Universitat Autònoma de Barcelona

2019/2020

Systems Histology

Code: 101895
ECTS Credits: 6

Degree	Type	Year	Semester
2501230 Biomedical Sciences	OB	2	1

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Teachers

Joaquim Martí Clúa
Ignasi Roig Navarro

Prerequisites

A working knowledge of Histology 1 and 2 course content is required.
A basic level of English is recommended (B1 of the Common European Framework)
To have the right to attend the laboratory classes, the student must show that he/she has passed the biosafety tests uploaded in the Virtual Campus.

Objectives and Contextualisation

This is an elective subject in the 4th year, concerning the cellular and tissue bases of animal organs and systems. It has been designed assuming students have a basic knowledge of histology that will facilitate they acquire a comprehensive understanding and an integrated approach to the organization of animals.

The theoretical and practical nature of this subject allows linking scientific concepts with practical work.

The main goals of the subject are:
1. Recognize, in terms of cell biology, the diversity of animal organs.
2. Acquire the integrative concept of organ from a morpho-functional perspective.
3. Know about the structure, organization and basic functioning of different animal organs.
4. Understand and describe the organs that constitute different systems.
5. Identify the variety of cell and tissue components of animal organs by microscopy.

Competences

- Contribute to public discussions on cultural matters.
- Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
- Develop independent learning habits and motivation to continue training at postgraduate level.

- Develop independent learning strategies.
- Develop scientific knowledge, critical reasoning and creativity.
- Display knowledge of the bases and elements applicable to the development and validation of diagnostic and therapeutic techniques.
- Display knowledge of the basic life processes on several levels of organisation: molecular, cellular, tissues, organs, individual and populations.
- Generate innovative and competitive proposals for research and professional activities.
- Identify and understand the advances and challenges of research.
- Work as part of a group with members of other professions, understanding their viewpoint and establishing a constructive collaboration.

Learning Outcomes

1. Contribute to public discussions on cultural matters.
2. Define the morphological characteristics of the tissues and cells of the digestive system.
3. Define the morphological characteristics of the tissues and cells of the excretory system.
4. Describe the morphological characteristics of the tissues and cells of the cardiovascular system.
5. Describe the morphological characteristics of the tissues and cells of the endocrine glands.
6. Describe the morphological characteristics of the tissues and cells of the respiratory system.
7. Describe the principal histological techniques for studying human tissues and their component cells.
8. Develop critical thinking and reasoning and communicate ideas effectively, both in the mother tongue and in other languages.
9. Develop independent learning habits and motivation to continue training at postgraduate level.
10. Develop independent learning strategies.
11. Develop scientific knowledge, critical reasoning and creativity.
12. Discern the morphological characteristics of the tissues and cells of the genital system.
13. Discern the morphological characteristics of the tissues and cells of the nervous system.
14. Generate innovative and competitive proposals for research and professional activities.
15. Identify and understand the advances and challenges of research.
16. Identify the different organs and tissues of the body microscopically.
17. Work as part of a group with members of other professions, understanding their viewpoint and establishing a constructive collaboration.

Content

Unit 1. Nervous system.
Unit 2. Sensory organs.
Unit 3. Integumentary system.
Unit 4. Digestive system.
Unit 5. Respiratory apparatus.
Unit 6. Excretory apparatus.
Unit 7. Male reproductive system.
Unit 8. Female reproductive system.
Unit 9. Cardiovascular apparatus.
Unit 10. Immune system.
Unit 11. Endocrine system.

Methodology

Histology of Systems includes lectures and seminars.

Lectures

The subjects of teaching units will be taught in 38 sessions. They will be taught using audiovisual material prepared by the teacher. Students will have such material available in the Virtual Campus.

Seminars

The scheduled seminars are designed in order to students work in small groups to acquire teamwork and critical thinking skills. Students will be divided into working groups for a specific program topic, followed by oral presentations and collective discussion. The organization of the groups and the distribution of topics to be discussed will take place during the first seminar. In the remaining seminars, groups of students must deliver in writing their proposed topic to the professor.
Each group of students will present the topic orally to the rest of the class with the resources available in the classroom.

The recommended bibliography and scientific articles related to the subject of study will be posted on the Virtual Campus.

Seminar attendance is mandatory.

Tutorials

Tutoring will be done personally in the professor's office (times to be arranged). Tutorials should be used to clarify concepts and consolidate the knowledge acquired by the personal work of the student. They can also be useful to answer questions that students may have about the preparation of seminars.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	38	1.52	2, 3, 5, 4, 6, 7, 12, 13, 16
Seminars	10	0.4	1, 11, 10, 9, 8, 14, 15, 17
Type: Supervised			
Tutorials	6	0.24	2, 3, 5, 4, 6, 7, 11, 12, 13, 16
Type: Autonomous			
Seminars	23	0.92	1, 11, 9, 17
Study	66	2.64	11, 10, 9, 15

Assessment

The evaluation of the course will be continued through individual tests of theoretical and practical knowledge and group activities scheduled on the seminars. The evaluation system is organized into two sections, each of which is independently evaluated:

Written exams (weight 80% of the final mark). The knowledge acquired by students will be evaluated through test exams. There will be two midterm exams (eliminatory) throughout the course and a final re-assessment test (see program of the subject).

Seminars (weight 20% of the final mark). This section assesses the ability of analysis and synthesis of students in each group, as well as cooperative learning and oral presentation skills. Seminars will be assessed as follows:

1. Written work (50%): The professor evaluates (from 1 to 10) the works delivered by each group of students.
2. Oral presentation (20%): The professor evaluates (from 1 to 10) the oral presentations skills of each group of students.

3. Inter-group mark (15%): Each working group evaluates (from 1 to 10) the groups that present orally their subject of study.
4. Intra-group mark (15%): Within each working group, each student assesses (from 1 to 10) to his co-workers at the last seminar.

Seminar attendance is mandatory. In case of absence to any session, without justification, there will be a penalization in the final mark of the seminar:

Absence 1 session = 20% reduction of the mark

Absence 2 sessions = 40% reduction of the mark

Absence 3 sessions = 80% reduction of the mark

To pass the course the requirements to be met are:

- Obtain at least 5 points, out of 10, in the average score of written theory tests and seminars.

The presentation of the student to any re-assessment test (theory and/or practices) automatically removes the mark previously obtained.

Students who have shown evidence of learning with an overall score of less than 50% will be marked as "not evaluated".

Repeat students:

Repeat students will not repeat a particular written test, seminar or practical if he/she has obtained at least a minimum mark of 5 in any of them. This exemption will be maintained for a period of three additional enrolments in the subject.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Seminars	20	2	0.08	2, 3, 5, 4, 6, 7, 12, 13, 16
Written exams	80	5	0.2	1, 11, 10, 9, 8, 14, 15, 17

Bibliography

- Fawcett, D.W.: Tratado de Histología (ed. Interamericana-McGraw Hill).
- Gartner, L.P. Hiatt, J.L.: Texto Atlas De Histología, (ed. McGraw Hill).
- Geneser, F.: Histologia (ed. Panamericana).
- Krstic, R.V.: Los tejidos del hombre y de los mamíferos (ed. McGraw Hill).
- Krstic, R.V.: Human Microscopic Anatomy (ed. Springer-Verlag).
- Ross, M.H. y Pawlina, W: Histología. Texto y atlas color con biología celular y molecular (ed. Panamericana).
- Stevens, A. y Lowe, J.: Histología Humana. (ed. Elsevier).
- Welsch. U.: Sobotta Welsch Histología. (ed. Panamericana).
- Kierszembaum. A. y Tres. L: Histología y Biología Celular. Introducción a la anatomía patológica. (Ed. Elsevier)

ATLAS

- Boya, J. Atlas de Histología y organografía microscópica, ed. Panamericana.
- Cross, P.C. & Mercer, K.L. Cell and Tissue Ultrastructure. A functional perspective, ed. Freeman and Company.

- Eroschenko, V.P. Di Fiore's Atlas of Histology, ed. Lea and Febiger.
- Fawcett, D.W. The Cell, ed. W.B. Saunders Company.
- Gartner, L.P. & Hiatt, J.L. Atlas color de Histología, ed. Panamericana.
- Kessel, R.G. and Kardon, R.H.: Tissues and organs: a text-atlas of scanning electron microscopy, ed. Freeman and Company.
- Kühnel, W. Atlas de Citología y Anatomía microscópica, ed. Omega.
- Stanley, L.E. & Magney, J.E. Coloratlas Histología, ed. Mosby.
- Welsch, U. Histología (Sobotta / Hammersen), ed. Marbán.
- Young, B. & Heath, J.W. Histología funcional (Wheater), ed. Churchill Livingstone.