Student Learning Objectives for Anatomy 125
Created summer 2006

OVERALL COURSE GOAL of ANATOMY 125:

Given 15 weeks of lecture and lab work, with the use of models, cadavers, histology slides, text and specimen dissection, students will be able to recognize and describe the anatomy and functional morphology of the basic body systems (Respiratory, Circulatory, etc.) which will prepare them specifically for the Physiology 101 and for the allied health programs in general.

INTRODUCTION:

Given lecture and lab work, with the use of models, histology slides, and text, students will be able to summarize the basic structural plan of the body and cavities, describe the levels of organization of the body, use directional terms and planes of reference, identify the membrane structures and organelles of the cell, and distinguish the basic types of tissue as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

MUSCLE:

    I. Given lecture and lab work, with use of the models and cadavers, students will be able to identify the major muscle groups, the individual muscles within these groups, and their actions as demonstrated by fill-in assessment in the cadaver room at the 70% level of proficiency.

    II. Given lecture and lab work, with the use of models, histology slides, computer animations and text students will be able to describe the parts and process involved in muscle contraction as demonstrated by multiple choice and fill-in assessment in a lab practicum.

        A. Given lecture, microscope and model work, students will be able to compare and contrast the histology and function of the three types of muscle tissue as measured by multiple choice and fill-in assessment in a lab practicum setting.

        B. Given lecture and computer animations, students will be able to number, in order of occurrence, the steps of neuromuscular activation of skeletal muscles that will lead to contraction as measured by multiple choice and fill-in assessment in a lab practicum setting.

C. Given lecture, microscope and model work, students will be able to identify the parts of a sarcomere and number in order the steps of the sliding filament theory as measured by multiple choice and fill-in assessment in a lab practicum setting.

D. Given lecture, students will be able to match the characteristics (size, shape, action, direction of fiber, etc.) for how muscles are named to specific muscles as measured by multiple choice and fill-in assessment in a lab practicum setting.

E. Given lecture, cadaver and model work students will be able to identify muscles on the cadaver and state one action of each muscle as measured by multiple choice, oral exam and fill-in assessment in a lab practicum setting.

URINARY:

Given lecture and lab work, with the use of models, histology slides, specimens, and texts, students will be able to identify the structures of the urinary system and their role in urine formation, elimination, and control of blood composition and volume as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

I. Given lecture and model work, students will be able to describe the pathway of blood from the renal artery to the renal vein as measured by multiple choice and fill-in assessment in a lab practicum setting.

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II. Given lecture, microscope and model work, students will be able to describe the pathway of filtrate/urine flow from glomerular capsule through the urethra and all structures involved as measured by multiple choice and fill-in assessment in a lab practicum setting.

III. Given lecture, specimens, microscope and model work, students will be able to identify the internal and external macroscopic and histological anatomy of the kidneys, their nephrons and the urinary bladder as measured by multiple choice and fill-in assessment in a lab practicum setting.

IV. Given lecture, microscope and model work, students will be able to describe the actions and site of production of ADH (vasopressin) and renin as measured by multiple choice and fill-in assessment in a lab practicum setting.

RESPIRATORY:

Given lecture and lab work, with the use of models, histology slides, and text, students will be able to identify the structures and functions of the lungs and airways and their role

in O2 and CO2 exchange as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

I. Given lecture, microscope and model work, students will be able to list all structures along the pathway of air from outside to the alveolus as measured by multiple choice and fill-in assessment in a lab practicum setting.

II. Given lecture, microscope and model work, students will be able to describe the external and internal structures of the airways and lungs as measured by multiple choice and fill-in assessment in a lab practicum setting.

III. Given lecture, a working demonstration, and model work, students will be able to describe the basic mechanics and muscles involved in inhalation and exhalation as measured by multiple choice and fill-in assessment in a lab practicum setting.

IV. Given lecture and diagrams students will be able to explain the stages of respiration (internal, external, cellular) as measured by multiple choice and fill-in assessment in a lab practicum setting.

DIGESTION:

I. Given lecture and lab work with the use of models, histology slides, text and cadavers, students will be able to identify structures and functions of the alimentary canal and accessory organs and their role in mechanical and chemical digestion of foods as demonstrated by multiple choice and fill-in assessment in a lab practicum setting..

II. Given lecture and lab work, with the use of models, histology slides, and text, students will be able to describe the parts of the liver and its role in digestion, metabolism of nutrients, and other bodily activities as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

A. Given lecture, microscope and model work, students will be able to identify the gross and histological structures of the alimentary canal as measured by multiple choice and fill-in assessment in a lab practicum setting.

B. Given lecture, microscope and model work, students will be able to describe the pathway food takes from proximal to distal through the alimentary canal as measured by multiple choice and fill-in assessment in a lab practicum setting.

C. Given lecture and model work, students will be able to describe mechanical and chemical digestion including enzymes and secretions involved as measured by multiple choice and fill-in assessment in a lab practicum setting.

D. Given lecture, microscope and model work, students will be able to identify gross and microscopic anatomy of the accessory organs of digestion (liver, gall bladder, salivary glands, and pancreas) and their general functions as measured by multiple choice and fill-in assessment in a lab practicum setting.

E. Given lecture, microscope and model work, students will be able to identify the types (incisors, molars, cuspids, etc.), structures and functions of teeth as measured by multiple choice and fill-in assessment in a lab practicum setting.

ENDOCRINE:

Given lecture and lab work, with the use of models, histology slides and text, students will be able to identify the endocrine glands, their structures, hormones and their role in regulation of body functions as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

I. Given lecture, microscope and model work, students will be able to identify the pituitary gland and its location, structure, histology and basic hormones produced as measured by multiple choice and fill-in assessment in a lab practicum setting.

II. Given lecture, microscope and model work, students will be able to identify the thyroid gland and its location, structure, histology and basic hormones produced as measured by multiple choice and fill-in assessment in a lab practicum setting.

III. Given lecture, microscope and model work, students will be able to identify the thyroid gland and parathyroid glands and their locations, structures, histology and basic hormones produced as measured by multiple choice and fill-in assessment in a lab practicum setting.

IV. Given lecture, microscope and model work, students will be able to identify the adrenal gland and its location, structure, histology and basic hormones produced as measured by multiple choice and fill-in assessment in a lab practicum setting.

V. Given lecture, sheep brain specimen and model work, students will be able to identify the location and function of the pineal gland as measured by multiple choice and fill-in assessment in a lab practicum setting.

VI. Given lecture and model work, students will be able to identify the location and function of the thymus as measured by multiple choice and fill-in assessment in a lab practicum setting.

VII. Given lecture, specimens, microscope and model work, students will be able to identify the pancreas and its location, structure, histology and basic hormones produced as measured by multiple choice and fill-in assessment in a lab practicum setting.

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REPRODUCTIVE:

Given lecture and lab work, with the use of models, histology slides, cadavers, and text, students will be able to identify the structures of the male and female reproductive systems and their roles in formation of sperm, egg and zygote as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

I. Given lecture, cadaver, microscope and model work, students will be able to describe the location, structure, histology and function of the male reproductive organs as measured by multiple choice and fill-in assessment in a lab practicum setting.

II. Given lecture, microscope and model work, students will be able to describe the location, structure, histology and function of the female reproductive organs as measured by multiple choice and fill-in assessment in a lab practicum setting.

III. Given lecture, microscope and model work, students will be able to describe the pathway taken by the gametes in the male and female as measured by multiple choice and fill-in assessment in a lab practicum setting.

IV. Given lecture, microscope and model work, students will be able to explain and identify processes and structures involved in oogenesis and spermatogenesis and fertilization and beginning of the development of the embryo as measured by multiple choice and fill-in assessment in a lab practicum setting.

V. Given lecture, microscope and model work, students will be able to describe the ovarian cycle as measured by multiple choice and fill-in assessment in a lab practicum setting.

SKELETAL:

Given lecture and lab work, with the use of models, histology slides, specimens, and text, students will be able to identify major bones and the features of those bones, their articulations and their role in allowing movement as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

I. Given lecture, computer graphics and model work, students will be able to identify the bones and bone markings of the axial skeleton and spinal curvatures as measured by multiple choice and fill-in assessment in a lab practicum setting.

II. Given lecture, computer practice and model work, students will be able to identify the bones and bone markings of the appendicular skeleton as measured by multiple choice and fill-in assessment in a lab practicum setting.

III. Given lecture and a skeleton, students will be able to identify the articulations between bones including fontanels and sutures and types of joints as measured by multiple choice and fill-in assessment in a lab practicum setting.

IV. Given lecture, microscope and model work, students will be able to describe compact and spongy bone histology and bone development as measured by multiple choice and fill-in assessment in a lab practicum setting.

LYMPHATIC:

Given lecture and lab work, with the use of models, histology slides, and text, students will be able to identify components and structure of the lymphatic vessels, tissues, and organs and their role in fluid balance and immunity as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

I. Given lecture, microscope and model work, students will be able to describe the components of the lymph system and their functions as measured by multiple choice and fill-in assessment in a lab practicum setting.

II. Given lecture and model work, students will be able to describe the pathway of lymph from fluid recovery through vessels to the subclavian veins as measured by multiple choice and fill-in assessment in a lab practicum setting.

INTEGUMENTARY:

Given lecture and lab work, with the use of models, histology slides, and text, students will be able to identify the structures of skin and their role in protection, sensation and temperature regulation as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

Given lecture, microscope and model work, students will be able to describe the structure, histology, accessory organs and function of skin as measured by multiple choice and fill-in assessment in a lab practicum setting.

NERVOUS:

Given lecture and lab work, with the use of models, histology slides, specimens, dissections, and text, students will be able to identify the structures of the CNS, PNS and ANS and describe their roles in skeletal and visceral motor and sensory functions as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

I. Given lecture, specimens, microscope and model work, students will be able to identify the principal parts of the spinal cord and brain as measured by multiple choice and fill-in assessment in a lab practicum setting.

II. Given lecture, specimens and model work, students will be able to identify the cranial nerves by name, number, location and function as measured by multiple choice and fill-in assessment in a lab practicum setting.

III. Given lecture, microscope and model work, students will be able to locate and describe the receptors and structures associated with special senses and their functions as measured by multiple choice and fill-in assessment in a lab practicum setting.

IV. Given lecture and model work, students will be able to describe a basic reflex arc as measured by multiple choice and fill-in assessment in a lab practicum setting.

V. Given lecture and model work, students will be able to compare and contrast the sympathetic and parasympathetic divisions of ANS as measured by multiple choice and fill-in assessment in a lab practicum setting.

VI. Given lecture, microscope and model work, students will be able to identify the types and structure of neurons and types of neuroglial cells as measured by multiple choice and fill-in assessment in a lab practicum setting.

CIRCULATORY:

I. Given lecture and lab work, with the use of models, histology slides, text, specimens, and dissections, students will be able to identify the structures of the heart and blood vessels, their pathways including flow of blood in the heart, vessels and the heart's electrical conductive system as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

II. Given lecture and lab work, with the use of models, histology slides, and text, students will be able to identify formed elements of blood and their functions as demonstrated by multiple choice and fill-in assessment in a lab practicum setting.

A. Given lecture, specimen dissection and model work, students will be able to identify the external and internal anatomy of the heart as measured by multiple choice and fill-in assessment in a lab practicum setting.

B. Given lecture, specimens and model work, students will be able to discuss the flow of blood through systemic and pulmonary circulation as measured by multiple choice and fill-in assessment in a lab practicum setting.

C. Given lecture, specimens and model work, students will be able to discuss the flow of blood through the heart as measured by multiple choice and fill-in assessment in a lab practicum setting.

D. Given lecture, microscope and model work, students will be able to compare and contrast arteries, veins and capillaries as measured by multiple choice and fill-in assessment in a lab practicum setting.

E. Given lecture, microscope and model work, students will be able to describe the functions and components of blood as measured by multiple choice and fill-in assessment in a lab practicum setting.

F. Given lecture and model work, students will be able to describe the cardiac conduction system as measured by multiple choice and fill-in assessment in a lab practicum setting.

G. Given lecture and diagrams, students will be able to discuss fetal circulation and compare and contrast to adult circulation as measured by multiple choice and fill-in assessment in a lab practicum setting.