ANS 3319C Reproductive Physiology and Endocrinology Lab #1
Take Home Message: Female Reproductive Anatomy (20 pts: Spring 2014)

Name: _________________________________

1) Please fill in the table with the most appropriate term or circle the correct term (4 pts).

<table>
<thead>
<tr>
<th>Species</th>
<th>Length of estrous cycle (days or months)</th>
<th>Duration of estrus (hours or days)</th>
<th>Type of offspring production (Circle the correct choice)</th>
<th>Site of semen deposition natural mating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cow</td>
<td>21 days</td>
<td>15 hours</td>
<td>Monotocous</td>
<td>Fornix vagina</td>
</tr>
<tr>
<td>Sow</td>
<td>21 days</td>
<td>50 hours</td>
<td>Polytocous</td>
<td>Cervix</td>
</tr>
<tr>
<td>Mare</td>
<td>21 days</td>
<td>7 days</td>
<td>Monotocous</td>
<td>Cervix into uterus</td>
</tr>
<tr>
<td>Cat (Domestic)</td>
<td>17 days</td>
<td>9 days</td>
<td>Polytocous</td>
<td>Fornix vagina</td>
</tr>
<tr>
<td>Dog (Domestic)</td>
<td>6 months</td>
<td>9 days</td>
<td>Polytocous</td>
<td>Fornix vagina</td>
</tr>
</tbody>
</table>

2) Please answer the following questions as they relate to the functions of the ovary (3.5 pts).
   a) What are the two major functions of the ovary? **Endocrine and gametogenic**
   b) Structures located within ovary that *house oocytes* and *secrete hormones?* Follicle
   c) Name of primary *steroid hormone* produced by structure in previous question (2b)? **Estrogen**
   d) **Behavioral event** that hormone in previous question (2c) induces? **Estrus**
   e) Hormone secreting structure formed after ovulation of structure in question 2b? **Corpus luteum**
   f) Name of primary *steroid hormone* produced by structure listed in previous question? **Progesterone**

3) The cervix has multiple functions, which are dependent on the physiological status of the animal.
   a) During **estrus (time of mating and semen deposition)**, what are the functions of the cervix in most animals and what **ovarian hormone** would assist in stimulating these actions (1 pt)?

   Secretes mucous, which facilitates transport of sperm to the uterus, serves as sperm reservoir, and could be involved in the selection process of sperm cells. *Estrogen* is the hormone

   b) During **pregnancy**, what is the primary function of the cervix and what **ovarian hormone** would assist in maintaining this action (1 pt)?

   The cervix is sealed during pregnancy with a glue-like substance to serve as a barrier to the uterus to protect the fetus. *Progesterone* is the hormone that helps keep the cervix closed

4) Please answer the following questions relating to epithelial cell types associated with female anatomy (4.5 pts).
   a) Type of epithelial cells that comprise **caudal vaginal wall?** Stratified squamous

   What are the **physical functions** of this type of cell arrangement in the caudal vaginal? Hint: see question 3

   To provide protection and stability to the vagina during the process of mating and parturition

**Continued on the back!!!!!!**
b) Type of epithelial cell arrangement that would be found in uterine wall? **Transitional**

Why would this type of cell arrangement be necessary in the uterus? Hint: see question 3

So the uterus can stretch and support a pregnancy

c) Type of epithelial cells that line the **secretory glands** of uterus? **Simple columnar**

d) Type of epithelial cells of **oviduct**, which may have **cilia** projecting from them? **Ciliated (simple) columnar**

e) What do you think the primary function of the cilia are for the epithelial cell type in question 4d?

Aids in the transport of egg/oocyte and possibly the embryo

5) Please **describe four major and distinctly different functions** of the uterus in most mammals (4 pts).

a) Sperm transport initiated by myometrial contractions, which move sperm from the anterior cervix towards the oviduct. Aids in sperm capacitation.

b) **Regulation of the corpus luteum** by the production of prostaglandinF₂α.

c) Provides early developing embryo the proper nutrition for development.

d) Placental attachment or placental invasion occurs and functions to provide an interface between the maternal and fetal circulations allowing for nutrient and gas exchange necessary for fetal growth and development.

e) Myometrial contractions assist in expulsion of fetus during parturition and allow for involution of uterus during the postpartum period.

6) Please **identify the gross anatomical structures** of the sow tract in the figure below. Spell out the structure’s name in the line corresponding to the identifying letter in the figure. **Please circle the letter of the structure where fertilization would occur** (2 pts).

A) Vagina

B) Vulva (Hint: external structure)

C) Pelvis (Hint: bone)

D) Bladder

E) Uterus or Uterine horn

F) Oviduct

G) Ovary

H) Cervix