[Medicinski fakultet u Rijeci]

Curriculum
2024/2025

[Za kolegij]

Histology and Embryology

Study programme:	**Medical Studies in English (R)** [Sveučilišni integrirani prijediplomski i diplomski studij]
Department:	**[Zavod za histologiju i embriologiju]**
Course coordinator:	**izv. prof. dr. sc. Wensveen Felix, dipl. biolog**
Year of study:	**2**
ECTS:	**10**
Incentive ECTS:	**0 (0.00%)**
Foreign language:	**Possibility of teaching in a foreign language**

Course information:

Histology and Embryology is a mandatory course at the second year of the Integrated Undergraduate and Graduate University Study of Medicine in English. It consists of 32 hours of lectures, 44 hours of seminars, and 44 hours of practical laboratory classes; overall 120 hours (10 ECTS). Lectures are held in lecture halls of the Faculty of Medicine according to the course schedule. Seminars and practical laboratory classes are held at the Department of Histology and Embryology.

Course objectives

Histology, a fundamental field of medicine, focuses on the microscopic structure of the human body. It examines cell morphology (cytology) and the fine details of organs (microscopic anatomy). Histology encompasses the entire sub-microscopic structure of organisms. In parallel, embryology explores embryo development, emphasizing morphogenesis during organogenesis and the molecular basis of differentiation. Understanding these complexities is essential for clinicians to grasp micro-anatomical pathophysiology and anomalies in organ development. This course holds significant practical value. Lastly, it delves into the relationship between congenital malformations and embryological errors.

Expected course learning outcomes

At the end of this course, students will be able to demonstrate a working knowledge of human histology and development and will be able to correlate structure and function of the human body. Students should be able to comprehend the molecular, biochemical, and cellular events that regulate the development of specialized cells, tissues and organs during embryonic development. Students should be able to comprehend tissue interactions and pattern formation. Moreover, students should understand the experimental strategies and techniques that are used to identify the molecular and cellular mechanisms of development.
Students should be thoroughly acquainted with structures and development of the human body by means of classical and contemporary methods of microscopic investigations; they should master the skills of microscopy of the most characteristic cells, tissues, and organs presented in histological slides. By utilizing their knowledge in physics, chemistry, biochemistry, biology, and anatomy, students should gain insight into the normal structure of the human body by means of light and electron microscopy.

Course content

The primary role of **histology** in the medical curriculum is to provide a basic understanding of the function of the human body based on its microscopical structure. Emphasis is placed on the normal structure as a basis for proper functioning and for understanding pathophysiological processes. The following topics and subtopics will be considered: epithelial tissues (cellular membrane, basal lamina, cell-cell interactions); connective tissue (general characteristics, cells and intercellular substance, fibers, and ground substance); types of connective tissue (proper - dense, regular and irregular, adipose tissue); cartilage (hyaline elastic, fibrocartilage); bone (microscopic structure of bones, bone cells, histogenesis of bone, synovial membrane), blood, lymphocytes and their immune role; muscular tissue (smooth, skeletal, cardiac muscle), nervous tissue (structure of neuron, nerve fiber, synapse and the relationship of neurons, neuroglia, choroid plexus); blood vascular system, lymphatic system, endocrine system, respiratory system, gastrointestinal tract, kidney and urinary tract, reproductive system and the organs of special senses.

The purpose of **embryology** is to provide students with a general outline of human development and to help them understand the complex relationships between the structures of the human body. Its practical medical implications are also of great importance since embryology can explain developmental anomalies and their molecular origins. The following topics and subtopics will be covered: fertilization, cleavage, gastrulation and formation of primary germ layers; differentiation of primary germ layers and organogenesis; cellular and molecular mechanisms that control tissue morphogenesis and differentiation; mechanisms that control differential gene expression leading to cell and tissue differentiation; extraembryonic coelom, connecting stalk, amnion, corium, placenta; neural plate, groove and tube; sex cycles, male and female sex organs; embryonic and fetal development; relationships between congenital malformations and errors in embryological development; environmental factors as causes of birth defects; development and anomalies of body systems; prenatal diagnostics.

List of assigned reading:

1. A.L. Mescher.: Junqueira's Basic Histology, XIV edition, The McGraw –Hill Education, New York 2016.
2. T.W.Sadler: Langman's Medical Embryology, XIII edition, Wolters Kluwer Health, Philadelphia,2015.
3. http://medsci.indiana.edu/junqueira/virtual/junqueira.htm
4. https://accessmedicine.mhmedical.com/book.aspx?bookid=2430

List of optional reading:

http://www.histologyguide.com/

Curriculum:

Exercises list (with titles and explanation):

LP1 Histology and its Methods of Study

Preparation of tissue materials for cryo-sectioning and paraffin-sectioning, immunohistochemical

LP2 Epithelial Tissue

dental pulp - endothelium, small intestine – simple columnar epithelium, goblet cells, simple tubular glands, esophagus – squamous moist, mucous glands, skin – squamous dry, merocrine, holocrine, apocrine glands

LP3 Connective Tissue

mesenchyme, skin – intravital staining, tendon, epicardium.

LP4 Blood, Cartilage

trachea, ear auricle – HE, orcein staining, meniscus, blood smear.

LP5 - Bone, Osteogenesis

ground bone, decalcified bone, fetal skull and finger, bone marrow

LP6 - Muscle Tissue, Circulatory System

skeletal, cardiac, smooth muscle, endocardium, small artery and vein – HE, orcein staining.

LP7 - Nerve Tissue, Nervous System

spinal cord and cerebellum – HE, silver staining, nerve, sensory, autonomic ganglia

LP8 - Female Reproductive

ovary, uterine tube, uterus (2 phases), vagina

LP9 – Embryology

chorionic villi, umbilical cord, embryo

LP10 - Male Reproductive System

testes, epididymis, vas deferens, prostate gland

LP11 - Skin – Structure

thin skin with glands – axilla, hair, thick skin, mammary gland – 2 stages

LP12 - Endocrine System

pituitary gland, adrenal gland, thyroid gland, pineal gland

LP13 - Eye – Structure and Development

cornea, iris, ciliary body, lens, retina, development of eye – early, late stage

LP14 – Ear

auricle, inner ear

LP15 - Immune System

thymus, lymph node, spleen, tonsil

LP16 Oral Cavity, Teeth – Structure and Development

lip, tongue, filiform and vallate papillae, dentin, cementum, enamel, enamel organ – early, late stage

LP17 Digestive Tract

esophagus, stomach, small intestine, large intestine, vermiform appendix

LP18 Digestive Glands

liver, pancreas, gallbladder, salivary glands

LP19 Respiratory System

nasal cavity, trachea, lungs

LP20 Urinary system

kidney, ureters, blader

LP21 Tissue section repetition

Repetition of all slides under supervision. This LP should also be used to make up all the practical courses that were missed by the student

LP22 Tissue section recognition

Repetition of all slides under supervision. This LP should also be used to make up all the practical courses that were missed by the student

Lectures list (with titles and explanation):

L1 Importance of Histology in Understanding Human Tissue Formation and Function1

To understanding the aim of the course. To recognize the role of Histology as a foundation for subsequent studies in pathology and physiology

L2 Epithelial Tissue

To define the microscopic structure and function of epithelial cells. To describe characteristic features of various types of epithelia.

L3-4 Connective Tissue, Blood

To explain the types, characteristics, and functions of connective tissue. To describe and to define cells and ground substance (fibers and basic substances) of connective tissue proper, and connective tissues with special properties. To define the specifics of microscopic and sub-microscopic blood cells (erythrocytes, leukocytes, and platelets) and blood plasma. To adopt criteria for classification of blood cells based on their morphology.

L5-6 Cartilage, Joints, Bone, Osteogenesis

To explain the classification, characteristics, and functions of supporting connective tissue. To define the ECM of different types of cartilage tissue. To explain the growth and healing processes of cartilage tissue damage. To explain the histological characteristics of joints. To explain the classification, characteristics, and functions of supporting connective tissue. To define the specifics of cells and bone matrix. To explain the characteristics of primary and secondary bone tissue with respect to their histological properties. To explain the processes of intramembranous and endochondral ossification. To describe features of fracture bone remodeling and repair.

L7-8 Muscle Tissue, Circulatory System

To explain the classification, characteristics, and functions of three types of muscle tissue. To define cellular and ECM properties of smooth, skeletal, and cardiac muscle. To explain the ultrastructure of muscle fibers and morphological conditions for the possibility of contraction. To describe the histological structure of heart and vasculature.

L9 Endocrine System

To describe the classification, characteristics, and functions of the endocrine system. To define the specificity of the histological structure of certain endocrine glands, including the pituitary gland, epiphysis, thyroid, parathyroid glands and adrenal glands.

L10-11 Nerve Tissue, Nervous System

To explain the classification, characteristics, and functions of nerve cells (neurons and glial cells). To explain the processes of central and peripheral myelination. To define the cells and interstitial substances of certain parts of the central and peripheral nervous system (big and small brain, spinal cord, ganglia, peripheral nerves). To explain the ultrastructure of nerve cells, the ability to transmit signals and the structure of the synapse. To describe the histological structure of the meninges and the blood-brain barrier.

L12-13 Female Reproductive System and sex cycles

To define the specifics of histological characteristics of the female reproductive system during different periods of a woman's life. To learn and adopt knowledge about sex cycles in males and females. To understand and explain changes during the generative period of life.

L14-16 First Week, Second Week and Third Week of Development, Body Cavities, Embryo, Fetus

To become familiar with developmental processes, fertilization, embryonic and fetal development of human embryos. To understand the underlying developmental processes: proliferation, migration, induction, differentiation and programmed morphogenic cell death. To understand the specific changes during the first week of development of the fertilized ovary (zygote). To outline the general changes during the second week (implantation, two-layered sham) and the third week (gastrulation) of development. To understand how the body cavities are formed. To understand the main changes during the embryonic and fetal periods of intrauterine development.

L17 Embryology – Extra-embryonic Membranes

To adopt knowledge about the development and function of fetal membranes: trophoblast, amnion, chorion, yolk sack. To understand the development, texture, and function of the placenta and umbilical cord in the different periods of pregnancy. To understand the utero-placental bloodstream.

L18 Development of the Central Nervous System and endocrine glands

To explain and describe the processes of the formation and differentiation of nerve and glial cells and the formation of nerve tissue during early neurogenesis. To understand the development of individual parts of the central and peripheral nervous system. To explain development of the main endocrine glands (pituitary, pineal, thyroid, parathyroid, adrenal).

L19 Male Reproductive System, structure and gametogenesis

To define the specifics of the histological structure of testes, epididymis and accessory glands. To understand and explain the processes of gametogenesis and spermatogenesis. To understand the basics of meiosis.

L20 Skin and Derivates – Structure and Development

To describe the structure and function of thin and thick skin layers. To understand and explain the structure of the skin glands and sensory receptors. To describe the main features of hair and nails. To explain the functional stages of the female mammary glands. To explain the developmental processes that allow the formation of individual skin layers and skin derivatives.

L21 - 22 Eye – Structure and Development

To define the peculiarities of the histological structure of the individual structures of the eye. To understand and explain the texture and function of the lens, cilia muscle, and individual parts of the retina. To explain the processes of optic cup development and formation of various parts of eye layers.

L23 Ear – Structure and Development

To define the histological structure of various parts of the external, middle, and internal ear. To understand the function of individual parts of the internal ear. To describe the developmental processes that enable the emergence of the outer, middle, and inner ear.

L24 Immune system – Structure and Development

To explain the characteristics and functions of the immune system. To define the histological structure of the thymus, lymph nodes, spleen, and tonsils. To describe the developmental processes that lead to the formation of the lymph system organs.

L25 Digestive tract – Oral Cavity

To describe the specifics of organs in the oral cavity (lip, tongue, palate, salivary glands). To explain the structure of primary and permanent teeth. To explain the processes of denture formation in primary and secondary dentition. To define the processes that lead to tooth eruptions.

L26-27 Digestive Tract – Structure

To describe the specifics of the digestive tract. To understand the general structure of the digestive tract and its layers (epithelium, lamina propria, muscularis mucosa, submucosa, muscularis externa, Adventitia or serosa), esophagus, stomach and intestine.

L28 Organs associate with the digestive tract – structure and development

To describe the specifics of the organs associated with the digestive tract (Pancreas, Liver, gallbladder). To understand the hepatic blood flow and structure of the liver lobules. To understand how the pancreas, liver and gallbladder are formed from the hepatic diverticulum.

L29 Respiratory system – Structure

To define histological characteristics of parts forming the respiratory system (respiratory and olfactory region of the nose, paranasal sinuses, lungs, bronchi, bronchioles, alveoli). To understand and explain the structure and function of the blood-air barrier.

L30 Urinary system – Structure

To explain the basic characteristics of the structure and function of the urinary system. To define the peculiarities of the kidney structure - especially the cortex, the ureter, the bladder, the male and female urethra. To describe parts of the nephron

L31-32 Development of the Cardiovascular and Respiratory Systems

To understand the patterning of primary heart field, cardiac, and vascular development. To describe the developmental processes that lead to the formation of lymphatic capillaries and vessels. To describe the developmental processes of forming the respiratory system.

Seminars list (with titles and explanation):

S1 Histology and its Methods of Study

To explain the basic facts of the development of histological techniques and microscopy. To get acquainted with and acquire knowledge about the way of preparing classic histological slides, as well as various histological, histochemical, and immunohistochemical techniques. To explain the principles of the methods used in histology laboratories and microscopy.

S2 Epithelial Tissue

To classify and describe the microscopic and submicroscopic structure of epithelial cells. To define the specifics of certain types of glandular epithelia.

S3 Connective Tissue

To explain the characteristics and functions of connective tissue. To define cells and ECM (fibers and ground substance), connective tissue, and connective tissues with special properties. To compare the similarities and differences between these two types of tissues.

S4 Bone marrow, hematopoiesis

To describe histological characteristics of bone marrow. To understand the emergence of individual blood cells during intrauterine development, as well as hematopoiesis later in life.

S5 Blood, Cartilage

To define the specifics of microscopic and submicroscopic structures of blood cells. To identify blood cells based on their morphology. To define cellular and interstitial parts of different types of cartilage tissue. To explain the growth and healing processes of cartilage tissue damage. To explain the characteristics of the histological structure of joints.

S6 Bone, osteogenesis

To define the specifics of cells and ECM of bone tissue. To explain the characteristics of primary and secondary bones with respect to their histological properties. To explain the processes of osteogenesis, the process of fracture healing and bone remodeling.

S7 Muscle Tissue, Circulatory System

To clearly define cellular and interstitial properties of smooth, skeletal, and cardiac muscle tissue. To explain the ultrastructure of muscle cells and morphological conditions required for contraction in all types of muscle tissue. To describe the histological structure of the heart, artery, and vein. To adopt the classification of blood capillaries based on their microscopic structure.

S8 Nerve Tissue, Nervous System

To explain the classification, characteristics, and functions of nerve cells (neurons and glial cells). To explain the processes of central and peripheral myelination. To define the cells and interstitial substances of certain parts of the central and peripheral nervous system (big and small brain, spinal cord, ganglia, peripheral nerves). To explain the ultrastructure of the nerve cells, the ability to transmit the signal, and the structure of the synapse. To describe the histological structure of meninges and the blood-brain barrier.

S9 Female Reproductive System

To learn about sex cycles in males and females. To understand and explain changes in histological structure in the ovaries and uterus that precede the emergence of mature sex cells.

S10 Embryology I

To understand the specific changes during the first week of development - zygote, cleaving, second week – implantation, formation of a double layered disc. To understand the specifics of changes during the third week of development - embryonic, fetal development (neurulation, somitogenesis, germinal derivatives).

S11 Embryology II

To explain the development of placental blood flow and function of embryonic envelopes – amnion, chorion, allantois, yolk sack. To understand the development, texture, and function of the placenta in different periods of pregnancy.

S12 Stem cells

To define the specifics of stem cells and their cellular locations. To define the role of self-renewal and multipotency in stem cell biology. To explain the role of stem cells in the regeneration of tissues. To explain how differentiated tissues develop from stem cells.

S13 Head and Neck Development

To explain and describe the processes that lead to the development of individual structures in the head and neck area. To adopt knowledge on the origin of the pharyngeal arches and their derivatives, the appearance of stomodeum and its differentiation during the embryonic and fetal developmental periods. To describe the development of the temporomandibular joint.

S14 Muscular System, Limbs, Axial Skeleton – Development

To understand and explain the processes leading to differentiation of mesoderm and the formation of certain groups of skeletal and smooth muscles and the muscular wall of the heart. To explain the emergence of certain parts of the skeletal system - skull, spine, ribs, pelvis and limbs.

S15 Male Reproductive System – Structure

To define the specifics of the histological structure of testes, epididymis and accessory glands

S16 Skin – Structure and Development

To clearly define the specifics of the histological structure of the skin. To understand and explain the properties of the skin glands. To describe hair and nails. To explain developmental processes that allow the formation of individual skin layers and skin derivatives. To adopt knowledge about differences in appearance and function of the breast and breastfeeding between pregnant women, breastfeeding women and women that are not pregnant.

S17 Endocrine System

To describe the classification, characteristics, and functions of the endocrine system. To define the specificity of the histological structure of certain endocrine glands; pituitary gland, epiphysis, thyroid, parathyroid glands and adrenal glands.

S18 Eye – Structure and Development

To define the specifics of the histological structure of the individual structures of the eye. To understand and explain the texture and function of the lens, cilia muscle, and individual parts of the retina. To explain the processes of optic cup development and formation of various parts of eye layers.

S19 Birth Defects, Teratology

To define critical periods of development and to identify teratogenic factors. To understand and explain the possibility of the emergence of anomalies and clinically important disorders that arise during development.

S20 Ear – Structure and Development

To define the histological structure of various parts of the external, middle, and internal ear. To understand the function of individual parts of the internal ear. To describe the developmental processes that enable the emergence of the outer, middle, and inner ear.

S21 Immune system – Structure and Development

To explain the characteristics and general functions of the immune system. To define the histological structure of the thymus, lymph nodes, spleen, and tonsils. To describe the developmental processes that lead to the formation of the organs associated with the lymphatic system.

S22 Oral Cavity – Structure and Development

To define the properties of the individual parts of the oral cavity - lip, tongue, palate and teeth. To describe the development of the palate, the tongue, and the upper and the lower jaw. To explain the processes of denture formation in primary and secondary dentition.

S23 Digestive Tract – Structure

To define the histological structure of the digestive tract (esophagus, stomach, small intestine, and colon). To understand and explain the structure and function of the individual layers in the structure of various segments.

S24 Digestive Tract – Development

To understand the developmental processes of various organs of digestive tract formation. To understand the formation of the foregut, midgut and hindgut. To understand the rotation of the stomach and formation of primary and secondary retroperitoneal organs and intraperitoneal organs. To understand formation and folding of the intestines. To understand the formation of the mesenteries and omentum.

S25 Digestive Glands – Structure and development

To understand and explain the structure and function of intestinal glands - salivary glands, liver, pancreas. To understand and explain the flow of blood and bile inside the liver. To understand the embryonic development of these organs.

S26 Respiratory System – Structure and development

To define the basics of development and the specifics of the histological structure of the individual parts of the respiratory system (respiratory and nerve region, nose, paranasal sinuses, lungs, bronchi, bronchioles, alveoli). To understand and explain the structure and function of the blood-air barrier. To understand the phases in the development of the respiratory system.

S27 Urinary system – Structure

To explain the basic characteristics of the structure and function of the urinary system. To define the specifics of the kidney structure - especially the cortex, the ureter, the bladder, the male and female urethra. To describe parts of the nephron. To define the characteristics of the transitional epithelium.

S28 Urogenital system – Development

To understand and describe the processes that lead to the development of three generations of kidney systems, the formation of the urethra, ureter, and urinary bladder. To understand the developmental process that leads to the normal male and female reproductive system - sexual glands and sex organs of the male and female sex.

Student obligations:

Class attendance, including test attendance, is mandatory. Students may be absent from 30% of each form of teaching provided they have a justifiable cause. If a student is absent for more than 30% of the classes, they will have to re-enroll the course. Students are expected to actively participate in all aspects of the course, complete laboratory reports on time, and attend the examinations. Moreover, preparation of the course content, which is going to be discussed during seminars and laboratory practicals, is mandatory.

Exam (exam taking, description of the written/oral/practical part of the exam, point distribution, grading criteria):

Student grading will be conducted according to the current Ordinance on Studies of the University of Rijeka (approved by the Senate) and the Ordinance on Student Grading at the Faculty of Medicine in Rijeka (approved by the Faculty Council).

Assessment of student work

Student grading will be conducted according to the current Ordinance on Studies of the University of Rijeka (approved by the Senate) and the Ordinance on Student Grading at the Faculty of Medicine in Rijeka (approved by the Faculty Council).

Assessment of student work

Student work will be assessed and graded during the course and on the final exam. During the course, students may obtain a total of 100 grade points (credits). Students can achieve up to 70% of the final grade during the classes, and a maximum of 30% of the final grade at the final exam. Evaluation of students' progress during classes, midterms, and the final exam in the academic year 2024/2025 is shown in Table 1.

Table 1. Distribution of grade points in the course "Histology and Embryology"

	Evaluation	Grade points	
Midterm exams	Midterm exam I	24	
	Midterm exam II	20	
	Total	**44**	
Seminars, Laboratory practicals	Active participation (max. 8 points) Completed LPs and an accepted written report (max. 3 points)	11	
Tissue section recognition	Recognition of Slides exam	15	
TOTAL		**70**	
	Oral exam	30	
	Total	**30**	
TOTAL		**100**	

Written midterm exams

During the semester, two written midterm exams are planned that will include the content of lectures, seminars, and practical laboratory classes. MT I – general histology and basic embryology. MT II – histology and development of various organs. The maximum of grade points that a student can obtain is 24 (MT I) and 20 (MT II). The midterm exams consist of 60 multiple-choice questions and are evaluated according to the criteria

Table 2. Evaluation of written midterm exams

	MT I	MT II
No. of correctly answered questions	**Grade points/credits**	**Grade points/credits**
55 - 60	24	20
50 - 54	22	18
46 - 49	20	16
42 - 45	18	14
38 - 41	16	12
34 - 37	14	10
30 - 33	12	8
26 - 29	6	4
0 – 24	0	0

Correction of the midterm exams

A student can retake each of the two midterm exams if they are not satisfied with the obtained credits or were absent at the midterm exam. If a student retakes the midterm exam because they are not satisfied with the obtained grade points, only the credits gained from the retaken midterms will be considered. Evaluation of the midterm corrections will be performed according to the criteria shown in Table 2. Students can retake each midterm exam only once. Correction of the midterm exams will be done before the final exams in February on a date that will be communicated by the course coordinator via Merlin.

Seminars and practical laboratory classes (LPs)

A student can obtain a maximum of 11 credits (Table 3) throughout seminars and practical laboratory classes. Evaluation of LPs implies a completed and accepted written report with drawings of all slides. During LPs and seminars, the oral examination can be performed by the teacher or through short written exams. If the theoretical knowledge of a student during a seminar is considered insufficient, the teacher has the right to give a grade of 1 (F) for that seminar. **The student is subsequently not allowed to participate in the next midterm exam.** However, before the midterm exam is held, the student is allowed to request a brief oral exam on the topic for which he/she received a 1 (F) by one of the staff members of the dept. of histology and embryology. If his/her knowledge is considered sufficient, the grade for this seminar will be increased from 1 (F) to 2 (D), which allows participation to the midterm exam. An oral examination for a seminar can only be requested if a grade of 1 (F) is given. An oral exam should be requested by first registering with the secretary of the dept. of histology & embryology, by sending an email to Lidija.karinja@medri.uniri.hr or to the course coordinator. Subsequently, the student and teacher will agree on a date and time for the oral examination.

Table 3. Evaluation of seminars and practical laboratory classes

Points for class participation (Max. 8) will be based on the average grade obtained during the seminars and LPs. If a student did not get at least three grades during the seminars and LPs, participation is considered insufficient and no grade points will be awarded.

Final topics evaluation	Grade points/credits

2,00 – 2,51	3
2,51 – 3,00	4
3,01 – 3,50	5
3,51 – 4,00	6
4,01 – 4,50	7
4,51 – 5,00	8

Points for the completed written report (Lab book) of the LPs (max. 3 points) will be based on the proper graphical representation of the various tissues and marking of the key features of each tissue.

Recognition of Slides (ROS) exam

Is a mandatory oral exam and is required for students to be qualified for the final exam. Before going to this colloquium, the student must have completed all the LPs. If he/she was absent from one or more LPs, these need to be done in the time provided for making up the exercises (i.e. LP21 and LP22). A student must identify at least 8 of the 10 microscopic slides, as well as the structures that are described (and drawn) during the practical laboratory classes. For this ROS-examination a student can receive a maximum of 15 points. At least 8 points are required to pass the exam. Each slide is evaluated with ½, 1, or 1 ½ points depending on the student's knowledge. Recognition of the slides awards ½ point and answering additional questions adds up to 1 point for each slide. This ROS-exam will be held in the weeks before each final exam. Per exam period, a student can apply twice for an ROS-exam, with at least three days between each examination. Precise dates and hours will be communicated digitally.

Final exam

The final oral exam is mandatory and covers the entire course content. During the final exam, students can obtain a maximum of 30 credits.

Assessment of the oral part of the final exam:

up to 15 credits: minimum criteria satisfied

16 – 20 credits: average criteria satisfied with noticeable errors

21 – 25 credits: answers with a few errors

26 – 30 credits: outstanding answers.

A student must pass the oral exam (i.e. receive at least 1 point) to pass the course, independent of the number of points that the student has collected before taking the final exam. If a student is not satisfied with the final grade, they may refuse the grade, but this will count as a failed attempt. In case a student does not accept the grade, he/she must re-enter the final exam.

Conditions for admission to the final exam

A student who has accomplished at least 35 grade points during all course classes and has passed the ROS exam and has attended at least 70% of lectures, seminars and LPs (70% of each) can enter the final exam.

Final grade

The final grade represents a sum of all grade points obtained during all course classes and the final exam. Students are evaluated according to the ECTS (A-F) and numerical (5-1) system.

The ECTS and the numerical grading system are defined by the following criteria:

B (4) 75,0 – 89,9 credits

C (3) 60,0 – 74,9 credits

D (2) 50,0 – 59,9 credits

F (1) 0 – 49,9 credits

Exempt of lectures

A student who fulfilled all requirements for admission to the final exam but did not successfully complete the final exam may request that he/she does not need to attend lectures/seminars/LPs in the following year, while retaining the right to apply for the final exam. This request needs to be sent by email before the start of the next academic year to the course coordinator. Should the student instead decide to follow lectures anew, he/she loses all points of the previous year.

Exam dates

- 11.02.2025
- 25.02.2025
- 09.07.2025
- 03.09.2025
- 17.09.2025

Other notes (related to the course) important for students:

Class attendance, including test attendance, is mandatory. Students may be absent from 30% of each form of teaching provided they have a justifiable cause. If a student is absent for more than 30% of the classes, they will have to re-enroll the course. Students are expected to actively participate in all aspects of the course, complete laboratory reports on time, and attend the examinations. Moreover, preparation of the course content, which is going to be discussed during seminars and laboratory practicals, is obligatory.

Academic Honesty

It is expected that all students and teachers follow the Code of Academic Honesty in accordance with the Code of Ethics for the students of the Faculty of Medicine at the University of Rijeka. Please read the policy regarding academic honesty at: http://medical-studies-in-english.com/wp-content/uploads/2016/12/CODE-OF-ETHICS.pdf

Contact information

For questions and concerns, please feel free to contact us by e-mail or via the Department’s website. If you want to speak with a teacher during office hours (each working day between 11:00 am and 13:00 am), please let us know by e-mail or in class.

Expected competencies at course enrollment:

Students are expected to have basic knowledge of biology and anatomy.

COURSE HOURS 2024/2025

Histology and Embryology

Lectures (Place and time or group)	**Exercises** (Place and time or group)	**Seminars** (Place and time or group)
30.09.2024		

L1 Importance of Histology in Understanding Human Tissue Formation and Function1:
• [P15 - VIJEĆNICA] (08:15 - 09:00) [195]
  ○ HAE
 	
L2 Epithelial Tissue:
• [P15 - VIJEĆNICA] (09:15 - 10:00) [195]
  ○ HAE
 	
L3-4 Connective Tissue, Blood:
• [P15 - VIJEĆNICA] (10:15 - 11:00) [145]
  ○ HAE		

prof. dr. sc. Polić Bojan, dr. med. [145] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
01.10.2024		

	LP1 Histology and its Methods of Study:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [180] [1647]
	  ○ HAE-S2
	• [Zavod za histologiju i embriologiju - Vježbaonica] (12:45 - 14:45) [180] [1647]
	  ○ HAE-S1
		S1 Histology and its Methods of Study:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [180]
		  ○ HAE-S2
		• [Zavod za histologiju i embriologiju - Vježbaonica] (11:15 - 12:45) [180]
		  ○ HAE-S1

prof. dr. sc. Lenac Roviš Tihana [180] · Rudančić Tina [1647]		
02.10.2024		

L3-4 Connective Tissue, Blood:
• [P01] (11:15 - 12:00) [195]
  ○ HAE
	LP1 Histology and its Methods of Study:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [180] [1647]
	  ○ HAE-S3
		S1 Histology and its Methods of Study:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [180]
		  ○ HAE-S3

prof. dr. sc. Lenac Roviš Tihana [180] · Rudančić Tina [1647] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
04.10.2024		

L5-6 Cartilage, Joints, Bone, Osteogenesis:
• [P15 - VIJEĆNICA] (08:15 - 09:00) [179]
  ○ HAE
• [P15 - VIJEĆNICA] (09:15 - 10:00) [179]
  ○ HAE		

prof. dr. sc. Krmpotić Astrid, dr. med. [179]		
07.10.2024		

	LP2 Epithelial Tissue:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [201]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (14:45 - 16:15) [201]
	  ◦ HAE-S1
		S2 Epithelial Tissue:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [182]
		  ◦ HAE-S3
		• [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:45) [182]
		  ◦ HAE-S1

dr.sc. Kavazović Inga, mag. pharm. inv. [201] · Doc. dr. sc. Lenartić Maja, dipl. ing. [182]		
08.10.2024		

	LP2 Epithelial Tissue:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [201]
	  ◦ HAE-S2
	
	LP3 Connective Tissue:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (12:00 - 13:30) [1409]
	  ◦ HAE-S1
		S2 Epithelial Tissue:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [182]
		  ◦ HAE-S2
		
		S3 Connective Tissue:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (11:00 - 11:45) [189]
		  ◦ HAE-S1

doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189] · dr.sc. Kavazović Inga, mag. pharm. inv. [201] · Doc. dr. sc. Lenartić Maja, dipl. ing. [182] · Materljan Jelena, dr. med. [1409]		
09.10.2024		

	LP3 Connective Tissue:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [189] [1409]
	  ◦ HAE-S3
		S3 Connective Tissue:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [189]
		  ◦ HAE-S3
		
		S4 Bone marrow, hematopoiesis:
		• [P01] (11:15 - 12:00) [195]
		  ◦ HAE

doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189] · Materljan Jelena, dr. med. [1409] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
10.10.2024		

	LP3 Connective Tissue:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [1409]
	  ◦ HAE-S2
		S3 Connective Tissue:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [189]
		  ◦ HAE-S2

doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189] · Materljan Jelena, dr. med. [1409]		
11.10.2024		

L7-8 Muscle Tissue, Circulatory System:
• [P08] (08:15 - 09:00) [185]
  ◦ HAE
• [P08] (09:15 - 10:00) [185]
  ◦ HAE		

prof. dr. sc. Tomac Jelena, dr. med. [185]		
14.10.2024		

	LP4 Blood, Cartilage:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [193]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (14:15 - 15:45) [193]
	  ◦ HAE-S1
		S5 Blood, Cartilage:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [1480]
		  ◦ HAE-S3
		• [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:00) [1480]
		  ◦ HAE-S1

Mladenić Karlo, mag. biotech. in med. [193] · dr. sc. Šestan Marko, dr. med. vet. [1480]		
15.10.2024		

	LP4 Blood, Cartilage:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [1480] [193]
	  ◦ HAE-S2
	
	LP5 - Bone, Osteogenesis:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (12:30 - 14:00) [185] [188]
	  ◦ HAE-S1
		S5 Blood, Cartilage:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [1480]
		  ◦ HAE-S2
		
		S6 Bone, osteogenesis:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (11:00 - 12:30) [185]
		  ◦ HAE-S1

Gaćina Lydia, mag. eksp. biol. [188] · Mladenić Karlo, mag. biotech. in med. [193] · prof. dr. sc. Tomac Jelena, dr. med. [185] · dr. sc. Šestan Marko, dr. med. vet. [1480]		
16.10.2024		

L9 Endocrine System:
• [P08] (11:15 - 12:00) [185]
  ◦ HAE
	LP5 - Bone, Osteogenesis:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 10:45) [188]
	  ◦ HAE-S3
		S6 Bone, osteogenesis:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [185]
		  ◦ HAE-S3

Gaćina Lydia, mag. eksp. biol. [188] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
17.10.2024		

	LP5 - Bone, Osteogenesis:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [188]
	  ◦ HAE-S2
		S6 Bone, osteogenesis:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [185]
		  ◦ HAE-S2

Gaćina Lydia, mag. eksp. biol. [188] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
18.10.2024		

L10-11 Nerve Tissue, Nervous System:
• [P01] (08:15 - 09:00) [185]
  ◦ HAE
• [P01] (09:15 - 10:00) [185]
  ◦ HAE		

prof. dr. sc. Tomac Jelena, dr. med. [185]		
21.10.2024		

	LP6 - Muscle Tissue, Circulatory System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [191]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (14:45 - 16:15) [191]
	  ◦ HAE-S1
		S7 Muscle Tissue, Circulatory System:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [195]
		  ◦ HAE-S3
		• [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:45) [195]
		  ◦ HAE-S1
		
		S12 Stem cells:
		• [P15 - VIJEĆNICA] (11:15 - 12:00) [145]
		  ◦ HAE

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22.10.2024		

L12-13 Female Reproductive System and sex cycles:
• [P15 - VIJEĆNICA] (14:15 - 15:00) [179]
  ◦ HAE
• [P15 - VIJEĆNICA] (15:15 - 16:00) [179]
  ◦ HAE
	LP6 - Muscle Tissue, Circulatory System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [191]
	  ◦ HAE-S2
	
	LP7 - Nerve Tissue, Nervous System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (12:30 - 14:00) [188]
	  ◦ HAE-S1
		S7 Muscle Tissue, Circulatory System:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [195]
		  ◦ HAE-S2
		
		S8 Nerve Tissue, Nervous System:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (11:00 - 12:30) [182]
		  ◦ HAE-S1

Gaćina Lydia, mag. eksp. biol. [188] · prof. dr. sc. Krmpotić Astrid, dr. med. [179] · Doc. dr. sc. Lenartić Maja, dipl. ing. [182] · Mikašinović Sanja, mag. biotech. in med [191] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
23.10.2024		

L14-16 First Week, Second Week and Third Week of Development, Body Cavities, Embryo, Fetus:
• [P15 - VIJEĆNICA] (11:15 - 12:00) [179]
  ◦ HAE
	LP7 - Nerve Tissue, Nervous System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [188]
	  ◦ HAE-S3
		S8 Nerve Tissue, Nervous System:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [185]
		  ◦ HAE-S3

Gaćina Lydia, mag. eksp. biol. [188] · prof. dr. sc. Krmpotić Astrid, dr. med. [179] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
24.10.2024		

	LP7 - Nerve Tissue, Nervous System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [188]
	  ◦ HAE-S2
		S8 Nerve Tissue, Nervous System:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [182]
		  ◦ HAE-S2

Gaćina Lydia, mag. eksp. biol. [188] · Doc. dr. sc. Lenartić Maja, dipl. ing. [182]		
25.10.2024		

L14-16 First Week, Second Week and Third Week of Development, Body Cavities, Embryo, Fetus:
• [P01] (08:15 - 09:00) [185]
  ◦ HAE
• [P01] (09:15 - 10:00) [185]
  ◦ HAE		

prof. dr. sc. Tomac Jelena, dr. med. [185]		
28.10.2024		
	LP8 - Female Reproductive: • [Zavod za histologiju i embriologiju - Vježbaonica] (14:45 - 16:15) [188] ◦ HAE-S1	S9 Female Reproductive System: • [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:45) [1464] ◦ HAE-S1
doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] · Gaćina Lydia, mag. eksp. biol. [188]		
29.10.2024		
	LP8 - Female Reproductive: • [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [1409] ◦ HAE-S2	S9 Female Reproductive System: • [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [1464] ◦ HAE-S2
doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] · Materljan Jelena, dr. med. [1409]		
30.10.2024		
L17 Embryology – Extra-embryonic Membranes: • [P15 - VIJEĆNICA] (11:15 - 12:00) [195] ◦ HAE	LP8 - Female Reproductive: • [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [1409] ◦ HAE-S3	S9 Female Reproductive System: • [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [1464] ◦ HAE-S3
doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] · Materljan Jelena, dr. med. [1409] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
04.11.2024		
		S10 Embryology I: • [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 11:00) [1480] ◦ HAE-S3 • [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 16:00) [1480] ◦ HAE-S1
dr. sc. Šestan Marko, dr. med. vet. [1480]		
05.11.2024		
	LP9 – Embryology: • [Zavod za histologiju i embriologiju - Vježbaonica] (12:30 - 14:00) [191] ◦ HAE-S1	S10 Embryology I: • [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 11:00) [1480] ◦ HAE-S2 S11 Embryology II: • [Zavod za histologiju i embriologiju - Vježbaonica] (11:00 - 12:30) [1464] ◦ HAE-S1
doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] · Mikašinović Sanja, mag. biotech. in med [191] · dr. sc. Šestan Marko, dr. med. vet. [1480]		
06.11.2024		

L18 Development of the Central Nervous System and endocrine glands:
• [P01] (11:15 - 12:00) [185]
  ◦ HAE
	LP9 – Embryology:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [191]
	  ◦ HAE-S3
		S11 Embryology II:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [1464]
		  ◦ HAE-S3

doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] · Mikašinović Sanja, mag. biotech. in med [191] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
07.11.2024		

	LP9 – Embryology:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [191]
	  ◦ HAE-S2
		S11 Embryology II:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [1464]
		  ◦ HAE-S2

doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] · Mikašinović Sanja, mag. biotech. in med [191]		
08.11.2024		

		S13 Head and Neck Development:
		• [P01] (08:15 - 09:00) [185]
		  ◦ HAE
		
		S14 Muscular System, Limbs, Axial Skeleton – Development:
		• [P01] (09:15 - 10:00) [182]
		  ◦ HAE

Doc. dr. sc. Lenartić Maja, dipl. ing. [182] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
15.11.2024		

L19 Male Reproductive System, structure and gametogenesis:
• [P01] (08:15 - 09:00) [1480]
  ◦ HAE
 	
L20 Skin and Derivates – Structure and Development:
• [P01] (09:15 - 10:00) [1480]
  ◦ HAE		

dr. sc. Šestan Marko, dr. med. vet. [1480]		
19.11.2024		

	LP10 - Male Reproductive System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [201]
	  ◦ HAE-S2
	• [Zavod za histologiju i embriologiju - Vježbaonica] (13:00 - 14:30) [201]
	  ◦ HAE-S1
	• [Zavod za histologiju i embriologiju - Vježbaonica] (15:15 - 16:45) [201]
	  ◦ HAE-S3
		S15 Male Reproductive System – Structure:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [195]
		  ◦ HAE-S2
		• [Zavod za histologiju i embriologiju - Vježbaonica] (12:15 - 13:00) [195]
		  ◦ HAE-S1
		• [Zavod za histologiju i embriologiju - Vježbaonica] (14:30 - 15:15) [195]
		  ◦ HAE-S3

dr.sc. Kavazović Inga, mag. pharm. inv. [201] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
20.11.2024		

	LP11 - Skin – Structure:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [193]
	  ◦ HAE-S2
		S16 Skin – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [185]
		  ◦ HAE-S2

Mladenić Karlo, mag. biotech. in med. [193] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
21.11.2024		

	LP11 - Skin – Structure:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [193]
	  ◦ HAE-S3
		S16 Skin – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [185]
		  ◦ HAE-S3

Mladenić Karlo, mag. biotech. in med. [193] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
22.11.2024		

L21 - 22 Eye – Structure and Development:
• [P01] (08:15 - 09:00) [185]
  ◦ HAE
• [P01] (09:15 - 10:00) [185]
  ◦ HAE
	LP11 - Skin – Structure:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (15:30 - 17:00) [193]
	  ◦ HAE-S1
		S16 Skin – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (14:00 - 15:30) [185]
		  ◦ HAE-S1

Mladenić Karlo, mag. biotech. in med. [193] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
25.11.2024		

	LP12 - Endocrine System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:00 - 10:30) [201]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (14:00 - 15:30) [201]
	  ◦ HAE-S1
		S17 Endocrine System:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [195]
		  ◦ HAE-S3
		• [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:00) [195]
		  ◦ HAE-S1

dr.sc. Kavazović Inga, mag. pharm. inv. [201] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
26.11.2024		

	LP12 - Endocrine System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:00 - 10:30) [201]
	  ◦ HAE-S2
	
	LP13 - Eye – Structure and Development:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (13:30 - 15:00) [188]
	  ◦ HAE-S1
		S17 Endocrine System:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [195]
		  ◦ HAE-S2
		
		S18 Eye – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (12:00 - 13:30) [189]
		  ◦ HAE-S1

Gaćina Lydia, mag. eksp. biol. [188] · doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189] · dr.sc. Kavazović Inga, mag. pharm. inv. [201] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
27.11.2024		

L23 Ear – Structure and Development:
• [P01] (11:15 - 12:00) [145]
  ◦ HAE
	LP13 - Eye – Structure and Development:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [1409]
	  ◦ HAE-S2
		S18 Eye – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [189]
		  ◦ HAE-S2

doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189] · Materljan Jelena, dr. med. [1409] · prof. dr. sc. Polić Bojan, dr. med. [145]		
28.11.2024		

	LP13 - Eye – Structure and Development:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [188]
	  ◦ HAE-S3
		S18 Eye – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [189]
		  ◦ HAE-S3

Gaćina Lydia, mag. eksp. biol. [188] · doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189]		
29.11.2024		

L24 Immune system – Structure and Development:
• [P15 - VIJEĆNICA] (09:15 - 10:00) [145]
  ◦ HAE
		S19 Birth Defects, Teratology:
		• [P15 - VIJEĆNICA] (08:15 - 09:00) [185]
		  ◦ HAE

prof. dr. sc. Polić Bojan, dr. med. [145] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
02.12.2024		

	LP14 – Ear:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [188]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (14:45 - 16:15) [188]
	  ◦ HAE-S1
		S20 Ear – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [195]
		  ◦ HAE-S3
		• [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:45) [195]
		  ◦ HAE-S1

Gaćina Lydia, mag. eksp. biol. [188] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
03.12.2024		

	LP14 – Ear:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [188]
	  ◦ HAE-S2
	
	LP15 - Immune System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (13:00 - 14:30) [182]
	  ◦ HAE-S1
		S20 Ear – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [195]
		  ◦ HAE-S2
		
		S21 Immune system – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (12:00 - 12:45) [185]
		  ◦ HAE-S1

Gaćina Lydia, mag. eksp. biol. [188] · Doc. dr. sc. Lenartić Maja, dipl. ing. [182] · prof. dr. sc. Tomac Jelena, dr. med. [185] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
04.12.2024		

L25 Digestive tract – Oral Cavity:
• [P15 - VIJEĆNICA] (11:15 - 12:00) [185]
  ◦ HAE
	LP15 - Immune System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [182]
	  ◦ HAE-S2
		S21 Immune system – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [185]
		  ◦ HAE-S2

Doc. dr. sc. Lenartić Maja, dipl. ing. [182] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
05.12.2024		

	LP15 - Immune System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [182]
	  ◦ HAE-S3
		S21 Immune system – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [185]
		  ◦ HAE-S3

Doc. dr. sc. Lenartić Maja, dipl. ing. [182] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
06.12.2024		

L26-27 Digestive Tract – Structure:
• [P01] (08:15 - 09:00) [145]
  ◦ HAE
• [P01] (09:15 - 10:00) [145]
  ◦ HAE		

prof. dr. sc. Polić Bojan, dr. med. [145]		
09.12.2024		

	LP16 Oral Cavity, Teeth – Structure and Development:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [201]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (14:45 - 16:15) [201]
	  ◦ HAE-S1
		S22 Oral Cavity – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [189]
		  ◦ HAE-S3
		• [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:45) [189] [185]
		  ◦ HAE-S1

doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189] · dr.sc. Kavazović Inga, mag. pharm. inv. [201] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
10.12.2024		

	LP16 Oral Cavity, Teeth – Structure and Development:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [201]
	  ◦ HAE-S2
	
	LP17 Digestive Tract:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (12:45 - 14:15) [191]
	  ◦ HAE-S1
		S22 Oral Cavity – Structure and Development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [185]
		  ◦ HAE-S2
		
		S23 Digestive Tract – Structure:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (11:15 - 12:45) [145]
		  ◦ HAE-S1

dr.sc. Kavazović Inga, mag. pharm. inv. [201] · Mikašinović Sanja, mag. biotech. in med [191] · prof. dr. sc. Polić Bojan, dr. med. [145] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
11.12.2024		

	LP17 Digestive Tract:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [191]
	  ◦ HAE-S3
		S23 Digestive Tract – Structure:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [145]
		  ◦ HAE-S3
		
		S24 Digestive Tract – Development:
		• [P01] (11:15 - 12:00) [185]
		  ◦ HAE

Mikašinović Sanja, mag. biotech. in med [191] · prof. dr. sc. Polić Bojan, dr. med. [145] · prof. dr. sc. Tomac Jelena, dr. med. [185]		
12.12.2024		

	LP17 Digestive Tract:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [191]
	  ◦ HAE-S2
		S23 Digestive Tract – Structure:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [1464]
		  ◦ HAE-S2

doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] · Mikašinović Sanja, mag. biotech. in med [191]		
13.12.2024		

L28 Organs associate with the digestive tract – structure and development:
• [P08] (08:15 - 09:00) [145]
  ◦ HAE
 	
L29 Respiratory system – Structure:
• [P08] (09:15 - 10:00) [195]
  ◦ HAE		

prof. dr. sc. Polić Bojan, dr. med. [145] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
16.12.2024		

	LP18 Digestive Glands:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [193]
	  ◦ HAE-S3
		S25 Digestive Glands – Structure and development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [195]
		  ◦ HAE-S3

Mladenić Karlo, mag. biotech. in med. [193] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
17.12.2024		

	LP18 Digestive Glands:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (13:15 - 14:45) [193]
	  ◦ HAE-S1
		S25 Digestive Glands – Structure and development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (12:15 - 13:00) [195]
		  ◦ HAE-S1

Mladenić Karlo, mag. biotech. in med. [193] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
18.12.2024		

	LP18 Digestive Glands:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [193]
	  ◦ HAE-S2
		S25 Digestive Glands – Structure and development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [195]
		  ◦ HAE-S2

Mladenić Karlo, mag. biotech. in med. [193] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
07.01.2025		

L30 Urinary system – Structure:
• [P08] (11:00 - 11:45) [185]
  ○ HAE
	LP19 Respiratory System:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:15 - 10:45) [193]
	  ○ HAE-S2
	• [Zavod za histologiju i embriologiju - Vježbaonica] (12:45 - 14:15) [193]
	  ○ HAE-S1
	• [Zavod za histologiju i embriologiju - Vježbaonica] (15:00 - 16:30) [193]
	  ○ HAE-S3
		S26 Respiratory System – Structure and development:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:15 - 09:00) [1480]
		  ○ HAE-S2
		• [Zavod za histologiju i embriologiju - Vježbaonica] (12:00 - 12:45) [1480]
		  ○ HAE-S1
		• [Zavod za histologiju i embriologiju - Vježbaonica] (14:15 - 15:00) [1480]
		  ○ HAE-S3

Mladenić Karlo, mag. biotech. in med. [193] · prof. dr. sc. Tomac Jelena, dr. med. [185] · dr. sc. Šestan Marko, dr. med. vet. [1480]		
08.01.2025		

	LP20 Urinary system:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [950]
	  ○ HAE-S2
		S27 Urinary system – Structure:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [195]
		  ○ HAE-S2

Glavan Tomislav, dr.med. [950] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
09.01.2025		

	LP20 Urinary system:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [950]
	  ○ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (17:45 - 19:15) [950]
	  ○ HAE-S1
		S27 Urinary system – Structure:
		• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [195]
		  ○ HAE-S3
		• [Zavod za histologiju i embriologiju - Vježbaonica] (16:15 - 17:45) [195]
		  ○ HAE-S1

Glavan Tomislav, dr.med. [950] · izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		
10.01.2025		

L31-32 Development of the Cardiovascular and Respiratory Systems:
• [P01] (08:15 - 09:00) [179]
  ○ HAE
• [P01] (09:15 - 10:00) [179]
  ○ HAE		

prof. dr. sc. Krmpotić Astrid, dr. med. [179]		
13.01.2025		

	LP21 Tissue section repetition:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (08:00 - 09:30) [1464]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (13:00 - 14:30) [182]
	  ◦ HAE-S1
	
	LP22 Tissue section recognition:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (09:30 - 11:00) [1464]
	  ◦ HAE-S3
	• [Zavod za histologiju i embriologiju - Vježbaonica] (14:30 - 16:00) [182]
	  ◦ HAE-S1	

doc. dr. sc. Babić Čač Marina, dipl. ing. biol. [1464] , Doc. dr. sc. Lenartić Maja, dipl. ing. [182]		
14.01.2025		

	LP21 Tissue section repetition:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (12:00 - 13:30) [189]
	  ◦ HAE-S2
	
	LP22 Tissue section recognition:
	• [Zavod za histologiju i embriologiju - Vježbaonica] (13:30 - 15:00) [189]
	  ◦ HAE-S2	

doc.dr. sc. Jelenčić Vedrana, mag. ing. mol. bioteh. [189]		
17.01.2025		
		S28 Urogenital system – Development: • [P01] (08:15 - 10:00) [195] ◦ HAE
izv. prof. dr. sc. Wensveen Felix, dipl. biolog [195]		

List of lectures, seminars and practicals:

LECTURES (TOPIC)	Number of hours	Location
L1 Importance of Histology in Understanding Human Tissue Formation and Function1	1	[P15 - VIJEĆNICA]
L2 Epithelial Tissue	1	[P15 - VIJEĆNICA]
L3-4 Connective Tissue, Blood	2	[P01] [P15 - VIJEĆNICA]
L5-6 Cartilage, Joints, Bone, Osteogenesis	2	[P15 - VIJEĆNICA]
L7-8 Muscle Tissue, Circulatory System	2	[P08]
L9 Endocrine System	1	[P08]
L10-11 Nerve Tissue, Nervous System	2	[P01]
L12-13 Female Reproductive System and sex cycles	2	[P15 - VIJEĆNICA]
L14-16 First Week, Second Week and Third Week of Development, Body Cavities, Embryo, Fetus	3	[P01] [P15 - VIJEĆNICA]
L17 Embryology – Extra-embryonic Membranes	1	[P15 - VIJEĆNICA]

L18 Development of the Central Nervous System and endocrine glands	1	[P01]
L19 Male Reproductive System, structure and gametogenesis	1	[P01]
L20 Skin and Derivates – Structure and Development	1	[P01]
L21 - 22 Eye – Structure and Development	2	[P01]
L23 Ear – Structure and Development	1	[P01]
L24 Immune system – Structure and Development	1	[P15 - VIJEĆNICA]
L25 Digestive tract – Oral Cavity	1	[P15 - VIJEĆNICA]
L26-27 Digestive Tract – Structure	2	[P01]
L28 Organs associate with the digestive tract – structure and development	1	[P08]
L29 Respiratory system – Structure	1	[P08]
L30 Urinary system – Structure	1	[P08]
L31-32 Development of the Cardiovascular and Respiratory Systems	2	[P01]

EXERCISES (TOPIC)	Number of hours	Location
LP1 Histology and its Methods of Study	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP2 Epithelial Tissue	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP3 Connective Tissue	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP4 Blood, Cartilage	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP5 - Bone, Osteogenesis	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP6 - Muscle Tissue, Circulatory System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP7 - Nerve Tissue, Nervous System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP8 - Female Reproductive	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP9 – Embryology	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP10 - Male Reproductive System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP11 - Skin – Structure	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP12 - Endocrine System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP13 - Eye – Structure and Development	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP14 – Ear	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP15 - Immune System	2	[Zavod za histologiju i embriologiju - Vježbaonica]

LP16 Oral Cavity, Teeth – Structure and Development	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP17 Digestive Tract	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP18 Digestive Glands	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP19 Respiratory System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP20 Urinary system	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP21 Tissue section repetition	2	[Zavod za histologiju i embriologiju - Vježbaonica]
LP22 Tissue section recognition	2	[Zavod za histologiju i embriologiju - Vježbaonica]

SEMINARS (TOPIC)	Number of hours	Location
S1 Histology and its Methods of Study	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S2 Epithelial Tissue	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S3 Connective Tissue	1	[Zavod za histologiju i embriologiju - Vježbaonica]
S4 Bone marrow, hematopoiesis	1	[P01]
S5 Blood, Cartilage	1	[Zavod za histologiju i embriologiju - Vježbaonica]
S6 Bone, osteogenesis	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S7 Muscle Tissue, Circulatory System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S8 Nerve Tissue, Nervous System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S9 Female Reproductive System	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S10 Embryology I	3	[Zavod za histologiju i embriologiju - Vježbaonica]
S11 Embryology II	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S12 Stem cells	1	[P15 - VIJEĆNICA]
S13 Head and Neck Development	1	[P01]
S14 Muscular System, Limbs, Axial Skeleton – Development	1	[P01]
S15 Male Reproductive System – Structure	1	[Zavod za histologiju i embriologiju - Vježbaonica]
S16 Skin – Structure and Development	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S17 Endocrine System	1	[Zavod za histologiju i embriologiju - Vježbaonica]

S18 Eye – Structure and Development	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S19 Birth Defects, Teratology	1	[P15 - VIJEĆNICA]
S20 Ear – Structure and Development	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S21 Immune system – Structure and Development	1	[Zavod za histologiju i embriologiju - Vježbaonica]
S22 Oral Cavity – Structure and Development	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S23 Digestive Tract – Structure	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S24 Digestive Tract – Development	1	[P01]
S25 Digestive Glands – Structure and development	1	[Zavod za histologiju i embriologiju - Vježbaonica]
S26 Respiratory System – Structure and development	1	[Zavod za histologiju i embriologiju - Vježbaonica]
S27 Urinary system – Structure	2	[Zavod za histologiju i embriologiju - Vježbaonica]
S28 Urogenital system – Development	2	[P01]

EXAM DATES (final exam):

1.	11.02.2025.
2.	25.02.2025.
3.	09.07.2025.
4.	03.09.2025.
5.	17.09.2025.