Learn and Understand:
1. The composition of a tissue helps us understand what functions it is capable of.
2. Concepts of cell surface area, attachment of tissues to others, mucus production, role of particular cell types within tissues, glandular secretion are discovered or reviewed.
3. Various forms of proteins (mainly) and polysaccharides (secondarily) and inorganic materials form the critical, non-living substances of the body.
4. All organs are made up of two or more tissues (less than four tissues is uncommon) and the presence of particular tissues helps us understand what functions an organ is capable of.
5. Inflammation is a natural, step-wise response to tissue damage that begins the healing process.

Lecture Outline:
I. Classification of Tissues
   a. Four human tissue types
   b. study of tissues = histology
   c. cell shape and function, composition of extracellular matrix
II. Epithelial tissue
   a. Epithelial tissue functions
   b. Epithelial tissue characteristics
      i. Polarity
      ii. Little extracellular matrix
      iii. Found in the coverings of body surface – both internal and external
      iv. Cell surfaces important to function
         1. Free – lateral – basal
         2. none – ciliated - microvilli
      v. Cell contacts important to function
         1. Basement membrane
         2. Desmosomes – tight junctions – gap junctions – hemidesmosomes
      vi. No direct blood supply
      vii. Regenerates lost or dead cells
      viii. Some function as glands
         1. Exocrine vs Endocrine
         2. mucus production
   c. supported by connective tissue
      i. basal lamina
      ii. reticular lamina
   d. Epithelial tissue classification
      i. Simple – stratified – pseudostratified
      ii. Squamous – cuboidal – columnar
      iii. What is the function of each classification?
      iv. Give examples of locations where these classifications are found.
      v. Cilia and microvilli – what are they and what functions do they bring to epithelium?
III. Connective tissue
   a. Connective tissue characteristics
i. Commonly found in body – many examples
ii. Most have abundant non-living matrix
iii. Quite a diversity of forms and functions
iv. Varying degrees of vascularity and innervation

b. Connective Tissue Function
i. Encapsulate and separate
ii. Connecting two tissues

c. Connective tissue cell types and functions
i. -blasts, -clasts, and -cytes
ii. Special cell types
iii. Introduction to stem cells

d. Connective tissue matrix types
i. Liquid – plasma
ii. Solids and gels – proteins like collagen, elastin, reticular fibers, proteoglycan, hyaluronic acid, adhesive nectins
iii. Solid – like inorganic calcium phosphate: hydroxyapatite

e. Connective tissue types
i. Classified based on living cell component & matrix components, function, and location
   1. Connective tissue proper
      a. Areolar, adipose, reticular, Loose Fibrous, Dense fibrous
   2. Cartilage, Bone, Blood

IV. Muscle Tissue
a. Characteristics and types
i. Contractile tissue
ii. Smooth, skeletal, cardiac
b. Locations and examples

V. Nervous tissue
a. Conduction of nervous impulse and supporting tissues
b. Characteristics and types
i. Neurons, Neuroglia

VI. Tissue repair
a. Reparability varies amongst the tissue types
i. Labile – stable – permanent tissues
ii. Regeneration vs. replacement
b. Repair process
i. Introduction to inflammation
ii. Sealing a wound with coagulated blood, Scab formation
iii. Mobilization of fibroblasts
iv. Granuloma formation
v. Epithelial regeneration
vi. Remodeling

c. Clinical Issue: Primary vs Secondary Union

❖ Some concepts that you may have to learn on your own:
Structure and function of stratified cuboidal and stratified columnar epithelium
Structural classifications of multicellular exocrine glands
Location, structure, and function of cutaneous, mucous, and serous membranes; wet membranes vs. dry membranes
Some concepts you must know for Test One:
General functions and locations of epithelium, connective tissue, muscular tissue, and nervous tissue.
General functions and locations of squamous, cuboidal, columnar, and transitional epithelia.
Review of the functions the cell connections.
Why epithelial layers are simple or stratified.
The different cells living within connective tissues. Identify them. Contrast them.
The different matrices of the connective tissues. Identify them. Contrast them. Relate their composition and anatomy to function.
The functions of collagen, reticular, and elastic fibers. Relate their structure to function.
The functions of the different connective tissues.
The anatomy, locations, and general functions of the different muscle tissues.
The anatomy, locations, and general functions of the different nervous tissues.
Basics of the inflammatory response to injury.
The stepwise process of tissue repair.
The regenerative capabilities of various tissues.

Some concepts that will not appear on your test:
Preparing human tissue for microscopy – consider learning for the laboratory portion of the course.
Developmental aspects of tissues.