Animal Science 4540
Principles of Animal Breeding

M, W, F   9:00 – 9:50 am
104 Animal Sciences Building
3 credits

Instructor	**Teaching Assistant**
Dr. Kristi Cammack	TBA
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307-766-6530	
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Office Hours
Monday, Wednesday, Friday – 10-11:00am
Tuesdays, Thursdays – 2:30-4:00 pm. Or by appointment (e-mail or phone)

Text
Richard Bourden – **Understanding Animal Breeding**

Topics	**Chapters**
Mendelian Inheritance and Population Genetics	3 & 4
Mating Systems	15, 16, 17, 18 & 19
The Genetic Model and Selection	7, 8, 9 & 10
Correlated Response and Multiple Trait Selection	13, 14 & p. 442-446
Genetic Prediction	11 & 12

Coverage of the topics will consist of a series of readings, lectures, five homework problems (20 points each), ten in-class problems (10 points each), Cybersheep report (80 points), Cybersheep participation (20 points) and four regular exams (100 points each). The final exam will consist of 1/3 new material (50 points), and 2/3 comprehensive material (100 points). This results in a total of 850 points for the course.

Students expecting to miss an exam due to a university-approved absence need to make arrangements *prior to that absence*. Students are expected to attend class and are encouraged to participate in classroom discussions and to ask questions.

In-class problems will accompany lecture for better understanding of course material. *At least* 12 in-class problems will be given throughout the semester; however, only 10 will count towards your grade. There will be no make-ups given for in-class problems.

Cybersheep Students will participate in an internet-based genetic simulation game involving the application of selection and mating decisions discussed in this course. Details on Cybersheep will be presented later in the semester.

Grading Scale
A = ≥ 765
B = 680-764
C = 595-679
D = 510-594
F = <510

Important Dates
Exam Schedule
Exam 1	Monday, September 17
Exam 2	Monday, October 8
Exam 3	Wednesday, October 31
Exam 4	Friday, November 16
Exam 5 / Final Exam	Monday, December 10 (8 – 10:00 am)

Homework Due (by 5:00 pm)
Homework 1	Friday, September 14
Homework 2	Friday, October 5
Homework 3	Monday, October 29
Homework 4	Wednesday, November 14
Homework 5	Friday, December 7
Cybersheep Report	Wednesday, December 12

Help Sessions 6:30 – 8:00 p.m. Room 104
All help sessions will be held prior to homework due dates, and will be announced in class.

Course Objectives
The objectives of the course are to aid students in gaining an understanding of genetics as applied to the improvement of populations of farm animals. The topics can be partitioned into two general areas: the prediction of genetic merit and associated response to selection, and systems of mating. The first applies to seedstock producers, as they seek to improve their herds and flocks through selection, and to commercial producers, as they seek to identify those breeding stock superior in genetic merit. Direct and correlated responses to single and multiple trait selection will be considered, with emphasis on prediction of genetic change. Integral to understanding response to selection is consideration of methods for predicting genetic merit (breeding values and progeny differences). Most commercial livestock are crossbred. Effects of crossbreeding and inbreeding, and optimization of crossbreeding systems will be emphasized when studying mating systems.

Academic Honesty: Academic honesty is essential to the intellectual life of the University. Thus, academic dishonesty is a basis for disciplinary action. **All cases of academic dishonesty will be reported. Students with Disabilities:** If you have a physical, sensory, learning, or psychological disability and require accommodations, please let me know as soon as possible. You will need to register with, and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, Room 330 Knight Hall.