



Syllabus for academic year: 2021/2022													
Training cycle: 2021-2026													
Description of the course													
Course	Histology Cytology with Embryology										Group of detailed education results		
											Group code A	Group name Morphological Science	
Faculty	Dentistry												
Major	Dentistry												
Level of studies	Uniform magister studies												
Form of studies	Full-time												
Year of studies	I						Semester:		Winter and summer				
Type of course	Obligatory												
Language of study	English												
Number of hours													
Form of education													
	Lectures (L)	Seminars (SE)	Auditorium classes (AC)	Major Classes – not clinical (MC)	Clinical Classes (CC)	Laboratory Classes (LC)	Classes in Simulated Conditions (CSC)	Practical Classes with Patient (PCP)	Foreign language Course (FLC)	Physical Education (PE)	Vocational Practice (VP)	Directed Self-Study (DSS)	E-learning (EL)
<b>Winter semester:</b>													
Division of Histology and Embryology													
Direct (contact) education <sup>1</sup>		10		35									
Distance learning <sup>2</sup>	5												
<b>Summer semester:</b>													
Division of Histology and Embryology													
Direct (contact) education		10		35									
Distance learning	5												

1 Education conducted with direct participation of university teachers or other academics  
2 Education with applied methods and techniques for distance learning



TOTAL per year:

Division of Histology and Embryology													
Direct (contact) education		20		70									
Distance learning	10												

Educational objectives (max. 6 items)

C1. During the course of histology students should become acquaint:

- the principles of the basic techniques used in the morphological studies,
- the organization of the cell model with cell organelles, their structure and functions,
- structure and function of selected, important specialized cells,
- classification, characteristics, origin, histological organization and role of the tissues,
- histological organization of organs and systems and their role and the basic mechanisms that regulate their functions.

C2. During the course of embryology students should become acquaint:

- with prenatal part of the human development (including all stages of human pre-embryonic, embryonic and fetal development)
- with development of pharyngeal apparatus and birth defects associated with the development of head and neck

C3. During the cytophysiology classes, students should become acquaint with:

- processes taking place in cell organelles and mechanisms of their regulation,
- life cycle, cell differentiation, regulation of these processes and cell aging,
- types of cell death (apoptosis, necrosis, autophagy, mitotic catastrophe)
- intercellular interactions and their importance,
- more important processes related to with immune response, neoplasm and cell adhesion
- selected cytoplasmic processes

Education result for course in relation to verification methods of the intended education result and the type of class:

Number of detailed education result	Student who completes the course knows/is able to	Methods of verification of intended education results	Form of didactic class <i>*enter the abbreviation</i>
AW1	demonstrates the knowledge of human organism's structures: cells, tissues, organs and systems, especially stomatognathic system	Oral response, written examination, test	L, MC
AW4	describes the organs' and the whole organism's development, especially the masticatory complex development	Oral response, written examination, test	L, MC
AW5	describes concisely the functional significance of the particular organs and systems	Oral response, written examination, test	L, MC
AW6	knows and understands the stages of development of the human embryo, structure and function of the membranes and placenta, and knows the stages of development of individual organs	Oral response, written examination, test	SE
AU2	uses the microscope, including the use of immersion and recognizes the histological structure of organs and tissues under the microscope, as well as describes and interprets the microscopic structure of cells, tissues and	Practical examination, test	MC



	organs and their functions Uses both oral and written anatomical, histological and embryological terms		
AU5	Uses both oral and written anatomical, histological and embryological terms	Oral response, written examination, test	L, MC, SE
* L- lecture; SE- seminar; AC- auditorium classes; MC- major classes (non-clinical); CC- clinical classes; LC- laboratory classes; CSC- classes in simulated conditions; PCP- practical classes with patient; FLC- foreign language course; PE- physical education; VP- vocational practice; DSS- directed self-study; EL- E-learning			
<b>Student's amount of work (balance of ECTS points):</b>			
<b>Student's workload</b> (class participation, activity, preparation, etc.)		<b>Student Workload</b>	
1. Number of hours of direct contact:		90	
2. Number of hours of distance learning:		10	
3. Number of hours of student's own work:		100	
4. Number of hours of directed self-study			
Total student's workload		200	
ECTS points for course		12	
<b>Content of classes:</b> (please enter topic words of specific classes divided into their didactic form and remember how it is translated to intended educational effects)			
<b>Lectures</b>			
<ol style="list-style-type: none"> <li>1. Introduction to the cell. Epithelial tissue: epithelia and glands, specializations of cells surface, intercellular connections (1h).</li> <li>2. Connective tissue: supporting cells family, extracellular matrix (1h).</li> <li>3. Cartilage and bone, and their development (1h).</li> <li>4. Muscles – skeletal, cardiac, smooth (1h).</li> <li>5. Digestive tract – oral cavity, lip, tongue, tooth, tooth development (1h).</li> <li>6. Digestive system: liver and pancreas (1h).</li> <li>7. Respiratory system (1h).</li> <li>8. Skin (1h).</li> <li>9. Urinary system and reproductive system (1h).</li> <li>10. Endocrine system (1h).</li> </ol>			
<b>Seminars – Embryology:</b>			
<ol style="list-style-type: none"> <li>1. Gametogenesis: meiosis, oogenesis, spermatogenesis (2h)</li> <li>2. The 1<sup>st</sup> week of development: ovulation to implantation (2h)</li> <li>3. The 2<sup>nd</sup> – 3<sup>rd</sup> week: germ disc and germ layers (2h)</li> <li>4. The 3<sup>rd</sup> – 8<sup>th</sup> week: organogenesis, embryonic period, fetal period (2h)</li> <li>5. Head and neck development (pharyngeal apparatus) (2h)</li> </ol>			
<b>Classes</b>			
<b>Histology:</b>			
<ol style="list-style-type: none"> <li>1. Histological techniques, microscopic structure and function of cells (3h).</li> <li>2. Epithelial tissue: epithelia and glands, specialized surface of cells, intercellular connections (3h).</li> <li>3. Connective tissue: supporting cells family, extracellular matrix, cartilage, bone, and their</li> </ol>			



development (7h).

4. Muscular tissue: contractile cells, their function (4h).
5. Blood: blood cells, hemopoiesis (3h).
6. Cardiovascular system (the heart and blood vessels) (3h).
7. Immune system: immune cells, structure and function of the immune system (3h).
8. The alimentary tract: oral cavity and its contents, transport and digestive part (9h).
9. Digestive system: liver and pancreas (2h).
10. Endocrine system (hypothalamus, pituitary gland, thyroid and parathyroid, adrenals, pancreas, ovary and testis, diffused neuroendocrine system) (2h).
11. Respiratory system: upper and distal tract (2h).
12. Urinary system (kidney, the structure and function of nephron, lower urinary tract) (2h).
13. Male and female reproductive system (ovary and uterus, testis and epididymis, hormonal control) (2h).
14. Skin and breast (2h).
15. Sense organs: eye and ear (2h).

**Cytology:**

1. Methods used to study the cell functioning (1h).
2. Cell nucleus' organization and functioning (1h).
3. Cell cycle and cell aging (1h).
4. Types of cell death (apoptosis, necrosis, autophagy) (1h).
5. Cytoskeleton (1h).
6. The most important processes occurring in cytoplasm (1h).
7. Intercellular signaling (1h).
8. Adhesion molecules and extracellular matrix (1h).
9. The most important processes associated with immune response (1h).
10. Cancerogenesis (1h).

**Basic literature** (list according to importance, no more than 3 items)

1. Basic Histology. L. Carlos Junqueira, Jose Carneiro, Robert O. Kelly
2. Human Histology. Alan Stevens, James Lowe
3. Langman's Medical Embriology. T.W. Sadler; Lippincott Williams & Wilkins

**Additional literature and other materials** (no more than 3 items)

- 1.1. Histology and Cell Biology: An Introduction to Pathology. Abraham Kierszenbaum
2. Histology: a text and atlas. Michael H. Ross, Gordon I. Kaye, Wojciech Pawlina
3. Exercise notebook for medicine and dentistry student (ed. Maciej Zabel). Elsevier, Urban & Partner

Grade:	Criteria for exam <sup>3</sup>
Very Good (5.0)	Point range depending on the Gaussian distribution.
Good Above (4.5)	Point range depending on the Gaussian distribution.
Good (4.0)	Point range depending on the Gaussian distribution.
Satisfactory Plus (3.5)	Point range depending on the Gaussian distribution.
Satisfactory (3.0)	Point range depending on the Gaussian distribution. Minimum 60% of proper answers.



Department in charge of the course:	Division of Histology and Embryology Wrocław Medical University
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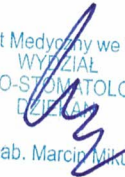
Person in charge for the course:	Marzenna Podhorska-Okolow MD, PhD, Prof.
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**List of persons conducting specific classes:**

Name and surname	Degree/scientific or professional title	Discipline	Performed profession	Form of classes
Urszula Ciesielska	PhD	Medical science	adiunct	lectures, classes
Christopher Kobierzycki	MD, PhD	Medical science	adiunct	lectures, classes
Sylwia Borska	PhD	Medical science	adiunct	seminars

Date of Syllabus development  
21/06/2021

Syllabus developed by  
Christopher Kobierzycki

Uniwersytet Medyczny we Wrocławiu  
WYDZIAŁ  
LEKARSKO-STOMATOLOGICZNY  
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Signature of Head(s) of teaching unit(s)  
Uniwersytet Medyczny we Wrocławiu  
ZAKŁAD HISTOLOGII I EMBRIOLOGII  
Kierownik  
  
..... prof. dr hab. Piotr Dziegiel .....

Dean's signature

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