This course will discuss and utilize the principles of physiology to analyze the symptoms and signs of disease. Emphasis is given to cardiovascular, respiratory, and renal diseases although all body systems are discussed. Intended for students in or aspiring to various health professions including nursing.

ADVISORY: BIOL G225.

PREREQUISITES:
- BIOL G225: Human Physiology with a minimum grade of C or better

CATALOG DESCRIPTION:

COURSE LEVEL STUDENT LEARNING OUTCOME(S) Supported by this course:

1. describe how disruptions in homeostasis alter normal physiology.
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2. apply critical thinking and analytical skills to explain the development of signs and symptoms in various disease processes.

3. recognize the most common disorders and diseases related to each of the major body systems.

4. evaluate a case study and explain how the symptoms and laboratory values presented relate to the case.

5. identify the most commonly performed diagnostic procedures used to diagnose human diseases.

COURSE OBJECTIVES:
1. Establish a strong physiological foundation that builds on knowledge gained in the prerequisite physiology course.
2. Describe and illustrate with examples from every body system the processes of homostasis and pathogenesis.
3. Evaluate the development of symptoms and signs of diseases as physiological dysfunctions and explain how and why such symptoms and signs appear.
4. Assess the clinical picture if each disease, judge the physiological dysfunctions that led to each condition, and discuss the most appropriate management for the patient.
5. Note the interconnectedness of the body systems, and learn to evaluate the whole patient.

COURSE CONTENT:

LECTURE CONTENT:
The following examples list areas of emphasis and are not to be interpreted as exhaustive:

A. Foundations
   1. Mechanisms of Disease
      a. Homeostasis, Pathophysiology, and the Etiology of disease
      b. Stressors and their role in disease
      c. Inflammation and its mechanisms as they relate to capillary mechanisms and fluid dynamics
   2. Biology of Cancers and abnormal development and differentiations
   3. The role of Genetics
B. Major Pathologies of the Body Systems including development of signs and symptoms, diagnosis, and interventions:
   1. Cardiovascular Pathophysiology Emphasis is given to the many causes and consequences of heart failure (infarction, valve dysfunction, etc.) as well as to other heart and vessel problems including arrhythmias, hypertension and shock.
   2. Respiratory Pathophysiology Emphasis is on obstructive and restrictive patterns of respiratory distress, ventilation and perfusion patterns, the role of hemoglobin, cor pulmonale and respiratory failure, and other pathologies including cancer.
   3. Immunology and Hematology Topics include immune mechanisms, immunodeficiency types I-IV, AIDS, coagulation disorders, and disorders of bone marrow and lymph including anemias, leukemias, lymphomas, and myelomas.
   4. Renal Pathophysiology, Acid-Base Balance, and Fluid & Electrolyte Balance Students learn to identify and manage patients at risk for volume and osmolality problems and acid-base abnormalities in various stages of compensation. They also learn to differentiate causes of both chronic and acute renal failure including pyelonephritis, glomerulonephritis, shock and obstructions as well as a variety of metabolic causes.
   5. Gastrointestinal Pathophysiology Disorders of the esophagus, stomach, small and large intestine, rectum, liver, gall bladder, and exocrine pancreas are all discussed.
6. Neurology Primary and secondary damage to the brain and spinal cord are explored with emphasis on trauma, strokes, epilepsy, dementias and other degenerative disorders, as well as infections and cancers.
7. Endocrinology Diabetes is most emphasized but adrenal, parathyroid, and thyroid disorders also receive considerable weight.

**METHODS OF INSTRUCTION:**

A. Lecture:
B. Independent Study:

**INSTRUCTIONAL TECHNIQUES:**

**COURSE ASSIGNMENTS:**

**Out-of-class Assignments**

Read a professional journal article and write a report that relates the article’s content to concepts learned in the course.

**Writing Assignments**

5-10 Essays and thought questions requiring integration of knowledge from physiology prerequisite and new knowledge from the course.

**Reading Assignments**

A. Required Reading such as: Pathophysiology Text from a major publisher in the current edition.
Students will average about 100 pages/week of very technical reading and will reviewing physiology text from previous class as well.

**METHODS OF STUDENT EVALUATION:**

Midterm Exam
Final Exam
Written Assignments
Essay Examinations
Objective Examinations
Report

**Demonstration of Critical Thinking:**

Demonstrate critical thinking/problem solving skill by meeting course objectives: 1. Describe the processes of homeostasis and pathogenesis and illustrate with examples 2. Explain how and why disease symptoms and signs appear 3. Evaluate the development of signs and symptoms as physiological dysfunctions 4. Assess the clinical pictured disease and select the most appropriate management for the patient

**Required Writing, Problem Solving, Skills Demonstration:**

5-10 Essays and thought questions requiring integration of knowledge from physiology prerequisite and new knowledge from the course.

**TEXTS, READINGS, AND RESOURCES:**

**TextBooks:**

**LIBRARY:**

Adequate library resources include: Print Materials

**Comments:**

**Attachments:**

[Attached Files]