

Academic Year/course: 2022/23

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

Syllabus Information

Academic Year: 2022/23

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

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

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. The learning process that has been designed for this subject is based on the following: The course consists of lectures where students acquire the basic concepts of the course, these are complemented with practice sessions and seminars where the student interprets and analyses the concepts acquired. Finally, the student will carry out a practice's project where he/she will have to apply previous knowledge and problem-solving techniques.

4.2. Learning tasks

This is a 12 ECTS course that includes the following learning tasks:

- Practice sessions and seminars
- Information search
- Lectures where student discussion will be encouraged.
- Group work

If due to the COVID pandemic it is not possible to meet the recommended space between participants in the classrooms, these theoretical and practical lessons will be held telematically through Google Meet.

Lectures. In these classes, students will be introduced to the basic theoretical knowledge of the course, which will deal with the topics set out in the syllabus (available in the ADD).

Practice sessions and seminars. In these classes, students will be introduced to the basic practical knowledge in order to be able to better understand what is taught in theory, as well as to guarantee their independence when taking data for their group work.

4.3. Syllabus

During the first semester of the course, the Anatomy Module consists of the following topics:

SECTION I: GENERAL HUMAN ANATOMY

- Topic 1- Introduction to basic human anatomy
- Topic 2- Cardiovascular and lymphatic systems
- Topic 3- Respiratory system
- Topic 4- Digestive system
- Topic 5- Excretory system
- Topic 6- Reproductive system
- Topic 7- Endocrine system
- Topic 8- Nervous system and sensory organs

SECTION II: ANATOMY OF THE MUSCULOSKELETAL SYSTEM

- Topic 9- General aspects of the musculoskeletal system
- Topic 10- Bones and joints of head and neck
- Topic 11- Neuromuscular systems of head and neck
- Topic 12- Bones and joints of the trunk
- Topic 13- Neuromuscular systems of the trunk
- Topic 14- Bones and joints of upper limb
- Topic 15- Neuromuscular systems of upper limb
- Topic 16- Bones and joints of lower limb
- Topic 17- Neuromuscular systems of lower limb

During the second semester of the course, the Biomechanics and Kinesiology Module consists of the following topics:

SECTION I: BASICS

- Topic 1- Introduction to Biomechanics and Kinesiology
- Topic 2- Linear kinematics
- Topic 3- Angular kinematics
- Topic 4- Linear kinetics
- Topic 5- Angular kinetics
- Topic 6- Balance and stability
- Topic 7- Work, power and energy

SECTION II: PHYSICAL CHARACTERISTICS OF TISSUES

- Topic 8- Physical characteristics of tissues and materials

SECTION III: MOTION RECORDING AND ANALYSIS

- Topic 9- Analysis of march
- Topic 10- Analysis of running
- Topic 11- Tools for biomechanical analysis
- Topic 12- Interpretation, preparation and analysis of data

SECTION IV: BIOMECHANICS AND KINESIOLOGY OF BODY JOINTS

- Topic 13- Shoulder and elbow joint complex
- Topic 14- Articular complex of the trunk, hand and wrist
- Topic 15- Articular complex of the hip, knee, ankle and foot

4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class.

This subject consists of two well-defined content modules:

- First semester: Anatomy Module
- Second semester: Biomechanics and Kinesiology Module

The date of the partial exams of both modules will be indicated at the beginning of the course and will be reflected in Moodle platform. The final test will be held on the official date that appears on the center's website.

4.5. Bibliography and recommended resources

It is recommended that each student complete the study of this subject with the bibliography accessible through this link: <https://psfunizar10.unizar.es/br13/egAsignaturas.php?id=4768>