

**Before coming to lab:**

1. Familiarize yourself with the major bones of the axial skeleton.
2. Look over *Lab Manual* Fig. 9.3 (p. 115) so that you're comfortable with the structures and vocabulary associated with compact bone histology.
3. Go to the course website and view the Shotgun Histology videos on the following tissues:
  - Dense Bone
  - Spongy Bone
  - Bone Marrow
  - Endochondral Ossification

**During the lab period (can be completed in any order):**

1. For your Histology Notebook:

 **hyaline cartilage** – *Brief Atlas*: Plate 17 (p. 8); *Histology Atlas*: Fig. 5.3 (p. 45)

- Recommended # of pages: 1-2
- Draw at 400x total magnification.
  - A view at 100x may be helpful, too.
- Label the following: chondrocyte, lacuna, matrix, perichondrium

 **compact bone** – *Brief Atlas*: Plate 20 (p. 9); *Histology Atlas*: Fig. 6.4 (p. 53)

- Recommended # of pages: 1-2
- Draw at 100x total magnification.
- Label the following: osteon, central (Haversian) canal, lacuna, lamella, canaliculus
  - We also have a model of compact bone. Try to find these structures on the model as well.



2. Sawed bone (stored in a clear, plastic bag)
  - You should be able to see the compact bone surrounding the medullary cavity.
    - The cavity itself is filled with yellow bone marrow.
  - Also, find the periosteum; it's the flaky membrane surrounding the bone.
3. Acid-soaked bone (stored in a small, ziplock bag)
  - Acid dissolves the inorganic component of bone, leaving only the organic component (mostly collagen).
4. Baked bones
  - Baking bones dehydrates them, essentially drying away the organic component. The inorganic component (*i.e.*, hydroxyapatites) remains.

5. Looking at axial skeleton bones:
- **Note:** Much of the rest of this will seem a bit overwhelming, but we'll cover a great deal of this material in lecture as well.
  - **Cranial bones**
    - Use the skull provided and the *Brief Atlas* (Figs. 1-5, pp. 27-31) to identify the following bones and sutures:
      - frontal bone
      - parietal bones
      - temporal bones
      - occipital bone
      - sphenoid bone (*Brief Atlas*: Fig. 9, p. 36)
      - ethmoid bone (*Brief Atlas*: Fig. 10, p. 37)
      - coronal suture
      - sagittal suture
      - squamous suture
      - lambdoid suture
  - **Facial bones**
    - Use the Beauchene skull and *Marieb Lab Manual* Fig. 10.6c (p. 129) to identify the following facial bones.
      - mandible
      - maxillae
      - palatine bones
      - zygomatic bones
      - lacrimal bones
      - nasal bones
      - vomer
  - **Vertebral column**
    - Your lab group has been given three vertebrae.
      - There is one cervical, one thoracic and one lumbar vertebra.
      - Use *Marieb Lab Manual* Fig. 10.15 (p. 135) to determine which is which.
    - Once you're confident you can tell the difference, there is a pink Tupperware box of vertebrae on the front bench. Try to sort them out.
  - **Bony thorax**
    - On the skeleton, identify the ribs and the sternum.
      - Note how the ribs attach to the sternum.
      - The clay on the skeletons is meant to represent the costal cartilages.

**By the next lab:**

1. Come into the lab when you are free.
  - The bones will be available in the back room.
  - If there's something missing (or something you'd like to see), I'll be happy to get it out for you.
  - Bones are also available in the ARC.

- On the Course Website, you can find unlabeled versions of the figures from the textbook. Some students like to make “Bone Flashcards” by printing out the unlabeled figures onto index cards and putting the “answers” on the back.
1. Next week's lab will be dedicated to the appendicular skeleton.
    - I suggest you practice labeling the figure on the next page.
    - I will post the answers outside of my office. (Note: This is optional. And remind me if I forget to post the answers.)
  2. Spend time looking over the Lab Exam 1 Review Sheet to see what you're responsible for regarding the bones.

