Elective Subject

(Academic Course 2024-2025)

Subject title: HISTOLOGICAL BASIS FOR CLINICAL PRACTICE

Code: XXXXXX
Subject: Elective
Responsibility Center: Faculty of Nursing, Physiotherapy and Podiatry
Credits: 3 ECTS
Number of places offered: 24.

	Total (30% attendance)	Theory	Seminars	Practices	Others
Classroom activities	24h	17h		5h	2h

Course schedule: (semester, day and schedule): 1st sem. Wednesday and Thursday 13h30 pm - 15h30pm

STUDENT PROFILE (University degrees for which they are offered, if applicable)

3rd and 4th year student of Nursing

BRIEF DESCRIPTOR

The teaching of histology is key in any health sciences degree. In the case of nursing, histology provides knowledge of human tissues, which in association with other tissues give rise to the organs that are part of all the apparatus and systems. For this reason, the knowledge of morphology provided by the study of basic histology and organography are essential to understand the functioning of the human body in healthy conditions. The training provided with this course will allow a better understanding of the importance of histology in pathology as it provides basic knowledge necessary for daily clinical practice.

OBJECTIVES

GENERAL

1.- To explain the importance of histology and organography in health and disease.

2.- To integrate the basic knowledge of histology and organography among the competences acquired by the students to contribute to the improvement of the clinical practice.

SPECIFIC

1.- To explain the morphology and microscopic structure of basic human tissues and organs in a healthy state.

2.- To understand how alterations in the morphology of tissues and organs affect the function generating pathologies.

3.- To understand the methodology used for the histological study of tissues and organs.

4.- To identify and interpret adequately optical and electron microscopy images of human tissues and organs in a healthy state.

ACADEMIC SKILLS

- Describe the normal structure and function of basic tissues and organs of the human body.
- Understand and recognize the histological basis in pathology.
- Understand the basis of action, indications, and efficacy of therapeutic interventions.
- Know basic histology laboratory techniques.
- Correctly identify histological specimens of different human organs with the optical microscope.
- Correctly interpret and describe electron microscopy images, identifying as far as possible the organ of origin.

LEARNING OUTCOMES

- To understand the importance of the knowledge of histology and organography to complement the knowledge of physiology and anatomy to understand the functioning of the human body in healthy conditions.
- To be able to describe the structure of basic tissues and organs of the human body and their relationship to the function they perform.
- To understand how morphofunctional alterations of tissues and organs are the basis of some pathologies.
- To describe the methodological techniques used in the histology laboratory for the study of tissues and organs.
- To learn how to use the optical microscope.
- To identify histological specimens of different human tissues and organs with the optical microscope.
- To be able to use and understand the specific terminology of the area of knowledge.
- To know, critically evaluate and use sources of biomedical information.
- To obtain, understand and communicate scientific information.

TEACHING ACTIVITIES (theoretical, practical, seminars, workshops, etc.)

To achieve the objectives and ensure that students attain the expected competencies, the theoretical and practical program will be developed using the following teaching methodologies.

- LECTURES. The professor will develop the contents of the program, highlighting the most important and complex aspects of each topic.
- PRACTICAL SESSIONS WITH MICROSCOPE. In these sessions, in small groups, students will use the light microscope and will have at their disposal a series of histological slides in which they will have to identify the organ of origin as well as the most important tissue and cellular elements.
- TUTORING. The professor will attend the students to supervise their training, guide them and solve any doubts that may arise.

CONTENT TOPICS

THEORY

- Topic 1. Introduction and histological technique. Blood. Example of pathology: Leukemias.
- Topic 2. Epithelial tissue. Example of pathology: Dysplasias and carcinomas.
- Topic 3. Connective Tissue. Example of pathology: Collagen and elastin pathology.
- Topic 4. Connective Tissue Derivatives I: Adipose and Cartilaginous Tissue. Joints. Example of pathology: Obesity. Arthritis and arthrosis.
- Topic 5. Connective tissue derivatives II: Bone tissue and Ossification. Example of pathology: Fractures.
- Topic 6.- Muscular Tissue. Example of pathology: Muscular Dystrophies.
- Topic 7.- Nervous Tissue. Example of pathology: Demyelinating and neurodegenerative diseases.
- Topic 8.- Cardiovascular system. Example of pathology: Aneurysm. Thrombosis. Infarction
- Topic 9.- Lymphoid organs. Example of pathology: Lymphoma
- Topic 10.- Respiratory system. Example of pathology: Chronic Obstructive Pulmonary Disease (COPD).
- Topic 11.- Digestive system I. Digestive Tract. Example of pathology: Inflammatory Bowel Disease.
- Topic 12.- Digestive system II. Digestive Glands. Example of pathology: Cirrhosis
- Skin and Breast. Example of pathology: Psoriasis. Benign pathology and breast cancer.
- Topic 14.- Excretory system. Example of pathology: Glomerulonephritis.
- Topic 15.- Female and Male Genital System. Example of pathology: Endometriosis and benign prostatic hyperplasia.
- Topic 16.- Nervous Organs. Example of pathology: Alzheimer's disease
- Topic 17.- Endocrine System. Example of pathology: Postmenopausal osteoporosis. Diabetes

PRACTICES: Tissues and organs in state of health.

- Topic 1.- Optical microscope handling
- Topic 2.- Basic Tissues
- Topic 3.- Organography I
- Topic 4.- Organography II

EVALUATION

REGULAR CONVOCATION			
EVALUATION ACTIVITY	**WEIGHTING**	**REMARKS**	**MAXIMUM SCORE**
Final Exam	70%		
Practice Exam	20%		
Attendance and Participation	10%		
EXTRAORDINARY CALL			
EVALUATION ACTIVITY	**WEIGHTING**	**REMARKS**	**MAXIMUM SCORE**
Final Exam	70%		
Practice Exam	20%		
Attendance and Participation	10%		

BIBLIOGRAPHY - INTERNET Resources

BIBLIOGRAPHY

- Brüel, A.; Christensen, E.; Qvortrup, J.; Geneser, Cortex, Springer-Verlag. F. Histología, 4ª ed. 2015.Madrid, Panamericana.
- Kierszenbaum, Abraham L., M.D., Ph.D. Histología y biología celular, Quinta edición. 2020. Elsevier España,

  AVAILABLE AT KLINICALKEY

  https://www-clinicalkey-com.bucm.idm.oclc.org/student/content/toc/3-s2.0-C20190044457

- Krstic, R.V. Human Microscopic Anatomy. 1997. Berlin: Springer-Verlag.

Practice Books

- Boya, J. Atlas de Histología y Organografía Microscópica, 3ª ed. 2011. Madrid. Ed. Panamericana
- Gartner, L.P. y Hiatt, J.L. Atlas en color y texto de Histología. 2017. Ed. Panamericana
- Young, B. y Heath, J.W. Histología Funcional de Wheater, Texto y Atlas en color. 2014. Ed. Harcourt-Churchill Livingstone.
- AVAILABLE AT KLINICALKEY

  https://www-clinicalkey-com.bucm.idm.oclc.org/student/content/toc/3-s2.0-C20130189611
- Martín-Lacave, I. y García-Caballero, Atlas de Inmunohistoquímica. Caracterización de células, tejidos y órganos normales, Editorial Díaz de Santos, abril de 2012.
- Martín-Lacave, I. Utrilla Alcolea J.C., Fernández Santos J.M. y García-Caballero. Atlas de Histología. Microscopía óptica y electrónica. Editorial Díaz de Santos. 2020.

Online Resources

Prácticas virtuales de Histología

https://www.pathologylive.com/practicas-histologia/index.html

Prácticas virtuales de Organografía Microscópica

https://www.pathologylive.com/practicas-organografia-microscopica/index.html

TEACHING STAFF *(It should be indicated whether teachers have completed all their teaching dedication or not)

Teacher Responsible (coordinator): María del Pilar Fernández Mateos (mapferna@ucm.es)
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