

BIO 111 - Laboratory # 5: Urogenital & Musculoskeletal Systems

- **Assigned pages:** Mader, S., et al. 2008. Inquiry of Life. pages as listed below, GOALS are listed for each section:
- ✓ **Urogenital System:** pp. 199-207, pp.22 & 224, p. 214 questions 1-3, 5, 7-11, 14, 17
 - ✓ **Long Bone & the Skeleton:** pp. 249-251, pp. 252-255, p. 262 questions 1-6
 - ✓ **The Muscles:** pp. 255-259, p. C61, p. 262 questions 7, 8, 12-14
 - ✓ **Dissection kit, gloves and goggles are required (please, go get them if you forgot them)**
 - ✓ **Reviewing for the practical exam (50 points) given during LAB 6:** PLEASE, check out the photos and study guides available at the class website, <http://web.cortland.edu/biolab/111.html>

I. Urogenital System (Urinary System and Reproductive Systems):

1. GOALS:

Objectives - at the end of laboratory #5 you should be able to:

1. Describe the role of kidneys in the urinary system
2. Identify the anatomical parts of the sheep kidney
3. Locate and state the functions of the urinary system organs in the fetal pig
4. Trace the path of urine from its formation to its removal from the body
5. Compare and contrast the urinary systems & paths in males and females
6. Locate and state the functions of the male & female reproductive organs in the fetal pigs
7. Trace the path of sperm from production to ejaculation

Key terms - you should be able to define:

SHEEP kidney:

renal vein/artery
renal medulla
renal pelvis
renal cortex
ureter

Fetal pig:

kidneys
ureter
urethra
urinary bladder
bulbourethral glands

Reproductive system _____ :

<u>Female fetal pig:</u>	<u>Male fetal pig:</u>
ovaries	testis (pl. testes)
oviducts	epididymidis (pl. epididymides)
uterine horn	vas deferens (vas deferenia)
vagina	penis

2. Urinary System

- 1.) **pp. 199-201:** Read Introduction and use the diagrams of **Fig. 16.1** to locate the organs of the fetal pig's urinary system.
- 2.) **COMPARE the organs** in your fetal pig to the organs of a pig of **the opposite sex**.
- 3.) **p. 222:** Use the diagram of **Fig. 17.4** to locate the different structures of the **sheep kidney**.
- 4.) **p. 224:** Read the section, on this page, under "Kidney Function" describing the steps in urine formation
- 5.) **Review, p. 214:** Answer questions 1-3

3. Male Reproductive System

- 1.) **pp. 202-204:** Read the **description** of the organs and functional anatomy for the male fetal pig
- 2.) **p. 203:** Use the diagram and photo of **Fig 16.3** to **locate the organs** of the male fetal pig
NOTE: Be sure to **examine** at the demonstration **female** fetal pig if you have a male
- 3.) **Be able to trace the sperm** from production to ejaculation
- 4.) **Review, p. 214:** Answer questions 5, 10, 17, and 18

4. Female Reproductive System

- 1.) **pp. 205-207:** Read the **description** of the organs and functional anatomy for the female fetal pig
- 2.) **p. 206:** Use the diagram and photo of **Fig. 16.6** to **locate the organs** of the female fetal pig
NOTE: Be sure to **examine** at the demonstration **male** fetal pig if you have a female
- 3.) **Review, p. 214:** Answer questions 7-9, and 14

II. Long Bone & the Skeleton:

1. GOALS:

Objectives - at the end of laboratory #5 you should be able to:

1. Locate and identify the functions of the tissue that make up the long bone
2. Locate and identify the bones (listed below) of the human skeleton

Key terms - you should be able to define:

<u>Long bone:</u>	<u>Skeleton</u> _____ :			
periosteum	skull	radius	femur	sacrum
medullary cavity	clavicle	ulna	patella	coccyx
compact bone	scapula	carpels	tibia	vertebral column
yellow bone marrow	sternum	metacarpals	fibula	
spongy bone	ribs	phalanges	tarsals	
red bone marrow	humerus	pelvis	metatarsals	

2. Introduction

- 1.) pp. 249-250: Read the Introduction

3. Anatomy of the Long Bone

- 1.) pp. 251-252: Read the descriptions for the long bone anatomy and tissues and use the cow femur ("long bone") to locate as a model for examining the "long bone" features listed above
- 2.) Review, p. 262: Answer questions 1 and 2

4. The Human Skeleton

- 1.) pp. 253 (introduction and #3, vertebral column) - 255: Read the descriptions and use the diagram of Fig. 19.4 to identify the bones of the articulated human skeleton in lab (bones listed under "key terms", above)
NOTE: You will know MORE than you think you do; focus on what is not familiar to you!
- 2.) Review, p. 262: Answer questions 4 - 6

III. The Muscles:

1. GOALS:

Objectives - at the end of laboratory #5 you should be able to:

1. Locate and identify muscles (listed below) of the human body
2. Give examples of antagonistic pairs of muscles

Key terms - you should be able to define:

origin	adduction	trapezius
insertion	abduction	deltoid
action of the muscle	pectoralis major	triceps brachii
antagonistic pairs	biceps brachii	hamstrig group
flexion	quadriceps femoris group	gastrocnemius
extension	tibialis anterior	gluteus maximus

2. Introduction

- 1.) p. 249: Review the diagram of Fig. 19.1

3. Human Superficial Skeletal Muscles

- 1.) pp. 255-257: Read the introduction (p. 255) and use the diagram (Fig. 19.5) and tables of muscles (Tables 19.1 & 19.2) to identify the muscles (listed in the table above) on the muscle models located in the lab
- 2.) Review, p. 262: Answer questions 7, and 12-14

4. Antagonistic Pairs of Muscles

- 1.) pp. 258-259 (STOP at "isometric contractions"): Read the descriptions of muscles working in antagonistic pairs and answer the questions at the top of p. 259.
- 2.) Review, p. 262: Answer questions 14 and 15

5. Review for Muscles

- 1.) p. C61: use the information (pages listed at the top of C61) to fill in the two tables.