

## HUMAN ANATOMY AND HISTOLOGY

Anatomy and Human Embryology Area: Council approved Department July 18, 2016

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
BASIC FORMATION	HUMAN ANATOMY AND HISTOLOGY	1st	1st	6	Compulsory
<b>LECTURE(S)</b>			<b>CONTACT INFORMACION (Postal address, telephone number, email address)</b>		
<p>Dr. D. José Carlos Prados (Anatomy) email: jcprados@ugr.es Teleph.: 958 248 819</p> <p>Dr. D. Francisco Archilla Peña (Anatomy) email: farchila@ugr.es Teleph.: 958 249 850</p> <p>Dr. D. Francisco Arrebola Vargas (Histology) email: fav@ugr.es Teleph. 958 243 515</p>			<p>Department of Anatomy. Faculty of Medicine. <a href="http://anatomiaeh.ugr.es">http://anatomiaeh.ugr.es</a> email: anatomiaeh@ugr.es</p> <p>Department of Histology. Faculty of Medicine. <a href="http://hsitologia.ugr.es">http://hsitologia.ugr.es</a> email: hsitologia@ugr.es</p>		
			<b>TUTORING AND MEETINGS</b>		
			<p>Prof. Prados: Mo, We 12.30 a 15.30 h. Faculty of Medicine.</p> <p>Prof. Archilla: Mo, We 12.30 a 15.30 h. Faculty of Medicine.</p> <p>Prof. Arrebola: Mo, Tu, Th 9:30-11:30 h. Faculty of Pharmacy (1st term) Mo, Tu, Th 9:30-11:30 h. Faculty of Medicine (2st term)</p>		
<b>DEGREE WITHIN THE SUBJECT IS TAUGHT</b>					
Grade in Human Nutrition and Dietetics					
<b>PREREQUISITES and/or RECOMMENDATIONS (if necessary)</b>					
Basic knowledge in Biology is strongly recommended					



**BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO VERIFICA PROGRAMME)**

Module 1: Basic Formation: Structure and function of the human body

**GENERALITIES AND PARTICULAR COMPETENCES**

**Generalities competences (GC)**

CG1.2 Develop the profession with respect for other health professionals, acquiring skills for teamwork.

CG8.1 Acquire basic training for the research activity, being able to formulate hypotheses, collect and interpret information for problem solving using the scientific method, and understanding the importance and limitations of scientific thinking in health and nutrition.

**Specific Competences (SC).**

CEM1.2 Know the structure and function of the human body from the molecular level to the whole organism, at different stages of life.

**OBJECTIVES (EXPRESSED IN TERMS OF EXPECTED RESULTS OF THE TEACHING PROGRAMME)**

Know the macroscopic and microscopic structural organization of the human body at different stages of life.

**DETAILED SUBJECT SYLLABUS**

**HUMAN ANATOMY**

**FIRST PART**

LESSON 1. INTRODUCTION: CONCEPTS; ANATOMICAL TERMINOLOGY

LESSON 2. GENERAL ANATOMY. NEUROLOGY; GENERAL CONCEPTS. SPLASHNOLOGY. GENERAL CONCEPTS.; MUSCULOSKELETAL SYSTEM. GENERAL CONCEPTS.

LESSON 3. NERVOUS SYSTEM. CENTRAL NERVOUS SYSTEM.

LESSON 4. NERVOUS SYSTEM. PERIPHERAL NERVOUS SYSTEM AND AUTONOMIC NERVOUS SYSTEM.

LESSON 5. NERVOUS SYSTEM. TRACTS. GENERAL CONCEPTS.

LESSON 6. DIGESTIVE. STUDY OF MOUTH. ORAL CAVITY.

LESSON 7. DIGESTIVE SYSTEM. TEETH. TONGUE. SALIVARY GLANDS

LESSON 8. DIGESTIVE SYSTEM. STUDY OF PHARYNX AND ESOPHAGUS.

LESSON 9. DIGESTIVE SYSTEM. STUDY OF STOMACH AND DUODENUM.

UNIT 10. DIGESTIVE SYSTEM. STUDY OF LIVER AND BILIARY TRACT.

UNIT 11. DIGESTIVE SYSTEM. STUDY OF PANCREAS.

UNIT 12. DIGESTIVE SYSTEM. STUDY OF JEJUNUM AND ILEUM.



## UNIT 13. DIGESTIVE SYSTEM. STUDY OF INTESTINE.

### SECOND PART

LESSON 14. CARDIOCIRCULATORY SYSTEM. HEART. CARDIAC CAVITY SYSTEM. CARDIAC CONDUCTION SYSTEM.

LESSON 15. CARDIOCIRCULATORY SYSTEM. ARTERIAL AND VEIN SYSTEM. LYMPHATIC SYSTEM: COLLECTORS.

LESSON 16. RESPIRATORY SYSTEM. RESPIRATORY TRACT. LUNGS. PLEURA. VASCULAR SYSTEM

LESSON 17. URINARY SYSTEM. KIDNEY AND URINARY TRACT.

LESSON 18. GENITAL SYSTEM. STUDY OF MALE AND FEMALE GENITAL SYSTEMS.

LESSON 19. MUSCULOSKELETAL SYSTEM (I). TRUNK, HEAD AND NECK.

LESSON 20. MUSCULOSKELETAL SYSTEM (II). UPPER AND LOWER EXTREMITY

### PRACTICAL PROGRAM

Practice 1: Basic anatomy of the brain and spinal cord. Osteology related.

Practice 2: Basic anatomy of the digestive system.

Practice 3: Basic Anatomy of the cardiovascular system (heart) and respiratory (tract and lungs). Osteology related.

Practice 4: Basic anatomy of the urinary system.

### SEMINARS

Autonomous work.

### HUMAN HISTOLOGY

#### THEORETICAL SYLLABUS

##### Introduction (1 hour)

1. Concept of Human Histology. Levels of organization of the human body. (1 hour)

##### General Human Histology (8 hours)

2. Epithelial tissue. Generalities. Epithelial tissue lining: classification. Glandular epithelial tissue. Generalities. Exocrine glandular epithelial tissue: classification. Endocrine epithelial tissue: classification. (1 hour)

3. Connective tissue. Generalities. Mesenchyme. Connective tissue components. Structure. Function. Origin. Varieties of connective tissue. Classification. (1 hours)

4. Adipose tissue. General. Unilocular adipose tissue: Generalities and structure. Beige adipose tissue:



Generalities and structure. Brown adipose tissue: Generalities and structure. (1 hour)

5. Cartilaginous tissue. Generalities. Growth and regeneration. Hyaline cartilage tissue. Elastic cartilaginous tissue. Fibrous cartilage tissue. (1 hour)

6. Bone tissue. Generalities. Components of bone tissue: cells and extracellular matrix. Textural varieties of bone tissue. (1 hour)

7. Blood. Generalities. Formed elements. Hematopoiesis. (1 hour)

8. Muscle tissue. Generalities. Skeletal muscle tissue: generalities and structure. Cardiac muscle tissue: generalities and structure. Smooth muscle tissue: generalities and structure. (1 hour)

9. Nervous tissue. Generalities. Neuron. Glia. Nerve fibers. (1 hour)

### **Microscopic Human Organography (12 hours)**

10. General microscopic structure of the circulatory system. Generalities. Arteries. Capillaries. Microcirculation. Veins. Heart. (1 hour)

11. General microscopic structure of the digestive tract. Generalities. Oral cavity. Tongue. Salivary glands. Esophagus. Stomach. Small intestine. Large intestine. Liver. Gallbladder and biliary tract. Exocrine pancreas. (5 hours)

12. General microscopic structure of the respiratory system. Generalities. Nasal cavities. Pharynx. Larynx. Windpipe. Bronchus. Bronchioles. Alveoli. Alveolar-capillary barrier. (1 hour)

13. General microscopic structure of the urinary tract. Generalities. Kidney: nephron and membrane filtration. Ureter. Urinary bladder. Urethra. (2 hours)

14. General microscopic structure of the endocrine system. Generalities. Pituitary gland. Pineal gland. Thyroid gland. Parathyroid glands. Kidney glands. Endocrine pancreas. (2 hours)

15. General microscopic structure of organs of the senses: taste and smell. Generalities. Lingual papillae. Gustatory corpuscles. Olfactory segment. (1 hour)

### **PRACTICAL PROGRAM SYLLABUS (7.5 hours)**

Histological Processing samples for optical microscopy.

Observation and identification by light microscopy of human tissues.

### **SEMINARS**

Autonomous tutored works.

### **READING**



## HUMAN ANATOMY

### Basic books

- MANUAL DE ANATOMÍA HUMANA PARA NUTRICIÓN Y DIETÉTICA (I). J. PRADOS, F. ARCHILLA, C. MELGUIZO, C. VELEZ, M. RIVERA, ED. AVICAM, 2015.
- ESTRUCTURA Y FUNCION DEL CUERPO HUMANO. 14ª ED. G.A THIBODEAU, S.A. ELSEVIER ESPAÑA, 2012
- GRAY. ANATOMIA PARA ESTUDIANTES. RL. DRAKE, A M.W. MITCHELL, A. W VOGL ED ELSEVIER. 3 EDICIÓN. MADRID 2015.

### Atlas

- ATLAS DE ANATOMÍA HUMANA. SOBOTTA (PUTZ Y PABST). ED. MÉDICA PANAMERICANA. MADRID, 2000.
- ATLAS DE ANATOMÍA HUMANA 5ª ED F. H. NETTER , MASSON, 2011
- PROMETHEUS, TEXTO Y ATLAS DE ANATOMÍA. SCHÜNKE, SCHULTE Y SCHUMACHER. EDIT. MEDICA, 2015

### Others books

- ANATOMIA HUMANA: DESCRIPTIVA, TOPOGRAFICA Y FUNCIONAL. 11ª ED. H. ROUVIERE; A. DELMAS. MASSON, 2005
- NOMENCLATURA ANATÓMICA ILUSTRADA. H. FENEIS. ED. MASSON. BARCELONA, 2006.

## HUMAN HISTOLOGY

- HISTOLOGÍA BÁSICA. TEXTO Y ATLAS. Junqueira, L.C. y Carneiro, J. 12ª ed. 2015. EDITORIAL MÉDICA PANAMERICANA.
- ATLAS EN COLOR Y TEXTO DE HISTOLOGÍA. Gartner L.P. y Hiatt, J.L. 6ª ed. 2015. EDITORIAL MÉDICA PANAMERICANA.
- HISTOLOGÍA HUMANA. Stevens, A. y Lowe, J. 4ª ed. 2015. EDITORIAL ELSEVIER.
- SOBOTTA HISTOLOGÍA. Welsch, U. 3ª ed. 2014. EDITORIAL MÉDICA PANAMERICANA.
- HISTOLOGÍA. TEXTO Y ATLAS COLOR CON BIOLOGÍA CELULAR Y MOLECULAR. Ross, M.C. y Pawlina, W. 6ª ed. 2013. EDITORIAL MÉDICA PANAMERICANA.
- GENESER HISTOLOGÍA. Brüel, A., Christensen, E.I., Trandum-Jensen, J., Qvortrup, K. y Geneser, F. 4ª ed. 2015. EDITORIAL MÉDICA PANAMERICANA.

## RECOMMENDED INTERNET LINKS



## HUMAN ANATOMY

Department of Human Anatomy of the Granada University . <http://anatomiaeh.ugr.es/pages/enlaces/index>

Anatomic Spanish Society . <http://www.sociedadanatomica.es/>

Anatomy in Internet. <http://www.meddean.luc.edu/lumen/MedEd/GrossAnatomy/anatomy.htm>

European Journal of Anatomy <http://eurjanat.com/web/>

## HUMAN HISTOLOGY

Microscopio Virtual, Universidad de Granada.

<http://150.214.37.106/WebDatabaseClient/dbWebAccount.aspx>

Sistema de Evaluación, Autoevaluación y Encuestas. Departamento de Histología. Universidad de Granada.

[http://fugaz.ugr.es/histo\\_sct/nueva/](http://fugaz.ugr.es/histo_sct/nueva/)

Blue Histology. School of Anatomy and Human Biology. The University of Western Australia.

<http://www.lab.anhb.uwa.edu.au/mb140/>

Interactive Histology Atlas. Health Sciences Center. University of Oklahoma

<https://www.ouhsc.edu/histology/>

## TEACHING METHODOLOGY

- Lectures including schemes on the blackboard and audiovisual system
- Practical classes in the laboratory: osteology and radiology rooms and computer room with virtual microscope.
- Seminars with the use of teaching support material such as software and videos.
- Special student-work directed by the teacher
- Tutorials in which will focus on autonomous work

## ASSESSMENT. ASSESSMENT CRITERIA, CONTRIBUTION OF THE DIFFERENT ACTIVITIES ON THE FINAL MARK, ETC.]

La Anatomía e Histología Humana es una asignatura compartida entre los Departamentos de Anatomía Humana e Histología Humana y para aprobar la misma es necesario superar de forma independiente las materias de Anatomía Humana y de Histología Humana. Una vez superadas las dos materias, la nota de la asignatura será la media aritmética de las calificaciones de ambas materias. No se guardará la calificación de Anatomía Humana o Histología Humana para el siguiente curso académico.

## HUMAN ANATOMY

Theory will represent 80% of the final mark. Its valuation will be based on 1) a final exam with multiple choice



questions, questions of concepts and questions to develop a part of the matter, 2) special student activities designed by teachers that must be delivered at the end of course and 3) work in group which could be exposed and defended by students. The final exam will be common for all students.

Practice will represent 20% of the final mark and will be evaluated based on: 1) special activities designed by teachers at the time of practice; 2) attendance at practical classes and 3) activities and / or question included in final exam.

## HUMAN HISTOLOGY

En lo referente a Histología Humana, se divide en enseñanza teórica y práctica.

La enseñanza teórica supondrá el 80% de la calificación final de Histología Humana y se podrá optar tanto por evaluación continua como por evaluación única\*\*. La evaluación continua consistirá en la realización, durante el desarrollo de la docencia teórica, de actividades en grupo y de un examen parcial de teoría, a celebrar en las convocatorias establecidas por el centro. La evaluación única\*\* consistirá en la realización de un examen final de teoría, a celebrar en las convocatorias establecidas por el centro, y a dicha evaluación deberán asistir todos aquellos estudiantes que opten por la evaluación única, que no reúnan los requisitos establecidos en la evaluación continua, o que no hayan superado la evaluación continua. Tanto el examen parcial como el examen final de teoría consistirán en preguntas tipo test y/o preguntas de relación y/o preguntas cortas y/o dibujo o identificación de estructuras microscópicas relacionados con la docencia teórica.

La enseñanza práctica supondrá el 20% de la calificación final de Histología y se podrá optar tanto por evaluación continua como por evaluación única\*\*. La evaluación continua consistirá en la realización, durante el desarrollo de la docencia práctica, de actividades en grupo y de un examen parcial de prácticas, a celebrar en las convocatorias establecidas por el centro. La evaluación única\*\* consistirá en la realización de un examen final de prácticas, a celebrar en las convocatorias establecidas por el centro, y a dicha evaluación deberán asistir todos aquellos estudiantes que opten por la evaluación única, que no reúnan los requisitos establecidos en la evaluación continua, o que no hayan superado la evaluación continua. Tanto el examen parcial como el examen final de prácticas consistirán en preguntas tipo test y/o preguntas de relación y/o preguntas cortas y/o dibujo o identificación de estructuras microscópicas relacionadas con la docencia práctica.

Para superar la materia de Histología Humana hay que aprobar de forma independiente tanto la teoría como la práctica.

\*\* "De acuerdo al artículo 8 de la Normativa de Evaluación y de Calificación de los estudios de la Universidad de Granada, aprobada el 20 de mayo de 2013, los alumnos tendrán derecho a acogerse a una Evaluación Final única bajo las condiciones que determina dicho artículo".

## FURTHER INFORMATION

We are making great efforts to avoid formol in practice rooms.

