

ANSC 4305 Ag Genetics (HYBRID course) -- Spring 2025

Instructor: Mrs Jena Carey

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Office Hours: By appointment

This **HYBRID** course will be accessible through Blackboard. Class correspondence will be through Blackboard or student's SRSU email account. **This course meets on Thursday from 11-12:15 in WSB 206.**

Course Description: This course is designed to introduce students to the quantitative genetic principles applied to mating and selection of domestic livestock and wildlife. The course integrates Mendelian principles with biometrical and statistical probability techniques for proper application to breeding, selection, inbreeding, line breeding, and pedigree information for progressive animal and plant breeding. The influences of gene frequency, heritability, and genetic relationships on the gene pool of populations is integrated into this course. The course includes application of the Hardy-Weinberg law and statistical correlation and regression as applied to selection of superior genetic lines of animals.

Student Learning Outcomes (SLO):

Upon completion of this course, students should be able to understand:

1. The concepts of genetics necessary to understand the genetic processes used in animal breeding.
2. How to develop and run genetic-based breeding program.
3. The relationship between genotype and phenotype.
4. How to perform genetic selection.
5. Estimating Breeding values in livestock species.

Animal Science Marketable Skills:

- Knowledge of techniques and equipment for planting, growing, and harvesting food products (both plant and animal) for consumption, including storage/handling techniques.
- Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
- Understanding the implications of new information for both current and future problem solving and decision-making.
- Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. Communicating finding in both oral and written form at a level appropriate for the needs of the audience.

Animal Science Learning Outcomes (ASLO):

- Demonstrate the basic skills of interpreting research data gathered in an agricultural context.
- Apply critical thinking skills to mitigate potential challenges in diverse animal sciences and related agricultural industries.
- Demonstrate the ability to communicate through written, spoken, and graphical methods.

Accommodations:

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 Schwartz Grisham, M.Ed., LPC, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email mschwartz@sulross.edu. Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.

Academic Integrity:

The University expects all students to engage in all academic pursuits in a manner that is beyond reproach and to maintain complete honesty and integrity in the academic experiences both in and out of their classroom. The University may initiate disciplinary proceedings against a student accused of any form of academic dishonesty, including but not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials. For more information visit: <https://www.sulross.edu/catalog/undergraduate-academic-regulations/>

SRSU Library Services:

The Sul Ross Library - 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).

Assessments & Grading:

| | | | |
|-------------------|---|-----------|---|
| 90% - 100% | A | Excellent | 4 |
| 80% - 89% | B | Good | 3 |
| 70% - 79% | C | Average | 2 |
| 60% - 69% | D | Poor | 1 |
| Below 60% | F | Failure | 0 |

- 12 Weekly quizzes: 10 points each, 120 points total.
- Three exams: 160 points each, totaling 480 points.

Total = 600 points

For additional information on current Sul Ross State University policies for assigning grade points, please refer to <https://www.sulross.edu/registrar/catalog-and-policies/>

Important Dates to Remember:

- January 18 - Classes begin
- March 17-21, Monday – Friday **Spring Break-- No Classes!!**
- April 14th - Last day to withdraw from the 16-week course/term with grade of 'W'. Drops must be processed and in the university registrar's office by 4 p.m.
- 1 May, Thursday DEAD DAY- NO CLASSES!!!! REST AND GET READY FOR FINALS
- May 2, 5-7 Fri, Mon-Wed Final Examinations

Course Schedule (subject to adjustments)

| Week | Topic | Quiz/Exam |
|------------------|--|-------------------------|
| 1 16 Jan | SYLLABUS REVIEW & INTRO | Syllabus Quiz |
| 2 23 Jan | Basic Genetic Concepts | Quiz 1 |
| 3 30 Jan | Meiosis, Recombination and Relationships | Quiz 2 |
| 4 6 Feb | Planning Breeding | Quiz 3 |
| 5 13 Feb | Phenotype Measures and Statistics | Quiz 4 |
| 6 20 Feb | Genetic Models | 1 st Exam |
| 7 27 Feb | Diversity and Inbreeding | Quiz 6 |
| 8 6 Mar | Inheritance Aspects | Quiz 7 |
| 9 13 Mar | Breeding Value Estimation | Quiz 8 |
| 10 20 Mar | SPRING BREAK | |
| 11 27 Mar | Response to Selection | 2 nd Exam |
| 12 3 Ap | Selection and Genetic Contribution | Quiz 9 |
| 13 10 Ap | Crossbreeding | Quiz 10 |
| 14 17 Ap | Evaluating a Breeding Program | Quiz 11 |
| 15 24 Ap | Maintaining Genetic Diversity | Quiz 12 |
| 16 1 May | DEAD WEEK – Discussion Board – Review | Review Questions |

Quizzes and Exam will be ONLINE

The are due by midnight on **Saturday** of the week of lecture. Meaning, you will have all day Saturday from 09:00 -23:59 to complete any quiz or exam for that week.

For **QUIZZES**, please make sure to review all the information prior to starting the Exam.

- Once started, you will have a half hour (30 minutes) in to complete the exam. It will auto-submit after this time.
- You only have one chance, so please make sure to have a stable internet connection, and a quiet, focused environment before starting!
- Quizzes will be available for students between Saturday 9am and 11:59pm.

For **EXAMS**, please make sure to review all the information prior to starting the Exam.

- Once started, you will have 2 hours in to complete the exam. It will auto-submit after this time.
- You only have one chance, so please make sure to have a stable internet connection, and a quiet, focused environment before starting!
- Exams will be available for students between Saturday 9am and 11:59pm.