

**ANS 3319C Reproductive Physiology and Endocrinology in Domestic Animals  
Spring, 2026**

**Course coordinator:**

Dr. John Bromfield

Office Hours: M, W, F @ 12:35 PM and by appointment.

Room 122D Dairy Science building.

[jbromfield@ufl.edu](mailto:jbromfield@ufl.edu)

Ph: 352-294-6991

**Laboratory coordinator:**

Justin Callaham

Office Hours: Before and after class, by appointment

Room 210E Animal Science building

[callaham@ufl.edu](mailto:callaham@ufl.edu)

Ph: 352-294-6754

**Lectures:**

Monday, Wednesday & Friday (Period 5) 11:45 – 12:45 PM

Animal Sciences, Room 156

**Labs:**

Monday, 12:50 – 2:45 (Periods 6 & 7) and 3:00 – 4:55 (Periods 8 & 9)

Tuesday, 3:00 – 4:55 (Periods 8 & 9)

Wednesday, 12:50 – 2:45 (Periods 6 & 7) and 3:00 – 4:55 (Periods 8 & 9)

Location described below.

**Course Objectives:**

- 1) Familiarize students with the reproductive anatomy, physiology, & endocrinology of male & female domesticated animals including the cow, pig, horse, sheep, cat, dog, and human.
- 2) Introduce and discuss the interrelationships between reproductive hormones produced by the brain and reproductive glands and how they interact to control the reproductive processes of male and female domesticated animals including the cow, pig, horse, sheep, cat, dog, and human.
- 3) Utilize the knowledge learned from Objectives 1 and 2 to introduce and discuss reproductive management practices that optimize reproductive efficiency of domesticated animals and humans.

**Textbook:**

*"Pathways to Pregnancy and Parturition"* (3rd Edition 2012, P. L. Senger) is required since we will lecture directly from it in addition to extensive use of pictures & diagrams. There is a copy of the textbook on reserve in the Marston Science Library on main campus. A laboratory manual will be distributed in class and posted on Canvas. Students are responsible for reading handouts before lab and bringing handouts to lab.

### Grading & Exams:

Your final grade will consist of lecture exams, lab exercises, and a comprehensive final exam.

All exams are closed book and do not permit any additional resources.

Actual grades on all exercises will be the sum of the points received for correct responses as a percentage of total points possible. Final course grades will be based on the following percentage grade scale:

	<b>B+</b>	≥87 to <90	<b>C+</b>	≥77 to <80	<b>D+</b>	≥67 to <70	<b>F</b>	< 60
<b>A</b>	≥94	<b>B</b>	≥80 to <87	<b>C</b>	≥70 to <77	<b>D</b>	≥60 to <67	
<b>A-</b>	≥90 to <94							

Final Grade Components	% final grade
Three lecture exams (100 pts each)	40%
Lab grade (9 labs @ 50 pts each, two lab exams @ 200 pts each)	40%
Comprehensive final exam (200 pts)	20%

Information regarding University Policy on grade point equivalencies and calculation of grade points is located at  
(<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>).

### Lecture exam dates:

Exam 1: Feb 13 (Friday); Exam 2: March 13 (Friday); Exam 3: April 17 (Friday). *Lecture exam dates are tentative and can change at the discretion of the instructor.*

Final Exam: April 29<sup>th</sup> (Tuesday 10:00 – 12:00 PM).

Exam questions will be true/false, multiple choice, matching, short answer, and essay. For short answer and essay questions, a legible, organized, concise and grammatically correct answer will be expected in order to receive full credit. Outlining answers into pertinent points is acceptable and the suggested method of answering questions provided that the interrelationships between points are indicated. Lecture exams will cover all material presented in the textbook, lecture, and labs.

Exams and assignments will be posted under the Assignment tab on the Canvas website <https://ufl.instructure.com/>.

All exams will be held in person on the specified date during normal classroom hours. The use of different interfaces for graded activities may change at the instructor's discretion. Any rescheduling of exams for non-approved absences is at the discretion of the instructor and may incur penalties.

**Important Dates:**

No class

Jan 19: Martin Luther King Jnr Day.

Mar 16-20: Spring break.

Other significant dates:

Jan 12: Class begins.

Jan 17: End of drop/add.

Feb 7: Deadline to withdraw and receive a 25% fee refund (W assigned).

April 11: Deadline to withdraw without receiving failing grades.

April 22: Last day of class.

April 23 & 24: Reading days.

April 25-May1: Final exams.

## **Lecture Schedule**

*The schedule below is tentative regarding the dates and topics to be covered; this schedule can change at the instructor's discretion.*

<b>Week</b>	<b>Date</b>	<b>Assignment</b>	<b>Topic</b>
1	01/12 – 01/16		Introduction / Female Anatomy
2	01/19 – 01/23	<i>MLK Day</i>	Female Anatomy / Male Anatomy
3	01/26 – 01/30		Male Anatomy / Reproductive Endocrine System
4	02/02 – 02/06		Reproductive Endocrine System
5	02/09 – 02/13	Exam 1 (Fri)	Puberty
6	02/16 – 02/20		Spermatogenesis
7	02/23 – 02/27		Spermatogenesis / Semen Collection
8	03/02 – 03/06		Mating behavior / Estrous Cycle
9	03/09 – 03/13	Exam 2 (Fri)	Estrous Cycle
	03/16 – 03/20	<i>Spring Break</i>	
10	03/23 – 03/27		Sperm Transport / Early Pregnancy
11	03/30 – 04/03		Early Pregnancy / Embryo Development
12	04/06 – 04/10		Placentation / Fetal Growth
13	04/13 – 04/17	Exam 3 (Fri)	Parturition and Postpartum Period / Lactation
14	04/20 – 04/24	<i>Reading Days</i>	Reproductive Management / Reproductive Technologies
	04/29	Final Exam	Wednesday 10:00 – 12:00 PM

## Laboratory Information

### Faculty Coordinator:

Mr. Justin Callaham

Office Hours: Before and after class | By appointment

Room 210E Animal Sciences Building (0459)

Ph: 352-294-6754 | [callaham@ufl.edu](mailto:callaham@ufl.edu)

### Lab Section Times, Instructors, & Teaching Assistants

<u>Monday, 12:50 – 2:45 PM</u> <u>(RM67)</u> Justin Callaham <a href="mailto:callaham@ufl.edu">callaham@ufl.edu</a>  Teaching Assistant(s):	<u>Wednesday, 12:50 – 2:45 PM</u> <u>(RW67)</u> Justin Callaham <a href="mailto:callaham@ufl.edu">callaham@ufl.edu</a>  Teaching Assistant(s):
<u>Monday, 3:00 – 4:55 PM</u> <u>(RM89)</u> Justin Callaham <a href="mailto:callaham@ufl.edu">callaham@ufl.edu</a>  Teaching Assistant(s):	<u>Wednesday, 3:00 – 5:00 PM</u> <u>(RW67)</u> Justin Callaham <a href="mailto:callaham@ufl.edu">callaham@ufl.edu</a>  Teaching Assistant(s):

### Locations

Laboratories will be held at several locations including room 155 Animal Sciences, Dairy Unit, and Horse Teaching Unit. Please refer to the lab schedule to determine where lab will be each week. Refer to this link for unit locations <https://animal.ifas.ufl.edu/facilities/>.

**Transport is NOT provided.** You will need to find transportation to the Horse Teaching Unit and Dairy Research Unit.

### Student Support and Success

Your success in this course is important to me. If you are struggling to understand lecture or lab material, or if personal, academic, or university-related issues are affecting your performance, I encourage you to reach out as soon as possible. Please don't wait until the end of the semester—early communication allows us to work together to find solutions and support your learning.

## Laboratory Objectives

- The primary objectives of lab are to provide hands-on activities with live animals, dissection of tissues harvested from deceased animals, and operating laboratory and technical equipment frequently used in reproductive biology.
- To provide experiential learning that includes manipulation, dissection, and laboratory techniques concerning the anatomy and physiology of reproductive physiology in large animals.
- To develop skills and understanding of the basic principles of collection, evaluation, extension, and preservation of semen from farm animals.
- To introduce the concept of early embryonic development and provide hands-on experience dissecting pregnant reproductive tracts from the bovine and porcine.
- To develop skills and understanding of estrous synchronization, artificial insemination, embryo collection, embryo freezing, reproductive ultrasonography, and pregnancy diagnosis in ruminant and equine species.

## Lab Grading Policies

- Lab is worth **40%** of your **final** course grade.
- See table below for assignment and point value specifics.
- **Refer to CANVAS Assignments for DUE DATES and DEADLINES of graded work.**
- **Students must attend their specific enrolled section** to participate in each week's lab activities.
- **Attendance is required to receive credit for weekly graded exercises.**
- Your lowest lab grade during the semester (**excluding the mid-term, final lab exams, and semen project**) will be dropped from your lab grade.
- Attendance is vital to students' success and understanding of lab materials in preparation for the 2 lab practical exams. **If you have 2 or more unexcused lab absences your lab grade will be lowered by 1 letter grade.**
- Due to the nature of our exercises, there will be **no make-up labs or practical exams** during the semester. If you have judging team travel, you need to visit with your lab instructor ahead of your travel dates to make arrangements to attend another lab section to complete lab exercises or practical exams.

## Lab Assignments

	<u># of Assignments</u>	<u>Points Each</u>	<u>Total Possible Points</u>
Knowledge Checks	10	20	200 pts
Take Home Messages	10	30	300 pts
BSE & Semen Projects	2	50	100 pts
Practical Exams	2	200	400 pts
Lab Participation			100 pts
<b>Total Points Available</b>			<b>1,100 pts</b>

1 The number of Knowledge Checks and Take Home Messages assigned may change.

## Weekly Laboratory Activities

- **Reading** – the lab utilizes a lab manual that provides general reading about each week's lab topic.
- **In lab experiential learning** – lab topics have an associated hands-on learning component to expose students to laboratory bench top skills and concept reinforcement.
- **Take Home Messages** – each lab topic has an associated homework assignment designed to aid knowledge retention. Take Home Messages serve as a guide to the important concepts that should be taken away from each week's lab. These assignments serve as review materials and will assist students in preparing for the 2 lab practical examinations.
- **Knowledge Checks** – students will be presented with various graded activities such as quizzes, online activities, etc. that assist students in evaluating knowledge mastery in preparation for the 2 laboratory practical exams.
- **Practical Examinations** – there are 2 practical examinations that evaluate subject mastery by assessing applied knowledge using tissue identification, applied physiology, diagramming, and benchtop skills.
- **NOTE:** Lab activities will include dissection of reproductive tissues including brain, male, and female animal tracts obtained from the abattoir and on farms. You will be required to dissect and study tissues in lab as well as work with animals on farms. The utilization of live animals and dissection of tissues are central to effective learning and enhancement of your lab experience. Be prepared to get dirty most weeks.

## Laboratory Schedule

Lab	Week	Location	Topic
1	1/12 – 1/14	ANS 155	Introduction / Biosecurity / Google Colab
	1/19 – 1/23	NO LAB	MLK Holiday 😊
2	1/26 – 1/30	ANS 155	Female Macro & Microscopic Reproductive Anatomy
3	2/2 – 2/6	ANS 155	Male Macro & Microscopic Reproductive Anatomy
4	2/9 – 2/13	ANS 155	Brain, Hypothalamic, and Pituitary Anatomy
	2/16 – 2/20	TBD	No Lab This Week
6	2/23 – 2/27	ANS 155	!! Lab Practical Exam 1 !! (Material from first three labs)
5	3/2 – 3/6	Sheep Unit	Introduction - Breeding Soundness Exams and Training Rams Collect
7	3/9 – 3/13	Sheep Unit	Semen Collection and Evaluation - Ovine
	3/16 – 3/20	NO LAB	Spring Break 🎉
8	3/23 – 3/27	Horse Unit	Semen Collection & Artificial Insemination: Equine
9	3/30 – 4/3	ANS 155	Semen Gradient Separation and Preservation The Semen Project
10	4/6 – 4/10	ANS 155	Introduction to Techniques in IVF
11	4/13 – 4/17	TBD	Placental and Fetal Development / Palpations
12	4/20 – 4/22	ANS 155	! <b>Final</b> Lab Practical Exam 2 – Cumulative !



## **ADDITIONAL COURSE INFORMATION**

### **Academic Honesty:**

As a student at the University of Florida, you have committed yourself to uphold the Honor Code. 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 specifies a number of behaviors that are in violation of this code and the possible sanctions. [Click here to read the Honor Code](#). 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.

Students 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/honorcodes/honorcode.php>

### **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.

### **Disability Issues:**

Students with disabilities who experience learning barriers and would like to request academic

accommodations should connect with the disability Resource Center. [Click here to get started with the Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### **Software Use and Privacy Policies:**

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.

#### **Software Privacy Policies:**

Canvas (Instructure) - <https://sonicfoundry.com/privacy-policy/>

PlayPosit - <https://api.playposit.com/privacy/>

Mediasite - <https://sonicfoundry.com/privacy-policy/>

Zoom - <https://zoom.us/privacy>

Honorlock - <https://honorlock.com/student-privacy-statement/>

You Tube - <https://policies.google.com/privacy>

### **Campus Assistance Resources:**

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

### **Health and Wellness Resources**

*U Matter, We Care:* If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto: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](#).

### **Academic Resources**

*E-learning technical support:* Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto: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](#).

If you are having problems comprehending lecture and (or) lab material or have other academic, university, or personal issues that are affecting your academic performance, please feel free to visit with the instructors to address the problem(s). Please do not wait until the end of the semester to address any difficulties you may be having.

### **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 feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

### **Absences:**

Requirements for class attendance and make-up exams, assignments, and other work in this course are outlined herein and consistent with university policies. [Click here to read the university attendance policies](#).

### **Make-up work:**

A student missing an exam will be allowed to make up the exam provided that a documented, valid reason for missing it exists (please see valid excuses in lab section). Whenever possible, these problems should be discussed with the instructor in advance, preferably by email, excuse note, or handwritten note. A missed exam with no valid excuse will be considered as a "0".

### **Materials and Supplies Fee:**

Instructors may require that students supply their own personal protection equipment (PPE) as well as rubber boots and coveralls for lab-related activities.

### **Course Expectations:**

Lecture and lab attendance are highly correlated with your final grade, so it is expected that you attend both on a regular basis. Class and lab are "No Cell Phone Areas". Class and lab decorum require that you act socially, professional, treat fellow students with respect, and appreciate their viewpoints and beliefs.