

## Reading Guide for Week5 Imaging the Body, Fall 05

Thighs, knee joint and bone, bone structure.

### Thighs

**Femur-** know the major parts of this important bone

**Muscles that move the thigh** – the muscles in the groups below. Know the generalized areas of origin and insertion (e.g. Gluteus maximus originates on the upper posterior of pelvis {iliac crest} as well as the sacrum and coccyx and inserts on the top of the femur and into the iliotibial tract)

Refer to the muscle and bone list as a guide to which muscles you need to know specifically.

*Extensors*

*Flexors*

*Adductors*

### Knee

**Muscles that move the knee** – the muscles in the groups below. Know the generalized areas of origin and insertion

Refer to the muscle and bone list as a guide to which muscles you need to know specifically.

*Extensors*

*Flexors*

**Knee joint-**type of joint, major ligaments, accessory structures

Review the various movements of the knee on yourself.

### Bones

**Five major functions of bone**

**Structure-**type of tissue

*Matrix- primary components, and how they provide the strength of bone*

*Four major cell types and their roles*

**Compact bone vs spongy bone-** know the generalized structure of each type and how they differ, where they're found. Be able to draw a generalized bone with the major parts labeled.

## **Study Questions #5 for Week5 Imaging the Body, Fall 05**

These are due Wed, Nov 2<sup>nd</sup> at the beginning of class. **Write your answers neatly and legibly on a separate piece of paper that you will turn in.** Be prepared to discuss your answers. You may need to access outside resources to completely answer these questions.

1. Research three different types of disease that affect bones. For each one, briefly outline the etiology and progression of the disease. Describe any effects or roles of the various aspects of bones you've covered in your readings.
2. Draw lateral and frontal views of the knee joint showing the location of the bursae and briefly describe the function of these structures.
3. Outline the paths that nutrients take from the blood to the osteocytes.
4. Search on the Web for information about knee injuries. Briefly outline three different types of knee injuries and how they are treated.

### ***Questions that require web access and other resources***

5. Recent advances in joint surgery include arthroscopic surgeries. What is an arthroscope and how is it used? What are the advantages of this type of surgery? Are there any disadvantages?
6. Knee replacements are becoming increasingly common. Go to <http://edheads.org/activities/knee/> (link is also on Links page of class website) and do the virtual knee surgery exercise. If you're interested, check out the actual photographs of knee replacement surgeries.
7. X-rays and magnetic resonance images (MRIs) are two different methods of producing images of the body. Briefly compare and contrast these two methods of imaging parts of the body. When is one preferred over the other?