



Genetics of domestic animals

ANS 3384C

Summer B 2020
All Lectures, Labs and
Exams Online

Instructor

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Teaching Assistants

To be announced

Office Hours

by appointment -- contact Dr.
Mateescu to set up an
appointment

Course Objective

To understand the principles of
animal breeding and genetics
and their application in the
improvement of animals.

Course Description:

Basic principles of Mendelian, population and quantitative genetics as applied to improvement of domestic animals. Selection, inbreeding and crossbreeding strategies for genetic improvement of livestock.

Course Objectives

To understand the principles of animal breeding and genetics and their application in the improvement of animals.

By the end of the semester, the student should be able to:

1. Be familiar with the principles of Mendelian inheritance;
2. Understand the principles of recombination, mutation, selection and non-random mating as they apply to the inheritance of simple traits and their effect on populations.
3. Comprehend the different breeding approaches for simple and polygenic traits;
4. Understand the genetic model for quantitative traits;
5. Apply statistics to the characterization of quantitative traits and genetic prediction;
6. Understand the nature and use of heritability and repeatability;
7. Comprehend the factors affecting the rate of genetic change;
8. Be familiar with the mechanisms of large-scale genetic evaluation;
9. Be familiar with mating systems and mating strategies;
10. Understand the concept of hybrid vigor as it relates to systems of crossbreeding;
11. Recognize applications of biotechnology to animal breeding.

Attendance Policy

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/ugrad/current/regulations/info/attendance.aspx>

The instructor will be available for students. Please make arrangements to visit at your convenience. If you call and I am not available, leave your name and telephone number or e-mail address and you will be contacted as soon as the message is received. **The best method to reach me is through e-mail. DO NOT WAIT UNTIL EXAMINATION TIME!**

It is important to keep up and not fall behind. Get started on the first day of class – watch the lectures, do your homework on time, get help when you need it – and remember there is no substitute for **DAILY PREPARATION. It is much easier on all of us if you get answers to questions one day after class rather than one day before an exam.**

Text No formal text is required. Students will be provided handouts, which are current and relevant to topics discussed in class.

Question Sets

Following each lecture period, you will have to review the material covered during the lectures and formulate 3 questions (and include the correct answer). Each question will be worth 2 points and to receive full credit the questions have to be posted on time on Canvas before midnight the day of the lecture period, use proper sentence structure, grammar, etc.

Quizzes

There will be 10 quizzes worth 10 points each. The quizzes will be available online on Canvas and will be taken online – they will be due by midnight the day after the lecture period. They will consist of short questions from the lectures covered that particular week. You will have a limited time to take it once you start the quiz (10 minutes) – so it is important that you study the lectures before you start to take the quiz. Please try to take these quizzes early and make

sure you have a secure internet connection (if you lose the internet connection your quiz will end and you will not be allowed to take it again).

Exams

There will be 5 exams worth 100 points each. The final exam is not comprehensive. The material covered in the exam will be detailed prior to each exam. (*see important dates*).

Exams will be delivered on Canvas through Honorlock. This handout will help you prepare for the online exams proctored by Honorlock - [Student Exam Preparation Information \(PDF\)](#). Please download the [Google Chrome browser](#) on your computers/laptops and the basic version of the [CamScanner App](#) (basic version, free) on your phones before the exam.

A Practice quiz using Honorlock set up which will be available on Canvas.

Grading Policy

5 Exams	500 pts	69.5%
10 Quizzes	100 pts	13.9%
4 Problem Sets	60 pts	8.3%
10 Question Sets	<u>60 pts</u>	<u>8.3%</u>
	720 pts	100%

Letter grades will be assigned based upon the following scale:

A 93-100%	B- 80-82.9%	D+ 67-69.9%
A- 90-92.9%	C+ 77-79.9%	D 63-66.9%
B+ 87-89.9%	C 73-76.9%	D- 60-62.9%
B 83-86.9%	C- 70-72.9%	E 60% and Below

The scale may be lowered but will not be raised.

Bonus (extra) Credit

You may earn a maximum of 50 bonus points in this category. These points will be derived from bonus quizzes after lectures. There will be no "make-up" for extra credit.

Policy on Missed Examinations

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Policy on Late Problem Sets

Lab exercises are due by midnight on the date specified. They may be handed in late (with no penalty) **only** if it is arranged with the instructor. Otherwise there will be a **5 point penalty** /day.

Use of Formulas During Exams

Students will be exposed to many formulas during this course. However, it is not terribly important that students memorize these formulas. All formulas that will be necessary for completion of a quiz or exam will be provided with the quiz or exam. It is important however that the students know which formulas to use and how to use them.

Your Responsibilities:

1. Be on schedule. You are expected to have done the assigned reading *before* class or lab.
2. Write coherently – think before you write and read what you wrote afterwards to make sure it makes sense. Test will not be graded for writing, but poorly written answers inevitably receive worse scores than well written ones.
3. Be academically honest. Anything you submit must represent *your individual understanding*. Any material you submit must be *in your own words*.

Lecture Schedule (Note: This schedule is subject to revision as the course progresses.)

Monday	Wednesday	Friday
6-Jul	8-Jul	10-Jul
Lectures 1 & 2 & 3 Intro to Anim. Genetics Revisiting Mendel Probabilities	Lectures 4 & 5 & 6 Exceptions to Mendel's ratios Epistasis Hypothesis Testing	Lab 1
13-Jul	15-Jul	17-Jul
Exam 1	Lectures 7 & 8 & 9 Population Genetics Mutation and Migration Non-random Mating	Lectures 10 & 11 Selection Natural Selection Artificial
20-Jul	22-Jul	24-Jul
Lab 2	Exam 2	Lectures 12 & 13 & 14 Quantitative Traits Covariance and Correlation Regression
27-Jul	29-Jul	31-Jul
Lectures 15 & 16 & 17 Heritability Heritability & Repeatability Repeated Records	Lab 3	Exam 3
3-Aug	5-Aug	7-Aug
Lectures 18 & 19 & 20 Relationships Selection EBV Accuracy	Lectures 21 & Lab Selection Response Lab 4	Exam 4
10-Aug	12-Aug	14-Aug
Lectures 22 & 23 Correlated Response Mating Systems	Lectures 24 & 25 Crossbreeding Captive Breeding Programs	Exam 5

The instructor reserves the right to modify the syllabus during the semester with verbal or written announcements in class. It is the student's responsibility to stay informed of such announcements.

Important Dates

Exams

Exam 1: July 13

Exam 2: July 22

Exam 3: July 31

Exam 4: August 7

Exam 5 (final): August 14

General information

Services for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Grades and Grade Points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Online course evaluation process

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

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.

Academic Honesty

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

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.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/
Counseling Services, Groups and Workshops, Outreach and Consultation, Self-Help Library
Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Student Complaint Process

For information see https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.