



MERCER
COUNTY COMMUNITY COLLEGE

COURSE OUTLINE

Course Number BIO 217	Course Title Pathophysiology	Credits 3
Hours: Lecture/Lab/Other 3/0/0	Co- or Pre-requisite RN licensure or Anatomy & Physiology I and II (Bio103 and Bio104) or permission of instructor	Implementation Semester & Year Fall 2022

Catalog description:

Study of the fundamental changes in body physiology due to disease. Covers the basics of cell biology, inflammation, mechanisms of body defense, specific body systems, and common disorders with emphasis placed on disease processes, manifestations, and treatment.

General Education Category:
Not GenEd

Course coordinator:
Linda Falkow, Professor of Biology
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Required texts & Other materials:

Huether, S.E. & McCance, K.L. *Understanding Pathophysiology*. Elsevier. 2019, 7th ed.
ISBN: 9780323721547

Course Student Learning Outcomes (SLO):

Upon successful completion of this course the student will be able to:

1. Discuss the etiology, pathogenesis, local and systemic effects of cell injury.
[Supports ILG#1, 3, 4, 8, 10, 11]
2. Explain the phenomenon of inflammation and its relationship to disease.
[Supports ILG#1, 3, 4, 8, 10, 11]
3. Apply the principles of immunology and basic physiological processes to systemic diseases. [Supports ILG#1, 3, 4, 8, 10, 11]
4. Discuss the etiology, pathogenesis, and clinical significance of selected disorders of the nervous, endocrine, cardiovascular, urinary, reproductive, digestive, musculoskeletal, and integumentary systems and research disorders using web-based information. [Supports ILG#1, 3, 4, 8, 10, 11]

Course-specific Institutional Learning Goals (ILG):

Institutional Learning Goal 1. Written and Oral Communication in English. Students will communicate effectively in both speech and writing.

Institutional Learning Goal 3. Science. Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.

Institutional Learning Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

Institutional Learning Goal 8. Diversity and Global Perspective: Students will understand the importance of a global perspective and culturally diverse peoples

Institutional Learning Goal 10. Information Literacy: Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

Institutional Learning Goal 11. Critical Thinking: Students will use critical thinking skills understand, analyze, or apply information or solve problems.

Units of study in detail – Unit Student Learning Outcomes:

Unit I Introduction to Pathophysiology [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Describe the structure and function of cells and tissues.
- Explain basic genetic terminology and chromosomal disorders.
- Describe cellular adaptations that result from environmental stresses.
- Identify major types of cellular necrosis.
- Identify mechanisms that cause edema.

Unit II Mechanisms of Defense [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Explain first and second lines of defense mechanisms.
- Discuss the inflammatory response.
- Explain the features of adaptive immunity.
- Discuss hypersensitivity disorders.
- Discuss examples of stress-related diseases and coping with stress.

Unit III Cellular Proliferation and Cancer [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Explain the difference between benign and malignant neoplasms.
- Identify the classification of tumors and stages of cancer spread.
- Describe the clinical manifestations of cancer, treatment modalities and side effects.

Unit IV Nervous System Disorders [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Explain the organization and function of the nervous system.
- Describe clinical categories of pain.
- Describe alteration in temperature regulation.
- Describe examples of sleep disorders.
- Describe examples of diseases associated with special senses.
- Explain different levels of consciousness and seizure disorders.
- Describe various brain traumas and spinal cord injuries.
- Describe vascular and infectious brain disorders.
- Explain degenerative and peripheral nervous system disorders.

Unit V Endocrine System Disorders [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Explain regulation of hormone secretion.
- Identify mechanisms that cause alterations in hormone secretion.
- Explain disorders of the posterior and anterior pituitary gland.
- Describe disorders of the thyroid and parathyroid glands.
- Describe differences between the two types of diabetes mellitus.
- Describe malfunctions of the adrenal gland.

Units VI and VII Hematologic and Cardiovascular System Disorders [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Describe disorders of erythrocytes, leukocytes, and thrombocytes.
- Describe venous and arterial occlusive diseases
- Explain various types of hypertension.
- Explain the differences between arteriosclerosis and atherosclerosis.
- Explain coronary artery disease, pericarditis, cardiomyopathies, and valve dysfunction.
- Explain various arrhythmias of the heart and congestive heart disease.

Unit VIII Respiratory System Disorders [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Describe signs and symptoms of pulmonary disease.
- Explain lung conditions caused by disease or injury.
- Describe pathogenic factors in ARDS (acute respiratory distress syndrome).
- Describe causes and manifestations of pneumonia and tuberculosis.
- Explain differences between pulmonary embolism, and hypertension.
- Describe major characteristics of lung cancer.

Units IX and X Urinary and Reproductive Systems Disorders [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Describe urinary tract obstructions.
- Describe differences between cystitis, pyelonephritis, and glomerulonephritis.
- Explain conditions leading to uremia and chronic renal failure.
- Explain various disorders of the female reproductive tract.
- Describe malignant tumors of the female and male reproductive tract.
- Describe disorders of the prostate gland.
- Explain disorders of the breast.
- Discuss sexually transmitted infections.

Unit XI Digestive System Disorders [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Describe terms used in identifying manifestations of gastrointestinal dysfunction.
- Explain pathogenesis and manifestations of acute and chronic gastritis.
- Distinguish between ulcerative colitis and Crohn's disease.
- Distinguish between diverticular disease and appendicitis.
- Describe malfunctions of the liver, gall bladder, and pancreas.

Unit XII Musculoskeletal and Integumentary Systems Disorders [Supports Course SLO #1, 2, 3, 4]

Learning Objectives

The student will be able to:

- Explain causes and manifestations of various fractures.
 - Explain common metabolic disorders of the skeletal system.
 - Describe different types of arthritis.
 - Explain differences among metabolic, inflammatory, and toxic myopathies.
 - Describe various tumors of the musculoskeletal system.
 - Identify the causes and lesions of cutaneous infections.
 - Explain responses to burn injury and frostbite.
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Evaluation of student learning:

Achievement of course objectives will be evaluated by the following tools:

- Exams: Questions on exams are from lecture, lecture assignments, reading assignments, handouts, or other material presented in class. It is the responsibility of the student to be present and on time for all exams.
- Web-based assignments: These assignments will involve a search of the internet for information relating to a specific pathological condition.
- Homework assignments and quizzes: Throughout the semester, a variety of homework assignments and quizzes will be administered

The course grade is based on the following point totals:

Four exams: 100 points each x 4 = 400 points
Two Web-based assignments: 50 points each x 2 = 100 points
Homework and Quizzes: 100 points
Total Points: 600 points

The four exams will be multiple choice and short answer and will reflect the learning objectives. To calculate grade = Total points/6

A	93-100%	B+	87-89%	C+	77-79%	D	60-69%
A-	90-92	B	83-86	C	70-76	F	<60%
		B-	80-82				