



College of Nursing
UNIVERSITY OF THE PHILIPPINES MANILA
The Health Sciences Center

Sotejo Hall, Pedro Gil Street, Ermita, Manila 1000 Philippines
Tel Nos. (02) 523-1472, (02) 523-1477, (02) 523-1494 • TeleFax: (02) 523-1485
Email: upm-cn@up.edu.ph



N3: ANATOMY AND PHYSIOLOGY
1st Semester, Academic Year 2024-2025

Course Description:

This course focuses on the physiological concepts and basic anatomical facts necessary in future nursing courses.

Course Outcomes:

1. Apply knowledge from the natural and physical sciences as applied in human anatomy and physiology.
2. Use the conceptual systems approach in describing anatomical structures and physiologic processes, concepts, and principles.
3. Explains body processes using appropriate anatomic terminologies and physiologic concepts and principles.
4. Integrates knowledge of the different organ systems in explaining normal physiologic processes.
5. Recognize the importance of lifelong learning.

Course Credit: 5 units (4 units lecture: 64hrs, 1 unit lab: 32 hours):

Course Faculty

Course Coordinator: Asst. Prof. Kenny-lynn B. Baccay, RN, MA (Nursing)

Members: Asst. Prof. Josephine G. Aldaba, MD
Asst. Prof. Jeremiah Carlo Alejo, MCD, MD, RN
Asst. Prof. Aprille C. Banayat, MA (Nursing), RN
Asst. Prof. Alexandra Belle S. Bernal, MOHRE, RN
Asst. Prof. Jan Vincent Delos Santos, MAEd, RN
Asst. Prof. Aldin D. Gaspar, MSc, RN
Assoc. Prof. Jenniffer T. Paguio, PhD, RN
Asst. Prof. Arnold B. Peralta, MHPEd, MAN, RN
Asst. Prof. Laurence Lloyd B. Parial, PhD, RN
Asst. Prof. Earl Francis R. Sumile, PhD, RN

Mode of Delivery and Platform

The mode of instructional delivery will be face-to-face, however, remote or online learning may be implemented as the need arises. Course materials will be made available to students through VLE prior to the schedule to allow students who want to read, study, and accomplish the activities ahead of schedule. Students are expected to follow the weekly course schedule and submit requirements on time.

Teaching and learning will be a mix of synchronous and asynchronous activities and will be done according to the schedule



Course Requirements and Bases for Grades

Components			Units	Weight
Lecture	Long Exam (3)	70%	4.0	80%
	Final Exam	30%		
Laboratory	Lab Exam (2)	60%	1.0	20%
	Lab Worksheets	40%		
Total			5.0	100%

General Guidelines in the Conduct of the Course

- Proper communication for the course
 - Communicate with your course faculty through VLE and email. You may send your inquiries through email or the VLE at any time. However, should you prefer to communicate to your faculty through SMS for urgent concerns, you may do so between 8 am to 5 pm, Mondays through Fridays. Your faculty will respond during office hours, unless for urgent/ emergent matters. Individual consultations may be scheduled with the faculty.

Kenny-lynn B. Baccay, MA (Nursing), RN
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 09171462181
 - Observe network etiquette when posting on online discussion boards.
 - If you encounter any issues, especially with the online materials, please contact the Course Coordinator as soon as possible so that appropriate solutions may be applied. You may contact your faculty via the VLE course site's message system or email.
- Submission of assignments and requirements.
 - Submissions should be on time. Prepare them very well since they reflect a good portion of your final grade. Keep a duplicate soft copy with you, just in case the one you submitted gets lost in transit and the computer files get corrupted.
 - Follow instructions on file formatting of requirements as posted in appropriate submission bins. Course requirements sent as attachments via email to the faculty or any other means will not be checked unless a prior agreement was made with your faculty. This is important so that the course team is able to keep track of your submitted requirements and send you feedback.



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3. Minimum Pass Level (MPL) and Examinations

- The minimum pass level for the course components is 60% for lectures and 70% for laboratory.
- Be sure to be in your assigned testing room during the examinations. Students are advised not to miss exams. Make-up exams will be provided for excused absences only (i.e., medical reasons).
- Students may choose to be exempted from the Final Exam if: (1) they pass all long exams and laboratory exams (i.e. no removal taken), (2) all activities and assignments are submitted on time, (3) no missed lectures and laboratory sessions except for excused absences, and (4) have a class standing of at least 1.75.
- Students are required to pass both lecture and laboratory portions to complete the course. Students who fail the laboratory portion will be given a grade of INC.
- REMOVAL EXAM FOR THE LECTURE PORTION will only be given to students who obtain 55-59% of the lecture grade. Students who got a grade of 54% and below will have a UP grade of 5.0 while students who pass the removal exam will have a grade of 3.0.
- REMOVAL EXAM FOR THE LABORATORY PORTION will be given to students with a grade below 70%.

3. Course attendance and conduct.

- Observe intellectual honesty at all times. There are University rules against plagiarism and cheating which will be strictly enforced.
- University rules on absence shall apply. Students who are absent (excused or unexcused) for 20% or more of the course activities will be given a grade of 5.0.
- Come to class promptly. A student is considered late if arrival is 1-15 minutes after the designated time of course activity.
- Three (3) incidences of tardiness are equivalent to one (1) unexcused absence.
- A student is considered absent if arrival is >15 minutes after the designated time of ALL scheduled activities.
- Course materials should only be used for and within the course. These materials are specifically curated and consolidated for you and this course. Thus, you cannot share the materials with anyone outside of the course. Taking photos/videos or any form of reproduction of course materials (i.e. slides, exam questions, videos) and sharing them outside of the course is strictly prohibited. However, we encourage you to keep copies of course materials for your personal and academic use.
- Digital copies of course materials are posted on the VLE Course site. It is the student's responsibility to print materials if instructed, or if they prefer printed copies.
- Video/voice recording or photography of lectures and lab activities is NOT allowed.



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- Any form of replication/copying of examinations and other course activities or its distribution is NOT allowed and will be sanctioned based on implementing rules reflected in the UPCN Catalogue of Information/Student Handbook/UP Manual.

References:

E-books:

[Ms. Vipula, & Ms. Atula. \(2018\). Human Anatomy and Physiology: For Undergraduate Students of Pharmacy, Nursing, Physiotherapy and Other Paramedical Sciences. Laxmi Publications Pvt Ltd.](#)

[Author Unknown. \(2021\). Anatomy & Physiology for Speech, Language, and Hearing. Sixth Edition. Plural Publishing, Inc.](#)

[Culbertson, W. R., Tanner, D. C., & Christensen, S. C. \(2013\). Anatomy and Physiology Study Guide for Speech and Hearing. Plural Publishing Inc.](#)

Books:

Shier, D., Butler, J., & Lewis, R. (2013). *Hole's human anatomy & physiology* (13th ed.). McGraw-Hill.

Booth, K. A. (2011). *Medical assisting: Administrative and clinical procedures including anatomy and physiology* (4th ed.). McGraw-Hill.

Marieb, E. N. (2009). *Essentials of human anatomy & physiology* (9th ed.). Benjamin Cummings.

Marieb, E. N. (2009). *Essentials of human anatomy & physiology laboratory manual* (4th ed.). Benjamin Cummings.

Martini, F. H., Bartholomew, E. F., & Bledsoe, B. E. (2008). *Anatomy & physiology for emergency care* (2nd ed.). Pearson Prentice Hall.

Thibodeau, G. A., & Patton, K. T. (2008). *Anthony's Textbook of anatomy & physiology* (18th ed.). Elsevier (Singapore) Pte Ltd.

Tortora, G. J., & Grabowski, S. R. (2003). *Principles of anatomy and physiology* (10th ed.). Wiley.

Tortora, G. J., & Derrickson, B. (2010). *Essentials of anatomy and physiology* (8th ed.). John Wiley.



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Course Outline

- I. Introduction to the Human Body
 - A. Definition of Anatomy and Physiology
 - A.1. Relationship between Anatomy and Physiology
 - B. Structural Organization and Body System
 - B.1. Levels of Body Organizations
 - C. Characteristics of Living Human Organism
 - D. Control of Homeostasis
 - E. Language of Anatomy
 - E.1. Anatomical Position
 - E.2. Directional Terms
 - E.3. Body Regions, Cavities & Planes

- II. Cells and Tissues
 - A. Cells
 - A.1. The Cellular Level of Organization
 - 1.1 Parts of a Cell
 - 1.2 The Plasma Membrane
 - 1.3 Transport across the Plasma Membrane
 - 1.4 Cytoplasm
 - 1.5 Nucleus
 - 1.6 Protein Synthesis
 - 1.7 Cell Division
 - B. Tissues
 - B.1 Types of Tissues and Their Origins
 - B.2 Cell Junctions
 - B.3 Epithelial Tissue
 - B.4 Connective Tissue
 - B.5 Muscular Tissue
 - B.6 Nervous Tissue
 - B.7 Membranes
 - B.8 Excitable cells
 - B.9 Development of Cells and Tissues

- III. Integumentary System
 - A. Development of Integumentary System
 - B. Structures of the Skin
 - C. Accessory Structure of the Skin
 - D. Functions of the Skin
 - E. Types of Skin
 - F. Maintaining Homeostasis Skin Wound Healing

- IV. Skeletal System
 - A. Bone Tissue
 - A.1. Functions of the Bone and Skeletal System



- A.2 Structure of Bone
- A.3 Histology of Bone Tissue
- A.4. Blood and Nerve Supply of Bone
- A.5 Bone Formation
- A.6 Bone Growth
- A.7 Bone and Homeostasis
- A.8 Exercise and Bone Tissue
- A.9 Development of the Skeletal System
- B. Axial Skeleton
 - B.1 Division of the Skeletal System
 - B.2 Types of Bones
 - B.3 Bone Surface Markings
 - B.4 Skull
 - B.5 Hyoid Bone
 - B.6 Vertebral Column
 - B.7 Thorax
- C. Appendicular Skeleton
 - C.1 Pectoral (Shoulder) Girdle
 - C.2 Upper Limb
 - C.3 Pelvic (Hip) Girdle
 - C.4 Comparison of Female and Male
 - C.5 Comparison of Pectoral and Pelvic Girdles
 - C.6 Lower Limb
- D. Types of Joints
 - D.1 Joint Classifications
 - D.2 Fibrous Joints
 - D.3 Cartilaginous Joints
 - D.4 Synovial Joints
 - D.5 Types of Movements at Synovial Joints
 - D.6 Selected Joints of the Body
 - D.7 Factors Affecting Contact and Range of Motion at Synovial Joints
- V. Muscular System
 - A. Development of the Muscular System
 - B. Muscular Tissue and its types
 - C. Microscopic and Gross Anatomy of Skeletal Muscle
 - D. Function of Muscular System
 - E. Contraction and Relaxation of Skeletal Muscles
 - F. Principal Skeletal Muscles
 - G. Muscle Movements, Roles, and Names
 - H. Sites of IM Injections
- VI. Control Systems of the Human Body
 - A. Nervous Tissue
 - A.1 Overview of the Nervous System



- A.2. Histology of Nervous Tissue
- A.3 Electrical Signals in Neurons
- A.4 Signal Transmission at Synapses
- A.5 Neurotransmitters
- A.6 Neural Circuits
- B. Spinal Cord and Spinal Nerves
 - B.1 Spinal Cord Anatomy
 - B.2 Spinal Cord Physiology
 - B.3 Spinal Nerves
- C. Brain and Cranial Nerves
 - C.1 Brain Organization, Protection, and Nourishment
 - C.2 The Brain Stem
 - C.3 The Cerebellum
 - C.4 The Diencephalon
 - C.5 The Cerebrum
 - C.6 Cerebral Cortex Areas and Functions
 - C.7 Cranial Nerves
 - C.8 Developmental Aspect of the Nervous System
- D. Autonomic and Sensory Nervous System
 - D.1 Sensory
 - D.1.1 Sensation
 - D.1.2 Somatic Sensations
 - D.1.3 Somatic Sensory Pathways
 - D.1.4 Somatic Motor Pathways
 - D.1.5 Integrative Functions of the Cerebrum
 - D.2 Autonomic
 - D.2.1 Comparison of Somatic and Autonomic Nervous Systems
 - D.2.2 Anatomy of Autonomic Motor Pathways
 - D.2.3 ANS Neurotransmitters and Receptors
 - D.2.4 Physiological Effects of the ANS
 - D.2.5 Integration and Control of Autonomic Functions
- E. Special Senses
 - E.1 Olfaction
 - E.2 Gustation
 - E.3 Vision
 - E.4 Hearing and Equilibrium
 - E.5 Developmental Aspect of the Eyes and Ears
- VII. Endocrine System
 - A. Development Aspect of Endocrine System
 - B. Comparison of the Nervous and Endocrine Systems
 - C. Endocrine Glands
 - D. Activity and Mechanisms of Hormone Action
 - E. Control of Hormone Secretion
 - F. Major Endocrine Organs



G. Stress Response

VIII. Respiratory System

- A. Development of the Respiratory System
- B. Anatomy of the Upper and Lower Respiratory Systems
- C. Transport and Exchange of Oxygen and Carbon Dioxide
- D. Pulmonary Ventilation
- E. Control of Respiration
- F. Exercise and Respiratory
- G. Lung Volumes and Capacities

XI. Cardiovascular System

- A. Blood
 - A.1. Functions and Properties of Blood
 - A.2. Formation and Components of Blood
 - A.3. Blood Groups and Blood Types
- B. Heart
 - B.1. Anatomy of the Heart
 - B.2. Circulation of Blood
 - B.3. Cardiac Cycle
 - B.4. Cardiac Muscle Tissue and Cardiac Conduction System
- C. Blood Vessel
 - C.1 Structure and Function of Blood Vessel
 - C.2. Factors affecting blood Flow
 - C.3. Circulatory Routes
 - C.3.1 Systemic Circulation
 - C.3.2 Pulmonic Circulation
 - C.3.3 Fetal Circulation
 - C.4. Capillary Exchange

X. Lymphatic System and Immunity

- A. Lymphatic Organs and Tissues
- B. Lymphatic Vessel and Lymph Circulation
- C. Concept of Immunity
 - C.1 Innate Immunity
 - C.2 Adaptive Immunity
 - C.3 Cell-Mediated Immunity
 - C.4 Antibody-Mediated Immunity
- D. Self-recognition and Self-tolerance
- E. Stress and Immunity

XI. The Digestive System

- A. Development of the Digestive System and Metabolism
- B. Anatomy of the Digestive System



- B.1 Organs of the Alimentary Canal
- B.2 Accessory Digestive Organs
- C. Functions of the Digestive Systems
 - C.1 Overview of Gastrointestinal Processes and Controls
 - C.2 Activities Occurring in the Mouth, Pharynx and Esophagus
 - C.3 Activities of the Stomach
 - C.4 Activities of the Small Intestine
 - C.5 Activities of the Large Intestine
- D. Metabolism
 - D.1 Carbohydrate, Fat, and Protein Metabolism
 - D.2 The Central Role of the Liver
 - D.3 Body Energy Balance
- E. Nutrition

XII. The Urinary System

- A. Development of the Urinary System
- B. Kidneys
 - B.1 Location and Structure
 - B.2 Nephrons
 - B.3 Urine Formation and Characteristics
- C. Ureters, Urinary Bladder, and Urethra
- D. Fluids, Electrolyte, and Acid-Base Balance

XIII. The Reproductive System

- A. Development of the reproductive system
- B. Male reproductive system
- C. Female reproductive system
 - C.1 Female reproductive cycle

Lecture Schedule

Week	Topic	FIC
Week 1 Aug 20, 2024 1-2 PM	Orientation	KBBaccay
2-5 PM	Organization of the Human Body	KBBaccay
Week 2 Aug 27, 2024	Cells and Tissues	JVDSantos
Week 3 Sep 3, 2024 1-3 PM	Integumentary System	ABPeralta



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3-5 PM	Skeletal System	ABS Bernal
Week 4 Sep 10, 2024	Muscular System	JGAldaba
Week 5 Sep 17, 2024 1-3 PM	First long Exam	ALL
Sep 20, 2024	Control Systems of the Human Body Nervous Tissue Spinal Cord and Spinal Nerves Brain and Cranial Nerves	AD Gaspar
Week 6 Sep 24, 2024	Sensory, Motor, and Integrative System Special Senses	AD Gaspar
Week 7 Oct 1, 2024	Endocrine System	LLB Parial
Week 8 Oct 8, 2024	Respiratory System	JCV Alejo
Week 9 Oct 15, 2024	Second long exam 1-3 PM	ALL
Week 10 Oct 22, 2024	Cardiovascular System: Blood	JCV Alejo
Oct 22, 2024	Cardiovascular System: Heart and Blood Vessels	ACB Banayat
Week 12 Nov 12, 2024	Lymphatic System Stress and Immunity	JTPaguio
Week 13 Nov 19, 2024	Digestive System Nutrition and Metabolism	AJETupaz
Week 14 Nov 26, 2024 1-3 PM	Urinary System	JCV Alejo
3-5 PM	Fluid, Electrolytes, and Acid-base Balance	EFR Sumile
Nov 29, 2024	Reproductive System	KBBaccay
Week 15 Dec 6, 2024	Third Long Exam 1-3 PM	ALL



Week 16 Dec 13, 2024	Final Exam 1-3 PM	ALL
TBA	Removal Exam	ALL

Laboratory Schedule

Week	Topic/Activity	FIC
Week 2 Aug 27, 2024	Orientation Introduction to the Human Body A. Levels. of Organization B. Anatomical Terms, Body Regions, Cavities, Planes The Microscope A. Parts B. Video on how to use Microscope Cells and Tissues A. Membranes Transport B. Cell Division C. Protein Synthesis D. Energy Production	ALL
Week 3 Sep 6, 2024	Integumentary System A. Structures of the Skin B. Accessory Structures of the skin C. Functions of the Skin D. Skin Glands Skeletal System A. Types and functions B. Bone Formation C. Process of Locomotion	
Week 4 Sep 13, 2024	Muscular System A. Muscle Tissue B. Muscle Physiology	
Week 6 Sep 27, 2024	Nervous System Sensory, Motor, and Integrative System	
Week 7 Oct 4, 2024	Endocrine System	



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	<ul style="list-style-type: none"> A. Structure and functions of the organs of the endocrine system B. Hormones and their functions 	
Week 8 Oct 11, 2024	Respiratory System <ul style="list-style-type: none"> A. Respiratory system structures and function B. Mechanism of respiration C. Chemical and nervous control of respiration/factors affecting the respiratory rate and dept D. Physiologic processes involved in gas exchange 	
Week 9 Oct 18, 2024	1st Laboratory Exam	
	Reading Break	
Week 11 Nov 5, 2024 Nov 8, 2024	Cardiovascular System: <ul style="list-style-type: none"> A. Blood B. Blood Vessel C. Heart D. Cardiac cycle, cardiac output, heart rate, stroke volume E. Structure and functions of arteries, veins, capillaries 	
Week 12 Nov 15, 2024	Lymphatic System and Immunity <ul style="list-style-type: none"> A. Functions and Composition of Lymphatic System B. Lymphatic Organs and Tissues and their Functions C. Immunity 	
Week 13 Nov 22, 2024	Digestive System & Nutrition and Metabolism <ul style="list-style-type: none"> A. Structures and Functions B. Digestive Process 	
Week 15 Dec 3, 2024	Urinary System <ul style="list-style-type: none"> A. Structures and functions of the components of the urinary system B. Fluid and Electrolytes Reproductive System <ul style="list-style-type: none"> A. Structures and functions of the reproductive system 	



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	B. Differences and male and female reproductive organs C. Reproductive processes	
Week 16 Dec 10, 2024	2nd Laboratory Exam	
TBA	Removal Exam	