

ANFS 441: Reproductive Physiology

2014 Fall Semester

COURSE SYLLABUS

Course Information:

Time and place: Tuesday and Thursday 8:00AM to 9:15AM
Memorial Hall: Room 111
Pre-requisites: ANFS 140, Biology 207, 208

Disability Disclosure: Any student with a need for accommodations based upon a disability impact should contact me as soon as possible. Contact the Office of Disabilities Support Services to coordinate appropriate accommodations for issues concerning lecture and examination.

A) GENERAL COMMENTS

Program student Learning Outcomes:

Students will be required to accumulate knowledge from a variety of disciplines and then integrate anatomic, physiologic, endocrinologic, embryologic and histologic concepts together in a critical thinking process to understand how gamete production, fertilization, pregnancy and parturition are orchestrated in successful reproductive outcomes. Students will attain basic concepts enabling critical thinking about the similarities and differences in reproductive function and physiologic function across species used for food, fiber, companion and recreational purposes.

1. *Course Objectives and student learning outcomes.*

The objective and student learning outcomes of this course is three fold:

To create an understanding of the extra-gonadal and gonadal endocrine mechanisms orchestrating gamete production and fertility in the male and female

To develop the anatomic, physiologic and endocrine basis of pregnancy, gestation and parturition

To explore the applied, clinical aspects of reproductive function and failure in several large animal species to illustrate production and disease challenges to reproductive function.

2. *Course Format*

There will be two lectures each week. Attendance at lectures is highly desirable since information in addition to that covered in the text will be presented. Lectures in ANFS 441 are routinely updated with contemporary issues presented in the literature that impact current knowledge of reproductive physiology. This will become particularly important later in the course because the applied aspects of reproductive dysfunction may not be well discussed in the text.

3. *Instructional Personnel*

a. Faculty Member: Dr. Robert M. Dyer

E-mail: rdyer@udel.edu

Voice mail: 831-4160

Office hours: Thursday 1:30-3:30 PM or by appointment

4. *Text*: Senger, PL. Pathways to Pregnancy and Parturition. 3rd edition, 2012, Current Conceptions Inc. Pullman Washington. The lecture topics follow the textbook, but several topics will be expanded considerably over that presented in the text.

B) **GRADING SYSTEM:**

1. *Grade Components*

Item	Points
3 hour exams @ 100 points	300
Final exam	<u>200</u>
Total possible score	<u>500</u>

Your point total at the end of the semester is merely the sum of points accumulated on individual items. Letter grades will be assigned only at the end of the semester for your final grade. I will arrange all of the point totals in numerical order and decide at that time where the most logical breaking point between letter grades occurs. My cut-off for the following letter grade will not be higher than the point levels indicated, although they may be lowered, based on the actual numerical distribution of semester point totals. I usually scale, choosing the highest grade as 100% and appropriately adjusting all other grades to that scale.

Grade:	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Minimum	450	445	432	407	392	375	357	337	319	300	275	<274

Extra help can be set up by appointment. I will also hold a review session prior to each exam in which you must come prepared to ask questions in areas you do

not understand. These are most productive if studying has taken place prior to the review. They most likely will be at night at a time selected by the class.

2. *Quizzes and Hour Exams*

There are no quizzes in this course. The first hour exam will include material covered since the beginning of the semester while the second and third hour exam will only include material covered since the previous hour exam. The final exam will be comprehensive, integrating material covered throughout the entire course.

The exams will be multiple-choice questions and but diagrams and graphs may be on the exam with multiple-choice questions referring to concepts illustrated by the diagram. The multiple-choice section will require use of optical scan answer sheets utilizing a soft lead pencil (No. 2). **You are responsible for bringing your own pencil!** The dates of exams are indicated on the lecture schedule but can be shifted if the class as a whole is unanimously agreed upon a new date. .

Help sessions can be scheduled one evening within a week of the examination. The time and location will be decided by majority of student input taken during lecture. Please prepare yourself by working through all the material before you come to the help session. Be prepared to ask specific questions concerning material you do not understand because we cannot cover all the material presented in lecture during a single help session. Help sessions last as long as students desire.

SPECIFIC COMMENTS CONCERNING LECTURE

3. *Lecture Outline:* A lecture outline for each lecture topic will be provided. This should reduce the amount of time spent taking notes and increases the time spent listening to what is being said. In addition the outline will present the important concepts for each topic. You can fill in details from the lecture as you see fit. However, be aware that lectures often cover considerably more detail on most topics than you will find in either the text or lecture notes. Much of the material presented in lecture is in fact a synthesis of research publications and reviews presented in the journals. Therefore attendance in lecture as well attention in lecture will significantly enhance your understanding of the materials presented through the semester. i
4. Please do spend time memorizing specific numbers for this course. Emphasize concepts and principles of reproductive physiology as these rather than specific details will be of more value.

Lecture Outline

Lecture	Date	Lecture Topic
1	8/26	Course organization, Anatomy of the male tract
2	8/28	Anatomy of the male tract
3	9/2	Anatomy of the female reproductive tract
4	9/4	Stages of ovarian folliculogenesis: primary, secondary, tertiary, Graafian and ovulatory follicles, follicular waves
5	9/9	Stages of ovarian folliculogenesis: primary, secondary, tertiary, Graafian and ovulatory follicles, follicular waves (continued)
6	9/11	Embryonic Development of the Reproductive Tract
7	9/16	Hypothalamic-pituitary anatomy
8	9/18	Synthesis, secretion of GnRH: hypothalamic automaticity and regulation
9	9/23	Gonadotropins, Inhibin and Activin
10	9/30	Gonadotropins: synthesis and secretion- GnRH mediated regulation of FSH and LH gene expression; GnRH pulse frequency and amplitude
11	10/2	First Exam

12	10/7	Steroids: Synthesis of androgens, estrogens and progestins. Gonadotropin mediated regulation of steroidogenesis: Steroids: Negative feedback: gonadal regulation of hypothalamic and pituitary function
13	10/9	Prostaglandins
14	10/14	The ovarian cycle of oogenesis, folliculogenesis, ovulation and luteogenesis
15	10/16	The ovarian cycle of oogenesis, folliculogenesis, ovulation and luteogenesis
16	10/21	Male hypothalamic-pituitary-gonadal interactions
17	10/23	Spermatocytogenesis and spermiogenesis
18	10/28	Maternal Recognition of Pregnancy and Implantation
19	10/30	Second examination
20	11/4	Election day-no class
21	11/6	Fertilization: Sperm Capacitation, sperm-ovum interaction and mechanisms of fertilization
22	11/11	Maternal Recognition of Pregnancy and Implantation
23	11/13	Pregnancy: Placentation: Hormonal Events sustaining pregnancy
24	11/18	Pregnancy; Endocrine function of the placenta

25	11/20	Parturition: Hormonal mechanisms of Induction
26	11/25	Cyclicity and estrous synchronization programs
27	12/2	Third exam