SUBJECT CARD

Faculty of Medicine and Health Sciences
Field of studies: Medicine
Form of studies: Full-time
Degree: Long-cycle Master's program
Specializations: No specialization
Academic year: 2022/2023

MICROSCOPIC STRUCTURE OF HUMAN BODY	
SUBJECT	**Microscopic structure of human body**
NUMBER OF ECTS POINTS	3
LANGUAGE OF INSTRUCTION	English
TEACHER(S)	Professor Jadwiga Mirecka, MD, PhD Maciej Wierzbicki, MSc
PERSON RESPONSIBLE	Professor Jadwiga Mirecka, MD, PhD
NUMBER OF HOURS	
LECTURES	16 h
LABORATORY CLASSES	19 h
GENERAL OBJECTIVES	
OBJECTIVE 1	To acquaint students with microscopic and sub-microscopic structure of human tissues
OBJECTIVE 2	To provide a link between histological structure and tissue/body function
LEARNING OUTCOMES	
MK1	**Knowledge**: Student describes the structure of all tissues on the level of optical microscope.
MK2	**Knowledge:** Student names sub-microscopic structures characteristic for a given tissues.
MK3	**Knowledge:** Student explains a relationship between a structure and function of the tissue.
MS1	**Skills:** Student identifies tissues under optical microscope.
MS2	**Skills:** Student identifies certain elements of cell structures on electron-micrographs.

MICROSCOPIC STRUCTURE OF HUMAN BODY	
INTRODUCTORY REQUIREMENTS	
There are no specific prerequisites.	
COURSE PROGRAM	**DETAILED DESCRIPTION OF THE TOPIC BLOCKS**
LECTURE 1	Characteristic features of images from optical and electron microscopes. Preparation of materials for examination under microscopes. Review of cell structures visible under microscope.
LECTURE 2	Structure and function of epithelial tissue. Classification of epithelia. Differentiation of cell surfaces. Types of glands. Mechanisms of secretion.
LECTURE 3	Structure and function of connective tissue proper. Extracellular matrix, significance of the ground substance and characteristics of fibres. Types of cells. Specific examples of connective tissue proper: adipose tissue and tendon.
LECTURE 4	Structure and function of supporting tissues. Types of cartilages. Cells of the bone, bone lamella and osteon. Development of the bone (types of ossification) and its remodeling.
LECTURE 5	Blood serum and formed elements. Morphological and functional characteristics of blood cells. Bone marrow and hematopoesis.
LECTURE 6	General structure and function of muscular tissue: smooth, striated and cardiac muscle. Sarcomere as a contractile unit.
LECTURE 7	General structure and function of nervous tissue. The neuron and its processes. Myelinated and non-myelinated nerve fibres . General structure of synapses. Glial cells.
LECTURE 8	Comparison of characteristic features of various tissues. Review of slides.
LABORATORY CLASS 1	Principles of working with microscope. The animal cell and its main structures under optical and electron microscope.
LABORATORY CLASS 2	Examples of epithelial tissues. Surface specialization of epithelial cells.
LABORATORY CLASS 3	The connective tissue proper. Collagen, elastic and reticular fibers. The cells of connective tissue proper. The adipose tissue and tendon.
LABORATORY CLASS 4	Hyaline and elastic cartilage. The compact and spongy bone. Regular and ground sections , longitudinal and transverse.
LABORATORY CLASS 5	The blood smears - identification of white blood cells. General characteristics of the smear from the bone marrow.
LABORATORY CLASS 6	Microscopic picture of the muscular tissues: smooth, striated and cardiac. Ultrastructure of sarcomere. T tubules.

MICROSCOPIC STRUCTURE OF HUMAN BODY	
LABORATORY CLASS 7	The nervous tissue nerve cells, nerve fibers and peripheral nerves. Glial cells.
LABORATORY CLASS 8	Reviewing of slides from all tissues.
DIDACTIC METHODS (APPLIED)	
	Lectures with Power Point demonstrations; Practical classes based on viewing and interpreting histological preparations and electron-micrographs.
STUDENTS WORKLOAD	
NUMBER OF HOURS UNDER SUPERVISION	35 hours
NUMBER OF PREPARATION HOURS	Preparation for classes - 30 hours Preparation for the exam - 20 hours
TOTAL NUMBER OF HOURS FOR THE COURSE	85 hours
CONDITIONS FOR COURSE COMPLETION	
	Attendance of all lectures and laboratory classes (any absence has to be compensated with another group). Passing the practical test: gaining at least 5 (out of 8 possible) points. Passing the written exam: gaining at least 13 (out of 24 possible) points with no more than 2 questions scored 0.
METHODS OF ASSESMENT	
IN TERMS OF KNOWLEDGE	Oral questioning, quizzes, written exams
IN TERMS OF SKILLS	Practical recognition of slides and electron-micrographs
IN TERMS OF SOCIAL COMPETENCY	Not applicable.
FORMATIVE	Short quizzes during the laboratory classes.
SUMMATIVE (I & II term)	**Practical exam of the OSPE type** (Objective Structured Practical Examination): recognition of microscopical slides and electron-micrographs. To pass the practical test student should gain at least 5 (out of 8 possible) points. **EXAMS (I term):** MCQ test with 60 questions and passing level at 55% of correct answers. **II term:** written examination consisting of 6 open questions, evaluated on a scale 0-3. **III term:** (so called „Short condition for further progression) - oral

MICROSCOPIC STRUCTURE OF HUMAN BODY	
GRADING SCALE	
3,0 (SATISFACTORY)	**55 - 60%** of corrects answers in the written exam
3,5 (SATISFACTORY PLUS)	**61 - 66 %** of corrects answers in the written exam
4,0 (GOOD)	**67- 72%** of corrects answers in the written exam
4,5 (GOOD PLUS)	**73 - 79%** of corrects answers in the written exam
5,0 (VERY GOOD)	**minimum 80%** of corrects answers in the written exam
BASIC LITERATURE	

[1] A.L.Mescher: Junqueira's Basic Histology. Text and Atlas. United States of America 2016. McGraw-Hill Education.
[2] J.S.Lowe, P.G.Anderson, S.I.Anderson: Stevens & Lowe's: Human Histology. Elsevier . China. 2020
[3] L. P.Gartner.:Textbook of Histology. Elsevier. Canada .2021