

<i>Name of the course</i>	<b>Histology and Embryology</b>			<b>Code</b>	
<i>Type of study program Cycle</i>	Integrated study program, medicine			<b>Year of study</b>	I
<i>Credits (ECTS) :</i>	<b>10,5</b>	<i>Semester</i>	II	Number of hours per semester (l+e+s)	135 (50+41+44)
<i>Status of the course:</i>	mandatory	<i>Preconditions:</i>		<i>Comparative conditions:</i>	
<i>Access to course:</i>	First year medical students			<i>Hours of instructions:</i>	According to schedule
<i>Course teacher:</i>	Associate professor Katarina Vukojević, MD, PhD				
<i>Consultations:</i>	Mondays and Thursdays from 9 to 10 or according to the deal				
<i>E-mail address and phone number:</i>	<a href="mailto:katarina.vukojevic@sve-mo.ba">katarina.vukojevic@sve-mo.ba</a>				
<i>Associate teachers</i>	Associate professor Violeta Šoljić, MD, PhD Andrija Buntić, MD Zdenka Zovko, BSc MLD				
<i>Consultations:</i>	Mondays and Thursdays from 9 to 10 or according to the deal				
<i>E-mail address and phone number:</i>	<a href="mailto:vsoljic@gmail.com">vsoljic@gmail.com</a>				
<b><i>The aims of the course:</i></b>	The objectives of this course are: to introduce medical students with basic facts about human development, to synthesize the knowledge about the microscopic structure and function of human tissues that build organs and tissues in the human body.				
<b><i>Learning outcomes (general and specific competences):</i></b>	<p><u>General outcomes:</u> Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth.</p> <p>Remembering the possession of personal qualities (team work and personal contribution, interest, active listening, and building positive relationships with members of the group).</p> <p><u>Specific outcomes:</u> Understanding the basics of microscopic structure of human body through the microscopic analysis of human tissue and organs preparations.</p> <p>Understanding the normal body structure is the principle on which pathology and pathophysiology are based.</p>				

	<p>Applying knowledge in human embryology helps students in recognizing, treating and preventing disorders of development.</p> <p>Applying the skills in microscopic analysis and recognition of important histological structures of tissues and organs.</p> <p>Understanding the identification and showing details on histological preparations.</p> <p>Outcomes will be evaluated with continuous assessment, quizzes seminars and colloquium exercise and active forms of learning during exercises, lectures and seminars (quizzes for each unit), and the final practical and oral exam.</p>			
<b>Course content (Syllabus):</b>	<p>Course consists of 21 units, 21 quiz-test, assessment in seminars, 21 colloquium, assessment on exercises, and two partial test. Each thematic unit includes: 2-3 hours of lectures, 2-3 hours of seminars and 2-3 hours of exercises.</p>			
<b>Format of instruction (mark in bold)</b>	<b>Lectures</b>	<b>Exercises</b>	<b>Seminars</b>	<b>Independent assignments</b>
	<b>Consultations</b>	Work with mentor	<b>Field work</b>	Other
	<p>Remarks: The teaching of each unit begins with a lecture, followed by seminars and exercises. At the seminars, students receive problem tasks that are analyzed in small groups, at the end of the seminar is a quiz-test, and then students analyze the correct answers with explanations of problems. During exercises students are given preparations which they analyze under microscope and draw, and after that take test on given preparations.</p>			
<b>Student responsibilities</b>	<p>Final exam; Trivia on the seminars; tasks; microscopy; tests; attendance and participation in class.</p> <p>Students will be evaluated based on:</p> <ul style="list-style-type: none"> <li>• Active participation in seminars and exercises.</li> <li>• Preparation of teaching units for seminars</li> <li>• Read teaching texts and develop their own critical thinking about the material and express those views.</li> <li>• work in small groups</li> <li>• Drawing a microscopic preparation on the exercises</li> </ul>			
<b>Screening student work (mark in bold)</b>	<b>Class attendance</b>	<b>Class participations</b>	<b>Seminar essay</b>	<b>Practical training</b>
	<b>Oral exam</b>	<b>Written exam</b>	<b>Continous assesment</b>	Essay

**Detailed evaluation** within a *European system of points*

<b>STUDENTS RESPONSIBILITIES</b>	<b>HOURS</b>	<b>PROPORTIONS OF ECTS CREDITS</b>	<b>PROPORTION S OF MARK</b>
Class attendance and participations	15	0,5	0%
Seminar essay	30	1	10%
Written exam	120	4	40%
Oral exam	90	3	30%
Practical work	60	2	20%

Further clarification:

Exam is written, quiz, practical and oral.

All students who weren't absent from school have the right to take partial tests. Also, those who pass additional exam from lectures during which they were not in class or on which they didn't show sufficient knowledge can approach to test. During the course there will be two partial tests (H1 and H2). The first partial test (H1) includes General Embryology and development of the skeletal, muscular, circulatory, respiratory, nervous system and skin (Special embryology). Histological threads in the first partial test consists of epithelial, connective, fat, cartilage, bone, nerve and muscle tissue and vascular system, blood cells and formation of blood cells, immune, respiratory, neuroendocrine system and skin. The first partial test consists of 60 questions (30 questions from Embryology and 30 questions from Histology). The second partial test (H2) includes the development of body cavities, digestive and urogenital system, the development of head and neck, ear and eye (Special embryology). Histological threads in the second partial test consists of the digestive system, liver, pancreas, urinary system, male and female reproductive system and sensory organs. The second partial test consists of 50 questions (20 questions from Embryology and 30 questions from Histology).

Passed written tests (which will take place during the exercise) of all teaching units are a prerequisite for taking the partial written exams. Positive mark of preliminary tests are recognized during the current academic year. For students who didn't pass partial tests, written exam makes a single unit of 110 questions and can not be taken separately.

The assessment criteria for written exam: The total percentage of correct answers needed for a positive assessment, 60% of the written tests. For a positive evaluation is also necessary to achieve 50% correct answers from the first and second group of questions from Embryology and from the first and second group of questions from Histology.

**H1-first partial test**

36-41=(2);

42-48=(3);

49-54=(4);

55-60=(5);

**H2-second partial test**

30-35=(2);

36-40=(3);

41-45=(4);

46-50=(5);

**Final written exam**

66-76=(2);

77-88=(3);

89-99=(4);

100-110=(5);

Quizzes at seminars (10% of the final grade)

After each seminar a written quiz consisting of 10 questions is conducted. The maximum number of points is 210. Correct answers will be evaluated and continuously cumulated, and at the end of the course evaluated. The rating of this form of assessment is:

126-146 = (2);

147-167 = (3);

168-188 = (4);

189-210 = (5);

Practical and oral exam are available to students who have passed the first and second part of the test in Histology and Embryology.

Practical exam (20% of the final grade)

The practical exam consists of 7 histological preparations. Students must at least identify 5 of 7 preparations under the microscope, and then have to identify microscopic details on the preparation. The recognition of the preparation is scored (maximum 7 points), showing the required structure to the preparation (maximum 7 points), and finding the required structure to the preparation (maximum 7 points).

13-14 = (2);

15-17 = (3);

18-19 = (4);

20-21 = (5);

Oral examination (30% of the final grade)

The oral exam consists of 4 questions (1 general embryology, 1 special embryology, 1 general histology, 1 special histology). Students draw cards with certain issues.

Final score: The final score is the sum of =

complete written (40%) + quizzes in seminars (10%) + practical (20%) + oral (30%) exam.

According to the regulations of the study, final grade is obtained:

A = 91-100% 5

B = 79 to 90% 4

C = 67 to 78% 3

D = 55 to 66% 2

F = 0 to 54% 1

<b>Required literature:</b>	Junqueira LC, Carneiro J, Kelley RO. Basics of Histology. Zagreb: Školska knjiga; 2005. Sadler TW. Medical embryology. 10 <sup>th</sup> edition, Zagreb: Školska knjiga; 2008. Vukojević K, Šoljić V. Practicum from Histology and embryology. 1 <sup>st</sup> edition, Mostar: Medicinski fakultet; 2015
<b>Optional literature:</b>	Durst-Živković B. Practicum of Histology. Zagreb: Školska knjiga; 1998. VMS imagecollection: Histology Atlas, 2008.
<b>Additional information about the course</b>	Monitoring methods of teaching quality: <ul style="list-style-type: none"> <li>- student questionnaire</li> <li>- quality analysis by students and teachers</li> <li>- exam results analysis</li> <li>- report of the office for teaching quality</li> <li>- external evaluation (visit of team for quality control)</li> </ul>

Annexes: calendar classes

<b><i>The number of teaching units</i></b>	<b>TOPICS AND LITERATURE</b>
<b>I.</b>	Title: General embryology 1
	Short description: Gametogenesis, the first and second week of development. Menstrual, ovarian cycle and fertilization. Preparing preparations for histology
	Literature: required and optional
<b>II.</b>	Title: General embryology 2
	Short description: Embryonic period, fetal period and congenital malformations. The placenta and placental membranes. The placenta and umbilical cord
	Literature: required and optional
<b>III.</b>	Title: Epithelial and connective tissue
	Short description: Covering and glandular epithelium, cells and intercellular substance of connective tissue, Lining epithelium, unformed connective tissue, tendons
	Literature: required and optional
<b>IV.</b>	Title: Blood cells
	Short description: Formation of blood cells. Blood cells and anomalies. Smear of bone marrow and blood smear
	Literature: required and optional
<b>V.</b>	Title: The cartilage and bone
	Short description: Supportive tissue-cartilage, adipose tissue and bone

	ossification. The development of the skeletal system. Hyaline, elastic and connective cartilage, decalcificated bone, a bone specimen, enchondral and desmal ossification
	Literature: required and optional
<b>VI.</b>	Title: Muscle tissue
	Short description: development and structure of muscle tissue. Morphological based contractility. The skeletal, smooth and cardiac muscle
	Literature: required and optional
<b>VII.</b>	Title: Nervous tissue
	Short description: Development and structure of the nervous tissue. The histological structure of the nervous tissue. Spinal cord, cerebrum, cerebellum, peripheral nerve ganglia
	Literature: required and optional
<b>VIII.</b>	Title: Heart and blood vessels
	Short description: Development and structure of the heart and blood vessels. Structure of the heart and blood vessels, placenta. Heart valves, arteries, veins
	Literature: required and optional
<b>IX.</b>	Title: The lymphatic system
	Short description: The lymphatic system. The lymphatic organs, regional lymph nodes and lymph vessels. Thymus, lymph nodes, spleen and palatine tonsil
	Literature: required and optional
<b>X.</b>	Title: Neuroendocrine System
	Short description: Neuroendocrine System. The organization of the endocrine glands. The pituitary gland, thyroid gland, adrenal gland, epithelial corpuscle
	Literature: required and optional
<b>XI.</b>	Title: The respiratory system and skin
	Short description : Development and structure of the respiratory system, skin system. Respiratory membranes and skin. The lungs and trachea, skin and mammary gland
	Literature: required and optional
<b>XII.</b>	Title: Head and Neck 1
	Short description: The development of head and neck. Development and anomalies of the organs of the head and neck. Lip, tip of the tongue, salivary and papillavallata
	Literature: required and optional
<b>XIII.</b>	Title: Head and Neck 2
	Short description: Oral Cavity. Structure of the mouth. Palate, teeth and tooth development
	Literature: required and optional
<b>XIV.</b>	Title: Body cavities and digestive tract 1
	Short description: Development of body cavities. Build the gastrointestinal tract. The esophagus and stomach
	Literature: required and optional
<b>XV.</b>	Title: The digestive tract 2

	Short description: Development and structure of the gastrointestinal tract. Structure of the digestive system. Small and large intestine, appendix
	Literature: required and optional
<b>XVI.</b>	Title: The glands of the gastrointestinal tract
	Short description: liver and pancreas
	Literature: required and optional
<b>XVII.</b>	Title: Urinary System
	Short description: Development and structure of the urinary tract. Structure of the urinary tract. Kidney, bladder and urethra
	Literature: required and optional
<b>XVIII.</b>	Title: Female Reproductive System
	Short description: Development and structure of the female reproductive system. Structure of the female reproductive system. Ovary, fallopian tube, uterus, vagina.
	Literature: required and optional
<b>XIX.</b>	Title: Male Reproductive System
	Short description: Development and structure of the male reproductive system. Structure of the male reproductive system. Testis, vas deferens, prostate, seminal vesicle and penis.
	Literature: required and optional
<b>XX.</b>	Title: the Ear
	Short description: Development and structure of the ear
	Literature: required and optional
<b>XXI.</b>	Title: The eye
	Short description: Development and structure of the eye
	Literature: required and optional