Biol 2404 Lecture Outline for Exam IV:
Endocrine, Circulatory, Lymphatic & Respiratory Systems

I. Endocrine System

Comparison of Nervous & Endocrine Systems

General Characteristics of Hormones & Endocrine Glands

1. **Definition of hormone**

2. **all organs produce hormones**

3. **hormones are secreted in response to specific stimuli**

4. **many glands secrete more than one hormone**

5. hormones affect target cells, tissues or organs

6. mechanism of hormone action on target cell

7. most cells respond to more than one hormone

Major Endocrine Glands

Anterior Pituitary Gland

Posterior Pituitary Gland

Pineal Gland

Thyroid Gland

Parathyroid Glands

Thymus Gland

Adrenal Cortex

Adrenal Medulla

Pancreas

Ovaries & Testes

Some Minor Endocrine Glands

II. Circulatory System

General Structure

Relationship between Circulatory & Lymphatic System

General Functions of Circulatory System

Anatomy of the Circulatory System

Heart

Location

Layers

Chambers

Valves

Major Vessels of the Heart

Blood Vessels

General

Layers

Circuits of Blood Flow

Pulmonary Circuit

Systemic Circuit

Major Arteries

Major Veins

Special Circulation Patterns

Coronary Circulation

Circle of Willis

Hepatic Portal System

Cardiovascular Physiology

Heart Physiology

Histology of the Heart

Conducting System of the Heart

Cardiac Cycle

Cardiac Output

Physiology of Blood Vessels

Pressure Gradient of Blood Flow

Measuring Blood Pressure

Blood Flow in Veins

Capillaries & Capillary Beds

III. Blood & Hematology

General

Plasma

vs Serum

Plasma Proteins

Formed Elements

Erythrocytes

Leucocytes

Thrombocytes

Blood Types

IV. Lymphatic System

General

General Functions of the Lymphatic System

Lymph

Lymphatic Vessels

Flow of Lymph

Lymph Nodes

Accessory Lymphatic Organs

Tonsils

Spleen

Thymus

V. Body Defenses & Immunity

General

Nonspecific Defenses

Physical Barriers

Skin

Mucous Membranes

Internal Cellular & Chemical Defenses

Defensive Characteristics of Blood

Simple Phagocytosis

Natural Killer Cells

Inflammatory Response

Fever

Complement Reaction

Interferon

Specific Defenses (The Immune Response)

General

Antigens

Antibody Mediated Immunity (AMI)

Cell Mediated Immunity (CMI)

VI. Respiratory System

General

Major Functions of Respiratory System

Anatomy of the Respiratory System

Upper vs Lower Respiratory Tract

Nose

Pharynx

Larynx

Trachea

Bronchi

Lungs

Bronchioles

Alveoli

Respiratory Physiology

Pulmonary Ventilation (External Respiration)

Respiratory Volumes

Alveolar Gas Exchange

Respiratory Membrane

Exchange of Gasses across Respiratory Membrane

Excchange of Gasses between blood and tissues

Transport of Gasses in the Blood

Oxygen Transport

Carbon Dioxide Transport

Regulation of Respiration

Respiratory Reflex Centers

Sensory Receptors for Respiration