I. TITLE:

Selective Equine Breeding

II. COURSE DESCRIPTION:

Study of hereditary traits in horses, breeding design, performance and progeny testing, marketing, and herd analysis.

Prerequisite: AGR 303

III. PURPOSE:

To provide students with the fundamental concepts of equine genetics and how to use these principles to make selection and culling decisions to raise and profitably market genetically superior individuals.

IV. COURSE OBJECTIVES:

To build an understanding of selection and mating systems based upon study of gene function, chromosomes, phenotypic expression of genes, gene frequencies, and genetics of populations with the ultimate goal of improving horses and marketing genetically superior equine athletes.

V. CONTENT OUTLINE:

A. Overview of the horse industry
   1. Economic factors affecting demand
   2. The unwanted horse problem and dangers of oversupply
B. Understanding genes, chromosomes, and gametes
C. Gene mutations and genetic diseases
   1. Hyperkalemic periodic paralysis
   2. Hereditary equine regional dermal asthenia
   3. Other diseases considered probably genetic
D. Phenotypic expression of gene
   1. Coat color inheritance
E. Concept of gene frequencies
F. Heritability of traits
G. Economic traits in horses
H. Identifying economic traits
   1. Performance testing
2. Progeny testing

I. Principles of selection
   1. Pedigree evaluation
   2. Conformation analysis
   3. Behavioral evaluation
J. Principles of Inbreeding
K. Linebreeding
   1. Examples of success and failures
L. Outcrossing
M. Genetic Resistance to disease and parasitism
N. Systems of breeding, selection, and culling employed by successful horse breeders

VI. INSTRUCTIONAL ACTIVITIES:

A. Lecture
B. Problems
C. Pedigree analysis
D. Oral reports on current topics

VII. FIELD, CLINICAL, AND/OR LABORATORY EXPERIENCES:

Farm visits during class periods

VIII. RESOURCES:

A. Textbook
B. Handouts

IX. GRADING PROCEDURES:

A. Approximately four exams will be given, each of equal value. The final exam will be comprehensive
B. Letter Grades
   
   90-100 = A
   80-89 = B
   70-79 = C
   60-69 = D
   Below 60 = E
C. Make up exams may be permitted with a reasonable excuse for absence.

X. ATTENDANCE POLICY:

Please refer to the most current copy of the Murray State University’s Undergraduate Bulletin.
XI. ACADEMIC HONESTY POLICY:

Please refer to the most current copy of the Murray State University’s Undergraduate Bulletin.

NOTE: The School of Agriculture Faculty have adopted and implemented an Academic Honesty Policy in addition to the University Honesty Policy, which can be found in the current Undergraduate Bulletin. The policy sets guidelines regarding acts of dishonesty and the procedure to follow should an event occur. It is each Agriculture student’s responsibility to obtain and read a copy of this document. The School’s Academic Honesty Policy can be obtained by asking for a copy from any Agriculture Faculty member or the Secretary.

XII. TEXT AND REFERENCES:

Provided by instructor.

XIII. PREREQUISITES:

AGR 303

XIV. STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY:

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or other provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities.

XV. MSU SCHOOL OF AGRICULTURE CELL PHONE POLICY:

The School of Agriculture recognizes that in today’s world cell phones are a familiar and often necessary form of communication for students.

It shall be the policy of the School that no cell phone usage shall be allowed in class and/or labs without the prior consent of the course instructor. This shall include verbal calling, incoming calls, email, text messaging, and use of cell phone calculators on tests and quizzes.

Cell phones must be kept off and out of sight (i.e. secured to a person’s belt or kept in a bag or purse away from desks and lab counters). Should a student’s cell phone be
visible, ring, or other form of unauthorized usage that is interruptive to the class or lab, the student may be asked to leave class and not return for that class/lab period. Upon prior consent of the instructor, a student may obtain permission to have their phone on in case of an emergency or in critical family situations.

This policy also includes pagers and other electronic equipment such as blackberries and/or computers/laptops.