



**48SJO-HAEMB**  
**ECTS: 8.00**  
**CYCLE: 2024**

## Course syllabus - part A Histology and Embryology

### SUBJECT MATTER CONTENT

#### LECTURE

Bone and cartilage. Bone ossification. Nerve tissue and the nervous system. Blood and hematopoiesis. Cardiovascular and respiratory system. The immune system and lymphoid organs. Salivary glands. Liver and bile ducts. Pancreas. Special senses. Skin. Endocrine system.

#### CLASSES

Epithelial tissue. Glands and their classification. Adipose tissue. Bone and cartilage. Bone ossification. Nerve tissue and the nervous system. Muscle tissue. Blood. Bone marrow. Hematopoiesis. The cardiovascular system. The respiratory system. The immune system and lymphoid organs. Connective tissue proper. Gastrointestinal tract. Salivary glands. Liver and bile ducts. Pancreas. The immune system and lymphoid organs. Endocrine system. Male reproductive system. Spermatogenesis. Female reproductive system. Oogenesis. Mammary glands. Fertilization. Blastulation. Implantation. Gastrulation. Embryonic disc: ectoderm, endoderm, mesoderm. Placenta and umbilical cord. Birth defects and prenatal diagnosis. Development of musculoskeletal (locomotor) system. Cardiovascular and respiratory system development. The gut tube development. Development of the urogenital system. Formation of the head and neck. Development of the nervous system.

#### TEACHING OBJECTIVE

The main objective of the course is to provide students with knowledge about the morphology and functions of normal human tissues and organs of adults and during growth and development. Knowledge in the field of microarchitectonics and histophysiology of organs is a necessary introduction to teaching other disciplines in later years of studies. An important part of teaching are practical tasks in which students recognize and describe tissues and organs on a microscopic images.

#### DESCRIPTION OF THE LEARNING OUTCOMES OF THE COURSE IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATION FRAMEWORK IN RELATION TO THE SCIENTIFIC DISCIPLINES AND THE EFFECTS FOR FIELDS OF STUDY:

**Symbols for outcomes related to the discipline:**

M/NMA\_P7S\_WG+++ , M/NMA\_P7S\_UW+++ , M/NMA\_P7S\_KO++

**Symbols for outcomes related to the field of study:**

A.U1.+ , A.W3.+ , A.W2.+ , B.W12.+ , K.5+ , B.W16.+ , A.W1.+ , A.U3.+ , A.W4.+ , B.W17.+ , B.W18.+ , A.U2.+ , K.7.+

#### LEARNING OUTCOMES:

**Legal acts specifying learning outcomes:**  
467/2024

**Disciplines:** medical sciences

**Status of the**

**course:** Obligatoryjny

**Group of courses:** A -

przedmioty podstawowe

**Code:** ISCED 0912

**Field of study:** Medicine

**Scope of**

**education:** Medicine

**Profile of education:**

General academic

**Form of studies:** full-time

**Level of studies:** uniform

master's studies

**Year/semester:** /1

**Types of classes:** Lecture, Classes

**Number of hours in**

**semester:** Lecture: 16.00,

Classes: 74.00

**Language of**

**instruction:** English

**Introductory subject:**

Medical sciences

**Prerequisites:** Basic

knowledge of anatomy,

physiology and embryology

**Name of the organisational unit conducting the**

**course:** Katedra Histologii i

Embriologii Człowieka

**Person responsible for the**

**realization of the course:** dr

hab. n. med. Janusz

Godlewski, prof. UWM, dr

Jacek Kieżun, prof. dr hab. n.

med. Zbigniew Kmieć

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**Additional remarks:**

Practical exercises in small

groups (up to 11 people).

**Knowledge:**

W1 - The graduate knows and understands anatomic, histological, and embryological nomenclature in the Polish and English languages.

W2 - The graduate knows and understands the composition of the human body in terms of its topography (upper and lower limbs, the chest, abdomen, pelvis, back, neck, head) and functions (the osteoarticular system, muscular system, cardiovascular system, respiratory tract, digestive system, urinary tract, procreation systems, nervous system and sense organs, the common integument);

W3 - The graduate knows and understands the microarchitecture of tissues, extracellular matrix, and organs.

W4 - The graduate knows and understands the stages in the development of the human embryo, the composition and functions of the foetal membranes and the placenta, the stages in the development of individual organs, and the impact of harmful factors on the development of the embryo and foetus (teratogenic).

W5 - The graduate knows and understands composition of simple organic compounds, elements of the macromolecules present in cells, extracellular matrix, and body fluids

W6 - The graduate knows and understands the methods of intercellular communication and of the communication between the cell and the extracellular matrix, and the signal transduction pathways in cells, plus examples of disturbances in the processes leading to the growth of neoplasms and other diseases.

W7 - The graduate knows and understands the following processes: the cell cycle, proliferation, cell differentiation and ageing, apoptosis and necrosis, and their impact on the functioning of the organism.

W8 - The graduate knows and understands the basics of the stem cell issues and stem cell application in medicine.

**Skills:**

U1 - In terms of skills, the graduate can operate an optical microscope, including the use of immersion.

U2 - In terms of skills, the graduate can recognise the histological structures corresponding to organs, tissues, cells, and cell structures in the images of the optical or electronic microscope, describe and interpret their structure and the relationships between their composition and function.

U3 - In terms of skills, the graduate can use the anatomic, histological, and embryological nomenclature in speech and writing

**Social competence:**

K1 - In terms of social skills, the graduate is prepared to perceive and recognise own limitations, and assess his/her deficits and educational needs.

K2 - In terms of social skills, the graduate is prepared to use objective sources of information.

**TEACHING FORMS AND METHODS:**

Lecture(W1;W2;W3;W4;W5;W6;W7;W8;U2;U3;K1;K2;):Lectures (in contact): Multimedia presentation (PowerPoint presentation).

Classes(W1;W2;W3;W4;W5;W6;W7;W8;U1;U2;U3;K1;K2;):Multimedia presentations (PowerPoint presentations) preceding the practical part. Microscopic analysis of histological slides. The teaching process is supported by tablets and remote education systems based on MS Teams platform (lectures, communication), Moodle (teaching materials, practical tasks, practical tests and colloquia) and CaseCenter (virtual digital microscopy). Students identify histological structures on slides using light microscopy and/or using virtual digital microscopy.

**FORM AND CONDITIONS OF VERIFYING LEARNING****OUTCOMES:**

Lecture (Colloquium test) - During the Course three theoretical colloquia

are organized. Theoretical colloquia consist of: 40 test questions, one-choice test, 8 short answer questions and 12 questions on the six diagrams/figures presented; 80 minutes, 1 point each for a correct answer. -

Lecture (Written exam) - The theoretical examination is in written form (54 single-choice test questions, 10 short answer question and 16 questions on the 8 diagrams/figures presented; 1 hour 45 min) with a total of 80 points to be obtained. At least 60% of the correct answers are required to pass the theoretical exam -

Classes (Written test) - A short test on a given topic is carried out at the beginning of the classes: 8 questions (one-choice test questions, open questions, questions on the presented diagrams/figures), 8 minutes, 1 point each for a correct answer. -

Classes (Presentation) - In the case of classes using a microscope the student shall perform a practical task. The completed task should be submitted via Moodle system within 48 hours from the end of the class. The practical task is graded on a scale from 0 to 4 (4 points for a faultless task). -

Classes (Colloquium practical) - During the Course three practical colloquia are organized. Practical colloquia: recognition of 10 histological structures in each colloquium. -

Classes (Colloquium test) - During the Course three theoretical colloquia and three practical colloquia are organized. Theoretical colloquia consist of: 28 test questions, one-choice test, 1 point each for a correct answer; 8 short answer questions, 1 point each for a correct answer; 12 questions on the six diagrams/figures presented, 1 point each for a correct answer; 4 open questions, 3 points each for a correct answer; 80 minutes. -

Classes (Exam) - The practical examination consists of identifying 15 histological slides (or histological structures marked on a slide) (15 minutes). -

#### **BASIC LITERATURE:**

1. T.W. Sadler, *Langman's Medical Embryology, 13th edition*, Wyd. Wolters Kluwer, R. 2015
2. A. L. Mescher, *Junqueira's Basic Histology: Text and Atlas, 15th Edition*, Wyd. McGraw-Hill Lange, R. 2018

#### **SUPPLEMENTARY LITERATURE:**

1. L.P. Gartner, *Textbook of Histology, 4th edition*, Wyd. Elsevier, R. 2016

# Detailed description of ECTS credits awarded - part B

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**ECTS: 8.00**

**CYCLE: 2024**

## Histology and Embryology

The number of ECTS credits awarded consists of:

1. Contact hours with the academic teacher:

- participation in: Lecture	16.0 h
- participation in: Classes	74.0 h
- consultation	4.0
	Total: 94.0 h.

2. Independent work of a student:

Preparing for classes, short tests, colloquia and exams based on textbooks and providing materials. Perform practical tasks.	106.00 h
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Total: 106.0 h

contact hours + independent work of a student Total: 200.0 h

1 ECTS credit = 25-30 h of an average student's work, number of ECTS credit = 200.0 h : 25.0 h/ECTS = 8.00 ECTS on average: 8.0 ECTS

- including the number of ECTS credits for contact hours with the direct participation of an academic teacher: 0,00 ECTS points,

- including the number of ECTS credits for hours of independent work of a student: