

HUMAN ANATOMY

Occupational Therapy Degree

ACADEMIC YEAR 2021-22

Codes^[SEP]: 804140

Module: 1

Subject: Human Anatomy

Subject type: Core subject^[SEP]

Department: Human Anatomy and Human Embryology

Credits : 12 ECTS

Course: First

Teaching period: First and second semester

TEACHING STAFF

Responsible of the Course: Arráez Aybar, Luis Alfonso (T.U.) arraezla@med.ucm.es

Teachers: García Gómez, S. (P.C.D.) Catón Vázquez, J (P.A.D.) Maldonado Bautista, E (PA.D)

SHORT DESCRIPTION

Introduce the student to the structural and functional organization of the different parts and systems that make up the human body during the different stages of human development. With special incidence in the locomotor system and nervous system.

COMPETENCIES

They are those corresponding to the Module and Subject to which this subject belongs.

General competencies

CG25.

Specific competencies:

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CE.M1.1., M1.2., M2.10. y M2.29.

COURSE RULES 2021-22

1. The students will fill a data collection sheet that will be given to them at the Center's Concierge's Office..
2. The theoretical teaching groups will be distributed, according to the calendar that appears in the book of teaching organizations Degree.
3. Practices are compulsory for all students enrolled in the subject.

4. Attendance at the practices will be done with a white coat and visible identification of the student's name and, where appropriate, with the clothing established by the rules of the Body Donation Center and dissection rooms. (CDC) of the UCM.

5. Each student will be integrated into a practice group and will be assigned a table number within the Department rooms or, where appropriate, in the CDC. The students members of each table will be responsible for the integrity and conservation of the practical material that is deposited in it.

6. The practices will be carried out in the Department rooms or in the CDC rooms, according to the calendar that appears in the book of teaching organization of the Degree.

7. The calls for practicals, seminars and exams will be posted on the Department notice board and/or on the virtual campus throughout the course.

Students will be able to do tutorials with any of the Department's professors during the hours set by each professor and which will remain posted on the Department's bulletin board and/or on the Virtual Campus for the subject.

OBJECTIVES

- Learning Outcomes:
- Using and mastering anatomical terminology and concepts, in such a way as to demonstrate their ability to understand, analyze, and synthesize an Anatomy text or lesson.
- Describe the general shape and structure of the human body, the position, shape, and structure of its organs, systems, and apparatus, as well as their topographical interrelationships, and all of this as a basis for understanding its functional organization, particularly the locomotor system and the nervous system.
- Identify and explain the shapes and relationships of the different anatomical structures through the use of diagrams, drawings, photographs, multidirectional radiological sections, planimetric reconstructions and three-dimensional models, as well as in the cadaver and in the living man.
- Through the position, shape and basic structure, reach an understanding of the function of organs and systems.
- Fundamental knowledge and content on biomechanical and kinesiological analysis of the different structures of the dynamic body complex.
- Using anatomical and embryological knowledge, pose and analyze relevant clinical problems.
- Develop transversal skills through the ability to observe, collect data and methodological exposure.
- Reach a sufficient level of anatomical knowledge to understand other related areas of the degree or to pursue specialization courses in various fields of Occupational Therapy.

THEORETICAL PROGRAM

Didactic unit I. Generalities

Topic 1. Concepts of general anatomy. Organization Levels. Cell anatomy. Types of tissues. The organ as an anatomical unit. Concept of Systems and apparatus of the organism.

Topic 2. Anatomic position. Plane and anatomical axes. anatomical terminology.

Topic 3. Growth and development. Early stages of development. Prenatal periods: embryonic and fetal. Critical time. Postnatal periods: lactation, childhood, adolescence, maturity and old age.

Topic 4. Cardiocirculatory system (1): Concept and development of the heart. Elements that comprise it. Situation. Relations. Vascularization and Innervation. Excite-driving system.

Topic 5. Cardiocirculatory system (2): structure of the blood vessels and terminal circulation. Main blood vessels.

Topic 6. Anatomy of the lymphatic system: vessels and nodes. Tonsils. thymus.

Topic 7. Respiratory system (1): Concept and development. Upper Respiratory Tract: Nostrils, Pharynx, Larynx. Vascularization and innervation.

Topic 8. Respiratory system (2). Lower respiratory tract: Trachea, bronchi and lungs and pleura. Vascularization and innervation. Mediastinum.

Topic 9. Digestive system (1): Concept and development of the digestive tract. Oral cavity, pharynx, esophagus. Cervical topographic relationships.

Topic 10. Digestive system (2): Topographic study of the visceral cavity of the abdomen: stomach, small and large intestine. Anal canal.

Topic 11. Digestive system (3): Topographic study of: Liver and bile ducts, exocrine pancreas, spleen. Peritoneum. Synopsis vascularization and innervation of the digestive system. portal system.

Topic 12. Genitourinary system (1). Concept and development: Topographic and structural study of the kidney and urinary tract.

Topic 13. Genitourinary system (2): Topographic and structural study of the female genital organs. Ovary. uterine tube. Uterus. Vagina. Vulva and associated structures. Vascularization and innervation. General topography of the pelvic cavity.

Topic 14. Genitourinary system (3): Topographic and structural study of the male genital organs. Testis and scrotal bags. Sperm pathway and associated glands. Penis. Vascularization and innervation.

Topic 15. Anatomy of the anatomical perineum. Sphincter control.

Topic 16. Locomotor System (1): Concept and development of the Locomotor System. Types of ossification. Concepts of osteology and classification of bones. Biomechanical aspects of the locomotor system as a whole: osteokinetics.

Topic 17. Locomotor system (2): Concepts of arthrology.

Morpho-functional classification of joints.
Fundamentals of Arthrokinetics. Kinetic degree concept

Topic 18. Locomotor system (3): Concepts of myology. muscle classification. Associated structures. Kinesiological aspects of muscle. Concepts of kinematic chains and muscle balance.

Didactic unit II. Head and Trunk Anatomy and Kinesiology.

Topic 19. Vertebral column. vertebra type. Regional and individual characteristics of the vertebrae. specialized vertebrae.

Topic 20. Articulations of the vertebral column. Dorsolumbar and lumbosacral junction.

Topic 21. Cranio-vertebral junction: bone and joint components.

Topic 22. Autochthonous dorsal muscles of the trunk: Medial tract

Topic 23. Autochthonous dorsal muscles of the trunk: Lateral tract.

Topic 24. Kinesiology of the Vertebral Column. Ergonomic aspects.

Topic 25. Bony thorax: ribs and sternum. costal joints.

Topic 26. Muscles: intercostals. Diaphragm muscle. kinesiology of the breath.

Topic 27. Muscles of the abdominal wall. Abdomen as fluid chamber. Ergonomic aspects.

Topic 28. Neck muscles. Study of the cervical plexus.

Topic 29. Muscle balance: Head and Trunk.

Topic 30. Joint study of the skeleton of the head. Basal, lateral and frontal norms.

Anthropometric points.

Topic 31. Study of the mandible.

Temporomandibular joint.

Topic 32. Masticatory muscles. Chewing kinesiology.

Topic 33. Facial muscles.

Didactic unit III. Upper Limb Anatomy and Kinesiology

Topic 34. Upper limb: Bone and joint components. surface anatomy.

Topic 35. Shoulder Joints (1): sternoclavicular, acromioclavicular. Arthrokinetic.

Topic 36: Shoulder Joints (2): Scapulohumeral joint. Arthrokinetic.

Topic 37. Muscles of the Shoulder (1): Scapulo-humeral group. Topography. Myokinetics.

Topic 38. Muscles of the Shoulder (2): Thoraco-appendicular group. Topography. Myokinetics. Armpit.

Topic 39. Kinesiology of the Shoulder. muscle balance.

Topic 40. Elbow joints: humero-ulnar, humero-radial and radio-ulnar. Arthrokinetic.

Topic 41. Arm muscles: anterior and posterior groups. Topography. Myokinetics.

Topic 42. Wrist: bone and joint components. Arthrokinetic.

Topic 43. The hand: bone components and joints: carpometacarpal, intermetacarpal, metacarpophalangeal and interphalangeal. Arthrokinetic.

Topic 44. Forearm muscles (1): flexor group. Topography. Myokinetics. Carpal tunnel. ergonomic aspects

Topic 45. Forearm muscles (2): extensor and radial group. Myokinetics. Extenders slider.

Topic 46. Elbow and wrist kinesiology. pronosupination. muscle balance.

Topic 47. Short muscles of the hand and fingers (1): interosseous and lumbrical. Muscles of the hypothenar eminence. Myokinetics. muscle balance.

Topic 48. Short muscles of the hand and fingers (2): Muscles of the thenar eminence. Myokinetics. muscle balance.

Topic 49. Kinesiology of the joint complex of the hand and fingers (1): tendon apparatus and retinacular system.

Topic 50. Kinesiology of the joint complex of the hand and fingers (2): kinetic chains.

Grasp kinesiology. Ergonomic aspects.

Topic 51. Upper limb innervation synopsis (1): Brachial plexus.

Topic 52. Synopsis innervation of the upper limb (2): Neuromuscular systems of the arm

Topic 53. Synopsis innervation of the upper limb (3): Neuromuscular systems of the forearm and hand

Topic 54. Synopsis vascularization of the upper limb.

Didactic unit IV. Lower Limb Anatomy and

Kinesiology:

Topic 55. Lower limb: bone and joint components. surface anatomy.

Topic 56. Pelvis and Hip: bone components. Coxofemoral joint. Arthrokinetic.

Topic 57. Muscles of the Hip: dorsal and ventral groups. Topography. Myokinetics. muscle balance.

Topic 58. Knee Joint. Arthrokinetic.

Topic 59. Muscles of the Thigh: dorsal and ventral groups. Topography. muscle balance

Topic 60. Joints of the Ankle and Foot. Arthrokinetic.

Topic 61. Muscles of the leg and foot. Topography. Myokinetics. muscle balance.

Topic 62. Kinesiology of the lower limb as a whole: mechanical axes. Plantar vault.

Kinesiological concepts of posture and gait.

Didactic unit V. Neuroanatomy of the

Nervous System and Sense Organs.

Topic 63. General neuroanatomy. Nervous system concept. Constitution. Types of nerve's cells. Synapse anatomy. Anatomy of a nerve.

Topic 64. Situation and structure of the nervous system. Components of the central and peripheral nervous system. Directional terminology.

Topic 65. Development of the nervous system and study of the main malformations congenital

Topic 66. Telencephalon (1). Anatomy of the cerebral hemispheres. Fissures, sulci, gyri and lobes.

Topic 67. Telencephalon (2). cortical areas. Morphofunctional and anatomoclinical considerations.

Topic 68. Telencephalon (3). Gray nuclei of the brain base. Morphofunctional and anatomoclinical considerations.

Topic 69. Telencephalon (4). Telencephalic commissures. Association and projection fibers. Morphofunctional considerations.

Topic 70. Olfactory brain. Limbic system. Hippocampus. Anatomoclinical considerations.

Topic 71. Diencephalon (1). Morphology and constitution. epithalamic formations. thalamus. Hypothalamus and subthalamus. Morphofunctional and anatomoclinical considerations.

Topic 72. Diencephalon (2): Pituitary gland. Endocrine System Anatomy.

Topic 73. Brain stem: midbrain and rhombencephalon. Morphology and structure.

Topic 74. Reticular formation. Apparent and real origin of the cranial nerves.

Morphofunctional considerations.

Topic 75. Cerebellum(1): morphology and relationships.

Topic 76. Cerebellum (2): structuring. cerebellar nuclei. Morphofunctional and anatomoclinical considerations.

Topic 77. Meninges. Ventricles. Cerebrospinal fluid. Morphofunctional and anatomoclinical considerations.

Topic 78. Vascularization of the brain. Arterial polygon of Willis. Anatomy of the blood-brain barrier. Venous drainage. Anatomoclinical considerations.

Topic 79. Spinal cord (1): anatomy macroscopic and irrigation.

Topic 80. Spinal cord (2): microscopic anatomy. Systematization of the white matter and gray matter. Morphofunctional and anatomoclinical considerations.

Topic 81. Nervous pathways.

Generalities. Metamer concept. Nervous pathways of exteroceptive sensitivity. Outlining.

Morphofunctional considerations.

Topic 82. Motor nerve pathways (1): pyramidal motor system.

Morphofunctional considerations.

Topic 83. Motor nerve pathways (2): system extrapyramidal otor. Common terminal pathway.

Morphofunctional considerations.

Topic 84. Cranial nerves. Systematization.

Anatomoclinical considerations.

Topic 85. Somatic and autonomic peripheral nervous system. Constitution, morphology and systematization.

Topic 86. Neuroanatomy of olfaction and taste.

Structural components.

Schematization of the taste and salivary pathways.

Anatomoclinical considerations.

Topic 87. Neuroanatomy of touch. Structural components Synopsis of the anatomy of the skin.

Schematization of the pathways of touch.

Anatomoclinical considerations.

Topic 88. Neuroanatomy of vision: Structural components. Systematization of the optic pathway.

Lacrimal glands. Pathway of lacrimal secretion.

Anatomoclinical considerations.

Topic 89. Neuroanatomy of hearing and balance. Structural components. Systematization of the auditory pathway. Systematization of the vestibular pathway. Anatomoclinical considerations..

Topic 90. Anatomy of aging.

PRACTICES / SEMINARS

Practice 1. Bibliographic sources of anatomy in databases: Medline, PubMed, Cisne, Compludoc, Enfispo. Practice carried out with the collaboration of the Library of the Faculty of Medicine.

Practice 2. Thoracic cavity: Heart and great vessels.

Practice 3. Respiratory System

Practice 4. Abdominal cavity.

Practice 5. Pelvic cavity and perineum.

Practice 6. Radiological anatomy of the thoracoabdominal cavity.

Practice 7. Bony vertebral column and bony trunk. Main radiological characteristics.

Practice 8. Bony head. Main radiological characteristics.

Practice 9. Joint and muscle balance of the head and trunk.

Practice 10. Upper limb. Main radiological characteristics.

Practice 11. Prosection- demonstration of the upper limb.

Practice 12. Upper limb joint and muscle balance.

Practice 13. Bony lower limb. Main radiological characteristics.

Practice 14. Lower limb joint and muscle balance.

Practice 15. General morphology and rules of the brain.

Practice 16. Study of transversal and coronal sections of the brain.

Practice 17. Vascularization of the brain.

Practice 18. Radiological anatomy of the brain and spinal cord.

Practice 19. Sense organs: vision.

Practice 20. Sense organs: hearing.

SEMINARS

Seminar 1. Clinical Anatomy Seminar. embryological development.

Seminar 2. Clinical Anatomy Seminar. splanchnology.

Seminar 3. Clinical Anatomy Seminar. Head and trunk.

Seminar 4. Clinical Anatomy Seminar. Superior member.

Seminar 5. Clinical Anatomy Seminar. Lower member.

Seminar 6. Clinical Anatomy Seminar. Central Nervous System.

Seminar 7. Clinical Anatomy Seminar. Peripheral nervous system.

ASSESSMENT CRITERIA

Attitude to follow before a voluntary or accidental infraction in the rules of conducting the exam.

Attitude in the classroom: In the event of a voluntary or involuntary violation of the norms for the completion of a particular examination, your examination will not be marked. The student will have the opportunity to complete an oral examination to determine his or her knowledge of the material covered for that exam. If the infraction was voluntary this will be considered a serious ethical violation. This incident will be reported to the Inspection Services for their evaluation and any disciplinary measures they deem necessary.

Attendance at practices is mandatory.

- Evaluations of the theoretical and practical agenda will be carried out.
- The evaluation of the theoretical program will be carried out in a partial exam and a final exam.
- The theoretical exam will consist of multiple choice and/or short multiple choice questions. The test type will be valued with one point each, being only one of them the correct one and without the failures deducting points.
 - The practical exam will consist of the identification on the practical material of previously indicated structures.
 - The maximum score for each partial will be 10 points, being necessary to obtain 5 points or more in the theoretical and practical exams to pass each partial.
 - The partial exams passed are eliminatory and cannot be compensated among themselves. If the student does not pass the entire subject in the June exam, the passed partials are not valid for the July exam or for the following academic year.
 - For the evaluation of the practical program, a practical exam will be carried out before each partial theoretical exam.
 - The qualification obtained in the practical exams will be maintained for the June and July sessions but not for the following academic year.
 - If a student wishes to improve their final grade, they may take the ordinary session in June, bearing in mind that their grade will be that obtained in this exam, invalidating the grades obtained in the partial exams.
 - If some type of adaptation is necessary in the exam model, the student will communicate it well in advance.
 - The final grade for the subject will be calculated:
 - Evaluation of the theoretical

contents: the qualification obtained in the theoretical exam will represent 50% of the final grade.

- Evaluation of practical content. The practical exam will represent 30% of the final grade.
- The works carried out as an academic activity directed will represent 20% of the final mark.

Review of Exams

The procedure for reviewing and challenging grades will be adjusted to what is regulated in the Student Statute of the Complutense University of Madrid.

BASIC BIBLIOGRAPHY / RELATED INTERNET LINKS

- Agur, M.R.; Dalley, F., Grant. Atlas de Anatomía, Editorial Médica Panamericana.
- Clascá, F. y cols., Anatomía Seccional, Editorial Masson.
- Crossman, A.R.; Neary, D., Neuroanatomía, Texto y Atlas en color, Editorial Elsevier- Masson.
- Drake, R.L.; Vogl, W.; Mitchell, A.W.M., Gray. Anatomía básica. Madrid, Editorial Elsevier Churchill Livingstone.
- Dufour, M., Anatomía del Aparato locomotor, Tomo I: Miembro inferior; Tomo II: Miembro superior; Tomo III: Cabeza y tronco, Barcelona, Masson.
- Felten, P.L.; Shetty, A.H., Netter, Atlas de Neurociencia, Editorial Elsevier-Saunders.
- Feneis, H., Nomenclatura Anatómica Ilustrada. Editorial Masson.
- García Porrero, J. A.; Hurlé, J., Anatomía Humana, McGraw-Hill Interamericana.
- Gilroy, AM. Prometheus. Anatomía. Manual para el estudiante. Madrid: Editorial Panamericana.
- Hislop HJ, Avers D, Browm M.: **Daniels & Worthingham**. Técnicas de Balance Muscular. Ed. Elsevier.
- Kamina, P., Anatomía General, Madrid., Editorial Médica Panamericana.
- Kapandji, A.I. Fisiología Articular. Editorial Médica Panamericana.
- Lippert, Anatomía con orientación clínica para estudiantes, Editorial Marbán Libros.
- Lorente Gascón, M.; Miguel Pérez, M.; Pérez Bellmunt, A.; Escalona Marfil, C., Manual de Miología. Descripción, función y palpación de las extremidades, Editorial Masson-Elsevier.
- Llusa, M.; Meri, A.; Ruano, D., Manual y Atlas fotográfico de Anatomía del Aparato locomotor, Editorial Médica Panamericana.
- "Máster", Atlas de Anatomía, Editorial Marbán.
- Melloni, J.I.; Dox, I.G.; Melloni, H.P.; Melloni, B.J. Melloni's, Secretos de Anatomía imprescindibles para el estudiante, Editorial Marban Libros.
- Moore, K.L.; Dalley, A.D., Anatomía: con orientación clínica, Editorial Lippincott: Williams & Wilkins.
- Netter, F.H. Atlas de Anatomía Humana,

Editorial Elsevier-Masson.

- Nielsen, M.; Miller, S., Atlas de Anatomía Humana, Editorial Panamericana.
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 - Puelles López, L.; Martínez Pérez, S.; Martínez de la Torre, M., Neuroanatomía, Editorial Médica Panamericana.
 - Rohen, J.W.; Yokochi, C.; Lütjen-Drecoll, E., Atlas de Anatomía Humana, Editorial Elsevier.
 - Rubin, M.; Safdieh, J.E., Netter, Neuroanatomía esencial, Editorial Elsevier Masson.
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 - Wilkins.Schünke/Schulte/Schumacher., Prometheus, Texto y Atlas de Anatomía, Tomo I: Anatomía general y aparato locomotor. Tomo II: Cuello y órganos internos. Tomo III: Cabeza y neuroanatomía, Editorial Médica Panamericana.
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- Snell, R.S., Neuroanatomía clínica, Editorial Lippincott: Williams & Wilkins.
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 - Sociedad Anatómica Española, Terminología Anatómica Internacional, Editorial Médica Panamericana.
 - Tank, P.W., Grant. Manual de disección, Wolters Kluwer/ Lippincott: Williams & Wilkins
 - Thibodeau-Patton, Anatomía y Fisiología, Editorial Elsevier-Mosby.
 - Torres Gallardo, B., Anatomía Interactiva del Sistema locomotor CD1 y CD2, Barcelona, Universitat de Barcelona.
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 - Enlaces de Interés Relacionados
 - <https://biblioteca.ucm.es/med>
 - www.sociedadanatomica.es/SAE/HOME.html
 - <https://medicina.ucm.es/>