



BIOL 2650

Division: Natural Science and Mathematics

Department: Biology

Course: BIOL 2650

Title: Pathophysiology

Catalog Description:

The study of pathophysiology is the study of the dynamic changes in cell and organ function that occur in injury and disease. This course provides an introduction to the basic concepts of pathophysiology. The focus of this course will be the abnormal functioning of diseased organs as well as gross and microscopic characteristics of diseased tissue. Epidemiology and clinical manifestations are integrated throughout the course. Students will briefly explore normal cell, organ and organ system function and use this as a basis to understand how injury and disease alter normal physiology. This course must be taken concurrently with BIO 2655. Prerequisites: BIO 2420 (formerly BIOL 2610) and BIO 2425 (formerly BIOL 261L).

General Education Requirements: N/A

Semesters Offered: TBA

Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Prerequisites: BIOL 2420 (formerly BIOL 2610), BIOL 2425 (formerly BIOL 261L)

Corequisites: BIOL 2655

Justification:

Biology 2650 will prepare students in the allied health care fields to understand the dynamic changes in physiology that accompany injury and disease. Pathophysiology is a prerequisite for many programs at various state colleges and universities. For example, at Weber State University, Pathophysiology is a prerequisite for practical and registered nursing, dental hygiene, emergency care and rescue, medical records and respiratory therapy. BYU also requires Pathophysiology as a prerequisite for their nursing program. BIO 2650 (Pathophysiology) will be similar to the following courses offered by other Utah colleges and universities: University of Utah, NURS 2270; Southern Utah State University, BIO 2170; Weber State University, HTHSCI 2230; Westminster, NURS 280.

Student Learning Outcomes:

Upon successful completion of this course, students will be able to:

- explain the processes involved in inflammation and fever
- explain the fundamentals of immunity and diseases of immunity
- recognize neoplasia (tumor formation) and explain benign versus malignant behavior
- identify major blood and cardiovascular disorders and explain underlying changes in normal physiology

- identify major respiratory, gastrointestinal, and renal disorders and explain underlying changes in normal physiology
- explain the consequences of endocrine dysfunction
- identify major skeletal and muscular disorders and changes in normal physiology
- identify major central nervous system disorders, sites of lesion and explain the altered physiology
- explain the physiological basis of pain and how to manage it
- identify wound types and explain factors affecting their production.

Content:

- The course will initially focus on a core of foundation material and pathophysiological processes that apply to cells, tissues, organs, and systems of the body generally.
- The remaining lectures will systematically explore the patterns of disease in the body's major organ systems.
- As each new organ system is encountered, lectures will begin by briefly reviewing normal anatomy and physiology necessary to understand the following discussion of pathophysiology pertaining to that system.
- Brief Lecture outline:
 - Introduction and General Principles
 - General Principles
 - Cell and Tissue Biology and Pathophysiology
 - Fluid and Electrolytes Alterations
 - Genetic Disorders
 - Inflammation and Stress
 - Immunity and Hypersensitivity
 - Cancer and Metastasis
 - Pathophysiology of the Nervous System
 - Pathophysiology of the Endocrine System
 - Hematology and Pathophysiology of Blood
 - Pathophysiology of the Cardiovascular System
 - Pathophysiology of the Respiratory System
 - Pathophysiology of the Urinary System
 - Pathophysiology of the Reproductive System
 - Pathophysiology of the Digestive System
 - Pathophysiology of the Musculoskeletal System
 - Pathophysiology of the Integumentary System

General Education Outcomes:

1) Read effectively, constructively, and critically.

Students read the text throughout the course. Study guide, test questions, discussions, etc. are evaluated on synthesis and critical thinking processes. Some questions presented in tests, the study guide, and discussions will contain information concerning laboratory values and/or clinical manifestations consistent with pathologic processes and disease states. To successfully identify the pathophysiology involved, the student must be able to read effectively, constructively, and critically, correctly interpreting and applying the information available.

7) Apply scientific reasoning to a variety of contexts.

Students will demonstrate scientific reasoning throughout the various topics considered in course content in their responses to tests, quizzes, discussions, etc. In answering some test, quiz, and or discussion questions, the student will be provided with some basic information. In order to identify the pathophysiology involved the student must be able to take that information, and through a logical, scientific thought process, arrive at a conclusion.

Key Performance Indicators:

Student progress assessment, employing multiple formats, will be based on

- chapter tests: 70-80%
- final exam: 20-30%.
- Question level will range from basic understanding of terminology and pathophysiology processes and conditions, to complex questions involving critical thinking and application of information that would be gained by patient history, clinical examination, and laboratory test values.
- The final examination will be comprehensive with equal emphasis on topics and systems covered in the lectures.

Representative Text and/or Supplies:

- Sue E. Huether and Kathryn L. McCance, *Understanding Pathophysiology*, current edition, Mosby, St. Louis, MO.
- Sue E. Huether and Kathryn L. McCance, *Study Guide and Workbook for Understanding Pathophysiology*, current edition, Mosby, St. Louis, MO.

Optimum Class Size: 15

Maximum Class Size: 24

Signatures:

I hereby submit this course syllabus:

Allan Stevens, , Professor

I hereby find this course consistent with the goals and resources of the Biology Department:

Allan Stevens, , Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)