

Course Unit	Histology	Field of study	Expertise Sciences
Bachelor in	Biomedical Laboratory Sciences	School	School of Health
Academic Year	2022/2023	Year of study	1
Type	Semestral	Semester	1
Level	1-1	ECTS credits	3.0
Code	9995-550-1104-00-22		
Workload (hours)	81	Contact hours	T - TP 40 PL - TC - S - E - OT 5 O -

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Carina de Fatima Rodrigues

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. To know at the cellular and molecular level (biomolecules) the characteristics that distinguish the four basic types of tissue and its origin (Histogenesis);
2. To understand and explain the histofisiological bases of the tissues, organs and systems;
3. To develop the ability of association between structure and function;
4. The ability to correlate the structure, composition and the colorimetric properties of tissues;
5. To identify the different types of optical microscope tissues;
6. Understand why histology is essential for accurate diagnosis and monitoring of disease progression by analysing some examples of clinical applications.

Prerequisites

Not applicable

Course contents

Histology and its relationship to other medical sciences. General approach to different techniques and applications in diagnosis and research: the types of microscopy, colouring techniques and specimen preparation. The four basic tissue types and characteristics that set them apart. Classification and location of the tissues in different organ systems. Clinical applications of the histology and the development of new approaches.

Course contents (extended version)

1. HISTOLOGY: concepts and his relationship to other sciences.
2. DIFFERENT TECHNIQUES: applications in clinical diagnosis and research.
 - Techniques for microscopy specimen preparation-introduction.
 - Dyes with different affinities;
 - Histochemistry;
3. EPITHELIAL TISSUE
 - Coating Epithelia;
 - Glandular Epithelia;
 - Epithelia specialized cells.
4. CONECTIVE TISSUE
 - Connective tissue cells;
 - Extracellular matrix: (collagens, elastic fibbers, glycoproteins, glyco and proteoglycan's);
 - Proper connective tissue : dense, loose, regular and irregular;
 - Bone Tissue: both primary and secondary; compact and spongy);
 - Intramembranous and an endochondral ossification, bone remodelling and synovial membrane.
 - Blood Tissue: red cells, white cells and platelets, (brief reference);
 - Cartilaginos tissue; hyaline, elastic and fibrocartilage;
 - Adipose tissue;
5. MUSCULAR TISSUE
 - Cardiac Muscle;
 - Skeletal Muscle;
 - Smooth Muscle.
6. NERVOUS SYSTEM
 - Different tissues of the nervous system, brief reference;
 - Organization, characteristics of neurons and their classification;
 - Glial cells and other specialized cells of the nervous system;
 - White matter and grey matter.
7. CARDIOVASCULAR SYSTEM TISSUES
 - Blood vessel wall structure;
 - heart;
 - Lymphatic system.
8. DIGESTIVE TRACT TISSUES
 - Oral cavity;
 - Tong;
 - Pharynx;
 - Oesophagus;
 - Stomach;
 - Small and large bowel;
 - Related Glands.
9. RESPIRATORY TISSUES
 - Conducting portion;
 - Respiratory portion.
10. SKIN, AIR and NAILS
11. TISSUES OF URINARY TRACT
 - Kidney;
 - Ureters;
 - Bladder.
12. ENDOCRINE GLANDS: SPECIALIZED CELLS.
 - Hipofise;
 - Thyroid;
 - Parathyroid;
 - Suprarenal;
 - Endocrine Pancreas;
 - Pineal.
13. THE TISSUES OF THE FEMALE REPRODUCTIVE SYSTEM
14. THE TISSUES OF THE MALE REPRODUCTIVE SYSTEM
15. Observation of histological slides of different organ systems.

Recommended reading

1. O Valle K. W. & Nahirney (2008). Bases da Histologia. Rio de Janeiro: Elsevier.
2. Poirier, J. , [et al.] (2003). Histologia Molecular. São Paulo: Livraria Santos.
3. Gartner, L. , P. , (1999). Tratado de histologia em cores. Rio de Janeiro: Editora Guanabara Koogan.
4. Junqueira, L. C. & Carneiro, J. (1995). Histologia Básica (8ª Edição). Rio de Janeiro: Editora Guanabara Koogan.

Teaching and learning methods

Expositive, participative and observational method. Observation of microscope sections which are stained with different techniques to analyse key features of the different cells and anatomical structures within the tissues.

Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
- Final Written Exam - 100%

Language of instruction

Portuguese

Electronic validation

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12-11-2022	12-11-2022	12-11-2022	14-11-2022