

Cover Sheet: Request 10793

ANS4702 Physiology of the Mammary Gland and Lactation

Info

Process	Course New Ugrad/Pro
Status	Pending
Submitter	Tenbroeck, Sandra Hodge sht@ufl.edu
Created	2/19/2016 4:41:52 PM
Updated	4/11/2016 7:56:04 PM
Description	This course will offer insights into the endocrinology and physiology of the defining characteristics of mammals: the mammary gland and lactation, focusing on the anatomy and development of the mammary gland with an overview of the biochemical, cellular and molecular processes controlling lactation emphasizing on livestock species.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Animal Sciences 514909000	Tenbroeck, Sandra Hodge		2/19/2016
Deleted ANS 4702 - NEW - Syllabus - 2.18.16.docx					2/19/2016
College	Approved	CALS - College of Agricultural and Life Sciences	Brendemuhl, Joel H	Approved at the CALS CC on 2-12-16.	2/22/2016
No document changes					
University Curriculum Committee	Comment	PV - University Curriculum Committee (UCC)	Case, Brandon	Added to the April agenda.	3/21/2016
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			3/21/2016
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 10793

Info

Request: ANS4702 Physiology of the Mammary Gland and Lactation

Submitter: Tenbroeck,Saundra Hodge sht@ufl.edu

Created: 2/19/2016 4:41:52 PM

Form version: 1

Responses

Recommended PrefixANS

Course Level 4

Number 702

Lab Code None

Course TitlePhysiology of the Mammary Gland and Lactation

Transcript TitleLactation Physiology

Effective Term Fall

Effective Year2016

Rotating Topic?No

Amount of Credit2

Repeatable Credit?No

S/U Only?No

Contact Type Regularly Scheduled

Degree TypeBaccalaureate

Weekly Contact Hours 2

Category of Instruction Joint (Ugrad/Grad)

Delivery Method(s)On-Campus

Course Description This course will offer insights into the endocrinology and physiology of the defining characteristics of mammals: the mammary gland and lactation, focusing on the anatomy and development of the mammary gland with an overview of the biochemical, cellular and molecular processes controlling lactation emphasizing on livestock species.

Prerequisites BSC 2011 and BSC 2011L, ANS 3319C, and 4AG.

Co-requisites none

Rationale and Placement in Curriculum this course will offer opportunities for pre-professional undergraduate students with an interest in pursuing careers in the food animal industry. Specifically, FAL students with interest in pursuing careers in the dairy industry or working for dairy management industry operations, students interested in going to graduate school, or veterinary school.

Course Objectives 1. Describe the anatomy and physiology of the mammary gland.

2. Outline the prenatal development of the mammary gland and its changes throughout the lactation cycle controlled by systemic (hormonal) and local (autocrine/paracrine) mechanisms.

3. Discuss the physiological, biochemical, cellular and molecular processes controlling the process of milk formation, milk ejection and factors affecting milk yield.

4. Distinguish the major components of mammalian milk and their functions for the neonate.

5. Apply learned concepts to critically evaluate management issues related to lactation in farm animals.

6. Read, interpret and discuss scientific articles relating to mammary gland biology.

Course Textbook(s) and/or Other Assigned Reading There is no assigned textbook for this class. However, the following reading materials are recommended for the students' consultation:

- Lactation and the Mammary Gland. R. Michael Akers. 2002. Iowa State Press.
- Lactation Biology Website: University of Illinois:
<http://classes.ansci.illinois.edu/ansc438/index.html>
- Lactation on the NIH website: <http://mammary.nih.gov/>

Weekly Schedule of Topics Week 1:

- Course overview and introduction to lactation
- Evolution of the mammary gland and lactation

Week 2:

- Student presentations: "My favorite mammal"
- Mammary anatomy I: macrostructure

Week 3:

- Mammary anatomy II: circulatory, lymphatic and neural systems
- Mammary anatomy II: microstructure (secretory cell and organelles)

Week 4:

- Endocrinology of lactation
- Neuro-endocrine control of lactation and milk ejection

Week 5:

- Mammary growth and development I: fetal through puberty
- Mammary growth and development II: Post-puberty through involution

Week 6:

- Exam review section
- Mid-term 1

Week 7:

- Lactogenesis (stage I and II)
- Galactopoiesis and Involution

Week 8:

- Milk: carbohydrate synthesis and secretion
- Milk: lipid synthesis and secretion

Week 9:

- Milk: protein synthesis and secretion
- Colostrum and Milk

Week 10:

- Exam review section
- Mid-term 2

Week 11:

- Milking systems and milking Parlors
- Debate 1: "Milking robots: Do they Pay?"

Week 12:

- Factors affecting milk yield: Manipulation of Milk Production
- Debate 2: "bST and Milk production: Safety Still Concern Critics?"

Week 13:

- Milk Products: from the cow to the store
- Debate 3: "Marketing vs. Reality: The Myth of the Organic Happy Cow?"

Week 14:

- Mammary gland immunology
- Milking routine and Mastitis control

Week 15:

- Graduate students presentations
- Review section for final exam

Final Exam: TBA - during finals week

Grading Scheme Students can earn a maximum of 375 points.

The final grade will be based on two midterms (100 points each), a non-cumulative final

exam (100 points), an individual presentation (25 points), and 5 homework assignments through the course (10 points each).

(*) Presentation format: Individual 5-8 minutes, topic: "Your favorite mammal"

(*) Homework format: questions from lecture materials that will allow students to better prepare for the midterm and final exam.

Grading scale

A =93% B- = 80 to < 83% D+ =67 to < 70%
A- = 90 to < 93% C+ =77 to < 80% D =63 to < 67%
B+ = 87 to < 90% C = 73 to < 77% D- =60 to < 63%
B = 83 to < 87% C- = 70 to < 73% E <60

Information regarding University Policy on grade point equivalencies and calculation of grade points is located at the following web address:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Instructor(s) Jimena Laporta

ANS 4702

Physiology of the Mammary Gland and Lactation



Instructor: Jimena Laporta, Ph.D.

Office: 2250 Shealy Dr. Room 104H

Phone: 352-392-1981, ext. 229

E-mail: jlaporta@ufl.edu

Teaching assistant: Amy Skibiell, Ph.D.

2250 Shealy Dr. Room 108 | askibiell@ufl.edu

Office Hours: by appointment

Time and Location: Fall semester. When? TBA (biweekly). Where? TBA

Prerequisites: BSC 2011 and BSC 2011L, ANS 3319C, and 4AG.

Course description:

This course will offer insights into the endocrinology and physiology of the defining characteristics of mammals: the mammary gland and lactation, focusing on the anatomy and development of the mammary gland with an overview of the biochemical, cellular and molecular processes controlling lactation emphasizing on livestock species. (2 credits)

Course learning objectives and expected outcomes

Upon completion of the course, the student will be able to:

1. Describe the anatomy and physiology of the mammary gland.
2. Outline the prenatal development of the mammary gland and its changes throughout the lactation cycle controlled by systemic (hormonal) and local (autocrine/paracrine) mechanisms.
3. Discuss the physiological, biochemical, cellular and molecular processes controlling the process of milk formation, milk ejection and factors affecting milk yield.
4. Distinguish the major components of mammalian milk and their functions for the neonate.
5. Apply learned concepts to critically evaluate management issues related to lactation in farm animals.
6. Read, interpret and discuss scientific articles relating to mammary gland biology.

Recommended reading material and text books

There is no assigned textbook for this class. However, the following reading materials are recommended for the students' consultation:

- Lactation and the Mammary Gland. R. Michael Akers. 2002. Iowa State Press.
- Lactation Biology Website: University of Illinois:
<http://classes.ansci.illinois.edu/ansc438/index.html>
- Lactation on the NIH website: <http://mammary.nih.gov/>

Course website: Power point lectures, supplementary materials, syllabus, assignments and grades will be available in Canvas (<http://elearning.ufl.edu/>).

Course Schedule

Week 1:

- Course overview and introduction to lactation
- Evolution of the mammary gland and lactation

Week 2:

- Student presentations: "My favorite mammal"
- Mammary anatomy I: macrostructure

Week 3:

- Mammary anatomy II: circulatory, lymphatic and neural systems
- Mammary anatomy II: microstructure (secretory cell and organelles)

Week 4:

- Endocrinology of lactation
- Neuro-endocrine control of lactation and milk ejection

Week 5:

- Mammary growth and development I: fetal through puberty
- Mammary growth and development II: Post-puberty through involution

Week 6:

- Exam review section
- **Mid-term 1**

Week 7:

- Lactogenesis (stage I and II)
- Galactopoiesis and Involution

Week 8:

- Milk: carbohydrate synthesis and secretion
- Milk: lipid synthesis and secretion

Week 9:

- Milk: protein synthesis and secretion
- Colostrum and Milk

Week 10:

- Exam review section
- **Mid-term 2**

Week 11:

- Milking systems and milking Parlors
- Debate 1: "Milking robots: Do they Pay?"

Week 12:

- Factors affecting milk yield: Manipulation of Milk Production
- Debate 2: "bST and Milk production: Safety Still Concern Critics?"
- **Graduate Essay Due**

Week 13:

- Milk Products: from the cow to the store
- Debate 3: "Marketing vs. Reality: The Myth of the Organic Happy Cow?"

Week 14:

- Mammary gland immunology
- Milking routine and Mastitis control

Week 15:

- Graduate students presentations
- Review section for final exam

Final Exam: TBA - during finals week

Grades

Students can earn a maximum of **375 points**.

The final grade will be based on two midterms (100 points each), a non-cumulative final exam (100 points), an individual presentation (25 points), and 5 homework assignments through the course (10 points each).

(*) *Presentation format*: Individual 5-8 minutes, topic: “*Your favorite mammal*”

(*) *Homework format*: questions from lecture materials that will allow students to better prepare for the midterm and final exam.

Grading scale

A ≥93%	B- ≥ 80 to < 83%	D+ ≥67 to < 70%
A- ≥ 90 to < 93%	C+ ≥77 to < 80%	D ≥63 to < 67%
B+ ≥ 87 to < 90%	C ≥ 73 to < 77%	D- ≥60 to < 63%
B ≥ 83 to < 87%	C- ≥ 70 to < 73%	E <60

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

Please note: This course is taught concomitant with the graduate version **ANS 6702**. The graduate students will be required to perform all of the graded tasks as listed above and they will also be required to write an essay on a chosen mammal’s characteristics and lactation strategy, and present (group presentation of 15 minutes) on a research paper or topic selected by the instructor.

Attendance and make-up work

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>.

It is highly recommended that you do not miss class as your final grade will be positively correlated with attendance. A student missing an exam will be allowed to make up the exam if a documented, valid reason as outlined in UF’s policy for excused absences exists. This problems should be discussed with the instructor in advance (when possible), preferably by email. A missed exam for an unexcused absence will be considered as a “0”.

Critical dates

XXXX - First day of class

XXXX - First Mid-term

XXXX - Second Mid-term

XXXX - Last day of classes

XXXX - Final Exam

University of Florida Complaints Policy

Please visit: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

Services for students with disabilities

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. 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.

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

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:

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

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.

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
Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- *Career Resource Center, First Floor JWRU, 392-1601,* www.crc.ufl.edu/