

## 26761 - Histology I (General Histology)

### Información del Plan Docente

<b>Academic Year</b>	2017/18
<b>Faculty / School</b>	104 - Facultad de Medicina 229 - Facultad de Ciencias de la Salud y del Deporte
<b>Degree</b>	304 - Degree in Medicine 305 - Degree in Medicine
<b>ECTS</b>	6.0
<b>Year</b>	1
<b>Semester</b>	Second semester
<b>Subject Type</b>	Basic Education
<b>Module</b>	---

### **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 of Histology I (General Histology) is based on the exposure in classroom classes of the theoretical knowledge that will be necessary for the descriptions of microphotographies that the students will carry out in the seminars and to recognize, in the practical sessions, the various types of tissues and the various elements (cells or extracellular material) that integrate them and the organization of the skin.

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The students have a website ( [wzar.unizar.es/acad/histologia](http://wzar.unizar.es/acad/histologia) ) in which they can find an "Atlas of Histology" formed by a collection of microphotographs taken from the histological preparations that can be studied in the practice room and some hyperlinks to other websites.

In addition, students can find in the ADD:

The program of theoretical and practical classes

The calendar of theoretical classes, seminars and practices

Teaching materials of each of the subjects

The recommended bibliography

The students will have an interactive DVD designed by the teachers who teach the subject in Zaragoza so that they can study the same histological preparations that they have access to in the microscope room (CONTAMINA, P., P. PARRA Y M . ROJO GARCÍA, Histology Atlas. virtual histological preparations. Ed. Presses University of Zaragoza, 1st ed., interactive DVD, 2013). In the seminars, the students will present and discuss with each other and with the teachers the doubts that have arisen from the study of this material.

The students of Huesca have a website designed by the teacher who teaches in Huesca ( <http://es.groups.yahoo.com/group/histologiahuesca/> ).

### 5.2.Learning tasks

The program offered to the student to help achieve the expected results includes the following activities ...

#### 1. MAGISTRAL CLASSES

In the lectures will be taught theoretical content of the subject counting on the students have previously studied the subject, taking as a reference the information obtained on the website.

#### 2. PRACTICAL CLASSES

The practical classes will be taught in the microscope room and the students will handle the optical microscope and study the histological samples that will have at their disposal.

#### 3. SEMINARS

The seminars will consist of the presentation by a group of students of microphotographs of histological preparations of the subjects already studied. These microphotographs will include images obtained from the referred website and the interactive DVD in which the students have digitized the practice preparations.

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### 4. TUTORED WORKS

Throughout the course the students will prepare a video or presentation with images containing different subjects of the subject.

These works will form a "virtual atlas" consisting of images in which the fundamental elements (cell types, extracellular material ...) of the various tissues studied in the course will be identified and labeled.

### 5.3.Syllabus

Theoretical program

#### Introduction

**Topic 1.** Introduction to Histology

#### Epithelial tissue

**Topic 2.** Introduction to epithelial tissue

**Topic 3.** Epithelia

**Topic 4.** Exocrine Glands

**Topic 5.** Endocrine Glands

#### Supporting /connective tissues

**Topic 6.** Introduction to Supporting /connective tissues

**Topic 7.** Extracellular matrix

**Topic 8.** Cells from the connective tissues

**Topic 9.** Varieties of connective tissues

**Topic 10.** Adipose tissue

**Topic 11.** Cartilaginous tissue

**Topic 12.** Osseous tissue

### **Blood**

**Topic 13.** Introduction to blood

**Topic 14.** Blood cells

**Topic 15.** Haematopoiesis

### **Muscular tissues**

**Topic 16.** Introduction to muscular tissues

**Topic 17.** Smooth muscle

**Topic 18.** Skeletal striated muscle

**Topic 19.** Cardiac striated muscle

**Topic 20.** Other types of contracting cells

### **Nervous tissues**

**Topic 21.** Introduction to nervous tissues

**Topic 22.** The neurone

**Topic 23.** interneuronal synapse

**Topic 24.** Neuroglia

**Topic 25.** Peripheral nervous fiber. Peripheral nerve

**Topic 26.** Peripheral nerve endings

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### **Tegumentary system**

**Topic 27.** The skin

**Topic 28.** Skin appendages

Practical program

**Topic 1.** Basic Histology Techniques

**Topic 2.** Epithelia

**Topic 3.** Exocrine glands

**Topic 4.** Endocrine glands

**Topic 5.** Connective tissue

**Topic 6.** Adipose tissue

**Topic 7.** Cartilaginous tissue

**Topic 8.** Osseous tissue

**Topic 9.** Blood

**Topic 10.** Muscular tissues

**Topic 11.** Nervous tissue

**Topic 12.** Tegumentary system

### **5.4.Course planning and calendar**

The detailed calendar, including the days and hours of lectures, practical classes and seminars, as well as the dates and times of the exams, can be consulted in the ADD.

### **5.5.Bibliography and recommended resources**

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### BASIC BIBLIOGRAPHY

#### Texts

- [BB-TEXTO] - Ross, Michael H.. Histología : texto y atlas color con biología celular y molecular / Michael H. Ross, Wojciech Pawlina ; [traducción, Jorge Horacio Negrete] . 6ª ed. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2012
- [BB-TEXTO] - Welsch, Ulrich. Histología / Ulrich Welsch ; con la colaboración de Thomas Deller. 3ª ed. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2014

#### Atlas

- Boya Vegue, Jesús. Atlas de histología y organografía microscópica / Jesús Boya Vegue . 3ª ed. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, 2010
- Contamina Gonzalvo, Primitivo. Prácticas de histología. Primer curso [Recurso electrónico] / Primitivo Contamina Gonzalvo, Pilar Parra Gerona, Marcial García Rojo . [Zaragoza] : Prensas Universitarias de Zaragoza, 2011
- [BB.-Atlas] - Young, Barbara. Histología funcional : texto y atlas en color / Barbara Young, Geraldine O'Dowd, Phillip Woodford. 6ª ed. Amsterdam ; Barcelona ; Madrid [etc.] : Elsevier, D.L. 2014
- [BB.-Atlas] - Ross, Michael H.. Atlas de histología descriptiva / Michael H. Ross, Wojciech Pawlina, Todd A. Barnash . Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, cop. 2012

### COMPLEMENTARY BIBLIOGRAPHY

#### Texts

- Gartner, Leslie P.. Atlas en color y texto de histología / Leslie P. Gartner, James L. Hiatt ; [traducción por Jorge Horacio Negrete] . - 6ª ed. Buenos Aires ; Madrid [etc.] : Editorial Médica Panamericana, D.L. 2015
- Geneser, Finn. Histología : sobre bases biomoleculares / Finn Geneser ; [traducción, Karen Mikkelsen] . 3ª ed., 7ª reimp. Buenos Aires [etc.] : Editorial Médica Panamericana, 2007
- Kierszenbaum, Abraham L.. Histología y biología celular : introducción a la anatomía patológica / Abraham L. Kierszenbaum, Laura L. Tres ; [revisión científica, María Jesús Fernández Aceñero] . 3ª ed. Amsterdam ; Barcelona ; Madrid [etc.] : Elsevier, D.L. 2012
- Molecular biology of the cell / Bruce Alberts ... [et al.] ; with problems by John Wilson, Tim Hunt . 5th ed. New York : Garland Science, cop. 2008
- Biología celular y molecular / Harvey Lodish ... [et al.] ; supervisión de la traducción a cargo de : Norma B. Sterin de Speziale, Norberto A. Vidal . 5ª ed., 3ª reimp. Buenos Aires [etc.] : Editorial Médica Panamericana, 2009
- [BC-TEXTO] - Histología : con correlaciones funcionales y clínicas / Dongmei Cui... [et al.] . Barcelona : Wolters Kluwer/Lippincott Williams & Wilkins, cop. 2011
- [BC-TEXTO] - Peters, Alan. The fine structure of the nervous system : neurons and their supporting cells / Alan Peters, Sanford L. Palay, Henry deF. Webster . 3rd ed. New York ; Oxford : Oxford University Press, 1991
- [BC-TEXTO] - Lowe, James Steven. Histología humana / James S. Lowe, Peter G. Anderson ; [revisión científica, Andrés Castell Rodríguez]. 4ª ed. Amsterdam ; Madrid ; Barcelona [etc.] : Elsevier, D.L. 2015

#### Atlas

- Krstic, Radivoj V.. Human microscopic anatomy : an atlas for students of medicine and biology / Radivoj V. Krstic . Berlin ; New York : Springer-Verlag, cop. 1991
- Kühnel, Wolfgang. Atlas color de citología e histología / Wolfgang Kühnel ; [traducción de Jorge Horacio Negrete] . 11ª ed., corr. y aum., [1ª ed. española, 1ª reimp.] Madrid : Editorial Médica Panamericana 2010.
- [BC.-Atlas] - Krstic, Radivoj V.. General Histology of the Mammal : an atlas for Students of Medicine and Biology / Radivoj V. Krstic ; translated by S. Forster . [1st ed. repr.] Berlin [etc.] : Springer-Verlag, cop. 1985
- [BC-TEXTO] - Kerr, Jeffrey B.. Atlas of functional histology / Jeffrey B. Kerr . London : Mosby, cop. 2000