

26304 - Anatomic, kinesiological and biomechanical basics in physical activity and sport

Información del Plan Docente

Academic Year	2017/18
Faculty / School	229 - Facultad de Ciencias de la Salud y del Deporte
Degree	295 - Degree in Physical Activity and Sports Science
ECTS	12.0
Year	1
Semester	Annual
Subject Type	Basic Education
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The learning process designed for this subject is based on the following:

The subject is composed of expository sessions where the student acquires the basic concepts of the subject, these are complemented by practical sessions and seminars where the student interprets and analyzes the concepts acquired. To finish the student will carry out a practical project where he must apply the previous knowledge, as well as to face the problem solving.

26304 - Anatomic, kinesiological and biomechanical basics in physical activity and sport

5.2.Learning tasks

The activities that the student must do to acquire the concepts and skills that determine his learning in this subject are:

- Practical sessions and seminars
- Information search
- Exhibition sessions in which the debate between students will be stimulated
- Practical work by groups

5.3.Syllabus

The program offered to the student to help him achieve the expected results includes the following activities. The subject in the first quadrate is composed of the Anatomy Block with the following sections:

ANATOMY OF THE SYSTEMS

Unit 1.- General Anatomy. Introduction to Anatomy. Definitions. Axes, planes and basic structural elements.

Unit 2.- Functionality of the circulatory system

Unit 3.- Functionality of the respiratory system

Unit 4.- Functionality of the digestive system

Unit 5.- Functionality of the urinary system

Unit 6.- Functionality of the reproductive system

Unit 7.- Functionality of the endocrine system

Unit 8.- Functionality of the nervous system

ANATOMY OF THE LOCOMOTIVE DEVICE

TRUNK, HEAD AND NECK

Unit 9.- Skeleton and joints of the vertebral column

Unit 10.- Skeleton and joints of the thorax

Unit 11.- Neuromuscular systems of the back

Unit 12.- Thorax neuromuscular systems

Unit 13.- Neuromuscular systems of the abdomen

Unit 14.- Skeleton and joints of the head

Unit 15.- Head neuromuscular systems

Unit 16.- Neuromuscular systems of the neck

EXTREMITIES

Unit 17.- Skeleton of the upper extremity

Unit 18.- Joints of the upper limb

Unit 19.- Neuromuscular systems of the ulnar and median nerves

Unit 20.- Neuromuscular systems of the radial and musculocutaneous nerves

Unit 21.- Neuromuscular systems of the circumflex, coracoid and axilla nerves

Unit 22.- Skeleton of the lower limb

Unit 23.- Joints of the lower limb

Unit 24.- Thigh and buttock neuromuscular systems

Unit 25.- Neuromuscular systems of the leg and foot

STESIOLOGY

Unit 26.- Functionality of the sense of sight

Unit 27.- Functionality of the sense of hearing

In the second quarter, Kinesiology and Biomechanics will be studied with the following contents:

BLOCK I: FOUNDATIONS

Unit 1- Introduction to Kinesiology and Biomechanics

Unit 2- Linear translation of the bodies: linear kinematics

Unit 3 - Linear translation of the bodies: linear kinetics

Unit 4- Angular movement of bodies: angular kinematics

Unit 5 - Angular movement of the bodies: angular kinetics

Unit 6- Balance and Stability

Unit 7- Work, power and energy

Unit 8- Fluid dynamics: the effect of water and air

BLOCK II: PHYSICAL CHARACTERISTICS OF TISSUES

26304 - Anatomic, kinesiological and biomechanical basics in physical activity and sport

Unit 9 - Bone biomechanics
Unit 10 - Biomechanics of joints
Unit 11- Muscle Biomechanics
BLOCK III: BIOMECHANICS AND KINESIOLOGY OF BODY JOINTS
Unit 12- Shoulder Joint Complex
Unit 13- Joint elbow complex

Unit 14- Joint and wrist joint complex
Unit 15- Joint complex of the hip
Unit 16- Joint Complex of the Knee
Unit 17- Ankle and foot joint complex
Unit 18 - Joint complex of the trunk
BLOCK IV: ANALYSIS OF THE MOVEMENT
Unit 19- Analysis of the erect posture
Unit 20- Analysis of the march
Unit 21- Applications of biomechanics to physical activity and sport
Unit 22- Sports Material: Biomechanical Aspects of Sports Footwear

5.4.Course planning and calendar

Calendar of contact sessions and presentation of works

The completion of the calendar and thematic of each of the practical sessions and seminars, as well as the dates of presentation of practical work of the subject, will be communicated to the students at the beginning of the course.

5.5.Bibliography and recommended resources

- Kapandji, Ibrahim Adalbert. Fisiología articular : esquemas comentados de mecánica humana. Vol. 3, Tronco y raquis / A.I. [sic] Kapandji ; versión española de María Torres Lacomba. ed: Médica Panamericana, 2015
- Kapandji, Ibrahim Adalbert. Fisiología articular : esquemas comentados de mecánica humana. Vol. 2, Miembro inferior / A.I. [sic] Kapandji ; versión española de María Torres Lacomba. ed: Médica Panamericana, 2010
- Kinesiología y anatomía aplicada a la actividad física / por Jarmo Ahonen ... [et al.] ; [traducción, Cristina Halberstadt] . 2a. ed. Barcelona : Paidotribo, cop. 2001
- Dufour, Michel. Biomecánica funcional : miembros, cabeza, tronco : [bases anatómicas, estabilidad, movilidad, tensiones] / Michel Dufour, Michel Pillu ; figuras de Michel Dufour . Barcelona [etc.] : Masson, D.L. 2006
- Viladot Voegeli, Antonio. Lecciones básicas de biomecánica del aparato locomotor / Antonio Viladot Voegeli ; prólogo, D. Ruano Gil . Reimp. Barcelona : Masson, 2004
- Izquierdo Redín, Mikel. Biomecánica y bases neuromusculares de la actividad física y el deporte / Mikel Izquierdo . Madrid [etc.] : Editorial Médica Panamericana, D.L. 2013
- Kapandji, Ibrahim Adalbert. Fisiología articular : esquemas comentados de mecánica humana. Vol. 1, Miembro superior / A.I. [sic] Kapandji ; versión española de María Torres Lacomba . ed: Médica Panamericana, D.L.2009
- Izquierdo Redín, Mikel. Biomecánica y bases neuromusculares de la actividad física y el deporte / Mikel Izquierdo . 1a. ed, 1a. reimp. Madrid [etc.] : Editorial Médica Panamericana, 2013