# Human Anatomy

## Prof. David Belli

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

To describe the principal tissues, organs and systems of the human body with special emphasis on those involved in movement and physical activity.

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

– understand the relationship between the structure and function of the main systems, with particular attention to those involved in movement;

– understand the structural and morphofunctional principles of movement control and implementation in humans;

– use their acquired knowledge and the analysis tools learned to observe physical sports from an anatomical point of view, and to interpret movement needs in order to improve health;

– study those biomedical courses within the degree course that require a preliminary knowledge of Anatomy;

– communicate their anatomical knowledge with the correct language and scientific terminology.

***COURSE CONTENT***

*Concepts of cytology and histology*

The cell. Basic tissues: epithelium and connective. Bone tissue. Muscle tissue: striated skeletal and cardiac muscle tissue; smooth muscle tissue. Nervous tissue: Introduction to the study of the structural and ultrastructural characteristics of the main cellular elements of nervous tissue (neurons, astrocytes, microglia, oligodendrocytes and Schwann cells). Structure of the myelin sheath.

*Osteo-articular system*

The spinal column. Ribs, sternum, pelvis, long bones of the limbs. General information on articulation. Shoulder, elbow, hip and knee. Information on the most common diseases of the osteoarticular apparatus of sporting interest and high frequency in sports practice.

*Muscle system*

Muscles of the upper limb and of thoracic girdle. Intercostal and diaphragm muscles, muscles of the spinal column. Muscles of the lower limb and of pelvic girdle. Information on the most common diseases of the muscular apparatus of sporting interest and high frequency.

*Central nervous system*

Divisions of the central nervous system. Spinal cord and spinal nerves, brainstem, cerebellum and nuclei of the cranial nerves, hypothalamus and cerebral cortex. Somatosensitive pathways; nociception. Pyramidal tract and other descending systems; cerebral circuits and basal ganglia in movement control. Higher functions. The autonomic nervous system.

*Endocrine system*

Brief mention of thyroid and adrenal gland

*Cardiovascular system*

Systemic and pulmonary circulation. The heart and major vessels. Arteries, veins and capillaries. The aorta and its principal branches.

*Respiratory system*

The bronchial system and lungs.

*Digestive system*

Information on mouth, oesaphagus, stomach, the small and large intestine. Liver, bile ducts and portal circulation. Exocrine and endocrine pancreas. Brief mention of the salivary glands.

*Genitourinary system*

Information on kidneys, brief mention of ureter and bladder.

*Blood, lymphatic and immune system*

Blood and haemopietic system. Lymphatic circulation.

***READING LIST***

AA.VV.: *Anatomia umana fondamenti*, Edi Ermes.

G. Anastasi - E. Gaudio - C. Tacchetti, *Anatomia umana,* Atlante, Edi.

A. Vercelli et alii, *Anatomia Umana Funzionale,* Minerva Medica, Torino, 2011.

B. Cozzi-A. Granato-A. Merighi, *Neuroanatomia dell’uomo*, A. Delfino Editore, Roma, 2018.

***TEACHING METHOD***

The course is mainly based on classroom lessons, supplemented by online lessons.

***ASSESSMENT METHOD AND CRITERIA***

The exam is based on an oral test, in order to assess the student’s ability to organize the anatomical notions learned in a context related especially to sports practice. The language properties of the anatomical nomenclature will also be assessed.

***NOTES AND PREREQUISITES***

Being introductory in nature, there are no prerequisites for attending the course, apart from a basic knowledge of scientific subjects, especially chemistry, physics and biology.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.