BIOL 213
Blood Pathology
Use the following pictures to help you identify terms from the lab term handout.

***You always only need to know the terms listed in the lab term handout!

Another good resource for histology is the Olexik website:
http://faculty.montgomerycollege.edu/wolexik/204_histology_page.htm

***Learn about the different pathologies for BONUS on the midterm.
Eosinophilic Leukemia

Excessive Numbers of Normal Appearing Eosinophils
Lymphocytic Leukemia

Excessive Numbers of Normal Appearing Lymphocytes
Ignore These
Ignore Burred RBC's

Prof. Olexik’s Website
Myeloblastic Leukemia

Large Cells--Like Very Enlarged Lymphocytes

[Sometimes in Groups]

Prof. Olexik’s Website
Figure 17.11 Leukocyte formation.

Stem cells

Hematopoietic stem cell (hemocytoblast)

- Myeloid stem cell
- Lymphoid stem cell

Committed cells

- Myeloblast
- Myeloblast
- Myeloblast
- Monoblast
- B lymphocyte precursor
- T lymphocyte precursor

Developmental pathway

- Promyelocyte
- Promyelocyte
- Promyelocyte
- Promyelocyte
- Promyocyte

- Eosinophilic myelocyte
- Basophilic myelocyte
- Neutrophilic myelocyte
- Eosinophilic band cells
- Basophilic band cells
- Neutrophilic band cells

- Eosinophils
- Basophils
- Neutrophils
- Monocytes
- B lymphocytes
- T lymphocytes

Agranular leukocytes

- Some become Macrophages (tissues)
- Some become Plasma cells
- Some become Effector T cells

Granular leukocytes

- Agranular leukocytes

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Sickle Cell Anemia

Uremia (Burr Cells)

Prof. Olexik’s Website
Trypanosoma
Plasmodium

Prof. Olexik’s Website
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Heart Anatomy
Use the following pictures to help you identify terms from the lab term handout.

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Another good resource is the Visible Body ATLAS app: http://atlas.visiblebody.com

Don’t forget that to use the link to download the atlas to a personal device, the device must first be connected to the MCPA Wi-Fi at the Rockville campus.
(a) Portion of pericardium and right ventricular heart wall showing divisions of pericardium and layers of heart wall
Figure 18.4b Gross anatomy of the heart.

- Superior vena cava
- Ascending aorta
- Pulmonary trunk
- Auricle of Right atrium
- Right coronary artery (in coronary sulcus)
- Inferior vena cava
- Aortic arch
- Left pulmonary artery
- Left atrium
- Circumflex artery
- Left coronary artery (in coronary sulcus)
- Right ventricle
- Left ventricle
- Apex
- Anterior interventricular artery (in anterior interventricular sulcus)

(b) Anterior view
Figure 18.4d  Gross anatomy of the heart.

- Aorta
- Left pulmonary artery
- Left pulmonary veins
- Auricle of left atrium
- Left atrium
- Great Cardiac Vein
- Right atrium
- Inferior vena cava
- Superior vena cava
- Right pulmonary artery
- Right pulmonary veins
- Right coronary artery (in coronary sulcus)
- Coronary sinus
- Posterior interventricular artery (in posterior interventricular sulcus)
- Posterior interventricular artery (in posterior interventricular sulcus)
- Right ventricle
- Apex
- (d) Posterior surface view
Figure 18.7a Coronary circulation.

(a) The major coronary arteries
Figure 18.7b Coronary circulation.

Small cardiac vein

Middle cardiac vein

Great cardiac vein

Coronary Sinus (empties to RA)

(b) The major cardiac veins
(a) Anterior view of frontal section showing internal anatomy
(b) Anterior view of partially sectioned heart
(f) Internal aspect of ventricles; dissection of view similar to (e)
Chordae tendineae attached to tricuspid valve flap

(c) © 2016 Pearson Education, Inc.
Before Cut
(Parietal Layer Intact)

After Cut
(Inside of Parietal Layer at arrow tip)

(inside lining of outer covering)
Use the following pictures to help you practice finding the terms from the lab term handout on unlabeled images.

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Human Sized Heart
(Intact)
Human Sized Heart
(Pulled off the front and looking into it)
Human Sized Heart
(Pulled off the front and looking into the rest of it)
Enlarged Human Heart (Intact)
Enlarged Human Heart (Superior Blood Vessels Removed)
Enlarged Human Heart
(Anterior Side Removed with view into anterior half)
Enlarged Human Heart (Anterior Side Removed with view into posterior half)
Enlarged Human Heart (Anterior Side Removed with view into posterior half)
Real Animal Heart
Real Animal Heart
Real Animal Heart
Real Animal Heart
(Dissected)
Real Animal Heart (Dissected)
Real Animal Heart (Dissected)
EKG Lab: No Images Needed...see separate handout for this lab
Respiratory Anatomy (and Histology)
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http://faculty.montgomerycollege.edu/wolexik/205_histo__ogy_page.htm

Another good resource is the Visible Body ATLAS app: http://atlas.visiblebody.com

Don’t forget that to use the link to download the atlas to a personal device, the device must first be connected to the MCPA Wi-Fi at the Rockville campus.
Figure 22.1 The major respiratory organs in relation to surrounding structures.

Structural Classification:
2. Lower Resp. Sys.

- Nasal cavity
- Nostril
- Larynx
- Trachea
- Right main (primary) bronchus
- Right lung
- Oral cavity
- Pharynx
- Left main (primary) bronchus
- Left lung
- Diaphragm

© 2016 Pearson Education, Inc.
Figure 22.8 Conducting zone passages.

Structural Classification:
2. Lower Resp. Sys.

- Superior lobe of left lung
- Left main (primary) bronchus
- Lobar (secondary) bronchus
- Segmental (tertiary) bronchus
- Inferior lobe of left lung
- Superior lobe of right lung
- Middle lobe of right lung
- Inferior lobe of right lung
Structural Classification:

2. Lower Resp. Sys.

Superior lobe
of left lung

Left main
(primary)
bronchus

Lobar (secondary)
bronchus

Segmental
(tertiary)
bronchus

Inferior lobe
of left lung

Superior lobe
of right lung

Middle lobe
of right lung

Inferior lobe
of right lung

Trachea

Alveoli

Respiratory bronchioles

Alveolar duct

Terminal bronchiole

Alveolar sac
Figure 22.3a The nasal cavity.

**The Nose**

- Posterior nasal aperture (Posterior Nare)
- Sphenoidal sinus
- Cribriform plate of ethmoid bone
- Frontal sinus

**Nasal cavity**
- Nasal conchae (superior, middle and inferior)
- Nasal meatuses (superior, middle, and inferior)
- Nasal vestibule
- Nostril (Anterior Nare)

- Uvula
- Soft palate
- Tongue
- Hard palate

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Figure 22.4b The pharynx, larynx, and upper trachea.

**Nasopharynx**
- Pharyngeal tonsil
- Opening of pharyngotympanic tube

**Oropharynx**
- Palatine tonsil
- Isthmus of the fauces

**Laryngopharynx**

**Larynx**
- Epiglottis
- Vestibular fold
- Thyroid cartilage
- Vocal fold
- Cricoid cartilage

**Pharynx**
- Trachea

**Esophagus**

**Hard palate**
**Soft palate**
**Tongue**
**Lingual tonsil**
**Hyoid bone**

(b) Structures of the pharynx and larynx

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Figure 22.4b The pharynx, larynx, and upper trachea.

(b) Structures of the pharynx and larynx

Nasopharynx
- Pharyngeal tonsil
- Opening of pharyngotympanic tube

Oropharynx
- Palatine tonsil
- Isthmus of the fauces

Laryngopharynx

Larynx
- Epiglottis
- Vestibular fold
- Thyroid cartilage
- Vocal fold
- Cricoid cartilage

Thyroid gland

Hyoid bone

Hard palate
Soft palate
Tongue
Lingual tonsil

Esophagus
Trachea
Epiglottis

Body of hyoid bone

Thyrohyoid membrane

Fatty pad

Vestibular fold

(Vestibular fold)

(false vocal cord)

Vocal fold

(true vocal cord)

Thyroid cartilage

Cricothyroid ligament

Cricotracheal ligament

Fatty pad

(b) Sagittal view; anterior surface to the right

Marieb - Similar to Figure 23-4
• Windpipe

- Ciliated pseudostratified epithelium with goblet cells
- Connective tissue
- Mucosa
- Submucosa
- Hyaline cartilage
- Adventitia
- Lumen of trachea
- Connective tissue

Figure 22.6a
Lung 100x

Note the Lack of Cartilage

Lumen of Bronchiole

Alveolar Sac

Olexik Website
Figure 22.6b

(b) Photomicrograph of the tracheal wall (320x)

Mucosa
- Pseudostratified ciliated columnar epithelium
- Lamina propria (connective tissue)

Submucosa
- Seromucous gland in submucosa

Hyaline cartilage
Alveolar pores
Alveolar duct
Respiratory bronchiole
Alveoli
Alveolar sac
Marieb - Similar to Figure 23-9
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Respiratory virtual microscope:
http://aperio.duhs.duke.edu/UMichHistology/Respiratory/130_HISTO_20X.svs/view.apml?

**Make sure Adobe Flash Player is enabled for this website.**