

**COURSE DATA****Data Subject**

Code	33206
Name	Anatomy and kinesiology of human movement
Cycle	Grade
ECTS Credits	9.0
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
1312 - Degree in Physical Activity and Sport Sciences	Faculty of Physical Education and Sport Sciences	1	Annual
1331 - Degree in Physical Activity and Sport Sciences (Ontinyent)	Faculty of Physical Education and Sport Sciences	1	Annual

Subject-matter

Degree	Subject-matter	Character
1312 - Degree in Physical Activity and Sport Sciences	7 - Human anatomy	Basic Training
1331 - Degree in Physical Activity and Sport Sciences (Ontinyent)	7 - Anatomía Humana	Basic Training

Coordination

Name	Department
VALVERDE NAVARRO, ALFONSO AMADOR	17 - Human Anatomy and Embryology

SUMMARY**1st block: Functional Anatomy**

This matter is about the systematic knowledge of the anatomical elements forming organs, devices or systems that together make up the human body.

This knowledge includes the description of the structure, morphology and function of individual anatomical elements; and respect of other environment where (abdomen, chest, extremities etc.) are located. The anatomical knowledge also encompasses the topographic systematization of structures encompassed in different regions of the human body

In the Degree of Sciences of Physical Activity and Sport, particular emphasis will be on the study of the musculoskeletal system, nervous and vascular system or Periferic. Stressing the topographical knowledge of the musculature and the mechanical action of muscles.

**The 2nd Block: Kinesiology of Human Movement**

Kinesiology, literally means movement treaty, in the present case, movement of the human body. This matter deals with the knowledge of physiological, anatomical basics of neuroscience and basic principles of mechanics applied to locomotor allow us to understand the movement of the human body. Special attention will knowledge of muscle activity in maintaining postures and during motor tasks in daily life and in work, sports and entertainment fields; and the mechanical impact of the aforementioned tasks in the tissues of the musculoskeletal system, which make up the different anatomical elements of the locomotor system.

The study of this subject provides students of Sciences of Physical Activity and Sport, knowledge of the object of their work itself, that is "the human body ". Knowledge of its systems and equipment, their relationships and interactions; at rest and during physical activity, in the gravitational field of the environment in which it operates, ie, the land. The knowledge of the human body facilitates the acquisition of criteria for the design of fitness, with their different orientations and applications (education, health, leisure, everyday, work, sport) life. These criteria also allow fitness to guide the healthy activities in any area or appointed orientations, with its impact on improving the quality of life and social involvement.

PREVIOUS KNOWLEDGE**Relationship to other subjects of the same degree**

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

Not required , but A basic knowledge in Biology, Physics and Chemistry is advisable.

OUTCOMES**1312 - Degree in Physical Activity and Sport Sciences**

- Llegar a conocer la terminología anatómica, para la descripción precisa del cuerpo humano, en su totalidad y en sus parte, como lenguaje básico de comunicación de conocimientos en el ámbito científico.
- Llegar a conocer los niveles estructurales del cuerpo humano desde la etapa embrionaria hasta la formación del ser humano.
- Conocer la acciones mecánicas de los grupos musculares agonistas y antagonistas en tareas motrices analíticas y complejas.
- Adquirir los conocimientos de los fundamentos neuromecánicos del movimiento humano.
- Adquirir las habilidades para ser capaz de realizar un análisis cinesiológico de posturas y movimientos de la vida cotidiana, tiempo libre, ámbito laboral y deportivo.
- Know the anatomical terminology for the precise description of the human body, in its parts and as a whole, as a basic language for communicating knowledge in the scientific field.



- Get to know the structural levels of the human body from the embryonic stage to the formation of the human being.
- Get to know the elemental structure of the central and peripheral nervous system with special emphasis on the structures that generate movement and emotions, which are two integral aspects of physical activity and sports training.
- Know the mechanical actions of agonist and antagonist muscle groups in analytical and complex motor tasks.
- Gain knowledge of the neuromechanical foundations of human movement.

LEARNING OUTCOMES

Being able to make a "kinesiologic motion analysis " mechanical (joint) in three-dimensional space and neuromuscular (functional activity) motor, static and dynamic tasks such as basic form of guidance to the individual. This analysis includes the following phases:

Being able to conduct a joint analysis (mechanical) of body segments involved in driving, dynamic and static tasks.

Being able to locate, describe the mechanical action and the functional activity of the muscle groups in the different compartments myofascial topographical regions of the trunk and upper and lower limbs of the human body in motor, static and dynamic tasks.

Be able to propose postural habits and healthy executions and personalized movement after the kinesiological analysis based on biological age, sex and specific characteristics of individuals.

DESCRIPTION OF CONTENTS

1. BLOCK I TYPE OF TISSUES, BONES AND JOINTS

1. Introduction to human anatomy
2. Histology: Epithelial tissue
3. Histology: Connective tissue (I)
4. Histology: Connective tissue (II)
5. Histology: Muscle and Nerve Tissue
6. Types of bones and joints
7. Introduction to kinesiology

2. BLOCK II BACK

8. Back osteology
9. Back arthrology (I)
10. Back arthrology (II)
11. Back muscles (I)
12. Back muscles (II)
13. Back muscles (III)
14. Vascularization and cutaneous innervation of the back



- 15. Topographic spaces of the back
- 16. Back kinesiology (I)
- 17. Back kinesiology (II)

3. BLOCK III LOWER LIMB

- 18. Foot and ankle osteoarthrology
- 19. knee, hip and pelvic girdle osteoarthrology
- 20. Lumbosacral plexus
- 21. Sciatic neuromuscular system
- 22. Tibial neuromuscular system
- 23. Common peroneal neuromuscular system
- 24. Plantars neuromuscular systems
- 25. Femoral neuromuscular system
- 26. Obturator neuromuscular system
- 27. Neuromuscular system of the buttocks
- 28. Vascularization of the lower limb
- 29. Cutaneous innervation of the lower limb
- 30. Topographic spaces and lower limb aponeurology
- 31. Lower limb kinesiology (I)
- 32. Lower limb kinesiology (II)
- 33. Lower limb kinesiology (III)

4. BLOCK IV UPPER LIMB

- 34. Hand and wrist osteoarthrology
- 35. Elbow, shoulder and shoulder girdle osteoarthrology
- 36. Brachial Plexus
- 37. Ulnar neuromuscular system
- 38. Middle neuromuscular system
- 39. Musculocutaneous and internal rotators neuromuscular systems
- 40. Radial neuromuscular system
- 41. External rotator and abductor neuromuscular systems
- 42. Vascularization of the upper limb
- 43. Cutaneous innervation of the upper limb
- 44. Topographic spaces and aponeurology of the upper limb
- 45. Upper limb kinesiology (I)
- 46. Upper Limb Kinesiology (II)
- 47. Upper limb kinesiology (III)

**5. BLOCK V WALLS AND NECK**

- 48. Chest wall osteoarthrology
- 49. Pelvic wall osteoarthrology
- 50. Musculature of the chest wall and diaphragm
- 51. Musculature of the abdominal wall
- 52. Pelvic floor muscles
- 53. Neck muscles
- 54. Kinesiology of the thoracic and abdominal walls

6. BLOCK VI APPARATUS AND SYSTEMS

- 55. Heart and circulatory system
- 56. Respiratory system
- 57. Digestive system
- 58. Genitourinary system
- 59. Central, peripheral and autonomic nervous systems
- 60. Endocrine system

7. PRACTICAL CLASSES

This block contains the practical classes of each of the theoretical sections studied, the practical classes are distributed as follows:

BLOCK I TYPE OF TISSUES, BONES AND JOINTS (prac 1-2)

BLOCK II BACK (prac 3-6)

BLOCK III LOWER MEMBER (prac 7-15)

BLOCK IV UPPER MEMBER (prac 16-23)

BLOCK V WALLS AND NECK (prac 24-25)

BLOCK VI APPARATUS AND SYSTEMS (prac 26-30)

WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	60,00	100
Laboratory practices	30,00	100
TOTAL	90,00	

TEACHING METHODOLOGY

-Theoretical Classes: these classes will be face-to-face and will be based on the magisterial transmission method using anatomical images that allow the theoretical descriptions to be easily recognized and followed.



-Practical Classes: these classes will be face-to-face and will be based on the study of anatomical structures on models, phantoms or any other available material. In them, the student's work may be individual and/or in a group.

EVALUATION

Assessment test of the content of the First Semester:

- Theoretical section (70%): 30 test questions. Correct questions add 1 point and incorrect questions subtract 0.33 points.
- Practical section (30%): 10 questions to identify anatomical structures.

It will be a mandatory condition to obtain a minimum score of 50% in the questions of each section (both theoretical and practical) to pass this test.

Students who pass this test may be exempted from the questions corresponding to the First Semester of the exam of the 1st call.

Attendance at practices is mandatory. Unjustified non-attendance to more than 20% of the practices will mean the impossibility of taking the practical section of the content assessment test of the First Semester.

Exams of 1st and 2nd calls:

- Theoretical section (70%): 60 test questions: 30 corresponding to the First Semester and 30 corresponding to the Second Semester. Correct questions add 1 point and incorrect questions subtract 0.33 points.
- Practical section (30%): 20 questions to identify anatomical structures. 10 corresponding to the First Semester and 10 corresponding to the Second Semester.

It will be a mandatory condition to obtain a minimum score of 50% in the questions of each semester (both in the theoretical and practical sections) to pass the exams.

Attendance at practices is mandatory. Unjustified non-attendance to more than 20% of the practices will mean the impossibility of carrying out the practical section of the subject in the exam of the 1st call.

REFERENCES

Basic

- DRAKE R.L.; MITCHELL A.M.W.; VOGL A.W. (2020) Gray. Anatomía para estudiantes. 4ªed. Ed. Elsevier, 1304 páginas.
- Kapandji, I. A. (2007): Cuadernos de Fisiología Articular. Ed. Panamericana. 6ª ed. Tomo 1, 2 y 3. Barcelona.
- NETTER F.H. (2019) Atlas de anatomía humana. 7ª ed. Ed. Elsevier Masson, 672 páginas.
- SCHÜNKE M.; SCHULTE E.; SCHUMACHER U. (2022) Prometheus. Texto y Atlas de Anatomía. 3 tomos: Anatomía general y aparato locomotor + Órganos internos + Cabeza, cuello y neuroanatomía. 5ª ed. Ed Medica Panamericana, 1742 páginas.
- Tórtora, G., J.; Grabowski, S. R. (2002): Principios de Anatomía y Fisiología. 9ª ed. Oxford University Press. Méjico.



- FENEIS H.; DAUBER W. (2021) Nomenclatura anatómica ilustrada. 11ª edición Ed. Elsevier, 605 páginas.

