

Genetics of Livestock Improvement
ANS 310
Spring 2016
MWF 9:00 – 9:50 | AGIT 238
Web Enhanced

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Course Description

This course covers the basic concepts and principles for selection and mating to make genetic improvement in farm animals but is applicable to many other types of animals and wildlife. It will cover selection for both qualitative and quantitative traits.

Course Objectives

1. Understand and define all breeding and genetics terms presented in lecture.
2. Understand Mendelian inheritance, the components of the genetic model, and difference between qualitative and quantitative traits.
3. Calculate population gene and genotypic frequencies.
4. Calculate the probability that an individual is a carrier of a particular gene and understand how that change depending on the group of females the sire is mated to.
5. Calculate estimates of statistical parameters necessary to describe a population and understand the application of each.
6. Understand the cause and effects of hybrid vigor and inbreeding depression.
7. Understand different selection methods including tandem selection, independent culling methods and selection index methods.
8. Understand the uses of breed complementary, assortative mating, inbreeding, and outbreeding
9. Describe the difference between individual, maternal and paternal heterosis
10. Describe different crossbreeding systems presented in class and understand advantages and disadvantages of each.
11. Understand how marker-assisted selection works and how it impacts genetic predictions today.
12. Understand what breeding values are and how they estimated.

Prerequisites

BSC 1407 or ANS 118 or PLS 1415 or PLS 115

Materials

Recommended Text: Understanding Animal Breeding, 2nd Edition (2000)

Author: Richard M. Bourdon

Publisher: Prentice Hall Publishing

ISBN-10: 0130964492 | ISBN-13: 978-0130964496

General Class Rules

1. Attentiveness in class is suggested but not required. However, if you choose otherwise, do not, talk to your neighbors, read the paper, and especially do not text. **Achieving the course objectives and being successful will require attendance, taking notes, reading the text, and study.**
2. All hats will be removed (or ball caps turned backward) during exams. Also you may be asked to leave your backpacks in the front of the room on exam days.

Grading

Attendance: Attendance is expected and will be taken every day at the beginning of class. You will be given 100 points. You will be allowed 3 absences through the course before a 5 point deduction for each absence will take place. Only University sponsored activities will not count as an absence. **Attendance may be used to decide future opportunities such extra credit.**

Grading:

1. Exams:

- Four exams will be given through the course. The last exam may be a comprehensive final.

Tentative Dates:

Fri. February 12th

Fri. March 11th

Fri. April 15th

Wed. May 11th at 8:00 A.M. (Final Exam Time)

- Exams will be given during the entire class period. Exam formats may include T/F, matching, multiple choice, and short answer. Exams and quizzes will require math so you will need to bring a simple calculator. **A smart phone/cell phone/tablet will not be allowed to use on the exam.**

- All students are to take the in-class exams at the time they are scheduled unless you have a great excuse. If a makeup is written it may be more difficult, not easier, for the student.
2. Quizzes and Homework
- A quiz or homework assignment will be given every week during the semester (A minimum of 15).
 - Most quizzes will typically be taken through eCollege and posted no later than Wednesday of that week and due by the following Friday.
 - Unannounced quizzes may also be given in class
 - A total of 13 will count towards your final grade.
 - No missing or late quizzes will be accepted except for university excused absences or very special circumstances.
 - Homework assignments will be given in addition to the quizzes.

Grading

This is the expected or tentative distribution of points for the class but may change.

4 Exams	450 pts	A: 90% +
Quizzes	260 pts	B: 80-89%
Homework/Other	140 pts	C: 70-79%
Attendance	<u>100 pts</u>	D: 60-69%
	950 pts	F: Below 60%

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures

Academic Honesty

Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including (but not limited to) receiving a failing grade on the assignment, the possibility of failure in the course and dismissal from the University. Since dishonesty harms the individual, all students, and the integrity of the University, policies on scholastic dishonesty will be strictly enforced. In **ALL** instances, incidents of academic dishonesty will be reported to the Department Head. Please be aware that academic dishonesty includes (but is not limited to) cheating, plagiarism, and collusion.

Cheating is defined as:

- Copying another's test or assignment
- Communication with another during an exam or assignment (i.e. written, oral or otherwise)

- Giving or seeking aid from another when not permitted by the instructor
- Possessing or using unauthorized materials during the test
- Buying, using, stealing, transporting, or soliciting a test, draft of a test, or answer key

Plagiarism is defined as:

- Using someone else's work in your assignment without appropriate acknowledgement
- Making slight variations in the language and then failing to give credit to the source

Collusion is defined as:

- Collaborating with another, without authorization, when preparing an assignment

If you have any questions regarding academic dishonesty, ask. Otherwise, I will assume that you have full knowledge of the academic dishonesty policy and agree to the conditions as set forth in this syllabus.

University Specific Procedures

Students with Disabilities:

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

Texas A&M University-Commerce

Gee Library

Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

StudentDisabilityServices@tamuc.edu