

IDS 2935: Reproduction: A User's Manual

Quest 2

I. General Information

Class Meetings

- Fall 2021
- Tuesday 3rd Period (9:35 – 10:25 am); Thursday 3rd & 4th Period (9:35 – 11:30 am)
- ANS 155

Instructor

- Justin Callaham
- Animal Sciences, BLDG 459, 211E
- Office Hours: M, W, F 9:00-10:00 am or by appointment
- callaham@ufl.edu, 352-294-6754, [Message me in Teams](#)

Course Description

Reproductive biology is at the core of existence on earth, and it is intrinsic to both animal and human physiology. Students will examine the science using comparative anatomy and physiology in a broad range of domestic species and apply reproductive technologies to examine issues and challenges facing modern society. It presents pressing issues relating to the role of reproduction in sustainable food systems, species preservation/overpopulation, and the human condition. It will explore the question of how underlying reproductive physiological mechanisms and assisted reproductive technologies influence social ethics and policy.

Quest and General Education Credit

- Quest 2
- Biological Sciences
- *This course accomplishes the [Quest](#) and [General Education](#) objectives of the subject areas listed intended to satisfy Quest and General Education requirements cannot be taken S-U.*
- A minimum grade of C is required for general education credit

Required Textbook and Other Readings

- **Pathways to Pregnancy and Parturition**. 3rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V. (**REQUIRED**)
- [Journal of Animal Sciences Literature Citation Guidelines \(Website link\)](#)
- Hacker, Diana. 2021. **A Writers Reference**. 10th Ed. Bedford/St. Martin's, Boston, MA. Available in library reserves. (Library Course Reserves)

- A list of required readings for wet labs which are intended to aid understanding of the activity will be made available to the students in Canvas. Students are also required to download and read the assigned readings before in-class wet lab activities
- Materials and Supplies Fees: n/a

e-Learning and Assignment Submission

Class materials including the syllabus, course schedule, announcements, lecture slides, assigned readings, course assignments, and videos will be posted in CANVAS (<http://elearning.ufl.edu>). All assignments will be submitted digitally in CANVAS by submission upload. Students will need to download a document scanner to a phone or other device to submit handwritten lab exercises.

Dropbox, OneDrive, and Google Drive have built in document scanners that save documents to those cloud storage systems without need of an additional app on a phone or tablet. Students have free access to all 3 of these cloud storage options.

II. Student Learning Outcomes

At the end of this course, students will be able to

1. Discuss the underlying physiological mechanisms regulating components of reproductive anatomy.
2. Introduce and discuss the interrelationships between reproductive hormones produced by the brain and reproductive glands; and, how they interact to control reproductive processes.
3. Explore reproductive cyclicity and its role in effective assisted reproductive technologies.
4. Demonstrate biotechnology techniques to collect data that aids informed reproductive decisions and efficiencies.
5. Evaluate modern reproductive techniques using science, experiential skills, and popular news sources to explore topics of ethics and policy affecting global society.
6. Cultivate positive group work environments capable of research collaboration and communication using oral and written skills.
7. Evaluate concepts in reproductive physiology and biotechnology that influences modern policies and social constructs (i.e. sustainable food systems, species preservation/overpopulation, genetic modification, and effects of reproductive advancements on society).

At the end of this course, students will be expected to have achieved the [Quest](#) and [General Education](#) learning outcomes as follows:

- **Content:** Students will identify, describe, and explain the basic concepts, applications, and terminology of reproductive physiology; how hormones affect intrinsic reproductive anatomy and cyclicity; discuss and demonstrate important biotechnology techniques; and evaluate how rapid advancements in assisted reproductive technologies affects social constructs and policies. Assessments will be made with group activities, worksheets, and exams.

- **Critical Thinking:** Students will relate how comparative anatomical differences affect successful mating and pregnancy among species; evaluate how cyclicity can be modified with exogenous hormones to influence timed artificial insemination and ovulation; hypothesize solutions to reproductively important scenarios affecting our environment, society, and sustainable food systems. Students will collaborate on biotechnology and animal husbandry exercises to evaluate efficiencies/deficiencies of the male and female. Assessments will be in the form of wet lab take home messages and self-reflection writings.
- **Communication:** Students communicate knowledge, ideas, and reason clearly and effectively in oral and written forms. Students use self-reflective written assignments to explore topics of reproductive importance. Students prepare a reflective paper that examines economic effects of contraceptive access and collaborate in groups to prepare a term project that evaluates socioeconomic and ethical topics that arise in modern assisted reproduction. Assessments will be made with a written proposal, written term paper, and brief power point presentation.

II. Graded Work

<u>Work</u>	<u>Description</u>	<u>Notes</u>	<u>Points</u>
<u>Introductory Biography</u>	Students will submit a 300-word personal biography to introduce themselves to the course instructor. Required content includes self-introduction, background, interests, major, goals upon graduation, and what may help them succeed in this class.		<u>50</u>
<u>Term Project Proposal</u>	Students will work as a group to develop a 300-500 word term project proposal that outlines the groups members, hypothesis, 3 supporting arguments, group timeline, and group members responsibilities.		<u>100</u>
<u>Practical Exam</u>	There will be 1 practical exam during the semester (200 points, October 4). The exam will test the students' understanding of the foundational reproductive anatomy and physiology concepts taught during weeks 1-6 in the course. The exam will be taken in class and consist of ~100 questions. The questions will consist of pinned identification, fill-in-the-blank, and concept diagramming.		<u>200</u>

<p><u>Experiential Learning Self Reflection Paper</u></p>	<p>Students will utilize what they learned when applying CIDRs in class and a literature review of the economic effects of contraceptive access to reflect on the effects of reproductive planning on socioeconomic status. Students are required to submit a 1,000-word self-reflection report designed to promote critical thinking on a topic of societal interest. They should reflect on</p> <ul style="list-style-type: none"> • A chemical contraceptive of choice. • how accessible it is in the developed and developing world, • how it works, • what they have learnt, • how concepts in the experiential learning activities affect important issues such as household income, level of college education, etc. • and how the topics are relevant to their intellectual, personal, and professional development. <p>The report should follow MLA style, double-spaced, size 12 Times New Roman with 1 inch-margin. The references, if any, should be from primary literature. The references must be in ASAS style. The written reports are due by 11:59 pm of the due date. All written assignments must be uploaded to Canvas for grading. Written assignments will be evaluated using a rubric provided in Canvas.</p>	<p><u>1,000 words</u></p>	<p><u>100</u></p>
<p><u>Experiential Skill Building Activities</u></p>	<p>Graded activities will include guided lab worksheets, dissections, biotechnology techniques, and augmented reality exercises. Two visits will be at animal sciences farm units to provide interactions with animal husbandry practices.</p>	<p><u>6 activities</u></p>	<p><u>50 points each</u></p>

<p><u>Semester Group Project</u></p>	<p><u>Human Reproductive Cyclicality and Endocrinology Group Project</u></p> <p>In animals, reproductive biology is discussed openly and scientifically. However, in modern society, human reproductive physiology is often tied to ethics, religion, politics, and personal beliefs that do not always follow the science. This semester students have spent time exploring reproductive physiology and performing experiments using livestock assisted reproductive technologies. Additionally, we have discussed important socioeconomic, social, and ethical issues concerning modern reproductive advances. For the second self-reflection paper, students will work as a team in groups of 3-4 students to prepare a 3,500-word term paper and a 20-minute power point presentation. Each group will use one of the following reproductive topics that has shown to be economically significant and/or socially significant to form an empirical argument or hypothesis for the report.</p> <ol style="list-style-type: none"> 1. Infertility 2. Contraceptives 3. Induced Abortion 4. Brain Sex/Gender Identity 5. Sexually Transmitted Diseases <p>The group report should be 3,500 words in length, MLA formatted, double-spaced, size 12 Times New Roman with 1 inch-margin with a title and names of each group member. The reports should include 5 sections</p> <ol style="list-style-type: none"> 1. Abstract (20 points, 300 words), 2. Introduction and hypothesis (30 points, 500 words), 3. Literature review of 3 scientific articles by each group member. Each student will earn 100 points for a 1,500-word review), 	<p><u>3,500 words</u></p>	<p><u>Term Paper 200 points</u></p> <p><u>Presentation 100 points</u></p>
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	<p>4. Conclusion (30 points, 500 words).</p> <p>5. Mid-Term Feedback Check-in (20 points)</p> <p>References should be from scientific journals. The references must be in ASAS style. The written reports are due by 11:59 pm on the due date. All written assignments must be uploaded to Canvas for grading. Written assignments and group participation will be evaluated using a rubric provided in Canvas.</p>		
<u>Comprehensive Final Exam</u>	<p>There will be a FINAL exam (200 points, December 12th @ 10:00 AM – 12:00 PM). The exam will test the students' understanding of applied reproductive anatomy and physiology concepts taught during weeks 1-16 in the course. The exam will be taken in class. The questions will consist of multiple choice, fill-in-the-blank, identification, and short answer.</p>		<u>200 points</u>
<u>Attendance</u>	<p>Attendance will count as 1 Canvas assignment. Students should read and understand the attendance expectations in the syllabus.</p>		<u>100 points</u>

Late Assignments

Late assignments will be accepted after the due date with a 25% deduction per day.

Grading Scale

For information on how UF assigns grade points, visit: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

A	94 – 100%		C	74 – 76%
A-	90 – 93%		C-	70 – 73%
B+	87 – 89%		D+	67 – 69%
B	84 – 86%		D	64 – 66%
B-	80 – 83%		D-	60 – 63%
C+	77 – 79%		E	<60

VI. Written Assignment Grading Rubric

*****Final assignment rubrics will be available to students in Canvas*****

- ___ The assignment is submitted in MS Word via Canvas
- ___ Written assignments and assignment sections meet minimum word count
 - Project Proposal = minimum 300 words
 - Self-Reflection Report 1 = 1,000
 - Self-Reflection Term Paper (1,500-word literature review individual student; 300 word introduction; 300 word conclusion))
- ___ Report is MLA formatted (12 pt Times New Roman, Double Spaced, 1” margins)
- ___ Header is MLA formatted with Left hand aligned Name, Professor, Class, and Due Date.
- ___ Header on all pages has right aligned student last name and page #.
- ___ Report title is centered on first page.
- ___ All assignment specific sections are included in final submission as discussed in class.
- ___ Report contains a works cited section.

Content

- ___ Introductory paragraph is well written and holds the reader’s interest.
- ___ Introductory paragraph has a well-formed hypothesis in the form of a statement as discussed in class.
- ___ Report has 3 well organized supporting paragraphs.
- ___ All paragraphs have an introductory sentence, explanation, and conclusion.
- ___ Writer cited 1-2 peer reviewed articles to support an argument.
- ___ Writer uses correct anatomy and physiology terms, concepts, and applications to support the stated argument clearly.
- ___ Conclusion summarizes the arguments position and supports the original hypothesis based on scientific facts.

Writing

- ___ Sentences are complete but not run-ons.
- ___ Paragraphs are short but well developed
- ___ Writing is clear and concise.
- ___ Writing is free from grammatical errors, spelling errors, and capitalization errors.
- ___ Punctuation is used correctly.
- ___ References are paraphrased and cited to avoid plagiarism.
- ___ References are cited ASAS style as discussed in class.

III. Annotated Weekly Schedule

Tentative schedule. Changes may occur.

<u>Week</u>	<u>Dates</u>	<u>Topics, Homework, and Assignments</u>	<u>Assignment(s) Due</u>
1	Thurs Aug 25	<p>Topic: Introduction</p> <p>Syllabus, Canvas, Introduction to Semester Project</p> <p>Readings: Pages 107-116, 137-139</p> <p>Forming a Hypothesis and Project Proposal</p> <p>Hacker, Diana. 2021. <u>A Writers Reference</u>. 10th Ed. Bedford/St. Martin's, Boston, MA.</p>	
2	Tues Aug 30	<p>Lecture: Early understanding of reproductive biology and ART.</p> <p>Activity: Term Project Group Work – Project Proposal</p> <p>Reading: Chapter 2, Pages 11-43</p> <p>Female Anatomy</p> <p><u>Pathways to Pregnancy and Parturition</u>. 3rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V.</p>	
	Thurs Sept 1	<p>Lecture: Female Anatomy & Physiology</p> <p>Assignments: Take Home Message Worksheet – Female Anatomy</p>	Group Project Proposals Due in Canvas by 11:59 PM
3	Tues, Sept 6	<p>Lecture: Female Anatomy & Physiology Cont'd</p> <p>Readings: Pages 139-157</p> <p>Organizing the MLA Style, Paraphrasing, and ASAS Citations</p> <p>Hacker, Diana. 2021. <u>A Writers Reference</u>. 10th Ed. Bedford/St. Martin's, Boston, MA.</p>	

	Thurs, Sept 8	<p>Lecture: Female Anatomy & Physiology</p> <p>Activity: Wet Lab Female Tissue Dissections of Cow, Pig, and Horse</p> <p>Discussion: MLA Style and Paraphrasing Help</p> <p>Self-Reflection Report 1</p> <p>Self-Reflection Report Reading:</p> <p>Contraceptive Use by Method Data Booklet</p> <p>United Nations Department of Economic and Social Affairs. <i>Contraceptive Use by Method</i>. 2019.</p>	Take Home Message – Female Anatomy due in class.
4	Tues Sept 13	<p>Lecture: Male Anatomy & Physiology</p> <p>Assignment: Take Home Message – Male Anatomy</p> <p>Reading: Chapter 3, Pages 45-79</p> <p>Male Anatomy</p> <p><u>Pathways to Pregnancy and Parturition.</u> 3rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V.</p>	
	Thurs Sept 15	<p>Lecture: Male Anatomy & Physiology</p>	
5	Tues Sept 20	<p>Lecture: Male Anatomy & Physiology</p> <p>Activity: Wet Lab Male Tissue Dissection of Cow, Pig, and Horse</p>	Take Home Message – Male Anatomy due in class.
	Thurs Sept 22	<p>Lecture: Reproductive Endocrine System</p> <p>Assignment: Take Home Message – Endocrine</p>	
6	Tues Sept 27	<p>Lecture: Introduction to the Reproductive Endocrine System</p> <p>Reading: Chapter 5, Pages 102-125</p> <p>Regulation of Reproduction.</p> <p><u>Pathways to Pregnancy and Parturition.</u> 3rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V.</p>	

	Thurs Sept 29	<p>Activity: 1. Wet Lab Reproductive Brain Structures.</p> <p>2. Endocrine Function of Spermatogenesis</p>	<p>1. Take Home Message – Brain due in class</p> <p>2. Self-Reflection Report due in Canvas by 11:59 PM.</p>
7	Tues Oct 4	PRACTICAL EXAM – Male, Female, & Brain A&P	
	Thurs Oct 6	<p>Lecture: Cyclicity & Puberty</p> <p>Reading: Chapter 7, Pages 141-159 Reproductive Cyclicity <u>Pathways to Pregnancy and Parturition.</u> 3rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V.</p> <p>Reading (Library Reserve) Chapter 3, Pages 51-201 The Menstrual Cycle <u>Human Reproductive Biology.</u> 4th Ed. 2014. Jones, Richard E. and Kristin H. Lopez. Academic Press, Boston, MA.</p> <p>Activity: Term Project Group Work – Literature Reviews Check In</p> <p>Assignment: Augmented Reality Semen Densimeter Tutorial opens in CANVAS</p>	
8	Tues Oct 11	<p>Lecture: Spermatogenesis and Sperm Anatomy</p> <p>Reading: Chapter 10, Pages 203-227 Spermatogenesis <u>Pathways to Pregnancy and Parturition.</u> 3rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V.</p>	

	Thurs Oct 13	 Field Trip: Swine Unit Lecture: Mating Behavior, Boar Collection, and Introduction to semen analysis and artificial insemination. Reading: Chapter 11, Pages 229-253 Reproductive Behavior <u>Pathways to Pregnancy and Parturition.</u> 3 rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V. Reading: Lab Handout in Canvas Assignment: Take Home Message – Breeding Management	Semen Densimeter AR Tutorial due in Canvas by 11:59 PM.
9	Tues Oct 18	 Field Trip: Horse Teaching Unit Activity: Managing Cyclicity and Timed Artificial Insemination in Farm Animals Reading: Lab Handout in Canvas Assignment: Take Home Message – Techniques in Semen Biotechnology	Take Home Message – Breeding Mgmt due in class.
	Thurs Oct 20	Wet Lab: Semen Analysis, Centrifugation, Gradient Separation, and Freezing Semen Reading: Lab Handout in Canvas	Take Home Message – Semen Biotechnology Techniques due in class.
10	Tues Oct 25	Lecture: Embryogenesis, Early Pregnancy, Ultrasonography Reading: Chapter 4 Pages 81-99, Chapter 13 Pages 273-291 Embryogenesis of the Male & Female Reproductive System <u>Pathways to Pregnancy and Parturition.</u> 3 rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V.	
	Thurs Oct 27	Wet Lab: Modeling Human Embryology using the Sea Urchins	

11	Tues Nov 1	<p>Lecture: Placentation</p> <p>Reading: Chapter 14, Pages 293-313 Placentation, Gestation, Parturition</p> <p><u>Pathways to Pregnancy and Parturition.</u> 3rd Edition 2012. P. L. Senger, Current Conceptions, Inc, Pullman, W. V.</p> <p>Activity: Check in on sea urchin development</p>	
	Thurs Nov 3	<p>Wet Lab: Dissect pregnant cow tract to visual fetal development.</p>	
12	Tues Nov 15	<p>Lecture: Parturition & Lactation</p> <p>Reading (Library Reserve) Chapter 11 Pages 205-224 Labor and Birth</p> <p><u>Human Reproductive Biology.</u> 4th Ed. 2014. Jones, Richard E. and Kristin H. Lopez. Academic Press, Boston, MA.</p>	
	Thurs Nov 17	<p>Lecture: Assisted Breeding Techniques IVF, Sexed Semen, Embryo Transfer</p>	
13	Tues Nov 22	<p>Activity: Group work to collaborate on final presentation.</p>	<p>★Term Project Written Report Due in Canvas by 11:59 PM.★</p>
	Thurs Nov 24	<p>No Class Holiday</p>	
14	Tues Nov 29	<p> Field Trip: Visit ICBR to demonstrate sexing sperm cells.</p>	
	Thurs Dec 1	<p>Group Project Presentations</p>	<p>Oral Presentations and written corrections Due</p>
15	Tues Dec 6	<p>Group Project Presentations</p>	<p>Oral Presentations written corrections Due</p>

	Thurs Dec 8	No Class – Reading Days	
16	Mon Dec 12	Comprehensive Final Exam ***DECEMBER 12th @ 10:00 AM-12:00 PM	

VI. Required Policies

Attendance Policy

The amount of information presented in this course is diverse and expansive. If you regularly attend class, turn in assignments, and interact with me and your classmates, you will do well in this course. I am committed to your success, so please keep me informed of your progress. Due to the nature and preparation involved in wet labs, there will be no make up opportunities for hands on activities. If you must miss a wet lab, assignments are designed for completion outside of class.

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>

Working with Livestock

Working with livestock will require students to adhere to handling practices provided by the instructor either in written or verbal format. Animals are capable of injuring people, especially when they are in the flight or fight mode inspired by a stressful situation. The instructors will work to provide students with the ability to manage livestock with minimal stress, thus lowering the risk of injury to people and animals.

Biosafety and Security

The biosafety and biosecurity of animals and students is a top priority for laboratory activities. Disease transmission can have severe negative consequences on animal and human health that can also be fiscally taxing. The use of cell phones or cameras at animal facilities is not permitted without receiving written permission. Instructors and TA's may dismiss students from class for violation of biosecurity procedures.

Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. 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.

UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

University Honesty Policy

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/scsr/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.

Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc/Default.aspx> , 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

The Writing Studio

The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at <http://writing.ufl.edu/writing-studio/> or in 2215 Turlington Hall for one-on-one consultations and workshops.

In-Class Recordings

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 Student Honor Code and Student Conduct Code.

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:

1. Canvas (Instructure) - <https://sonicfoundry.com/privacy-policy/>
2. PlayPosit - <https://api.playposit.com/privacy/>
3. Mediasite - <https://sonicfoundry.com/privacy-policy/>
4. Zoom - <https://zoom.us/privacy>
5. Honorlock - <https://honorlock.com/student-privacy-statement/>
6. You Tube - <https://policies.google.com/privacy>