

ESSENTIALS OF HUMAN PHYSIOLOGY 2009

Course Directors:

Dr. Lawrence Palmer: Cell Physiology

Dr. Bernice Grafstein: Nervous System Physiology

Dr. Thomas Maack: Organ and System Physiology

COURSE DESCRIPTION:

The course consists of:

- 1) Assigned independent readings from textbooks of cell physiology (Blaustein, Kao & Matteson, Cellular Physiology, Elsevier), human organ physiology (Costanzo, Physiology, 3rd Ed.), and neuroscience (Neuroscience, Purves et al., 4th ed., Sinauer) followed by presentations and discussion of the readings led by the instructor.
- 2) Lectures and assignments of special topics, journal articles, and physiological problems for student presentation and discussion in class.
- 3) Physiology laboratory with mannequin simulator of physiological functions

COURSE SCHEDULE:

The course will meet on Mondays and Wednesdays in LC-504 (LC 5th Floor Conference Room) from 1:30-3:30 pm.

August 31- General Physiology I: basic cell composition (Palmer)

September 2 - General Physiology II: cell resting potential (Palmer)

September 7 – NO CLASS (Labor Day)

September 9 - General Physiology III: action potential (Palmer)

September 14 - General Physiology IV: neuromuscular junction (Dittman)

September 16 - General Physiology V: muscle contraction (Palmer)

September 21 - General organization of the nervous system. Properties of peripheral nerve. (Grafstein)

September 23 - Autonomic Nervous System (student presentations) (Grafstein)

September 28 – NO CLASS (Yom Kippur)

September 30 - Cardiovascular System I: Cardiac electrophysiology (Palmer)

October 5 - Cardiovascular System II: E-C coupling. The Heart as a Pump (Maack)

October 7 - Cardiovascular System III: Systemic circulation (Maack)

October 12 - Cardiovascular System IV: Integrative regulation of cardiovascular function. (Maack)

October 14 - (1305 York Avenue) Simulator lab: I) Physical findings of the cardiovascular system: pulse, rate, rhythm, quality; II) Monitoring cardiovascular parameters : ECG, NIBP/arterial line, CVP catheter, PA catheter (Yoon, Palmer, Maack, Fuortes)

October 19 - Respiratory System I: Organization of the respiratory system. Mechanics of respiration (Silver)

October 21 - Respiratory System II: Gas exchange (Andersen)

October 26 - Respiratory System III: Control of Respiration (Grafstein)

October 28 - Kidney Physiology I: Organization of the kidney. Glomerular filtration. Renal blood flow. Organic solute transport (Maack)

November 2 - Kidney Physiology II: Renal transport of electrolytes and water (Frindt)

November 4 - Kidney Physiology III: Acid-Base Physiology (Frindt)

November 9 - Problems in Body Fluid and Acid-Base (Frindt)

November 11 - Gastrointestinal System I: Gastrointestinal motility, Salivary, gastric, intestinal, pancreatic and biliary secretions: mechanisms and controls (Maack)

November 16 - Gastrointestinal System II: Electrolyte and nutrient transport and digestion (Maack)

November 18 - Endocrine System I: Organization. Hypothalamic-Pituitary axis Growth regulation (Maack)

November 23 - Endocrine System II: Thyroid and Parathyroid (Maack)

November 25 - NO CLASS (Thanksgiving)

November 30 – Endocrine System III: Adrenal and endocrine pancreas (Maack)

December 2 - Central nervous system I. Organization of the brain. (Grafstein)

December 7 – Central nervous system II. Sensory systems (student presentations) (Grafstein)

December 9 – Central nervous system III. Motor systems. (Grafstein)

December 14 – Central nervous system IV. Memory. (Prusky)

December 16 – Central nervous system V. Student presentations. (Grafstein)