



Pomeranian Medical University in Szczecin

SYLLABUS of the MODULE (SUBJECT) General Information

Module title: Histology, embryology and cytophysiology	
Module type	Obligatory
Faculty PMU	Faculty of Medicine
Major	Medicine
Level of study	long-cycle Master's degree studies
Mode of study	full-time studies provided in English Language
Year of studies, semester	Year I, semesters I and II
ECTS credits (incl. semester breakdown)	13 (6+7)
Type/s of training	(120 h): Lectures (25)seminars (15 h)/practical classes (80 h) (amount of hours)/
Form of assessment*	-graded assessment - final examination: X test (1st and 1st re-take) X practical (before the test) X oral (2nd re-take)
Head of the Department/ Clinic, Unit	Barbara Wiszniewska Professor PhD, Dsc barbara.wiszniewska@pum.edu.pl
Tutor responsible for the module	Aleksandra Wilk, PhD, aleksandra.wilk@pum.edu.pl
Department's/ Clinic's/ Unit's website	https://www.pum.edu.pl/wydzialy/wydzial-lekarski/katedra-i-zaklad-histologii-i-embriologii
Language	English

* replace ☐ into ☒ where applicable

Detailed information

Module objectives		<p>The purpose of histology course is to provide the sufficient information regarding the types of human tissues and morphology of human organs. The goal is also to explain the connection between the morphology of particular cells and their function.</p> <p>The seminars in cytophysiology are to describe the principal information on molecular mechanisms that control the cell metabolism and are responsible for cell specificity.</p> <p>The embryology seminars explain the prenatal development of human organism starting from conception (fertilization) through formation of blastocyst, gastrulation and organogenesis to the time of birth. The subject also includes the phases of human embryological development, sensitivity of embryo and fetus to the most common teratogenic factors, capability of survival in comparison to gestational age.</p> <p>Theoretical background provided during two semesters of histology, embryology and cytophysiology course is necessary for students of medicine faculty and may be very helpful to understand etiology of diseases.</p>
Prerequisite /essential requirements	Knowledge	Acquire the essential elements of the organization of human tissues. The morphology and function of particular tissues and organs. The human embryo and fetal development, development of the crucial organs, including anomalies.
	Skills	Handling of light microscope with immersion
	Competences	To show habit of self-education and lifelong education

Description of the learning outcomes for the subject /module			
No. of learning outcome	Student, who has passed the (subject) knows /is able to /can:	SYMBOL (referring the standards)	Method of verification of learning outcomes*
W01	knows Polish and English anatomical, histological and embryological terminology	K_A.W1	S, K, O, PS, W, EPR, ET, EU
W02	knows basic cell structures and their functions	K_A.W4	
W03	knows micro-architecture of tissues, extracellular matrix and organs	K_A.W5	
W04	knows embryo development phases, structure and function of fetal membranes and placenta, knows development phases of organs	K_A.W6	
W05	knows the concepts of oxidative potential and oxidative stress	K_B.W17	
W06	knows digestive enzymes, mechanism of hydrochloric acid production in stomach, role of bile, process of digestion product absorption and connected disorders/associated abnormalities/	K_B.W18	
W07	knows consequences of malnutrition, incl. permanent	K_B.W19	

	starving, excessive alimentation and nonbalanced diet		
W08	knows consequences of hypovitaminosis and minerals deficiency as well as vitamin and mineral excess in human organism	K_B.W20	
W09	has the basic knowledge of stem cells and their application in medicine	K_B.W23	
U01	operates optical microscope and is able to exploit immersion	K_A.U1	
U02	recognizes histological structures corresponding to organs, tissues, cells and cell structures on the basis of optical or electronic microscope images and describes and interprets their structures and the relationships between structure and function	K_A.U2	
U03	speaks and writes using anatomical, histological and embryological terminology	K_A.U5	
K01	accepts the need for ethical standards	K_K.01	
K02	recognizes concept and need for responsibility for property he/she has been entrusted with	K_K.02	
K03	demonstrates the awareness for self-education, understands the need for continuing professional education, can inspire and organize learning processes in others	K_K.03	
K04	co-operates with team members; can co-operate within a group and take different roles	K_K.04	

Table presenting LEARNING OUTCOMES in relation to the form of classes

No. of learning outcome	Learning outcomes	Type of training						
		Lecture	Seminar	Practical classes	Clinical classes	Simulations	E-learning	Other...
01	A.W1	x	x	x				
02	A.W4	x	x	x				
03	A.W5	x	x	x				
04	A.W6	x	x	x				
05	B.W17		x	x				

06	B.W18		x	x				
07	B.W19		x	x				
08	B.W20		x	x				
09	B.W23		x	x				
10.	A.U1			x				
11.	A.U2	x	x	x				
12	A.U5		x	x				
13	K01	x	x	x				
14	K02		x	x				
15	K03	x	x	x				
16	K04		x	x				

Table presenting TEACHING PROGRAMME			
No. of a teaching programme	Teaching programme	No. of hours	References to learning outcomes
Winter semester			
Lectures			
TK 01	Cytology	1	W1, W3, K01, K03, K04
TK 02	Epithelial tissue and glands	1	W1, W2, W5, U3, K01, K03, K04
TK 03	Connective tissue and adipose tissue	2	W1, W2, W3, W5, U3, K01, K03, K04
TK 04	Cartilage and bone	1	W1, W2, W3, W5, U3, K01, K03, K04
TK 05	Muscles	1	W1, W2, W3, W5, W8, U3, K01, K03, K04
TK 06	Circulatory system	1	W1, W2, W3, W5, U3, K01, K03, K04
TK 07	Nervous tissue. Peripheral nervous system.	1	W1, W2, W3, W5, W8, U3, K01, K03, K04
TK 08	Central nervous system	1	W1, W2, W3, W5, W8, U3, K01, K03, K04
TK 09	Blood and bone marrow	1	W1, W2, W3, W5, W6, W7, U3, K01, K03, K04

TK 10	Basis of immunology. Lymphatic system	1	W1, W2, W3, W5, W6, U3, K01, K03, K04
TK 11	Eye and ear	1	W1, W2, W3, W5, U3, K01, K03, K04
Seminars			
TK 01	Methods in histology	1	W1, W3, W4, K01, K03, K04
TK 02	Cell signaling	1	W1, W2, W5, K01, K03, K04
TK 03	Cell cycle	1	W1, W2, W6, K01, K03, K04
TK 04	Cytoskeleton. Endo-egzocytosis	1	W1, W2, W5, K1, K3, K4
TK 05	Aging. Apoptosis	1	W1, W2, W6, K01, K03, K04
TK 06	Development of nervous system	1	W1, W2, W4, W8, K01, K03, K04
TK 07	Hematopoiesis	1	W1, W2, W3, W6, W7, K01, K03, K04
TK 08	Cell differentiation	1	W1, W2, W6, K01, K03, K04
Practical classes			
TK 01	Epithelial tissue and glands	3	W1, W2, W5, U1, U2, U3, K01, K02, K03, K04
TK 02	Connective tissue proper, adipose tissue	3	W1, W2, W3, W5, U1, U2, U3, K01, K02, K03, K04
TK 03	Cartilage and bone	3	W1, W2, W3, W5, W8, U1, U2, U3, K01, K02, K03, K04
TK 04	Muscle tissue	3	W1, W2, W3, W5, W8, U1, U2, U3, K01, K02, K03, K04
TK 05	Theoretical test I, practical classes	3	W1, W2, W3, W4, W5, W6, W8, U1, U2, U3, K01, K02, K03, K04
TK 06	Test I re-take, practical test I	3	W1, W2, W3, W4, W5, W6, W8, U2, U3, K04

TK 07	Circulatory system. Theoretical test I – 2nd re-take	3	W1, W2, W3, W4, W5, W6, W7, W8, U1, U2, U3, K01, K02, K03, K04
TK 08	Nervous tissue. Eye	3	W1, W2, W3, W5, W8, U1, U2, U3, K01, K02, K03, K04
TK 09	Central Nervous System	3	W1, W2, W3, W4, W5, W8, U1, U2, U3, K01, K02, K03, K04
TK 10	Blood and bone marrow	3	W1, W2, W3, W5, W6, U1, U2, U3, K01, K02, K03, K04
TK 11	Lymphatic system	3	W1, W2, W3, W5, W6, U1, U2, U3 K01, K02, K03, K04
TK 12	Theoretical test II, practical classes	3	W1, W2, W3, W5, W6, W7, W8, W9, U1, U2, U3, K01, K02, K03, K04
TK 13	Theoretical test II- re-take, practical test II	3	W1, W2, W3, W5, W6, W7, W8, W9, U2, U3, K04
TK 14	Theoretical test II – 2nd re-take	1	W1, W2, W3, W5, W6, W7, W8, W9, U3, K04
Summer semester			
Lectures			
TK 01	Endocrine glands	2	W1, W2, W3, W5, W9, K01, K02, K03, K04
TK 02	Digestive tract I: oral cavity: lip, tongue, teeth, glands of oral cavity, esophagus	2	W1, W2, W3, W5, K01, K02, K03, K04
TK 03	Digestive tract II: stomach, small intestine, large intestine, appendix	2	W1, W2, W3, W5, K01, K02, K03, K04
TK 04	Organs associated with digestive tract: pancreas, liver, gall bladder, salivary glands	2	W1, W2, W3, W5, K01, K02, K03, K04
TK 05	Urinary system	1	W1, W2, W3, W5, K01, K02, K03, K04
TK 06	Female reproductive system	1	W1, W2, W3, W4, W5, K01, K02, K03, K04

TK 07	Male reproductive system	1	W1, W2, W3, W4, W5, K01, K02, K03, K04
TK 08	Respiratory system	1	W1, W2, W3, W5, W9, K01, K02, K03, K04
TK 09	Skin	1	W1, W2, W3, W5, K01, K02, K03, K04
Seminars			
TK01	Endocrine system development	1	W1, W2, W3, W4, U3, K01, K02, K03, K04
TK02	Pharyngeal arches and pouches	1	W1, W2, W3, W4, U3, K01, K02, K03, K04
TK 03	Fertilization, implantation	1	W1, W2, W3, W4, W5, K01, K03, K04
TK 04	Gastrulation, twins	1	W1, W2, W3, W4, U3, K01, K02, K03, K04
TK 05	Fetal membranes	1	W1, W2, W3, W4, K01, K02, K03, K04
TK 06	Urogenital system development	1	W1, W2, W3, W4, W5, K01, K02, K03, K04
TK 07	Respiratory system development	1	W1, W2, W3, W4, U3, K01, K02, K03, K04
Practical classes			
TK 01	Endocrine glands	3	W1, W2, W3, U1, U2, U3, K01, K02, K03, K04
TK 02	Digestive tract I: oral cavity: lip, tongue, teeth, glands of oral cavity, esophagus	3	W1, W2, W3, U1, U2, U3, K01, K02, K03, K04
TK 03	Digestive tract II: stomach, small intestine, large intestine, appendix	3	W1, W2, W3, U1, U2, U3, K01, K02, K03, K04
TK 04	Organs associated with digestive tract: pancreas, liver, gall bladder, salivary glands	3	W1, W2, W3, U1, U2, U3, K01, K02, K03, K04
TK 05	Theoretical test III, practical classes	3	W1, W2, W3, W4, W5, W9, U1, U2, U3, K01, K02, K03, K04
TK 06	Practical test III, Theoretical test III-re-take	3	W1, W2, W3, W4, W5, W9, U2, U3, K04
TK 07	Urinary system, Theoretical test III- 2nd re-take	3	W1, W2, W3, W4, W5, W9,

			U1, U2, U3, K01, K02, K03, K04
TK 08	Female reproductive system	3	W1, W2, W3, U1, U2, U3, K01, K02, K03, K04
TK 09	Male reproductive system	3	W1, W2, W3, U1, U2, U3, K01, K02, K03, K04
TK 10	Respiratory system	2	W1, W2, W3, W4, W5, W6, W7, W8, U1, U2, U3, K01, K02, K03, K04
TK 11	Skin	2	W1, W2, W3, U1, U2, U3, K01, K02, K03, K04
TK 12	Theoretical test IV, practical classes	2	W1, W2, W3, W4, W5, W9, U1, U2, U3, K01, K02, K03, K04
TK 13	Practical Test IV, theoretical test IV- re-take	2	W1, W2, W3, W4, W5, W9, U2, U3, K04
TK 14	Theoretical test IV- 2nd re-take, practical classes before exam	3	W1, W2, W3, W4, W5, U1, U2, U3, K01, K02, K03, K04
TK 15	Practical exam	1	W1, W2, W3, W4, W5, W6, W7, W8, W9, U2, U3, K04
TK 16	Theoretical exam	1	W1, W2, W3, W4, W5, W6, W7, W8, W9, U2, U3, K04
Simulation			
E-learning			

Booklist
Obligatory literature:
1. Junqueira's Basic Histology: Text and Atlas, Fifteenth Edition
2. Before we are born. Essential of Embryology and Birth defects. Keith L. Moore, T.V.N. Persaud, Mark G. Torchia 8th edition 2013
Supplementary literature:
1. Leslie P Gartner. Textbook of Histology
2. T.W. Sadler: Langman's medical embryology. Thirteenth edition

Student's workload	
Form of student's activity (in-class participation; activeness, produce a report, etc.)	Student's workload [h]
	Tutor
Contact hours with the tutor	120
Time spent on preparation to seminars/ practical classess	75
Time spent on reading recommended literature	70
Time spent on writing report/making project	---
Time spent on preparing to colloquium/ entry test	35
Time spent on preparing to exam	90
Other	---
Student's workload in total	390
ECTS credits for the subject (in total)	13
Remarks	

* Selected examples of methods of assessment:

EP – written examination

EU – oral examination

ET – test examination

EPR – practical examination

K – colloquium

R – report

S – practical skills assessment

RZC – practical classes report, incl. discussion on results

O – student's active participation and attitude assessment

SL – lab report

SP – case study

PS - assessment of student's ability to work independently

W – entry test

PM – multimedial presentation

other...