ANSC 4304
Reproductive Physiology
Fall 2025

Department: Agriculture & Industry

Length: 16 Weeks

Instructor: Felipe Padilha, DVM, PhD

Email: felipe.gomesferreirapadilha@sulross.edu

Lectures: Monday & Wednesday 11:00 am – 12:15 pm RAS 132

Course Description

This course offers an in-depth exploration of reproductive physiology across a broad range of animal species, including domestic, wild, and companion animals. Students will examine the fundamental principles governing reproductive function, including reproductive anatomy, endocrinology, gametogenesis, estrous/menstrual cycles, fertilization, gestation, parturition, and neonatal physiology. Through comparative analysis, students will gain insights into the diversity of reproductive strategies in mammals, birds, and other vertebrates, while developing a solid understanding of species-specific adaptations and challenges. Applied topics will include reproductive technologies such as artificial insemination, embryo transfer, reproductive behavior, seasonal breeding, and fertility management in both captive and natural populations. The course integrates current research and practical applications relevant to animal production, conservation biology, veterinary medicine, and reproductive management. Students will be encouraged to critically evaluate reproductive strategies and technologies in the context of animal welfare, ethics, and sustainability.

Student Learning Outcomes (SLO)

Upon completion of this course, students should be able to understand:

1. Anatomical structure nomenclatures for the female and male reproductive system.
2. Reproductive endocrine glands and hormonal function.
3. What is puberty, how it occurs, when it occurs and what factors influence it.
4. Parts of the estrous cycle, its terminology, and basic concepts.
5. Basic components of the sperm and ova and their functions and the process of fertilization.
6. Environmental and behavioral components of reproduction.
7. Embryonic development and maternal recognition of pregnancy.
8. Parturition and post-partum interval.

Animal Science Marketable Skills

- Knowledge of animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.

- Understanding the implications of new information for both current and future problem solving and decision- making.
- Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. Communicating in both oral and written form at a level appropriate for the needs of the audience.

Instructor Expectations from Students:

- The instructor will provide weekly opportunities for communication with the class through announcements and reminders as well as office hours (by appointment).
- Class correspondence will be in person during class hours, through Blackboard or student's SRSU email account.
- Instructor will provide email responses within 48-hours of receipt during the hours of 9:00AM-4:00PM, Monday- Friday. Emails sent after hours and during the weekend will be replied to within this timeframe.
- Instructor will provide grades to assignments and projects within 72h after the respective due date.
- The instructor will provide clear and concise instructions on how to complete the course requirements.
- Instructor will provide a range of opportunities to engage in the course content in a meaningful way utilizing diverse multimedia resources to enrich the student's experience and foster curiosity. Students are not mandated but encouraged to ask questions on course content.

Professor Expectations of Students:

- Successful students will familiarize themselves with the course syllabus, policies, assessments, evaluation, grading criteria, and course schedule.
- Successful students will complete all coursework on the assigned due date. The student is responsible for arranging the allowed make-up of any missed work, given a University-approved excuse such as (but not limited to) serious illness, accident, or death in the immediate family or participation in a University-sponsored activity provided that, prior to the absence, the student makes arrangement to complete all missed work.
- Successful students will engage in the course, with their peers, and the instructor and with open communication and active participation and should be diligent to use both oral and written communication that respects peers and instructor.
- Students should respond to instructor communication requests regarding course progress and for general inquires in a timely manner. The deadline for responding to communication requests will be 72 hours after the communication was sent by the instructor.
- Successful students will not plagiarize the work of other, or use the work of their peers and claim it as

their own. Students accused of any form of academic dishonesty, including but not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials may undergo academic disciplinary procedures.

- Successful students will pre-plan for testing situations and ensure they are able to access the internet to complete the exam during its assigned date and time, and prior to the due date.
- Students will be proactive and resourceful to problem solve in case of internet or technical issues. Further resources for technical support are available through Lobo IT or Blackboard.

Animal Science Learning Outcomes (ASLO)

- - Demonstrate the ability to interpret and apply scientific research.
- - Apply critical thinking and ethical reasoning in problem-solving.
- - Communicate effectively using discipline-appropriate formats.
- - Demonstrate the basic skills of interpreting research data gathered in an agricultural context.
- - Apply critical thinking skills to mitigate potential challenges in diverse animal sciences and related agricultural industries.
- - Demonstrate the ability to communicate through written, spoken, and graphical methods.

Course Schedule (16 Weeks)

Week and Dates	Quizzes	Monday	Wednesday
1 (8/25-8/27)	NONE	Introduction	Female Reproductive System
2 (9/1–3)	NONE	NO CLASS: Labor Day	Male Reproductive System
3 (9/8-10)	NONE	Male Reproductive System	Reproductive Endocrine System
4 (9/15-17)	**Quiz 1**	Puberty	
5 (9/22-24)	**Quiz 2**	Endocrinology of the Male & Spermatogenesis	
6 (9/29-10/1)	**Quiz 3**	Mating Behavior	
7 (10/6-8)	**Quiz 4**	Estrous Cycle	
8 (10/13-15)	**Quiz 5**	Estrous Cycle	Ovulation and Fertilization
9 (10/20-22)	NONE	MIDTERM EXAM	Ovulation and Fertilization
10 (10/27-29)	**Quiz 6**	Early Embryogenesis and Maternal Recognition of Pregnancy	
11 (11/3-5)	**Quiz 7**	Placentation, Gestation and Parturition	

12 (11/10-12)	**Quiz 8**	Lactation	Reproductive Management and Technologies
14 (11/17-19)	**Quiz 9**	NO CLASS	Group Presentations
15 (11/24-26)	**Quiz 10**	Group Meeting Day (on-line)	NO CLASS: Thanksgiving
16 (12/1-12/3)	NONE	Group Presentations	NO CLASS
17 (12/8)	NONE	FINAL EXAM	

Project:

Working in pairs, choose a species and design a detailed reproductive management system for a mock owner with specific production goals (e.g., maximizing meat, milk, or egg production; breed improvement; seasonal calving, kidding, or lambing, etc.). Your project will be presented as if you are consulting with a real client.

Assessment & Grading

Assessment Components:

- Discussion Board Participation (Monthly - 25 points/Month) – 100 points
- Quizzes - 10 points/quiz – 100 points
- Project – 100 points
- Midterm Exam (Week 9) – 100 points
- Final Exam (Week 16) – 100 points

Total: 500 points

Percentage	Letter Grade	Meaning	Points
90% - 100%	A	Excellent	4
80% - 89%	B	Good	3
70% - 79%	C	Average	2
60% - 69%	D	Poor	1
Below 60%	F	Failure	0

Required and Recommended Literature

Senger, P.L. (2012). Pathways to Pregnancy and Parturition. Current Conceptions Inc. 3rd edition. It is encouraged that you find and reference a reasonably priced used textbook.

Course Goals

Understand the Anatomical and Physiological Basis of Reproduction

- Explain the structure and function of the male and female reproductive systems across common domestic animal species.
- Describe the hormonal control of reproductive processes.

Comprehend the Endocrinology of Reproduction

- Identify key reproductive hormones and describe their synthesis, secretion, and mechanisms of action.
- Understand feedback mechanisms in the hypothalamic-pituitary-gonadal axis.

Explore Gametogenesis, Fertilization, and Embryogenesis

- Detail the processes of oogenesis and spermatogenesis.
- Explain fertilization, early embryonic development, implantation, and placentation.

Understand Reproductive Cycles and Estrous Synchronization

- Characterize estrous and menstrual cycles in different species.
- Introduce reproductive technologies such as estrous synchronization, artificial insemination, and embryo transfer.

Evaluate Reproductive Management Practices

- Apply physiological principles to real-world reproductive management of livestock.
- Understand the use and interpretation of reproductive performance indicators (e.g., conception rate, calving interval).

Introduce Current and Emerging Reproductive Technologies

- Explore modern tools such as in vitro fertilization, cloning, genetic engineering, and reproductive biotechnology.
- Discuss ethical and economic implications of these technologies in animal production.

Develop Critical Thinking and Problem-Solving Skills

- Interpret reproductive data and case studies.
- Diagnose and propose solutions to reproductive inefficiencies in production systems.

Accommodations

Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Alpine students seeking accessibility/accommodations services must contact Mary Schwartze Grisham, M.Ed., LPC, SRSU's Accessibility Services Coordinator at 432-837-8203 (please leave a message and we'll get back to you as soon as we can during working hours), or email mschwartze@sulross.edu Our office is located on the first floor of Ferguson Hall (Suite 112), and our mailing address is P.O. Box C-122, SUI Ross State University, Alpine. Texas, 79832.

ADA Statement

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Student Responsibilities

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate & Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize him/herself with the requirements of such laws.

SRSU Distance Education Statement

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website.

Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

Counseling

Sul Ross has partnered with TimelyCare where all SR students will have access to nine free counseling sessions. You can learn more about this 24/7/365 support by visiting Timelycare/SRSU. The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

Libraries

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, library.sulross.edu/. Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting library.sulross.edu/find-and-borrow/texshare/ or ask a librarian by emailing srsulibrary@sulross.edu.

Academic Integrity

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources unless permission is expressly given for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

Classroom Climate of Respect

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still, we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Supportive Statement

I aim to create a learning environment for my students that supports various perspectives and experiences. I understand that the recent pandemic, economic disparity, and health concerns, or even unexpected life events may

impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create a supportive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.

Tutoring Center

The Lobo Den Tutoring Center offers FREE tutoring support to help you excel in your courses. Whether you need assistance in Writing, Math, Science, or other subjects, we're here to help!

Important Information:

- Drop-in and Scheduled Appointments: Flexible options to fit your needs.
- Hours of Operation: Monday–Friday, 8:00 AM – 5:00 PM.
- Workshops: Attend our regularly hosted academic workshops on STEM topics and professional development, often in collaboration with specialized faculty.
- Location: BWML Room 128.
- Contact Us: For more information or to book an appointment, email tutoring@sulross.edu or call (432) 837-8726.

Looking for additional support?

- Tutor.com offers FREE 24/7 online tutoring in over 200 subjects, including specialized support for ESL and ELL learners with native Spanish-speaking tutors.
- Access Tutor.com via Blackboard: Log in to your Blackboard account to get started anytime, anywhere.

Take advantage of these valuable resources to boost your confidence and performance in your classes. We look forward to helping you succeed