



EQUINE GENETICS

ANS 4382/6905

2 credits

DESCRIPTION

The art of horse breeding has shaped equine genetics since domestication, yet most horse professionals have little understanding of the fundamentals of the genome. We will examine the underlying mechanisms and inheritance of the diverse traits in the horse and other equids. Concepts covered will include the impact of domestication on the genome, relationships between breeds, coat color, genetic disease and complex traits of performance and behavior.

Instructor:

Dr. Samantha Brooks

Location:

ONLINE!! Partially synchronous.

Session:

Spring 2022

Prerequisites:

ANS3384 or equivalent

Office Hours:

Online zoom meetings available by appointment.

Catalog Description

Basic genetics concepts including inheritance, pedigrees, coat color, performance traits, and diseases with a specific focus on examples and current issues as they relate to the horse.

Credits: 2.

Prerequisites: ANS3384 “Genetic Improvement of Farm Animals”, or equivalent.

Objectives

At the conclusion of this course students will have the ability to:

1. Use the principles of inheritance to predict phenotype, based on genotype.
2. Evaluate pedigree records for genetic health as well as marketability.
3. Describe the symptoms and implications of genetic disease in the horse.
4. Understand the complexity of genetic diversity, breeds and registries.
5. Advantageously utilize available genetic tests to plan a breeding program.

Textbook

The textbook is required to do well in this course. The readings listed in the syllabus will help to setup the talks for each topic and provide a handy resource for review.

Title: HORSE GENETICS, THIRD EDITION!!, Authors: BAILEY AND BROOKS, ISBN: 978-1786392589.*

Course Communication

Course materials and messages appear on our Canvas e-Learning site. Assignments and assessments will only be accepted through Canvas. Email can be sent either through the Canvas system, or the standard @ufl.edu system. Please be sure you change your canvas settings so that you receive course announcements daily, not once a week, so that you get messages on time! Keep in mind that while email is fast and simple, you should always use a courteous and professional attitude when communicating with your instructors and fellow students. Please be polite and limit use of slang and abbreviations. Here is a helpful guide on good email etiquette: <https://writingcommons.org/article/e-mail-guidelines-for-students/>

Course Organization

Our course is divided in to six modules (plus a preparatory module “0”) on canvas. You can access these modules via the “modules” link in the menu on the left-hand pane of the course dashboard. *In order to enter a module you must first complete the prior module!* Within each module you will find pages with assigned readings and instructions for the module, links to narrated slideshows, comprehension quizzes and activities. All quizzes and activities must be turned in by midnight on the due date for that module.

Having trouble with Canvas? Try this [Canvas How-to Video](#).

- For Canvas, Passwords, or any other computer-related technical support contact the [UF Computing Help Desk](#).
- <https://kb.helpdesk.ufl.edu/FAQs/E-Learning>, helpdesk@ufl.edu, (352) 392-HELP (4357)

Course Credit and Assessments

30%- Activities

There are ten activities throughout the course. These activities will require independent work, as well as collaboration with fellow students via chat and discussion boards. Each activity must be completed before the end of the module in which it is assigned, on FRIDAYS at midnight. Some of these activities can be time consuming, requiring collaboration with classmates or work away from your computer. **DO NOT** choose to wait until the last minute to attempt to complete the activities!

30%- Comprehension Quizzes

We have four comprehension quizzes comprising 5-10 questions each. These quizzes are designed to measure what you have learned in the slideshows and readings. You will have 20-30 minutes per quiz, and two attempts, so don't open the quiz until you are sure you are ready to take it! Quizzes are due at the end of each module, at midnight. Keep in mind that you may have to complete all the other tasks in the module before the quiz will unlock!

40%- Exams, one Mid-term and one Final

The mid-term exam occurs in module 3 and the final exam is to be completed at the conclusion of the course in module 6. Each will comprise approximately 40-50 questions in the multiple choice, true/false, and short answer formats. Though not strictly cumulative, concepts on the final will build on material presented early in the semester. Exams will be proctored using HonorLock, which has some unusual requirements, including use of the Google Chrome browser. Please read the [Student Exam Preparation Information \(PDF\)](#) sheet in advance so that you are prepared to take your exams! The correct answers will be revealed 7 days after the exam is due, provided that all students in the course have completed the exam.

Grading Scale

Percentage	Letter	Points
93-100%	A	4.0
90- 92.9%	A-	3.67
87-89.9%	B+	3.33
83-86.9%	B	3.0
80-82.9%	B-	2.67
77-79.9%	C+	2.33
73-76.9%	C	2.0
70-72.9%	C-	1.67
67-69.9%	D+	1.33
63-66.9%	D	1.0
60-62.9%	D-	0.67
<60%	E	0

For additional information on current UF policies for grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>.



assigning

Attendance and Make-Up Work

This course requires

active participation, hands-on labs and discussion with your peers. As such attendance is imperative, even if this attendance is in a virtual space.

Requirements for class attendance and make-up exams, assignments and other work are

consistent with university policies that can be found at: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>.

If you feel ill, have a fever or experience any other symptoms of infectious disease please do not attend an in-person class session. However, as always, it is ***your personal responsibility*** to notify the instructor of the necessity of your absence and then to complete the make-up work as soon as it is possible for you to do so. Documentation of other approved but unexpected absences (family emergency etc.) must be presented ***within five days*** of the absence in order to receive make-up quizzes and assignments. University approved absences for sports and student organizations travel or activities must be disclosed at least ***two weeks*** in advance.

Late assignments without an excuse will be penalized 25% for the first 24 hours beyond the due date, 50% for 24-48hrs late and will not be accepted thereafter.

COVID-19 Policy

In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

• ***If you are not vaccinated, get vaccinated.*** Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment:

<https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/>.

Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.

- ***You are expected to wear approved face coverings at all times*** during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
 - Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
 - Hand sanitizing stations will be located in every classroom.
 - If you sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information.
 - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.
 - If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- Continue to regularly visit coronavirus.UFHealth.org and coronavirus.ufl.edu for up-to-date information about COVID-19 and vaccination.

In-Class Recording:

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: <https://gatorevals.aa.ufl.edu/students/>.

Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>.

Summaries of course evaluation results are available to students at: <https://gatorevals.aa.ufl.edu/public-results/>.

Academic Integrity and Plagiarism

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

To help you navigate finding good quality references, citing sources appropriately and avoiding plagiarism we have partnered with your library to create a resource page specifically for this class:

<http://guides.uflib.ufl.edu/equinehealth>.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student

disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation:

0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *U Matter, We Care*: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.
- *Counseling and Wellness Center*: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.
- *Student Health Care Center*: Call 352-392-1161 for 24/7 information to help you find the care you need or visit the Student Health Care Center website.
- *University Police Department*: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).
- *UF Health Shands Emergency Room / Trauma Center*: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road,
- Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.
- *GatorWell Health Promotion Services*: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273-4450.

Academic Resources

- *E-learning technical support*: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- *Career Connections Center*: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- *Library Support*: Various ways to receive assistance with respect to using the libraries or finding resources.
- *Teaching Center*: Broward Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring.
- *Writing Studio*: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- *Student Complaints On-Campus*: Visit the Student Honor Code and Student Conduct Code webpage for more information.
- *On-Line Students Complaints*: View the Distance Learning Student Complaint Process.

Course Schedule (subject to adjustments for special topics and guest speakers.)

<i>Module</i>	<i>Book Chapters</i>	<i>Topics</i>	<i>Assignments</i>	<i>Due date</i>
Module 0	-	Syllabus and Course Navigation	Getting to Know You Discussion Post	1/7
			Syllabus Quiz	
			Genetics pre-test and web hunt	
Module 1	4-7	Introduction– Basic Mendelian Genetics	DNA sampling and submission	1/28
		The Story of the Horse Genome	Base Color Basics	
		Coat Color Basics	Quiz 1	
Module 2	8 -13	Color Diluting Genes	Dilution Case Studies	2/18
		Spotting Patterns (Tobiano, White, Sabino, Roan)	Spot the Spotting Genes	
		More Patterns (Gray, Overo, Leopard Spotting)	Quiz 2	
Module 3	14-16	Parentage Testing	Who’s the Daddy?	3/1
		Pedigree Analysis	MID-TERM EXAM	3/4
		Genetic Diseases Part I		
Module 4	16, 18 & Article	Genetic Diseases Part II	What’s in a “nick”?	3/25
		Gait, and other interesting things!	Calculating risks	
		Behavior and Conformation	Quiz 3	
Module 5	17, 19 & Article	Performance Genetics	Breed for speed	4/8
		Karyotyping and Chromosomes	The Chromosomes Puzzle	
		Forensics Guest Speaker	Quiz 4	
Module 6	1-3 & 21,22	Non-Mendelian Inheritance	Find the clone, Who dunnit?	4/15
		Evolution and Domestication	FINAL EXAM	4/20
		Population Genetics and Breeds		