



## COURSE OUTLINE

<u>Course Number</u>	<u>Course Title</u>	<u>Division</u>
BIO 217	Pathophysiology	Math, Science & Health Professions
<u>Hours:</u> lecture/Lab/Other 3/0/0		<u>Credits</u> 3

**Pre-requisites:** RN licensure or Anatomy & Physiology I and II or permission of instructor

**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.

**Required texts and Materials:**

Huether, S.E. & McCance, K.L. *Understanding Pathophysiology*. Mosby Elsevier. 2012. 5th ed.

*Bio217 Pathophysiology Course Outline*

**Course coordinator:**

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**Course Goals:**

***The student will be able to:***

1. Discuss the etiology, pathogenesis, local and systemic effects of cell injury.
2. Explain the phenomenon of inflammation and its relationship to disease.
3. Apply the principles of immunology and basic physiological processes to systemic diseases.
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.

**MCCC Core Abilities:**

- A. **Communication.** Students will communicate effectively in both speech and writing
- B. **Critical Thinking and Problem-Solving:** Students will use critical thinking and problem solving skills in analyzing information.
- D. **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.
- E. **Computer Literacy:** Students will use computers to access, analyze or present information, solve problems, and communicate with others.

**General Education Outcomes:**

**Goal 1. Communication.** Students will communicate effectively in both speech and writing.

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

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

**Attendance and Grading:**

1. Attendance at the scheduled lecture time is expected. To be successful in this course you should plan to attend all lecture sessions. If you miss a lecture for any reason, it is your responsibility to obtain the missed information including any course material covered, any announcements made and any handouts that were distributed in class.
2. All lecture exams will be given in class. The tests covering the lecture material will be given periodically at the end of the units as indicated in the topical outline. You will need to bring your MCCC student ID to each exam. **You are expected to arrive on time in order to take each test.** There will be 4 regular lecture exams.

## 3. Evaluation of student learning:

The course grade will be based on the following point totals:

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

The four exams will be multiple choice and short answer and will reflect the learning objectives listed below. 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				

4. **Academic Integrity Statement:**

Mercer County Community College is committed to Academic Integrity – the honest, fair and continuing pursuit of knowledge, free from fraud or deception. This implies that students are expected to be responsible for their own work, and that faculty and academic support services staff members will take reasonable precautions to prevent the opportunity for academic dishonesty. The college recognizes the following general categories of violations of Academic Integrity, with representative examples of each. Academic Integrity is violated whenever a student:

**A. Uses or obtains unauthorized assistance in any academic work.**

- Copying from another student's exam.
- Using notes, books, electronic devices or other aids of any kind during an exam when prohibited.
- Stealing an exam or possessing a stolen copy of an exam.

**B. Gives fraudulent assistance to another student.**

- Completing a graded academic activity or taking an exam for someone else
- Giving answers to or sharing answers with another student before, during or after an exam or other graded academic activity.
- Sharing answers during an exam by using a system of signals.

**C. Knowingly represents the work of others as his/her own, or represents previously completed academic work as current.**

- Submitting a paper or other academic work for credit which includes words, ideas, data or creative work of others without acknowledging the source.
- Using another author's words without enclosing them in quotation marks, without paraphrasing them or without citing the source appropriately
- Presenting another individual's work as one's own.

- Submitting the same paper or academic assignment to another class without the permission of the instructor.

**D. Fabricates data in support of an academic assignment.**

- Falsifying bibliographic entries.
- Submitting any academic assignment which contains falsified or fabricated data or results.

**E. Inappropriately or unethically uses technological means to gain academic advantage.**

- Inappropriate or unethical acquisition of material via the Internet or by any other means.
- Using any electronic or hidden devices for communication during an exam.

5. Classroom conduct:

Students are expected to be on time for all classes. Students are expected to follow ordinary rules of courtesy during class sessions. The use of cell phone and other electronic devices and engaging in side conversations during class time is distracting to other students and the instructor. **Please turn off all electronic devices during class.** The instructor has the right to eject a disruptive student from the class at any time. Please refer to the Student Handbook for additional information on rules and regulations.

Mercer County College is in compliance with both the ADA and section 504 of the Rehabilitation Act. If you have or believe you have a differing ability that is protected under the law, please see Arlene Stinson in LB 216 or at [stinsona@mccc.edu](mailto:stinsona@mccc.edu) for information.

**THE INSTRUCTOR RESERVES THE RIGHT TO CHANGE THE TEST SCHEDULE AND GRADING AT ANY TIME.**

**Schedule of Topics:**

Week	Topic	Chapters
1	Introduction to Pathophysiology (Unit I)	1, 2, 3, 4
2	Mechanisms of Defense (Unit II)	5, 6, 7, 8
3	<b>Test #1 (Chapters 1-8)</b> Cell Proliferation and Cancer (Unit III)	9, 10
4	Nervous System Disorders (Unit IV)	12, 13, 14, 15
5	Endocrine System Disorders (Unit V) Web Exercise 1 due	17, 18
6	<b>Test #2 (Chapters 9,10, 12-15, 17,18)</b> Blood and Cardiovascular Disorders (Unit VI)	19, 20, 22, 23

7	CV continued Respiratory System Disorders (Unit VII)	25, 26
8	Respiratory continued	
9	<b>Test #3 (Chapters 19,20,22,23,25,26)</b> Urinary and Reproductive System Disorders (Unit VIII)	28, 29, 31, 32
10	Urinary and Reproductive continued	
11	Digestive System Disorders (Unit IX)	33, 34
12	Digestive System Disorders (Unit IX) Web Exercise 2 due	33, 34
13	Musculoskeletal and Integumentary Systems (Unit X)	36, 37, 39
14	Musculoskeletal and Integumentary continued	
15	<b>Test #4 (Chapters 28,29,31-34,36,37,39)</b>	

### Units of study in detail:

#### Unit I: Introduction to Pathophysiology

##### 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

##### 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****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****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****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.

**Unit VI: Hematologic and Cardiovascular System Disorders****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 VII: Respiratory System Disorders****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.

**Unit VIII: Urinary and Reproductive Systems Disorders****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 IX: Digestive System Disorders****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 X: Musculoskeletal and Integumentary Systems Disorders****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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## Additional Assignments:

### Web-based Exercises:

The students will be assigned 2 web-based exercises. Each exercise will involve performing a search on the internet for information relating to a specific pathological condition. A topic should be chosen from a condition listed in one of the unit disorders listed in the course outline. For each report, summarize in writing, the following as obtained from the websites under subheadings:

- |                       |   |
|-----------------------|---|
| 1. Signs and symptoms | 4. Recent developments                            |
| 2. Etiology           | 5. Critique of each website (separate paragraphs) |
| 3. Therapy            | 6. List of Resources (list all websites)          |

At least two websites should be documented for each topic and should be recently updated (within the last year 2012 – 2014). If additional information is not available for a particular section, especially recent developments, *find additional sites*. (Avoid Wikipedia and WebMD.) Select websites that are specific or specialize in medical disorders such National Institutes of Health (www.nih.gov). List all websites at the end of your report. Information from all of the websites should be combined in the first four parts of your report. In other words, do not write a separate summary of signs and symptoms, etiology, therapy, and recent developments for each website. However, **each website should be critiqued separately**.

Include the following information in the critique of each website:

1. Was the information accurate and current?
2. Did it match the information in the textbook?
3. How could the site be improved?
4. Were therapies recommended that are not supported by scientific research?

The level of detail is up to you, except that the etiology should be down to the cellular level. Do not plagiarize and do not cut and paste from the website into your document. Three to four pages typed should be sufficient. Reports are due at the beginning of class in week 5 and week 12. Use complete sentences (in other words **no bullet points**). Assignments that are turned in late will be marked down. Each web assignment is worth 50 points.

### Quizzes and Homework:

Quizzes and additional homework assignments will be given throughout the course and will be worth 100 points of the total course grade.

### Information resources:

MEDLINE Journals

Anatomy & Physiology Revealed (APR) CD Interactive Cadaver Dissection, McGraw Hill.

<http://evolve.elsevier.com/McCance>

CINAHL (Cumulative Index to Nursing and Allied Health Literature)

Health Source: Nursing Academic Edition

To access copies of Bio217 course outline, lecture notes and some assignments go to :

<http://www.mccc.edu/~falkow/> (scroll to **Bio217** on homepage)