

SYLLABUS

TITLE:	Human Anatomy
CODE:	BIO 309
PREREQUISITE:	BIO 112
CREDITS:	4 credits 45 hours contact 45 hours of laboratory 1 term

DESCRIPTION

Introduction to the morphology of the tissues, organs and systems of the human body. Emphasis on the integration of the anatomical structure with some principles of function of the different systems studied. Pathological aspects of the organs and systems are analyzed. This course is aimed at Natural Sciences students for their general training in the field of health. The course consists of lectures and class discussions integrating laboratory experiences to identify components of different systems through the use of models and dissections. So that the student will have an exact and precise knowledge of the different structures of the human body.

JUSTIFICATION

Specific knowledge of the integrated structure of the human body through the study of organs and systems and the spatial relationship between them is of great interest to students of Biology with a view to pursue studies in medicine, dentistry, veterinary medicine, chiropractic, physical therapy and other branches of the biomedical sciences. This course provides the student with a foundation in anatomy that will allow him/her to perform better academic work in the highly competitive world of studies in the mentioned areas. At the same time, the course provides students with other interests with basic information about the integrated structure of a typical vertebrate that serves as a complement to their academic preparation in the area of biology.

COMPETENCES

The course develops in the student the following competencies:

- **Communication**
- **Ethical sense and social justice**

OBJECTIVES

At the end of the course, students will be trained to:

1. To know the organization of the human body, basic tissues and the structure and composition of the skin.
2. Explain osteogenesis and recognize the structures and functions of the skeletal system.
3. Demonstrate knowledge of the structure and function of muscle tissues and recognize the organization and structure of the skeletal muscle system.
4. Identify the structures and explain the general functions of the nervous system.
5. Identify the structures and explain the general functions of the cardiovascular and lymphatic systems.
6. Identify the structures and explain the general functions of the respiratory, urinary, digestive, endocrine and reproductive systems.
7. Present and explain pathologies associated with the different organs and systems.

CONTENT

- I. Organization of the Human Body
 - A. Anatomical directions
 - B. Planes and Movements
 - C. Cavities
- II. Basic Tissues of the Body - Histology and Function
 - A. Epithelial
 - B. Connective
 - C. Muscular
 - D. Nervous
- III. Skin
 - A. Layers
 - B. Skin appendages
 - C. Pathological aspects
- IV. Skeletal System

- A. Bone tissue composition and osteogenesis.
 - B. Axial Division
 - C. Appendicular Division
 - D. Joints
 - E. Pathology
- V. Muscular System
- A. Involuntary Muscles
 - 1. Vascular and visceral smooth muscles
 - 2. Striated cardiac muscle
 - B. Voluntary Muscles (Skeletal Striated)
 - 1. Head and Neck Muscles
 - 2. Trunk Muscles
 - 3. Limb Muscles
 - 4. Pathology
- VI. Nervous System
- A. Types of Nerve Cells and Neuroglia
 - B. Central Nervous System
 - C. Autonomic Nervous System
 - D. Senses
 - 1. Eyes
 - 2. Ear
 - E. Pathology
- VII. Circulatory System
- A. Blood
 - B. Heart
 - C. Blood Vessels
 - D. Systemic Circulation
 - E. Coronary Circulation
 - F. Pulmonary Circulation
 - G. Lymphatic System
 - H. Pathology
- VIII. Respiratory System
- A. Anatomy of the Respiratory Tract and Lungs
 - B. Structures and Muscles Related to the Ventilation Process
 - C. Pathology

IX. Digestive System

- A. General Anatomy and Histology of the Digestive Tract
- B. Anatomy of the Digestive Tract and Accessory Structures
- C. Pathology

X. Urinary System

- A. Anatomy of the Kidney
 - 1. Histology and structure of the kidney
- B. Ureters, Urinary Bladder and Urethra
- C. Pathology

XI. Endocrine System

- A. Anatomy
 - 1. Hypothalamus and pituitary gland
 - 2. Thyroid and parathyroid glands
 - 3. Pancreas - Langerhans islets
 - 4. Adrenals - Adrenal cortex and medulla
 - 5. Endocrine tissue of the reproductive system
- B. Pathology

XII. Reproductive System

- A. Anatomy
 - 1. Male Reproductive System
 - 2. Female Reproductive System
 - 3. Menstrual Cycle (associated organs)
 - 4. Pathology
- B. Embryology
 - 1. Embryogenesis from fertilization and zygote formation to the formation of the neural tube and neural crest

LABORATORY EXPERIENCES

- A. Introduction
- B. Organization of the body
- C. Microscopy
- D. Study of tissues
- E. Skeletal System
- F. Muscular System
- G. Nervous System

- H. Sensory Organs
- I. Circulatory System
- J. Respiratory System
- K. Digestive System
- L. Urinary System
- M. Endocrine System

METHODOLOGY

The following strategies of the active learning methodology are recommended:

- Lectures
- Laboratory experiences
- Pathology research
- Oral presentations
- Case studies
- Analysis questions

EVALUATION

Participation	5%
Partial Assignment	40%
Compositions	10%
Immersive Experience	25%
Project or final exam	<u>20%</u>
Total	100%

LEARNING ASSESSMENT

The institutional assessment rubric is applied to the core activity of the course.

BIBLIOGRAPHY

TEXT

Martini, F., Nath, J., & Bartholomew, E. (2017). Fundamental of Anatomy & Physiology.

(11th ed). Pearson.

Netter, F., (2019). Atlas de Anatomía Humana. (7^{ma} ed). Elsevier.

REFERENCES

Drake, R., Mitchell, A. M. W. & Wayne, A. (2015, March 24). Gray. Anatomía para estudiantes. (3^{ra} ed.). Elsevier.

Moore, K. (2018, April 1). Anatomía con Orientación Clínica. (8^{va} ed.). Lippincott Williams & Wilkins.

Wesker, K., Gilroy, A. & Voll, M. (2015, May 25). Prometheus. Anatomía, manual para el estudiante. (1^{ra} ed.). Editorial Médica Panamericana S.A.

ELECTRONIC RESOURCES

Biodigital 3D Human- <https://www.biodigitalhuman.com/home/#>

HHMIs Biointeractive- Cardiovascular animations-

<http://www.hhmi.org/biointeractive/cardiovascular/animations.html>

Human anatomy and physiology – Khan Academy -

<https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology>

Human anatomy and physiology-free-ed.net

<https://openstax.org/details/books/anatomy-and-physiology>

The Heart Site <http://www.heartsite.com/>

UH Anatomy and Physiology Tutoring

<http://www.uh.edu/sibs/tutorial/ap2.htm#reproductive>

Visible Human Server- <http://visiblehuman.epfl.ch/login.php>

Zygote 3d Human body- <http://www.zygotebody.com/>

Find more information resources related to the course topics on the library page <http://biblioteca.sagrado.edu/>

REASONABLE ACCOMMODATION

To obtain detailed information on the process and the required documentation, you must visit the corresponding office. To guarantee equal conditions, in compliance with the ADA (1990) and the Rehabilitation Act (1973), as amended, all students who need reasonable accommodation services or special assistance must complete the process established by the Vice Presidency for Academic Affairs.

ACADEMIC HONESTY, FRAUD AND PLAGIARISM

Any student who misses the policy of honesty, fraud and plagiarism is exposed to the following sanctions: received a grade of zero in the evaluation and / or repetition of the work in the course, grade of F (*) in the seminar: suspension or expulsion as established in the Academic Honesty Policy document (DAEE 205-001) effective August 2005.

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