Syllabus Fall 2019

# CANINE AND FELINE GENETICS

## COURSE SYLLABUS

**Course**

ANS 4388 On-line course

Fall 2019— 3 Credits

**Lecture**

**On line (Canvas website)**

**Instructor**

**Dr. Raluca Mateescu**

**Office: Room 100B, Animal Science – Bldg 459**

**Phone: (352) 392-2367**

**e-mail: raluca@ufl.edu**

**Course Objective**

**To understand basic Mendelian genetic the inheritance of simple traits in cats and dogs.**

# Syllabus Fall 2019

## *Course Objectives*

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

## *Instructor*

**Instructor:** Dr. Raluca Mateescu
**E-mail:** Please use the Inbox email tool in Canvas, or email raluca@ufl.edu
**Virtual Office Hours**: By appointment
**Phone:** 352-392-2367

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 – 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 or two days after class rather than one or two days before an exam.**

## *Course Description*

The course covers basic Mendelian genetics with direct application to dogs and cats. Lectures and lab exercises on basic genetic principles and inheritance of particular canine and feline characteristics will provide a more in depth understanding of how simple traits, including coat color and some common genetic disorders, are inherited.

## *Learning Objectives*

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

1. Understand basic Mendelian inheritance of simple traits in cats and dogs.
2. Understand the principles of recombination, gender and inheritance, epistasis as they apply to the inheritance of simple traits.
3. Understand the inheritance of coat color in cats and dogs.
4. Understanding the use of probabilities and statistical tests to predict progeny distribution from different matings.
5. Understand the concept of genetic linkage and how can be applied in searching for genes controlling feline and canine traits.
6. Examine several case studies related to specific canine or feline genetic disorders and understand the technologies and steps needed to study these disorders.

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## *Course Objectives*

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

## *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

## *Text*

No formal text is required. Students will be provided handouts, which are current and relevant to topics discussed in class. A suggested reading list is provided as well as links to free published sources.

## *Grading Policy*

| | |
|---|---|
| 11 Quizzes (10 pts) | 110 pts |
| 14 Assignments (10 pts) | 140 pts |
| 11 Discussions (4 pts) | 44 pts |
| Term Paper | 200 pts |
| **Total** | **494 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.

## *Policy on Late Assignments*

Assignments are due on Monday by 5pm. For late submissions there will be a **5 point penalty** per day. No late quizzes or discussions will be allowed—these will close on Canvas at the specified date/time and they will not be available past the deadline.

# Syllabus Fall 2019

***Tentative Outline***

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

| Week | Date | Lecture/Assignement | |
|---|---|---|---|
| 1 | 20-Aug | Lecture 1 | Dog & Cat Domestication |
| | | Assign 1 & Quiz 1 & Discussion 1 | Early canid domestication-the farm-fox experiment; Perspectives on domestication_The history of our relationship with man's best friend |
| 2 | 26-Aug | Lecture 2 | Basic Genetic Concepts |
| | | Assign 2 & Quiz 2 | Problem Set 1 |
| 3 | 2-Sep | Lecture 3 | Gender and Inheritance |
| | | Assign 3 & Quiz 3 | Problem Set 2 |
| 4 | 9-Sep | Lecture 4 | Multiple allelic systems and lethal allele |
| | | Assign 4 & Quiz 4 & Discussion 4 | Feline Genetics_Clinical Applications and Genetic Testing; Canine Morphology Hunting for Genes and Tracking Mutations |
| 5 | 16-Sep | Lecture 5 | Epistasis |
| | | Assign 5 & Quiz 5 & Discussion 5<br>Paper Topic | The taming of the cat; Canine Behavioral Genetics |
| 6 | 23-Sep | Lecture 6 | Genetics of Feline Coat Color |
| | | Assign 6 & Quiz 6 & Discussion 6 | Summary of genes determining coat color in cats |
| 7 | 30-Sep | Lecture 7 | Genetics of Canine Coat Color |
| | | Assign 7 & Quiz 7 & Discussion 7 | Summary of genes determining coat color in dogs |
| 8 | 7-Oct | Lecture 8 | Probabilities |
| | | Assign 8 & Quiz 8 & Discussion 8 | International and collaborative strategies to enhance genetic health in purebred dogs; Deafness in blue-eyed white cats |
| 9 | 14-Oct | Lecture 9 | Testing Genetic Hyposthesis |
| | | Assign 9 & Quiz 9 & Discussion 9 | Problem Set 3 |
| 10 | 21-Oct | Lecture 10 | Linkage |
| | | Assign 10 & Quiz 10 & Discussion 10 | Dogs really are man's best friend; State of cat genomics |
| 11 | 28-Oct | Lecture 11 | Detecting Recessive Alleles |
| | | Assign 11 & Quiz 11 & Discussion 11<br>Paper Outline | Genetic diversity, inbreeding and breeding practices in dogs; Risk assessment in the improvement of inherited disorders in pedigree dogs |
| 12 | 4-Nov | Lecture 12 | Canine Hip Dysplasia |
| | | Assign 12 & Discussion 12 | Identification of quantitative trait loci for osteoarthritis of hip joints in dogs |
| 13 | 11-Nov | Lecture 13 | Progressive Retinal Atrophy |
| | | Assign 13 & Discussion 13 | Genetic and phenotypic variations of inherited retinal diseasesin dogs: the power of within- and across-breed studies |
| 14 | 18-Nov | Lecture 14 | Inherited Bleeding Disorders |
| | | Assign 14 & Discussion 14 | A review of canine inherited bleeding disorders: biochemical and molecular strategies for disease characterization and carrier detection |
| 15 | 25-Nov | | *Thanksgiving Break* |
| 16 | 4-Dec | Final Paper | Final Paper |

## *General UF 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

## General UF information

### 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/