ANSC 4305
Ag Genetics (web-based course)
Spring 2023

Instructor: Dr. Laura Patterson Rosa
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Office Hours: By appointment

This web-delivered course will be accessible through Blackboard. Class correspondence will be through Blackboard or student's SRSU email account. **This course is Asynchronous.**

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 Schwartze 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 mschwartze@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, SUI 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:

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

Total = 600 points

This course is asynchronous – students will be able to access modules as they finish the requirements of the previous modules. **Do not wait for the end of the semester to discuss any problems you may have with this course. Your success is important!**

Percentage	Letter Grade	Meaning	Points
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

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
- February 2nd - Last day to drop a 16-week term course without creating an academic record
- March 13-17, 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.
- May 12, 15-17 Fri, Mon-Wed → Final Examinations

Course Schedule (subject to adjustments)

Module	Topic	Quiz/Exam
1	SYLLABUS REVIEW	Syllabus Quiz
1	Intro and Basic Genetic Concepts	Quiz 1
2	Meiosis, Recombination and Relationships	Quiz 2
3	Planned Breeding	Quiz 3
4	Phenotype Measures and Statistics	Quiz 4
5	Genetic Models	1st Exam
6	Diversity and Inbreeding	Quiz 6
7	Inheritance Aspects	Quiz 7
8	SPRING BREAK	
9	Breeding Value Estimation	Quiz 8
10	Response to Selection	2nd Exam
11	Selection and Genetic Contribution	Quiz 9
12	Crossbreeding	Quiz 10
13	Evaluating a Breeding Program	Quiz 11
14	Maintaining Genetic Diversity	Quiz 12
15	Plant Genetics	Review Questions
16	Discussion Board – Review Q&A	
17	3rd Exam