Important Concepts for the Biol 105 Labs

The first lab exam will cover: Microscope, Metric/Measurements including the chemistry homework part 2), Bio Molecules, Cells, and Tissues.

The second lab exam will cover: Fetal Pig, Genetics (including the genetics homework), Skeletal, Cell Division, Sheep’s heart and Blood.

Microscope

1. How to focus a microscope
2. Parts of the microscope and their function
3. Total magnification of the microscope (this will depend on which objective lens is in place)

Measurements

1. How to do metric conversion (don’t memorize the table)
2. Homework problems (part 2)

Food Chemistry

1. The chemistry behind each test
2. What biological molecule did each solution test for?
3. Which foods tested positive for what biological molecules?

Cells and bacteria

1. What does isotonic, hypotonic and hypertonic mean?
2. What happens to blood cells when they are placed in isotonic, hypotonic or hypertonic solutions?
3. What stains did we use and what cell structures/features did these stains make visible
4. What plant cell structure stores starch?
5. ID Shapes of the bacteria and know the latin names
Tissues

Epithelial:

1. Simple Squamous Epithelial
2. Stratified Squamous Epithelial
3. Simple Columnar Epithelial
4. Simple Cuboidal Epithelial
5. Pseudostratified ciliated columnar epithelial

Connective:

6. Areolar connective tissue
7. Hyaline cartilage
8. Adipose
9. Dense connective tissue
10. Bone

Muscle

11. Skeletal (Striated) muscle
12. Smooth muscle
13. Cardiac muscle

Nervous tissue

14. Neurons and Neuroglia

Identify each tissue type. You must also be able to give a specific location in the body where you would find this tissue, as well as a function for each tissue type.

In addition, you need to know the following structures or features or cells:

1. Be able to identify the nucleus of all cells
2. Know the name of each type of cell seen in the tissue labs
3. In epithelial tissue: Apical surface and basement membrane
4. In cardiac muscles: Intercalated disks
5. In bone tissue: central canal, osteocytes, lacuna, canaliculi
6. In hyaline cartilage: chondrocytes, lacuna
7. In nervous tissue: both neurons and neuroglial cells
8. In areolar connective tissue: fibroblast nuclei, collagen fibers, elastic fibers
Pig anatomy

1. Be able to identify all structures on handout “Fetal Pig”
2. Be able to determine the gender of the fetal pig.

Genetics

1. Refer to the important concepts and definitions in the Genetics Lecture and Lab handout

Cell Division

1. Refer to important concepts and definitions in the Cell Division Lab handout

Skeletal

1. Be able to identify the bones listed in Skeletal lab handout

Cardio: Sheep’s Heart and Blood

1. On the sheep’s heart: identify the four chambers (including right from left), septum, pericardium
2. Identify all the types of white blood cells, red blood cells and platelets.
3. Be able to describe the path of the blood through the heart, listing all the parts of the heart the blood passes through and when the blood is oxygen rich or oxygen poor.
4. On the heart models: Identify the following structures and know if they have oxygen rich or oxygen poor blood passing through them.
   a. Superior and Inferior vena cava
   b. Right Atrium
   c. Tricuspid AV valve
   d. Right Ventricle.
   e. Pulmonary SL valve
   f. Pulmonary Arteries
   g. Pulmonary veins
   h. Left Atrium.
   i. Mitral AV valve
   j. L Ventricle
   k. Aortic SL valve
   l. Aorta
   m. Coronary arteries and veins
   n. Septum
   o. Chordae tendineae
   p. Papillary muscles