

**INTERAMERICAN UNIVERSITY OF PUERTO RICO  
METROPOLITAN CAMPUS  
SCIENCE AND TECHNOLOGY FACULTY  
CARMEN TORRES DE TIBURCIO NURSING DEPARTMENT**

**SYLLABUS**

**I. GENERAL INFORMATION**

<b>Course title</b>	:	FUNDAMENTALS OF ADULT CARE II
<b>Code and Number</b>	:	NURS 2233
<b>Credits</b>	:	SIX (6)
<b>Academic Term</b>	:	
<b>Teacher</b>	:	
<b>Office Location and Hours</b>	:	
<b>Office Telephone</b>	:	787-250-1912 EXT. 2159, 2202
<b>Email</b>	:	

**II. DESCRIPTION**

Discussion of the acute and chronic health dysfunctions related to the functional health patterns: activity-exercise, cognitive-perceptual and sexual reproduction. Includes anatomical, physiopathological, microbiological, biochemical and environmental concepts that affect the adult human functioning. Integration of communication, care management, research, and the nursing process skills and the nursing process in client's care. Requirement: NURS 1231. Concurrent with NURS 2141 and 2142.

**III. END OF PROGRAM STUDENT LEARNING OUTCOMES  
(GRADUATE PROFILE OF COMPETENCIES)**

It is expected that, at the end of the program (EPSLO), the student will be able to:

1. Know the nursing process as an instrument for clinical decision-offering safe and quality care. (AAS)
2. Know the use of nursing interventions to prevent diseases and promote, protect, maintain, and restore health. (BSN)

**GENERAL OBJECTIVES (COURSE STUDENT LEARNING OUTCOMES)**

It is expected that, at the end of the course (SLO), the student will be able to:

1. Recognize the anatomy and pathophysiology of acute and chronic health dysfunctions related to functional health patterns: activity-exercise, cognitive-perceptual, and

- sexuality–reproduction.
2. Show evidence-based knowledge for the decision-making process when planning nursing care for adult and elderly patients/clients within the context of the family and the community.
  3. Use the nursing process for decision-making that reflects critical thinking skills when offering care to adult and elderly patients/clients with acute and chronic dysfunctions.
  4. Integrate communication and computer skills that support quality patient/client care and the interdisciplinary team.

#### **IV. COURSE CONTENT**

##### **UNIT I: MANAGEMENT OF THE CLIENT WITH ALTERATIONS OF THE SENSORY VISUAL AND AUDITORY SYSTEMS PERCEPTUAL-COGNITIVE PATTERN**

1. Physio-pathological and environmental concepts and principles in the application of the nursing process to the client with health problems of the visual system. Care of the patient with eye and vision problems.
  1. Common acute and chronic dysfunctions:
    - a. Conjunctivitis
    - b. Waterfall
    - c. Glaucoma
    - d. Diabetic retinopathy
    - e. Retinal detachment
    - f. Geriatric considerations
  2. Drug therapy
  3. Laboratories and blood samples.
  4. Differential diagnoses.
  5. Nursing Process applied to visual dysfunctions (NANDA, NIC, and NOC).
2. Physio-pathological and environmental concepts and principles in the application of the nursing process to the client with health problems of the auditory system.
  1. Common acute and chronic dysfunctions.
    - a. External Otitis
    - b. Otitis Media
    - c. Tinnitus
    - d. Labyrinthitis
    - e. Meniere's syndrome
    - f. Hearing Loss
  2. Medication therapy.
  3. Laboratories and blood samples.

4. Differential diagnoses.
5. Nursing Process applied to auditory dysfunctions (NANDA, NIC, and NOC).

## **UNIT II: MANAGEMENT OF THE CLIENT WITH ALTERATIONS OF THE NEUROLOGICAL SYSTEM PERCEPTUAL-COGNITIVE PATTERN**

### **A. Concepts, pathophysiological and environmental principles in the application of the nursing process to the client with health problems of the nervous system.**

1. Pathophysiology of the most common acute and chronic dysfunctions.
  - a. Alzheimer's disease
  - b. Multiple sclerosis
  - c. Parkinson's disease
  - d. Meningitis
  - e. Seizures and Epilepsy
  - f. trauma to the brain
  - g. Transient Ischemic Attack (TIA)
  - h. Brain Vascular Accident
  - i. Spinal Cord Trauma
2. Medication therapy.
3. Laboratories and blood samples.
4. Differential diagnoses.
5. Nursing Process applied to Nervous System dysfunctions (NANDA, NIC, and NOC).

## **UNIT III: MANAGEMENT OF THE CLIENT WITH PROBLEMS OF THE CARDIOVASCULAR SYSTEM**

### **ACTIVITY AND EXERCISE PATTERN**

#### **A. Physio-pathological and environmental concepts and principles in the application of the nursing process to the client with health problems of the cardiovascular system.**

1. Common Acute and Chronic Dysfunctions
  - a. Angina Pectoris (Acute Coronary Syndrome).
  - b. Myocardial Infarction
  - c. Dysrhythmias (ACLS algorithms)
  - d. Management of the patient with a pacemaker
  - e. Heart Failure
  - f. Cardiogenic Shock
  - g. Atherosclerosis/Arteriosclerosis
  - h. Peripheral Vascular Disease PVD and PAD
2. Thrombophlebitis
3. Hypertension
4. Drug therapy
5. Laboratories and blood samples
6. Differential diagnoses.
7. Nursing Process applied to dysfunctions of the Cardiovascular System (NANDA, NIC and NOC).

**UNIT IV: MANAGEMENT OF THE CLIENT WITH RESPIRATORY TRACT PROBLEMS WITH ACTIVITY AND EXERCISE PATTERN**

**A. Physiopathological and environmental concepts and principles in the application of the nursing process to the client with health problems of the respiratory system.**

1. Common acute and chronic dysfunctions
  - a. Asthma
  - b. COPD: Chronic Bronchitis and Emphysema
  - c. Pulmonary Embolism
  - d. Pneumonia
  - e. Lung Cancer
  - f. Tuberculosis
  - g. Pneumothorax
2. Drug therapy
3. Laboratories and blood samples.
4. Differential diagnoses. Nursing Process applied to respiratory system dysfunctions (NANDA, NIC, and NOC).

**UNIT V: MANAGEMENT OF THE CLIENT WITH PROBLEMS OF THE HEMATOLOGICAL SYSTEM ACTIVITY AND EXERCISE PATTERN**

**A. Physiopathological and environmental concepts and principles in the application of the nursing process to the client with health problems of the hematological system.**

1. Most common acute and chronic dysfunctions
  - a. Anemia resulting from increased destruction of red blood cells.
  - b. Iron deficiency anemia
  - c. Sickle Cell Anemia
  - d. Aplastic Anemia
  - e. Anemia in Kidney Disease
  - f. Polycythemia
  - g. Leukemia
  - h. Hodgkin's Lymphoma
  - i. Platelet and Coagulation Factor Disorders and Vit. K
  - j. Hemophilia
2. Transfusion of blood components and their derivatives.
3. Drug therapy.
4. Laboratories and blood samples.
5. Differential diagnoses.
6. Nursing Process applied to Hematological System dysfunctions (NANDA, NIC, and NOC).

**UNIT VI: MANAGEMENT OF THE CLIENT WITH PROBLEMS WITH THE MUSCULOSKELETAL SYSTEM ACTIVITY AND EXERCISE PATTERN**

**A. Physiopathological and environmental concepts and principles in the application of the nursing process to the client with health problems of the musculoskeletal system.**

1. Common acute and chronic dysfunctions.
  - a. Bone Tumors
  - b. Fractures
  - c. Lumbosacral back pain
  - d. Amputations
  - e. Common foot problems
  - f. Common upper extremity problems
  - g. Osteomyelitis and Osteoporosis
  - h. Rheumatic diseases
2. Drug Therapy
3. Laboratories and blood samples.
4. Differential diagnosis.

Nursing Process Applied to Dysfunctions of the Musculoskeletal System (NANDA, NIC, and NOC).

**UNIT VII: MANAGEMENT OF THE CLIENT WITH PROBLEMS OF THE SEXUAL/REPRODUCTIVE SYSTEM SEXUAL/REPRODUCTIVE PATTERN**

**A. Physiopathological and environmental concepts and principles in the application of the nursing process for the client with health problems of the sexual/reproductive system.**

1. Common acute and chronic dysfunctions.
  - a. Breast Cancer
  - b. Prostate Cancer
2. Drug Therapy
3. Laboratories and blood samples.
4. Differential diagnoses

Nursing Process applied to dysfunctions of the Reproductive Systems (NANDA, NIC, and NOC).

**INTEGRATE SCIENCES CONTENT:**

**UNIT I: MANAGEMENT OF THE CLIENT WITH ALTERATIONS OF THE NEUROLOGICAL SYSTEM PERCEPTUAL-COGNITIVE PATTERN**

**A. Anatomical, physiological, biochemical, microbiological, and environmental concepts and fundamentals related to the nervous system are essential for nursing care.**

1. Anatomy and physiology of the central, peripheral, and autonomic nervous

- system.
2. Principles and fundamentals of biochemistry related to the nervous system.
    - a. Metabolic Requirements
    - b. Blood-Brain barrier
    - c. Synapse
    - d. Chemical components of cerebrospinal fluid.
  3. Microorganisms related to the nervous system.

## **UNIT II: MANAGEMENT OF THE CLIENT WITH ALTERATIONS OF THE SENSORY VISUAL AND AUDITORY SYSTEMS PERCEPTUAL-COGNITIVE PATTERN**

### **A. Anatomical, physiological, biochemical, microbiological, and environmental concepts and fundamentals related to the visual system are essential for nursing care.**

1. Anatomy and physiology of the visual system.
2. Principles and fundamentals of biochemistry related to the visual system.
  - a. Physicochemical properties of ocular fluids.
  - b. Amino acids
  - c. Protein pigments and other ocular proteins.
  - d. Main enzymes and ocular vitamins.
3. Microorganisms related to the visual system.
4. Relationship of the visual system with other systems of the human body.

### **B. Anatomical, physiological, biochemical, microbiological, and environmental concepts and fundamentals related to the auditory system are essential for nursing care.**

1. Anatomy and physiology of the auditory system.
2. Principles and fundamentals of biochemistry related to the auditory system.
  - a. endolymph and perilymph
  - b. cochlear synapses.
3. Chemical-Induced Hearing Disorders.
4. Microorganisms related to the auditory system.
5. Relationship of the auditory system with other systems of the human body.

## **UNIT III: MANAGEMENT OF THE CLIENT WITH PROBLEMS WITH THE CARDIOVASCULAR SYSTEM ACTIVITY AND EXERCISE PATTERN**

### **A. Concepts and anatomical, physiological, biochemical, microbiological, and environmental foundations related to the cardiovascular system are essential for nursing care.**

1. Anatomical, physiopathological, microbiological and biochemical factors that affect adult human functioning: Anatomy and physiology of the cardiovascular system. Principles and fundamentals of biochemistry related to the cardiovascular system.
  - a. Biochemical markers of cardiac function; pressure, resistance, and flow gradients into the circulation. Humoral Factors

- b. Neurotransmitters
- c. Hemodynamics of blood flow
- 2. Microorganisms related to the cardiovascular system
  - a. Microorganisms through the bloodstream (bacteremia) and etiology of endovascular infection.
- 3. Relationship of the cardiovascular system with the other systems of the human body.
- 4. Diagnostic studies and interpretation.

**UNIT IV: MANAGEMENT OF THE CLIENT WITH RESPIRATORY TRACT PROBLEMS ACTIVITY AND EXERCISE PATTERN**

**A. Anatomical, physiological, biochemical, microbiological, and environmental concepts and foundations related to the respiratory system are essential for nursing care.**

- 1. Anatomy and physiology of the upper and lower respiratory system.
- 2. Principles of physics related to the respiratory system.
  - a. Law of gravity.
  - b. Pressure and Impulse Gradients.
  - c. Energy
  - d. Concept of elasticity.
  - e. liquids
  - f. Gas Laws: Boyle, Charles, Dalton, and Henry.
- 3. Principles and fundamentals of biochemistry related to the respiratory system
  - a. Basic properties of gases
  - b. The partial pressure of gases in atmospheric air
  - c. Effect of surface tension: the role of the surfactant
  - d. Acid-base balance
- 4. Microorganisms related to the respiratory system.
- 5. Relation of the respiratory system with other systems of the body.

**UNIT V: MANAGEMENT OF THE CLIENT WITH PROBLEMS OF THE HEMATOLOGICAL SYSTEM ACTIVITY AND EXERCISE PATTERN**

**A. Anatomical, physiological, biochemical, microbiological, and environmental concepts and fundamentals related to the hematological system, are essential for nursing care.**

- 1. Structure and Physiology of the Hematological System.
- 2. Principles of physics related to the Hematological System.
  - a. Second law of Newton
  - b. Goo
  - c. Gradient
- 3. Principles and fundamentals of biochemistry related to the hematological system
  - a. Biochemical substances: proteins, ions, gases, and biomolecules.
  - b. Blood count: Normal values
  - c. The extrinsic and intrinsic pathway of coagulation: Intrinsic factor
  - d. Hemoglobin: oxyhemoglobin, biosynthesis, and catabolism of the

heme group.

4. Principles of microbiology related to the hematological system
  - a. The blood is a route of transmission of pathogens.
  - b. Body's defenses against infection: white blood cells and antibodies.
5. Relationship of the hematological system with other systems of the body.

**UNIT VI: MANAGEMENT OF THE CLIENT WITH PROBLEMS OF THE MUSCULOSKELETAL SYSTEM  
ACTIVITY AND EXERCISE PATTERN**

**A. Concepts and anatomical, physiological, biochemical, microbiological, and environmental foundations related to the musculoskeletal system, essential for nursing care.**

1. Anatomy and physiology of the Musculoskeletal System.
2. Physics principles related to the skeletal system.
  - a. Principles of Mechanics and Gradual Force.
3. Principles and fundamentals of biochemistry related to the skeletal system.
  - a. Chemical composition of the bone matrix.
  - b. Calcium Homeostasis.
  - c. Skeletal Muscle Metabolism.
  - d. Energy Sources for Muscle Contraction.
4. Microorganisms related to the musculoskeletal system.
5. Relationship of the musculoskeletal system with other systems of the body.

**UNIT VII: MANAGEMENT OF THE CLIENT WITH PROBLEMS OF THE SEXUAL/REPRODUCTIVE SYSTEM  
SEXUAL/REPRODUCTIVE PATTERN**

**A. Anatomical, physiological, biochemical, microbiological, and environmental concepts and foundations related to the sexual/reproductive system are essential for nursing care.**

1. Anatomy and physiology of the reproductive system.
2. Principles and fundamentals of biochemistry related to the reproductive system.
  - a. Estrogens as initiators in mammary carcinogenesis.
  - b. Disrupting the biological rhythm increases the risk of breast cancer.
  - c. "Prostate-specific antigen (PSA) level".
  - d. Genetic mutations in prostate cancer.
3. Microbiology related to the male and female reproductive system
  - a. Carcinoma-associated fibroblasts (CAF) also called tumor-associated fibroblasts (TAF), tumor-associated macrophages (TAM), extracellular matrix, blood and lymphatic vessels, adipocytes, and lymphoid cells in breast cancer.
  - b. Stem cells called Notch and Hedgehog in prostate cancer.
  - c. Effect of the endocrine system on the genitourinary tissue.
  - d. Relationship of the reproductive system with other systems of the body.



## V. ACTIVITIES

1. Study Guides
2. Group Discussion
3. Small Group Discussion
4. Cultural Case Studies
5. Questions and Answers
6. Supplemental Reading
7. Assessment
8. Videos

## VI. EVALUATION

Criteria	Score	% Final Grade
Partial Exam #1	100	20%
Partial Exam #2	100	20%
Comprehensive Final Exam 3	100	25%
Assignments and/or Quizzes and/or oral presentations with criteria of evaluation, Study guides, Illustrations, Portfolio, and/or Learning Modules.	100	20%
Attendance	100	10%
ATI Practice	100	5%

## V. SPECIAL NOTES

### A. Ancillary services or special needs.

All students who require auxiliary services or special assistance must request these at the beginning of the course or as soon as they know that they need them through the proper registry in the Office of the Coordinator of Services to Students with Disabilities, Dr. María de los Angeles Cabello, located in the Counseling Program, Room 419, on the fourth floor of the John Will Harris Building, 787-250-1912, extension 2306.

### B. Honesty, fraud, and plagiarism.

Dishonesty, fraud, plagiarism, and any other inappropriate behavior in relation to academic work constitute major infractions sanctioned by the General Student Regulations. Major infractions, according to the General Student Regulations, may result in suspension from the University for a defined period of more than one year or permanent expulsion from the University, among other sanctions.

### C. Use of electronic devices.

Cell phones and any other electronic device that could interrupt the teaching and learning processes or alter the environment conducive to academic excellence will be

deactivated. Urgent situations will be addressed, as appropriate. The handling of electronic devices that allow data to be accessed, stored, or sent during evaluations or exams is prohibited.

#### **D. Compliance with the provisions of Title IX**

The Federal Higher Education Law, as amended, prohibits discrimination based on sex in any academic, educational, extracurricular, or athletic activity or in any other program or employment, sponsored or controlled by an institution of higher education regardless of whether it is carried out on or off the institution's premises if the institution receives federal funds.

By current federal regulations, an Assistant Title IX Coordinator has been appointed in our academic unit to provide assistance and guidance with any alleged incident constituting sex or gender discrimination, sexual harassment, or sexual assault. Contact the Assistant Coordinator, Mr. George Rivera Rodríguez at 787-250-1912, extension 2262, or email [griverar@metro.inter.edu](mailto:griverar@metro.inter.edu).

The Normative Document entitled Norms and Procedures to Address Alleged Violations of the Provisions of Title IX is the document that contains the institutional rules to channel any complaint that is filed based on this type of allegation. This document is available on the portal of the Inter-American University of Puerto Rico ([www.inter.edu](http://www.inter.edu)).

### **VIII. EDUCATIONAL RESOURCES**

#### **Textbooks:**

Smeltzer, Bare, Hinkle & Cheever. (2021) Brunner & Suddarth's Textbook of Medical–Surgical. 15<sup>th</sup> ed. Lippincott, Williams & Wilkins. ISBN: 978-1975161033.

Engelkirk & Duben-Engelkirk. (2018). Burton's Microbiology for the Health Sciences. (11th ed.). Jones & Bartlett Learning. ISBN: 978-1496380463.

Patton, K., Bell, F., Thompson, T., & Williamson, P. (2022). Anatomy & Physiology. (11th ed.). Elsevier. ISBN: 978-0323775717.

### **IX. BIBLIOGRAPHY (OR REFERENCES)**

Smeltzer, Bare, Hinkle & Cheever. (2021). Study Guide for Brunner & Suddarth's Textbook of Medical–Surgical Nursing. 15<sup>th</sup> ed. Lippincott Williams & Wilkins. ISBN:197-5163257 / 978-1975163259.

Engelkirk & Duben-Engelkirk (2018). Burton's Microbiology for the Health Sciences. 11th ed. ISBN 1496380460 / 978-0323528900. Jones & Bartlett Learning.

Patton, Bell, Thompson & Williamson (2022). Anatomy and Physiology. 11<sup>th</sup> Edition. Elsevier. ISBN: 0323775713 / 978-0323775717.

Patton & Thibodeau (2018). Study Guide for Anatomy and Physiology. 10<sup>th</sup> Edition. Mosby. ISBN: 0323528902 / 978-0323528900.

Silvestri & Silvestri (2022). Saunders Comprehensive Review NCLEX-RN Examination. 9th ed. ISBN 0323795307 / 978-0323795302. Saunders.

### **Sites Web**

[Loud Noise Can Cause Hearing Loss | NCEH \(cdc.gov\)](#)

[What is Alzheimer's Disease? | CDC](#)

[Multiple Sclerosis Center | Johns Hopkins Neurology and Neurosurgery](#)

[\(hopkinsmedicine.org\)](#)

[Parkinson disease \(who.int\)](#)

[Meningitis | CDC](#)

[Epilepsy | CDC](#)

[Traumatic Brain Injury / Concussion | Concussion | Traumatic Brain Injury | CDC Injury Center](#)

[About Stroke | cdc.gov](#)

[Stroke Signs and Symptoms | cdc.gov](#)

[Acute Spinal Cord Injury | Johns Hopkins Medicine](#)

[Coronary Artery Disease | cdc.gov](#)

[Heart Attack Symptoms, Risk, and Recovery | cdc.gov](#)

[Algorithms | American Heart Association CPR & First Aid](#)

[Pacemaker | American Heart Association](#)

[Heart Failure | cdc.gov](#)

[Cardiogenic Shock - What is Cardiogenic Shock? | NHLBI, NIH](#)

[Atherosclerosis - What Is Atherosclerosis? | NHLBI, NIH](#)

[Peripheral Arterial Disease \(PAD\) | cdc.gov](#)

[What is Venous Thromboembolism? | CDC](#)

[High Blood Pressure | cdc.gov](#)  
[Bone Cancer | American Cancer Society](#)  
[Hip Fractures Among Older Adults | Fall Prevention | Injury Center | CDC - Patient & Caregiver Resources | STEADI - Older Adult Fall Prevention | CDC Injury Center Amputation | Johns Hopkins Medicine](#)  
[Osteomyelitis | Johns Hopkins Medicine](#)  
[Rheumatoid Arthritis | CDC](#)  
[ACS Breast Cancer Screening Guidelines](#)  
[Prostate Cancer | Prostate Cancer Information and Overview](#)  
[Asthma | CDC](#)  
[Coronavirus Disease 2019 \(COVID-19\) | CDC](#)  
[Chronic Obstructive Pulmonary Disease \(COPD\) | CDC](#)  
[Pneumonia | CDC Vaccines for Pneumococcal | CDC](#)  
[Lung Cancer | CDC](#)  
[Tuberculosis \(TB\) | CDC](#)  
[Pneumothorax | Johns Hopkins Medicine](#)  
[Deep Vein Thrombosis & Pulmonary Embolism | CDC Yellow Book 2024](#)  
[FastStats - Anemia \(cdc.gov\)](#)  
[Learn More About Sickle Cell Disease | CDC](#)  
[Aplastic Anemia | Johns Hopkins Medicine](#)  
[Polycythemia Vera | Johns Hopkins Medicine](#)  
[Leukemia \(cancer.org\)](#)  
[Hodgkin Lymphoma | Hodgkin Disease \(cancer.org\)](#)  
[Learn More About Blood Disorders | CDC](#)  
[Blood Safety and Hemophilia | CDC](#)  
[Focus on National Institute on Minority Health and Health Disparities \(NIMHD\)   
http://www.nimhd.nih.gov/](#)

**REV. June 2023.**