond using Sul Ross e-mail accounts and submit online assignments through Hawkes, which requires secure login information to verify students' identities and to protect students' information.
- The procedures for filing a student complaint are included in the student handbook. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook.
- Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website.

Tentative Course Schedule (Subject to Change)

Week #	Dates	Due Monday	Reading Assignment	Pages	Due Friday
1	08/24-08/28	-	1.6-1.8	9	-
2	08/31-09/04	HW Ch 1	2.1-2.2	26	-
3	09/07-09/11	HW Ch 2 (Tue)	3.1-3.5	45	-
4	09/14-09/18	HW Ch 3	4.1-4.3	43	-
5	09/21-09/25	HW Ch 4	5.1-5.3	48	Exam 1 (Ch 1-4)
6	09/28-10/02	HW Ch 5	6.1-6.3	34	
7	10/05-10/09	HW Ch 6	8.1-8.4	28	
8	10/12-10/16	HW Ch 8	9.1-9.3, 9.5	23	
9	10/19-10/23	HW Ch 9	10.1-10.2	18	Exam 2 (Ch 5-6, 8-9)
10	10/26-10/30	HW Ch 10	11.1-11.3, 11.6	40	
11	11/02-11/06	HW Ch 11	12.1-12.2	42	
12	11/09-11/13	HW Ch 12	13.1-13.3	28	Exam 3 (Ch 10-12)
13	11/16-11/20	HW Ch 13	15.1-15.3	39	
14	11/23-11/27	HW Ch 15	16.1-16.3	24	-
15	11/30-12/04	HW Ch 16	N/A	0	Exam 4 (Ch 13, 15-16)

Holidays

Mon	09/07	Labor Day **holiday** (no classes)
Wed	11/11	Veteran's Day **holiday** (no classes)
W-F	11/25-27	Thanksgiving Day **holiday**

Exam Schedule

Exam I (Chapters 1-4)	Friday, September 25 (tentative)
Exam II (Chapters 5-6, 8-9)	Friday, October 23 (tentative)
Exam III (Chapters 10-12)	Friday, November 13 (tentative)
Final Exam (Chapters 13, 15-16)	Tuesday, December 08 (online, due at 11:59 pm)

COVID-19 Safety Pledge - One University/One Community

As a partner in each campus community the faculty, staff, and students agree to the following statements in relation to the COVID-19 virus:

- I will wear a face covering, wash my hands, and disinfect my workspaces to protect others from the potential spread of this virus.
- I promise to follow social distancing guidelines as a way to mitigate the risk of transmission to others both professionally and personally.
- I will monitor my health and report any potential COVID-19 illness and agree to follow the guidelines set forth in the *Sul Ross State University Return to Campus Plan* or as described by Sul Ross State University to protect the public health.
- I understand that my actions may impact the larger community and could affect my academic progress or professional attainment at Sul Ross State University.

Additionally:

- Between classes, incoming and outgoing faculty members and students are expected to sanitize their desks, chairs or other areas they have occupied. Cleaning by both outgoing and incoming individuals minimize the risk of any contagion.
- Students and faculty entering buildings will be asked to respect the flow of foot traffic and to enter and exit buildings and classrooms through designated areas.
- Only two people may ride an elevator at one time. Students are encouraged to take the stairs when possible.
- Students and faculty are **REQUIRED TO WEAR FACE MASKS** while in enclosed spaces for classes and lab.

Furthermore, University employees and students are expected to help monitor COVID-19 as a way to prevent the spread of the virus and protect each other. To accomplish the required data collection, the University asks its community members to take three actions:

1. Keep keep track of their health and track any potential symptoms;
2. Test for the virus when you have potential symptoms or have been in contact with someone who has symptoms; and
3. Trace your steps and keep accurate track of your interactions with others so that contact tracing can, if necessary, be done quickly and efficiently.

If you have been exposed to COVID-19 or think you might have been exposed, then you must quarantine for 14 days before you return to class.

If a student attends class without a face mask, the instructor will ask the student to wear one, and if necessary, leave to get one, advising the student where some disposable masks might be available in the building. If the student refuses to wear a mask, they will be required to leave the lecture and join online. If an unmasked student refuses to leave, the instructor will call UDPS to have the student removed and/or cancel the class to be resumed later online or recorded without students. The violating student will be reported to the appropriate department chair(s) and the Office of Student Life for potential disciplinary action, as described below.

Failing to meet these expectations may be subject to corrective action under University disciplinary policies.

Changes or recommendations to the guidelines based on evolving guidance from federal, state, or local agencies will be communicated to the university community.