Anatomy

Science

Grade(s) 10th - 12th, Duration 1 Semester, .5 Credits
Elective Course

Course Overview

GENERAL DESCRIPTION: This class will deal with the structure, function, and maintenance of the human body. All body systems and their primary tissues will be discussed.
HOMEWORK OR READING NECESSARY: Students will receive a workbook for homework assignments to accompany textbook reading assignments. Students will be expected to memorize the structure and function of many body components.
FORMAT: Lecture, discussion, and lab activities including dissection of animal specimens.
PROJECTS, REPORTS, PAPERS: Unit research projects are required.
TESTS: Exams will be given over each body system and will be in essay, fill-in-the-blank, matching, or practical format.

Scope And Sequence

Timeframe	Unit	Instructional Topics
2 Week(s)	Unit 1 Introduction to Anatomy, Anatomical Position & Motion	1. Introduction to Anatomy
2 Week(s)	Unit 2 Histology	1. Histology
1 Week(s)	Unit 3 Integument	1. Integument
3 Week(s)	Unit 4 Skeletal	
2 Week(s)	Unit 5 Musculature	
1 Week(s)	Digestive & Respiratory System	
2 Week(s)	Nervous System	
1 Week(s)	Circulatory System	
1 Week(s)	Urinary & Reproductive Systems	
2 Day(s)	Endocrine System	

Materials and Resources

Colored pencils, scientific calculator.
COURSE FEE: A $15 specimen fee applies.

Prerequisites

PREREQUISITE: Biology (*10th may enroll with instructor's approval)

Course Details

Unit: Unit 1 Introduction to Anatomy, Anatomical Position & Motion **Duration:** 2 Week(s)

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Materials and Resources

Unit 1 Introduction to Anatomy
Chapter 1 & 3
Exam 8/23

Chapter 1
Terms to know. Define each of the following for a grade: [92]
anatomy physiology embryology histology
pathology neurophysiology endocrinology cardiology
immunology renal autopsy homeostasis
effector inhibitor epidemiology pharmacology
senescence sagittal midsagittal median
frontal coronal parasagittal transverse
oblique cranial facial cephalic
cervical axillary brachial antecubital
antebrachial carpal palmar digital
phalangeal femoral patellar crural
pedal tarsal orbital otic
buccal nasal oral mental
sternal mammary umbilical thoracic
coxal inguinal manual pubic
occipital acromial scapular vertebral
olecranal sacral anterior posterior
superior inferior dorsal ventral
lumbar gluteal popliteal dorsum
sural plantar calcaneal lateral
proximal distal intermediate ipsilateral
profundus deep superficial prone
supine viscera pericardial pleural
serous peritoneum contralateral caudal

The student will:
1. Restate the 6 levels of body organization in terms of complexity and function. [pg 2]
2. Recall and describe characteristics of the 6 basic life processes. [pg 5]
3. Differentiate between differing bodily fluids from the text. [pg 8]
4. Describe the components of a feedback system. [pg 9]
5. Differentiate between positive and negative feedback systems. [pg 9-11]
6. Use correct terminology in describing anatomical position. [pg 13 & notes]
7. Differentiate between the various planes and sections. [pg 16 & notes]
8. Identify and describe each of the body cavities. [pg 17]

Chapter 3
Terms to know & define for a grade: [17]
plasma membrane cytoplasm organelles nucleus
chromosomes permeable gradient diffusion
osmosis vesicle genome Progeria
Werner syndrome proteome chromatin vesicle
histone

The student will:
1. Recall the functions of cell membrane proteins. [pg 64]
2. Describe the characteristics of the four basic forms of membrane transport. [pg 66]
3. Explain how misshapen proteasomes relate to some diseases. [pg 85]

Project – cite all sources
Read the American Heart Association article on cholesterol.
http://www.heart.org/HEARTORG/Conditions/Cholesterol/AboutCholesterol/Good-vs-Bad-Cholesterol_UCM_305561_Article.jsp
Read the Mayo Clinic article on atherosclerosis.
http://healthletter.mayoclinic.com/content/article.cfm?n=290
Research homocysteine from the American Heart Association (especially the 4th paragraph)
http://atvb.ahajournals.org/content/21/9/1385.full

• Due at beginning of Unit 1 Exam: ~200 word report to compare & contrast HDL & LDL and the role of homocysteine on atherosclerosis.

Topic: Introduction to Anatomy **Duration:** 2 Week(s)

Learning Targets
Students will recall the parameters of Anatomy and anatomical position and motion.

Unit: Unit 2 Histology **Duration:** 2 Week(s)

Materials and Resources

Unit 2 Introduction to Anatomy
Chapter 4.
Exam 9/9

Chapter 1
Terms to know:
tissue ectoderm mesoderm endoderm
biopsy avascular apical Pap smear
gland matrix -blast fibro-
chondro- osteo- -cyte Marfan syndrome
collagen elastic reticular mesenchyme
Wharton's jelly areolar adipose (both WAT & BAT)
periosteum lacunae osteo- Haversian canal
trabeculae lymph intercalated discs neuron
axon dendrite neuroglia stroma
parenchyma stem cells fibrosis granulation tissue
autoimmune lupus Sjogren's atrophy
hypertrophy xenotransplantation Systemic Lupus Erythematosus
perichondrium

The student will:
1. Draw characteristic diagrams of epithelial, connective, muscle, and nerve tissue (lab list on back of this page). [115-139]
2. Restate the three dermal layers which give rise to tissues. [110]
3. Differentiate between the 5 types of cell junctions covered in the text. [110]
4. Know the epithelial tissue types from Table 4.1. [115]
5. State the importance of Pap smears AND know the important precursor to cervical cancer. [120 & further research]
6. Differentiate between endocrine and exocrine glands. [120]
7. Distinguish between the types of exocrine glands AND be able to list examples of each from the text. Table 4.2. [120]
8. Know the 6 cell types that may be present in connective tissue. [124]
9. State the function of each of the glycosaminoglycans. [124]
10. Differentiate between the CT fibers. [125]
11. Know the classification and structure of CT types. Table 4.4. [126-133]
12. Differentiate between the components of dense and spongy bone. [134]
13. Know the 4 membranes and their characteristics from the text. [135]
14. Know the components of blood tissue. [135]
15. Differentiate between the types of muscle tissue. Table 4.5 [137-139]
16. State the factors that affect scar formation. [140]
17. Recall the effects of aging on tissue formation. [141]

Labs on back -------

Lab diagrams: Use views that show the characteristics of each tissue type. Make a drawing of each numbered tissue.

Epithelial tissue - label the following on each tissue drawing if possible:
basement membrane
lateral & basal surfaces
CT (connective tissue)
1. simple squamous
2. simple cuboidal
3. simple columnar
4. stratified
5. pseudostratified

Connective tissue
6. areolar 10. blood - label cells viewed
7. adipose 11. fibrocartilage
8. hyaline cartilage 12. spongy bone
8a. chondrocytes 12a. trabeculae
9. dense bone
9a. Haversian system

Muscle tissue - draw and label listed parts
13. striated 14. smooth 15. cardiac

nucleus nucleus nucleus
striation striation
sarcomere IC disc

Nerve tissue - draw and label listed parts
16. neuron
cell body dendrite nucleus axon

Projects: cite all sources
Describe the Milano (Apo – A1) Effect.
Who found it and when?
What is the effect and what system does it affect?
When was the effect found and how?
When was the original mutation thought to have occurred?
Where is this effect localized?
Why is this finding important to health care?

Explain the protection offered by HPV vaccination (such as Guardasil®).
What organism does the vaccine prevent?
What malady might that organism cause?
Which gender(s) would be protected by this vaccine?

Topic: Histology **Duration:** 5 Day(s)

Learning Targets
Students will recall the histological features of various body tissues.

Unit: Unit 3 Integument **Duration:** 1 Week(s)

Materials and Resources

Unit 3 Introduction to Anatomy
Chapter 5
Exam 9/19/13

Chapter 5 [32]
Terms to know:
dermis epidermis hypodermis cutaneous
keratin melanin keratinization dermal papillae Meissner corpuscles carotene albinism
vitiligo cyanosis jaundice erythema
pallor arrector pili sebaceous sudoriferous
depiliatory electrolysis cerumen lunula
hyponchium eponchium cuticle calcitrol
alopecia lanugo vellus hair hirsutism

The student will:
1. State the 6 functions of skin.
2. Diagram and label the components of a typical cross-section of skin. [148]
3. Differentiate between the various skin strata & state their respective functions. [150]
a. stratum basale stratum germinativium stratum spinosum stratum granulosum stratum lucidum stratum corneum
4. Relate the conditions present to require a skin graft and how such procedures are done. [150]
5. Describe the structural basis and pigments of skin color. [153]
6. Describe the stimulation, distribution, and physiology of melanin in the skin. [154]
7. Describe the condition of psoriasis. [152]
8. List which sensations are detected by free nerve endings. [153]
9. Describe the photodamage & photosensitivity reactions from the text. [166]
10. Compare & contrast thick & thin skin. [160]
11. Recall and be able to draw the fine anatomy of a hair and hair follicle. [156]
12. State the function of the arrector pili muscle. Be able to include its position in a drawing of skin anatomy. [155-156]
13. Explain why hair is often lost during chemotherapy. [157]
14. Describe how hair color is determined. [157]
15. Explain the role of hormones in hair production or loss. [157]
16. State some functions of hair. [155]
17. Describe how acne forms. [158]
18. State the function of cerumen.
19. Diagram & describe the tissues associated with nail formation. [159]
20. Explain the roles of the integument in thermoregulation, protection, sensation, excretion & absorption. (What role does the skin play in each?) [160]
21. Describe vitamin D synthesis in the skin including the precursor molecule (see table pg. 1010). [161]
22. Fully describe the step-by-step process of deep wound healing. [162]
23. Recall the effects of aging on the skin. (Similar to exam question from last unit) [164]
24. Explain autologous skin transplantation. [151]
25. List complications that may result from tattooing or body piercing. [154]

Labs:
Diagram & label skin cross-section slide using the diagram pg.148.
Diagram and label a slide of one of your own hair roots.
Map 3 regions of the body for Meissner's corpusles. Find the mean distance of those 3 regions and write a conclusion comparing their relative sensitivity.
Skin your cat.

Project: Be sure to correctly cite all references.
The Dracula gene (erythropoietic protoporphyria)
OR (gravy for both)
The werewolf gene (congenital generalized hypertrichosis)
What are its symptoms?
What is it's cause?
Whom does it affect?
What is the treatment?
What is the long term prognosis for sufferers?

Project:
Read the article "Sun Struck" from Science News. V. 168. no. 7. August 13,
2005. pp. 99.
http://www.sciencenews.org/view/generic/id/6477/title/Sun_Struck_Data_suggest_skin_cancer_epidemic_looms

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Science news Login: khaggard@usd343.org Password: kaws

Design and submit some form of presentation to inform the student body(ies) of the inherent risks of tanning.
This might help:
Tavera-Mendoza, L.E., & J.H. White. “Cell Defenses and the Sunshine Vitamin”. Scientific American. v. 297. n. 5. pp. 62.

Topic: Integument **Duration:** 5 Day(s)

Learning Targets

Students will recall the tissue level anatomy of the skin.

Unit: Unit 4 Skeletal

Duration: 3 Week(s)

Unit Overview

Lecture exam over objective components.
Lab practicuum over the bones to know list.

Materials and Resources

Unit 4 Skeletal System - Chapter 6, Chapter 7, Chapter 8, Chapter 9.
Exam 10/2

Chapter 6
Terms to know: [1 point @]
-osteo- calcification articulation diaphysis epiphysis
metaphysis epiphyseal plate periosteum articular cartilage epiphyseal line
medullary cavity marrow cavity endosteum
resorption trabeculae ossification

The student will:
1. Restate the 6 primary functions of the skeletal system. (176) [6]
2. Recall the 7 main parts of a bone's structure. (176) [7]
3. Recognize the cells and matrix present in bone histology. (176) [12]
4. Differentiate between compact bone and spongy bone histology. (179) [10]
5. Expalin the roles of the 3 factors affecting bone growth & remodeling. (187) [9]
6. Differentiate between the 6 types of fracture from your text. (188) [6]
7. Explain the physiological role of bone in calcium homeostasis and why it is important. (190) [15]
8. Describe how bone responds to stress, exercise and aging. (191) [9]

Chapter 7
Terms to know: [1 point @]
fissure foramen fossa sulcus meatus
condyle facet head crest epicondyle
line spinous process trochanter tubercle tuberosity
sesamoid sutural
The student will:
1. Memorize the bones and bone features from the "Bones to know" list.
2. Describe the conditions of a cleft palate, scoliosis and TMJ syndrome. (211 & 212) [9]

Chapter 8 & 9
Terms to know: [1 point @]
suture bursa synchondroses symphysis synovial
elevation depression protraction retraction inversion
eversion dorsiflexion plantar flexion supination pronation
opposition

The student will:
1. Differentiate between a sprain and a strain. (269) [4]
2. Recall the classifications of joints. (265) [6]

Labs:
Draw and label the components of the Haversian (osteon) system of bone histology, turn in for a grade. [40]

Project: cite all sources
1. The Elephant man
What was his condition?
What are the symptoms of that condition?
What are the causes of that condition?
Is there a treatment for that condition?
How common is that condition?

2. Read the article "Cooking up a Carcinogen".
Define acrylamide.
Describe where acrylamide is usually found.
Expound upon the health effects of acrylamide.
Relate the role of the American diet on acrylamide levels & health effects.

Topic:	Duration:

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Unit: Unit 5 Musculature

Duration: 2 Week(s)

Materials and Resources

Unit 5 Muscular System - Chapter 10 pages & 11.
Exam 10/23/09

Chapter 10
Terms to know:
fascia tendon fiber fibril motor neuron
striation sarcomere fascicle atrophy hypertrophy
fatigue actin myosin synaptic end bulbs
acetylcoholine

The student will:
1. Relate the molecular physiology of actin and myosin fibers.
2. Know and understand the relationships between the components of a motor unit.
3. Explain oxygen use by muscle during and after exercise.
4. Differentiate between all 3 fast and slow fibers (SO, FOG, & FG).
5. Contrast skeletal, cardiac, and smooth muscle tissue.
6. Diagram and explain a neuromuscular junction.

Chapter 11
Terms to know:

The student will:
1. Relate origin, insertion, and action of bicep, tibialis anterior, vastus medialis, and sternocleidiomastoid.
2. Know the muscles from the attatched list.

Labs
1. Draw and label the cogent components of a muscle fiber: [100]
fascia tendon fiber fibril motor neuron
striation sarcomere fascicle actin myosin z line

2. Identify the following muscles from memory on your (cat) specimen: [250]
http://bio.bd.psu.edu/cat/index.htm
brachiocephalic latissimus dorsi sternohyoid sternomastoid
pectoralis major pectoralis minor external oblique internal oblique
transverses abdominus sartorius gracilis rectus abdominus
masseter sternothyroid trapezius gluteus medius
tensor fascia latae semitendonosis semimembranosis vastus lateralis
biceps femoris spinodeltoid brachioradialis extensor digitorum
triceps rhomboideus adductor magnus gluteus maximus
splenius extensor carpi ulnaris vastus medialis palmaris longus
extensor carpi radialis longus gastrocnemius soleus
flexor carpi ulnaris pronator teres extensor digitorum lateralis
extensor digitorum communis supraspinatus

Project cite all sources
ALS or Lou Gehrig's disease
What does the acronym stand for?
Describe the condition
Who is at risk?
What treatments are available?
What are the prognoses for those that suffer from this condition?

Muscles to Know (human)

Trunk Leg
Trapezius fibularis (peroneus) longus
Deltoid tibialis anterior
sternocleidiomastoid pectineus
pectoralis major soleus
gluteus medius gastrocnemius
serratus anterior vastus lateralis
external oblique tensor fasciae latae
rectus abdominus semimembranosus
transverses abdominus sartorius
gluteus maximus gracilis

latissimus dorsi rectus femoris
vastus medialis
Cranial biceps femoris
frontalis semitendinosis
temporalis adductor longus
occipitalis gastrocnemius
nasalis
orbicularis oris
orbicularis oculi
masseter
buccinator
platysma
corrugator supercilii

Arm
brachioradialis
anconeus
extensor carpi radialis longus
extensor digitorum
triceps brachii
deltoid
abductor pollicis longus
biceps brachii
flexor carpi radialis
flexor carpi ulnaris

Topic: **Duration:**

Unit: Digestive & Respiratory System **Duration:** 1 Week(s)

Materials and Resources

Unit 9 Digestive System - Chapter 24

Exam 12/14/09

Chapter 24
Terms to know: bile chyme
esophagus pharynx liver stomach
duodenum pancreas gallbladder jejunum
cecum rectum appendix anus
lesser omentum mesentery peritoneum ileum
greater omentum parietal peritoneum visceral peritoneum peritoneal cavity
falciform ligament urinary bladder uvula hard palate
soft palate molars premolars cuspid
incisors superior labial frenulum palatine tonsil
lingual frenulum gingivae inferior labial frenulum

Parts of Colon:
ascending transverse descending sigmoid

The student will:
1. Know the functions of the of the organs of the digestive dystem
2. Recall the structures of the digestive system
3. Be able to identify location of organs in digestive system from human drawings or models and on the cat specimen.
4. Know the parts of the tongue.
5. Describe the condition of peritonitis.
6. Recall the histology of the stomach.
7. Locate the pancreatic duct in diagrams or specimens.
7a. Describe the components of pancreatic fluid and their functions.
8. Describe the causes and symptoms of jaundice.
9. Be able to label a diagram of the histology of the small intestine.
10. Restate the sequence of the defecation reflex.

Project cite all sources
Crohn's disease
Who is affected?
What are the symptoms?
What are the treatments?
What is the cause?
How can the disease be prevented?

Unit 12 Respiratory System
Chapter 23 Pages 847-894

Terms to Know:
nose nasal cavity oral cavity pharynx
larynx trachea lungs bronchi
diaphragm bronchioles nasal conchae uvula
eustachian tube epiglottis alveoli rhinoplasty
pulmonologist

The Student Will:
1. Know the Functions of the Respiratory System
2. Recall the Organs of the Respiratory System
3. Describe the conditions of pneumothorax and hemothorax.
4. Describe the condition of carbon monoxide poisoning.
5. Give a full summary of gas exchange and transport in lungs and tissues.
6. Recall the location of control for the rhythm of respiration.
7. Differentiate between pulmonary edema and chronic bronchitis.
8. Locate organs of the respiratory system on human drawings or models and on the cat specimen.

9. What is the most important factor which determines how much O2 binds to hemoglobin?

Project
Apnea
Who is affected?
What are the symptoms?
What are the treatments?
What is the cause?
How can the disease be prevented?

Topic: **Duration:**

Unit: Nervous System **Duration:** 2 Week(s)

Materials and Resources

Unit 6 Nervous System - Chapter 12, 13, & 14. Exam 11/13.

Chapter 12
Terms to know:
acetylcholine glutamate aspartate GABA
norepinephrine dopamine serotonin nitric oxide
neuropeptides endorphins hydroencephaly encephalitis
myelin demyelination action potential repolarization
refractory period axon dendrite Node of Ranvier
Schwann cell neuroglia astrocytes oligodendrocytes
ependymal cells rabies Multiple Sclerosis epilepsy
Guillian-Barre neuroblastoma

The student will:
1. Differentiate between a nerve and a neuron. [416, 417]
2. Differentiate between affectors and effectors. [420, 421]
3. Know the organization of the nervous system. [425]
4. Be able to draw the cell body, dendrites, axon, Schwann cells, nodes of Ranvier, and the terminal ends of a typical neuron. [418]
5. Differentiate between resting potential and action potential. [430 & 434]
6. Know the mimicking and blocking effects of neurotransmitters. [
7. Differentiate between gray and white matter. [425]
8. Describe the physiology of strychnine poisoning. [447]
9. Sketch and label the physiologic processed of a chemical synapse pg. 442.

Chapter 13
Term:
dermatome meninges dura mater pia mater
arachnoid mater spinal tap spinal nerves poliomyelitis
The student will:
1. Know the structure of the meninges. [462]
2. Draw the internal anatomy of the spinal cord (Fig. 13.3).
3. Draw and label a transverse section of the spinal cord (thoracic region).
4. Know the structures that compose a reflex arc and how those structures function (Fig. 13.6).
5. Try a stretch reflex on classmate(s). Reflex hammers are in the 3rd drawer down in the middle south lab table or on the 2nd shelf up along the south wall of the storage room.
6. Conduct a refractory period lab relative to temperature.
7. Describe (and perhaps sketch) what a dermatome is, how it is organized and how it functions. [480]

Chapter 14
Terms to know:
choroid plexus pineal gland corpus callosum brain stem cerebrum
cerebellum diencephalon thalamus hypothalamus midbrain
pons pituitary gland medulla oblongata cerebrospinal fluid
sneezing coughing hiccupping

The student will:
1. Recall the major parts of the brain.
2. Describe the blood/brain barrier and its component parts, then explain their importance. [498]
3. Know the structure of the meninges. [498]
4. Know the structures of the brain anatomy listed in Fig. 14.1 from all perspectives. There is 1/2 a human brain on one of the lab tables for your use. DO NOT OPEN THE JAR!
5. Know what CSF is, its functions, points of origin and eventual fate, and route of circulation. [499]
6. Describe hydroencephaly. [502]
7. Know the 12 pairs of cranial nerves and which areas they innervate, plus the location of the pituitary gland. [504]
8. Differentiate between a sulcus and a gyrus. [514]
9. Know the lobes and principal parts of the brain. [514]
10. Be aware of the functional areas of the cerebrum. [Fig 14.15]

Projects: cite all sources

Parkinson’s disease
What is it?

Describe the physiology that results in the disease.
What are some treatments?
What are the prognoses?

Shingles
What is it?
Describe the physiology that results in the disease.
What areas of the body are affected?
Describe a dermatome.
What are some treatments?
What is the prognosis?

Topic: **Duration:**

Unit: Circulatory System **Duration:** 1 Week(s)

Materials and Resources

Unit 13 Circulatory System Exam 12/4/09
Chapter 19, Chapter 20, Chapter 21.

Terms to Know:
blood plasma platelets red bone marrow
yellow bone marrow hematocrit pericardium aorta
atrium ventricle interventricular septrum anemia
pulmonary valve aortic valve bicuspid valve stent
atrioventricular valves thrombosis semilunar valves coronary artery
superior vena cava inferior vena cava arteries veins
capillaries venules arterioles myocardium
agglutination basophils eosonophils fibrin
leukocytes lymphocytes monocytes neutrophils
systole diastole albumins
globulins fibrinogen hemopoiesis heart murmur
arrhythmia tachycardia angioplasty fibrillation

The Student Will:
Know the functions of blood. [690]
Recall the organs that make-up the Circulatory System.
Sketch the relative blood components. [691]
List & memorize the 14 stages in the formation & destruction of RBC's. [697]
List the 5 types of WBC and their respective functions. [699]
Copy table 19.2 pg 701.
Sketch the stages of blood clot formation. [705]
What is the role of vitamin K in blood clotting? [706]
Be able to locate the following vessels in the cat and on human diagrams:
Right Internal Carotid
Right Vertebral
Right Common
Interpret and describe the depolarization patterns in an EKG. [735]
Describe the ABO and Rh blood groups in detail. [708]
List and describe the heart valve disorders pg. 727 and ischemia & infarction pg. 730.
Trace the path of blood through the heart.
Compare & contrast the structure and function of arteries, veins and capillaries.[763-769]
Use the sphygmomanometer to determine blood pressure of 3 classmates.
Know the listed anatomy of the heart and vessels:
ascending aorta aortic arch Pulmonary trunk
right atrium right coronary artery right ventricle
left coronary artery left atrium left venticle
superior vena cava inferior vena cava interventricular septum
left common carotid artery left subclavian artery left pulmonary artery
left pulmonary veins bicuspid (mitral) valve
descending aorta coronary sinus fossa ovalis
right pulmonary artery right pulmonary veins tricuspid valve
chordae tendonae aortic valve papillary muscles
Project: cite all sources
Congestive Heart Failure
Symptoms
Causes
Treatment
Prognosis

Topic:	**Duration:**

Unit: Urinary & Reproductive Systems — **Duration:** 1 Week(s)

Materials and Resources

Unit 10 Urinary Systems
Chapter 26

Terms to Know and identify in the cat specimen:
Kidney Renal Vein Abdonimal Aorta Ureter
Inferior Vena Cava Urinary Bladder Rectum Urethra
Incontinence

The Student Will:
1. Describe the location of the kidneys in the body.
2. Recognize the nephron as the structural and functional unit of the kidney and describe its anatomy.
3. Describe the process of urine formation, identifying the areas of the nephron that are responsible for filtration, reabsorption, and secretion.
4. Identify the following regions of the kidney in section:
hilus cortex medulla medullary pyramids
calyces pelvis renal columns
5. Describe the composition of normal urine.
6. List substances that are abnormal urinary components and what those components might indicate.
7. Describe the general structure & function of the ureters, bladder & urethra.
8. Explain the renal role in maintaining blood water and electrolyte homeostasis.

Unit 11 Reproductive System
Chapter 28

Terms to know: (bold ones on the cat specimen)
Testes Penis Scrotum Vas Deferens
Seminal Vesicle Prostate gland Epididymis Glans penis
Urethra Cowper's Gland Vagina Labia Majora
Labia Minora Clitoris Cervix Ovary
Fallopian Tubes Uterus fundus Areola
Erection Ejaculation circumcision Endometrium
ovulation menarche menopause fertilization
zygote puberty oxytocin implantation

The Student Will:
1. Identify the components of both the male & female reproductive systems on diagrams and the cat specimens.
2. Name the endocrine and exocrine products of the testes.
3. Discuss the composition of semen and name the glands that produce it.
4. Trace the pathway followed by a sperm from the testes to the body exterior.
5. Relate the structure & function of: sperm; vesicular follicle; corpus luteum.
6. Describe the phases and controls (hormones) of the menstrual cycle.
7. Describe the structure & function of the mammary glands.
8. List the components and functions of the placenta.
9. Distinguish between an embryo and a fetus.
10. Describe the initiation and phases of labor through birth.

Project:
Do a literature search and synopsis of the relationship between pregnancy and breast cancer. Include a bibliography of each source you cite.

What does the current research say as to the following questions? Be detailed in your response, not just yes or no. Unlike your previous projects, this one will be worth 100 points and will be evaluated on the depth & quality of your response.

1. In which group are breast cancer incidents higher, women who have had children or women who have not had children?
2. At about what age should breast cancer be a concern?
3. Which group shows higher breast cancer incidents, mothers who breast feed or mothers who bottle feed.
4. Is there an age of mother at first birth or a number of children that prescribe certain breast cancer benefits for a mother?
5. Are there specific health concerns or benefits for teen mothers?
6. Are there specific health or learning concerns or benefits for breast-fed infants versus bottle-fed infants?

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Topic:	Duration:

Unit: Endocrine System

Duration: 2 Day(s)

Materials and Resources

Unit 8 Endocrine System - Chapter 18 pages 586-627.
Exam 11/25

Terms to know:
hormone pheromone

The student will:
1. Restate the 4 main functions of hormones.
2. Recall the 3 processes that trigger hormone regulation.
3. List descriptions of the following endocrine conditions, their causes and treatments.
a. Diabetes insipidus
b. Dwarfism
c. Addison's disease
4. Know the hormones, the glands that secrete them and the action they take from the table below:

Topic:	Duration: