

# BIO 271 PATHOPHYSIOLOGY

## COURSE DESCRIPTION:

Prerequisites: BIO 169

Corequisites: None

This course provides an in-depth study of human pathological processes and their effects on homeostasis. Emphasis is on interrelationships among organ systems in deviations from homeostasis. Upon completion, students should be able to demonstrate a detailed knowledge of pathophysiology. Course topics include the etiology, physical signs and symptoms, prognosis, and complications of commonly occurring diseases and their management. *This course has been approved to satisfy the Comprehensive Articulation Agreement for transferability as a pre-major and/or elective course requirement.* Course Hours Per Week: Class, 3. Semester Hours Credit, 4.

## LEARNING OUTCOMES:

Students will be able to:

1. describe the general physiological processes used by the body to maintain homeostasis
2. describe the pathophysiological responses to infection, necrosis, stress, carcinogenesis
3. discuss the etiology and effects of disease on the various organ systems
4. identify compensation mechanisms that occur in response to trauma and disease

## OUTLINE OF INSTRUCTION:

- I. Common disease categories and terminology
  - A. Characteristics of diseases
  - B. Classification of diseases
- II. Common diagnostic methodology
  - A. Diagnosis versus prognosis
  - B. Diagnosing the patient
    1. Clinical history
    2. Physical examination
    3. Differential diagnoses
  - C. Treatment
  - D. Diagnostic tests and procedure
    1. Invasive procedures
    2. Noninvasive procedures
- III. Clinical characteristics of inflammation
  - A. Inflammatory reaction and cycle
  - B. Chemical mediators
  - C. Infection
- IV. Basic immunology, hypersensitivity, and autoimmune disorders
  - A. Acquired immunity
  - B. Role of lymphocytes

- C. Antibodies/immunoglobins
  - D. Hypersensitivity
  - E. Immune system suppression
  - F. Autoimmune disorders
- V. Pathogenicity, epidemiology, and control of infectious diseases
- A. Disease transmission
  - A. Factors of pathogenicity
  - B. Classes of pathogenic bacteria
  - B. Antibiotic therapy
  - C. Viruses and treatment of viral diseases
  - D. Other infectious microorganisms and parasites
- VI. Pathogenesis of congenital and genetic disorders
- A. Causes of congenital malformations
  - B. Genetically determined diseases
  - C. Intrauterine injuries
  - D. Multifactorial inheritance
  - E. Prenatal diagnosis
- VII. Etiology and diagnosis of neoplastic diseases
- A. Classification of tumors
  - B. Etiologic factors
  - C. Diagnosis of tumors
  - D. Treatment
- VIII. Pathogenesis of cardiovascular and circulatory diseases
- A. Coagulation disorders
  - B. Vascular disorders
  - C. Thrombosis and emboli
  - D. Edema
  - E. Cardiac diseases
    - a. Congenital
    - b. Valvular
    - c. Coronary heart and artery disease
  - F. Hypertension
  - G. Congestive heart failure
  - H. Disorders of the veins
- IX. Pathogenesis of blood and lymphatic disorders
- A. Anemias
  - B. Polycythemias and thrombocytopenia
  - C. Lymphatic disorders
- X. Pathogenesis and types of reproductive diseases
- A. Female reproductive system disorders
  - B. Pregnancy and prenatal disorders
  - C. Male reproductive system disorders

- XI. Etiology and pathogenesis of pulmonary diseases
  - A. Infectious respiratory diseases
  - B. Bronchitis and bronchiectasis
  - C. Chronic obstructive pulmonary diseases
  - D. Bronchial asthma
  - E. Restrictive pulmonary diseases
  - F. Pulmonary carcinomas
  
- XII. Diseases of the gastrointestinal tract and accessory organs
  - A. Hepatic disorders
  - B. Gallbladder disorders
  - C. Gastric disorders
  - D. Intestinal disorders
  
- XIII. Basic endocrinology and endocrine disorders
  - A. Diabetes
  - B. Pituitary disorders
  - C. Thyroid and parathyroid disorders
  - D. Adrenocorticotrophic disorders
  
- XIV. Types and pathogenesis of neurologic diseases
  - A. Cerebral and spinal disorders
  - B. Cerebrovascular accident
  - C. Infections of the nervous system
  - D. Tumors of the nervous system
  - E. Peripheral nerve disorders
  - F. Miscellaneous diseases
  - G. Pain management
  
- XV. Disorders of the musculoskeletal system
  - A. Abnormal bone formations
  - B. Arthritis
  - C. Fractures
  - D. Osteomyelitis and osteoporosis
  - E. Spinal disorders
  - F. Muscular atrophy and dystrophy
  
- XVI. Diseases of the urinary and renal systems
  - A. Infections of the urinary tract
  - B. Glomerulonephritis
  - C. Renal cysts and tumors
  - D. Renal failure

- XVII. Fluid, electrolyte, and acid/base imbalances
  - A. Intracellular and extracellular fluids
  - B. Intracellular and extracellular electrolytes
  - C. Fluid and electrolyte imbalances
  - D. Acid/base imbalances
  - E. Respiratory control mechanisms
  - F. Renal control mechanisms

**REQUIRED TEXTBOOKS AND MATERIALS:**

To be selected by Instructor/Discipline Chair.