The following are some suggestions as to topics to spend time studying. This list or any list like it cannot be expected to cover each and every topic possible for the upcoming exam. However, it should give you a reasonable idea as to the breadth of material. My suggestion is to use this list as a way to help you organize your notes and your reading. "***" indicates material not covered in lecture that you need to read independently in your text.

**General Topics**
homeostasis - meaning of
hemostasis - meaning of
functions of cutaneous, mucous and serous membranes
function of adipose tissue
methods of moving materials across the phospholipid bilayer of cells
enzymes, cofactors, coenzymes
referred pain... meaning and examples
stress in our society and its relationship to disease

**Integumentary System**
reactions of exposure to the sun’s rays and effects in regards to melanin levels and vitamin D production
epidermis, dermins, hypodermis (subcutaneous layer) - composition and functions
how the hypodermis is a protective layer accessory organs of the skin
three types of cartilage... hyaline, fibrocartilage, and elastic cartilage...
examples of locations of each in the body
sebaceous glands
sweat glands

**Skeletal System**
skeletal system - functions
types of bone and how they develop such as where flat bones develop
role of growth hormone in bone activity
mechanisms of ossification
bursa - general locations and functions.
epiphyseal plate cartilages... when they ossify (at puberty)
load bearing stresses of vertebrae
sutures

**Muscular System Chapters**
muscle properties
comparisons of cardiac/skeletal/smooth
locations of the three muscle types
myosin bridges, actin, bare zone
muscle contraction properties
clusters or groups of muscle cells and tissues
relationship of muscle tissue and exercise
muscle size and power
isotonic and isometric use of muscles
summation and tetany

**Nervous System Chapters**
cells associated with the nervous system
functions of the nervous system
basics of autonomic nervous system
how action potentials work
action potentials & resting potentials
chemical vs voltage gated channels
parts of the neuron
cerebral spinal fluid - location and function
depolarization and repolarization
homuncular mappings... how they work,
function, and relative sizes to the body synapse
spinal cord damage... paraplegia and quadraplegia

**Sensory systems**
basics functions and anatomy of taste, smell, vision and hearing
hyperopia, myopia
papillae used in taste buds
taste categories
macula
otoliths
kinocilia and stereocilia
binocular vision
receptor cell types for vision (rods and cones)
cone types in human vision

**Endocrine system**
pituitary differences and hormones
produced in the anterior, posterior, and *pars intermedia* regions
stress in our society and its relationship to disease
organs involved in the endocrine system
how steroidal hormones and nonsteroidal hormones affect cells
ADH, prolactin,

**Cardiovascular System Topics (& Lymphatic System Topics)**
the functions and uses of the lymphatic system
function of arteries and veins
relative cross sectional areas devoted to arteries, veins, and capillaries...
comparison and meaning blood hemoglobin’s interaction with oxygen, carbon dioxide, and carbon monoxide
shape of human red blood cells
the changes in blood flow to different areas of the body while exercising

**Respiratory & Digestive Systems**
air movements in the respiratory system
passageway of air in the respiratory system
c-shaped cartilages in the respiratory system...
fraction surfactant... role and function
design of the human respiratory system
role of the nasal cavity in respiration
function of alveoli
disease of the respiratory system...
emphysema
what is digestion
chyme... formation and function
peristalsis... use and function
mechanical versus chemical digestion
role of the liver and gallbladder in digestion

**Urinary & Reproductive Systems**
functions of male and female reproductive structures
gametogenesis
capacitation
scrotal control mechanisms
nephron
capillaries in the nephron versus other capillaries
fluid processing in the kidney
fetal kidney function

**Pregnancy, Development, & Genetics**
pedigree charts... use
pedigree charts.... use of circles for females, squares for males
epistasis - meaning and example
phenotypes versus genotypes
twinning.... monozygotic twins (identical)
versus dizygotic twins (fraternal)
alleles... meaning
Mendel and his work