



Genetic Improvement of Farm Animals

ANS 3384

Lecture

Monday, Wednesday, Friday
9:35 – 10:25 AM
156 ANS

Instructor

Dr. Raluca Mateescu
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Science – Bldg 459
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Office Hours

Monday, Wednesday, Friday
10:30 – 11am; 202B ANS

OR 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 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

All exam information will be covered during the course of the lectures. **Attendance is strongly encouraged and students are responsible for all material covered in lecture.** It is highly recommended that you attend class if you expect to obtain a satisfactory grade.

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>

Text

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

Buchanan, Clutter, Northcutt and Pomp. 1993. Animal Breeding: Principles and Applications
VanVleck, L.D., E.J. Pollak, E.A.B. Oltenacu. 1987. Genetics for the Animal Sciences

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 **Friday before 9:30am**. They will consist of short questions from the lectures covered that particular week. Each quiz will be made available on **Wed. after class** and will remain open until Friday morning. However, 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 before Friday 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 4 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*)

Grading Policy

4 Exams	400 pts
10 Problem Sets	200 pts
10 Quizzes	<u>100 pts</u>
	700 pts

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 100 bonus points in this category. These points will be derived from unannounced short quizzes during lectures and other opportunities to award extra points as appropriate. To receive bonus points, students have to be in the classroom for the entire lecture. **A sign-up sheet will be available before the lecture starts -- if a student is late and doesn't sign the sign-up sheet she/he will not receive any credit, even if they turn in a quiz during lecture.** There will be no "make-up" for extra credit.

Policy on Missed Examinations

Make-up examinations will be given **only** if arrangements are made **prior** to missing the exam. You must visit with Dr. Mateescu **and** provide a valid written excuse. It is the student's responsibility to schedule make-up exams to be taken no longer than **ONE** week after the original exam. Grades not made up within **ONE** week will be assigned a zero.

Policy on Late Problem Sets

Lab exercises are due on Monday by 5pm. They may be handed in late (with no penalty) **only** if it is arranged with the instructor. Otherwise there will be a **4 point penalty** per 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. Show respect in the classroom to your classmates and teacher.
2. Be on schedule. You are expected to have done the assigned reading *before* class or lab.
3. Participate in class.
4. 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.
5. Be academically honest. Anything you submit must represent *your individual understanding*. Any material you submit must be *in your own words*.

Academic Honesty

On days when a quiz or an exam is completed, students will be required to exhibit behavior that leaves no question about their intent to be honest. For example, **no cell phone, books, papers or other items** will be allowed at students' desks during a class session when a test is administered. Students will be asked to **remove hats or caps** that cover/hide their eyes to ensure that there is no appearance of cheating.

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!**

Please ask questions in class and do not be apprehensive about concepts that might not be clear. It is important to keep up and not fall behind. Get started on the first day of class – do your homework on time – attend class – 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 or two days after class rather than one or two days before an exam.**

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

Lecture 1	Intro to Anim. Genetics	Lecture 14	Regression
Lecture 2	Revisiting Mendel	Lecture 15	Heritability
Lecture 3	Probabilities	Lecture 16	Heritability & Repeatability
Lecture 4	Exceptions to Mendel's ratios	Lecture 17	Repeated Records
Lecture 5	Epistasis	Lecture 18	Relationships
Lecture 6	Hypothesis Testing	Lecture 19	Selection
Lecture 7	Linkage	Lecture 20	Accuracy
Lecture 8	Population Genetics	Lecture 21	Selection Response
Lecture 9	Mutation and Migration	Lecture 22	Correlated Response
Lecture 10	Non-random Mating	Lecture 23	Adjustment Factors
Lecture 11	Selection	Lecture 24	Mating Systems
Lecture 12	Quantitative Traits	Lecture 25	Crossbreeding
Lecture 13	Covariance and Correlation	Lecture 26	Captive Breeding Programs

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**No Classes on:**

Sept. 1st Labor Day

Oct. 17th Homecoming

Nov. 26th – 29th Thanksgiving

Exams

Exam 1: Sept. 19th

Exam 2: Oct. 17th

Exam 3: Nov. 14th

Exam 4 (Final): Thu, Dec. 18th, 10am – 12pm

General information

Services for Students with Disabilities

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. 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. 0001 Reid Hall, 392-8565, www.dso.ufl.edu/drc/

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 based on 10 criteria. These evaluations are conducted online 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

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:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

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*
- *Training Programs*
- *Community Provider Database*

Career Resource Center, First Floor JWR392- 1602, www.crc.ufl.edu/