

BIO 111 - Laboratory #10: Reproduction and Development

- **Movie:** "The Miracle of Life"
 - ✓ Answer the questions on the Video handout, as you watch the movie
- **Assigned pages:** Mader, S., et al. 2008. *Inquiry of Life*. pp. 204, 207, 214, 263-267, 268-279, and 280
 - ✓ Know the GOALS (objectives and key terms) listed for each section
- **Field Trip NEXT WEEK!** (State regulations require that you wear closed shoes on the field trip.)
 - ✓ **PLEASE**, dress for walking outdoors; you will **NOT** be allowed on the bus with open shoes.
 - ✓ **MEET** at the bus stop in front of **MOFFET HALL**; **ALL** buses will leave from that bus stop.
 - ✓ **BE ON TIME** (field trip runs for the full length of your **NORMAL LAB** period); buses and treatment plant personnel are on a tight schedule. If you are late, you **WILL** miss the bus.

I. Reproduction:

1. GOALS:

Objectives - at the end of laboratory #10 you should be able to:

- 1.) identify and state the functions of human male and female reproductive structures using the models
- 2.) identify and state the functions of the female reproductive structures, using the pig uterus
- 3.) state the key differences between human and porcine (pig) female reproductive structures
- 4.) identify and state the functions of the extraembryonic membranes in the porcine fetus

Key terms - you should be able to define:

HUMAN FEMALE ANATOMY		
ovary	cervix	labium minora
fallopian tube (oviduct)	vagina	labium majora
uterus	clitoris	fimbriae
HUMAN MALE ANATOMY		
testis (testes) and scrotum	bulbourethral gland	penis
epididymus	urethra	prostate gland
vas deferens	bladder	seminal vesicle
PORCINE (PIG) FEMALE ANATOMY		
uterine horn	ovaries	chorion
uterine body	placenta	
cervix	amnion	

2. Human Male Reproduction - Anatomy

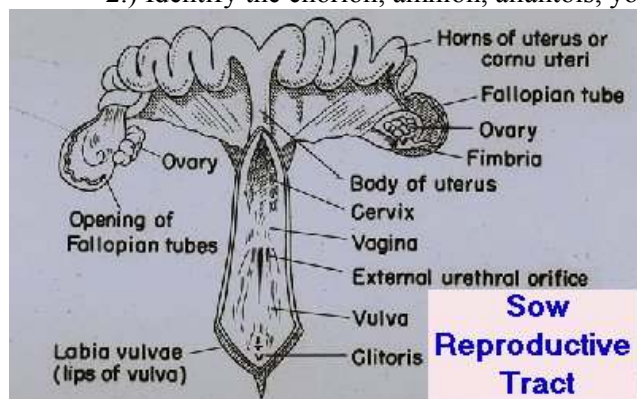
- 1.) p. 204: Review the anatomical terms and use Figure 16.5 to identify the structures in the model
- 2.) p. 214, Review: Answer questions 4-6

3. Human Female Reproduction - Anatomy

- 1.) p. 207: Review the anatomical terms and use Figure 16.8 to identify the structures in the model
- 2.) p. 214, Review: Answer questions 7-10, 12

4. Pig Uterus and Extraembryonic Membranes - Anatomy and Dissection Demonstration

- 1.) **Demonstration**, adult female pig uterus: Observe and take notes/sketch the structures
- 2.) Identify the chorion, amnion, allantois, yolk sac, fetus with umbilical cord attached



II. Development:**1. GOALS:****Objectives - at the end of laboratory #10 you should be able to:**

- 1.) describe the basic stages of animal embryonic development
- 2.) describe the anatomy of an unfertilized chicken egg
- 3.) identify the four extraembryonic membranes of the chick and human
- 4.) compare & contrast the location & function of the extraembryonic membranes of humans & chicks
- 5.) list the physical characteristics present in the chick embryo at 24hrs, 48 hrs, 72hrs, and 96 hrs of development.....**HINT:** *expect to see these slides on the practical.....*
- 6.) identify the age (24, 48, 72 or 96hrs) of a chick embryo (as a section on a prepared slide)
- 7.) list the key characteristics found in human embryos at 5, 14, 17, and 20 weeks

Key terms - you should be able to define:

embryo	eye	allantois
head fold	margin (edge) of amnion	germinal vesicle with nucleus
neural tube	caudal fold	albumen
neural fold	ear	chalaza
primitive streak	limb buds	shell & shell membranes
somites	tail bud	amnion
heart	amniotic cavity	brain
vitelline arteries	yolk sac	growth vs. differentiation vs. morphogenesis
vitelline veins	chorion	zygote vs. morula vs. blastula vs. gastrula

2. Development - Vertebrates

- 1.) **pp. 263-264** (stop at section "Sea Star Development"): Read and understand the differences between "growth", "differentiation" and "morphogenesis".
- 2.) **Demonstration Dissection - Chick Embryos**
 - (1.) **48 hr chick embryo demonstration (under dissecting scope)**: use the description and Figure 20.7 (p. 272) to identify the structures
 - (2.) **96 hr chick embryo demonstration (under dissecting scope)**: use the description and Figures 20.9 and 20.10 (pp. 276-277) to identify the structures....is the heart beating?
- 3.) **Human Development**
 - (1.) **pp. 277-279**: Read the description and use Figures 20.10 and 20.11 to learn the steps in human development and
 - (2.) **Anatomical comparisons**: COMPARE the extraembryonic membranes of the human (Fig. 20.10) with the extraembryonic membranes of the chick (Fig. 20.4, p. 269).
- 4.) **p.280, Review**: Answer questions 1-10