

**Northern Marianas College**  
**CURRICULUM ACTION REQUEST**

Course: BI251 Human Anatomy and Physiology I

**Effective Semester / Session:** Spring 2022

**Type of Action:**

- New
- Modification
- Move to Inactive (Stop Out)
- Cancellation

**Course Alpha and Number:** BI251

**Course Title:** Human Anatomy and Physiology I

**Reason for initiating, revising, or canceling:**  
This course is being modified for regular updating.

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Florita Cabanes	<i>Florita Cabanes</i>	10.25.2021
<b>Proposer</b>		Date
Velma C. Deleon-Guerrero	<i>VMG</i>	10/25/2021
<b>Department Chair</b>		Date
Adam Walsh	<i>Adam Walsh</i>	10.21.21
<b>Language &amp; Format Review Specialist</b>		Date
Ajani Burrell	<i>Ajani Burrell</i>	10.25.2021
<b>Academic Council Chair</b>		Date
Dr. Randy Yates	<i>Randy Yates</i>	25 Oct 21
<b>Dean of Academic Programs and Services</b>		Date

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Course: BI251 Human Anatomy and Physiology I

### 1. Department

Science, Math, Health, and Athletics

### 2. Purpose

The purpose of this course is to provide students in nursing, health care programs, and all other interested students with knowledge of human anatomy and physiology. Human Anatomy and Physiology I is the first semester of a two-semester sequence of courses in human anatomy and physiology.

### 3. Description

#### A. Required/Recommended Textbook(s) and Related Materials

Required:

Rizzo, D.C. (2016). *Fundamentals of Anatomy and Physiology* 4th ed. Cengage Unlimited: <http://www.cengage.com>

Recommended:

Seeley, R., VanPutte, C., Regan, J., & Russo, A. (2011). *Seeley's Anatomy & Physiology* 9th ed., 10th ed. Or 11th ed. New York, NY: McGraw Hill.

#### B. Contact Hours

1. **Lecture:** 3 per week / 45 per semester
2. **Lab:** 3 hours per week / 45 hours per semester
3. **Other:** N/A

#### C. Credits

1. **Number:** 4
2. **Type:** Regular Degree Credits

#### D. Catalogue Course Description

This is the first part of a two-semester course covering human anatomy and physiology at the biochemical, cellular, microscopic, tissue, and organism levels. In this course, all body systems are presented, discussed, and integrated with one another. This course is designed for those entering the professional health care field, although enrollment is open to all students. Laboratory and field trips may be required. Prerequisites: BI101 and CH124 with a grade of 'C' or better. (Offered Fall and Spring)

#### E. Degree or Certificate Requirements Met by Course

This course is a prerequisite for the Nursing Degree Program and a requirement for the Liberal Arts emphasis in Health and Physical Education degree, and may serve as an elective course for other degree programs.

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## **F. Course Activities and Design**

This course includes lectures, group work, discussions, laboratory activities, homework, web-based assignments, video and PowerPoint presentations, periodic quizzes, tests, field trips, comprehensive final exam, and research projects that require oral and paper presentations.

## **4. Course Prerequisite(s); Concurrent Course Enrollment**

Prerequisites: BI101 & CH124 with a "C" or better

Concurrent Course Enrollment: None

## **Required English/Mathematics Proficiency Level(s)**

English Placement Level: EN202

Mathematics Placement Level: MA132

## **5. Estimated Cost of Course; Instructional Resources Needed**

Cost to the Student: Tuition for a 4-credit hour course, laboratory fee, cost of the textbook and lab manual.

Cost to the College: Instructor's salary; science lab/classroom

Instructional resources needed for this course include: expendable supplies for laboratory and classroom, some forms of digital technology, and anatomical models.

## **6. Method of Evaluation**

Student grades will be based on class attendance and participation, homework completion, papers and oral presentations, in-class and online quizzes and exams, laboratory exercise completion, and practical exams. NMC's grading and attendance policies will be followed.

## 7. Course Outline

This is a topical outline and does not necessarily indicate the sequence in which the material will be presented.

- 1.0 An Introduction to the Human Body
  - 1.1 Anatomy and physiology defined
  - 1.2. Anatomical terms, planes, and directions
  
- 2.0 Tissue Level of Organization
  - 2.1 Types of tissues and their organs
  - 2.2 Membranes
  - 2.3 Tissue repair
  
- 3.0 Integumentary System
  - 3.1 Skin structure and layers
  - 3.2 Associated structures of epidermis
  - 3.3 Homeostasis and wound healing
  
- 4.0 Skeletal System
  - 4.1 Structure and functions of bone tissue
  - 4.2 Bone growth and development
  - 4.3 Homeostasis and healing of bone
  - 4.4 Axial skeleton
  - 4.5 Appendicular skeleton
  
- 5.0 Articulations
  - 5.1 Classification of joints
  - 5.2 Body movements
  - 5.3 Disorders of joints and treatment
  
- 6.0 Muscular System
  - 6.1 Types of muscle tissue and their functions
  - 6.2 Structure of skeletal, smooth, and cardiac muscles
  - 6.3 Sliding filament theory of muscle contraction
  - 6.4 Control of muscle contraction
  - 6.5 Muscle metabolism
  - 6.6 Muscular disorders and injuries
  
- 7.0 Nervous System
  - 7.1 Divisions of the nervous system
  - 7.2 Neurons and glial cells
  - 7.3 Action potential and transmission of impulses
  - 7.4 Neurotransmitters
  - 7.5 Spinal and cranial nerves

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- 7.6 Anatomy and functions of the brain and spinal cord
- 7.7 Somatic, motor, and integrative systems
- 7.8 Disorders of the nervous system
  
- 8.0 Special Senses
  - 8.1 Types of special senses and their functions
  - 8.2 Other senses
  
- 9.0 Endocrine System
  - 9.1 Endocrine glands and classes of hormones
  - 9.2 Mechanisms of hormone action
  - 9.3 Hormonal disorders

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**8. Instructional Goals**

The course will introduce students to:

- 1.0 Demonstrate appropriate vocabulary and anatomical terms used in describing structures, functions, and locations;
- 2.0 The difference between interrelationship of “anatomy” and “physiology”;
- 3.0 Structure and functions of the epidermis;
- 4.0 Structure and functions of the human skeleton;
- 5.0 Muscle contraction through the “sliding filament theory”;
- 6.0 Types of muscle tissue;
- 7.0 Divisions of the nervous system and their functions;
- 8.0 Nerve structures and functions in production of propagation of impulses;
- 9.0 Structure and function of special sense organs;
- 10.0 Endocrine control and its role in homeostasis;
- 11.0 The anatomical structure of the human body; and
- 12.0 Uses of anatomy and physiology knowledge in real-world situations.

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**9. Student Learning Outcomes**

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

- 1.0 Demonstrate a vocabulary of appropriate terminology to effectively communicate information related to human anatomy and physiology;
- 2.0 Connect anatomical structures and physiological function;
- 3.0 Explain the process of epidermal strata formation/regeneration;
- 4.0 Explain the process of bone formation;
- 5.0 Explain the process of muscle contractions through the sliding filament theory;
- 6.0 Classify types of muscle tissue;
- 7.0 Differentiate between divisions of the nervous system;
- 8.0 Explain an action potential and its propagation;
- 9.0 Explain how the special senses work;
- 10.0 Explain homeostasis regulation through endocrine control;
- 11.0 Recognize anatomical structures of systems; and
- 12.0 Synthesize ideas to make connections between knowledge of anatomy and physiology and real-world situations.

**10. Assessment Measures of Student Learning Outcomes**

Assessment of student learning may include, but not be limited to, the following:

- 1.0 Quizzes;
- 2.0 Exams;
- 3.0 Homework;
- 3.0 Laboratory Activities/Reports; and
- 4.0 Projects/Presentations.