

UNIVERSITY OF ZAGREB
 FACULTY OF VETERINARY MEDICINE
 Heinzelova 55
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 Division: Basic and Pre-clinical Sciences Division
 Department / Clinic: Department of Anatomy, Histology and Embryology
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 Register no.: 61-05-2019/26
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79570	REPUBLIKA HRVATSKA	
Veterinarski fakultet u Zagrebu		
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Klasifikacijska oznaka	Org. jed.	
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Uredžbeni broj	Prilozi	Vrijednost
251-61-05-19-03	0	-

COURSE SYLLABUS

Course name:

Academic year 2018-19

Course leader: Assoc. Prof. Snježana Kužir

Teachers: Assistant Prof. Valentina Kubale Dvojmoč (L: Lymphatic system / P: Lymphatic system I)

Associate teachers: Lucija Bastiančić, DVM

First day of classes: 25/2/2019

Last day of classes: 7/6/2019

Timetable for LECTURES academic year 2018-2019

LECTURES				
Date	Methodological unit	Teacher	Location / time	Literature
25/2/2019	Introduction General embryology	Assoc. Prof. Snježana Kužir	Practical room, Department of Anatomy, Histology and Embryology (DAHE) 10-12	AUGHEY, E., F. L. FRYE (2001): Comparative Veterinary Histology with Clinical Correlates. Manson Publishing/The Veterinary Press, London, UK. BACHA, W. J., L. M. BACHA (2012): Colour Atlas of Veterinary Histology. 3rd ed. J. Willey-Blackwell, Chichester, UK BANKS, W. J. (1993): Applied Veterinary Histology. Mosby-Year Book, Inc. St. Louis. HYTTEL, P., F. SINOWATZ, M. VEJLSTED (2010): Essentials of Domestic Animal Embryology. Saunders Elsevier, Philadelphia.
26/2/2019	Epithelial tissue I	Assoc. Prof. Snježana Kužir	DAHE 12-14	
8/3/2019	Connective tissue	Assoc. Prof. Snježana Kužir	DAHE 8-10	
13/3/2019	Supportive tissue	Assoc. Prof. Snježana Kužir	DAHE 14-16	
19/3/2019	Blood	Assoc. Prof. Snježana Kužir	DAHE 16-17	
21/3/2019	Muscle tissue	Assoc. Prof. Snježana Kužir	DAHE 16-17	
27/3/2019	Nerve tissue	Assoc. Prof. Snježana Kužir	DAHE 9-10	
3/4/2019	Central nervous system	Assoc. Prof. Snježana Kužir	DAHE 9-10	
9/4/2019	Eye and ear	Assoc. Prof. Snježana Kužir	DAHE 16-17	
16/4/2019	Endocrine system	Assoc. Prof. Snježana Kužir	DAHE 9-10	
17/4/2019	Integumentary system	Assoc. Prof. Snježana Kužir	DAHE 16-17	
6/5/2019	Cardiovascular system	Assoc. Prof. Snježana Kužir	DAHE 12-13	
8/5/2019	Lymphatic system	Assistant Prof. Valentina Kubale Dvojmoč	DAHE 12-14	

15/5/2019	Digestive system I	Assoc. Prof. Snježana Kužir	DAHE 14-16	Mc GEADY, T. A., P. J. QUINN, E. S. FITZPATRICK, M. T. RYAN (2006): Veterinary Embryology. Blackwell Publishing, Dublin. SAMUELSON, D. A. (2006): Textbook of Veterinary Histology. Saunders (W. B.) Co Ltd, London, UK PP of lectures and exercises
20/5/2019	Digestive system II	Assoc. Prof. Snježana Kužir	DAHE 14-16	
24/5/2019	Respiratory system	Assoc. Prof. Snježana Kužir	DAHE 14-16	
28/5/2019	Urinary system	Assoc. Prof. Snježana Kužir	DAHE 16-18	
30/5/2019	Male reproductive system	Assoc. Prof. Snježana Kužir	DAHE 14-15	
31/5/2019	Female reproductive system	Assoc. Prof. Snježana Kužir	DAHE 12-15	

Timetable for PRACTICALS academic year 2018-2019

PRACTICALS						
Date	Methodological unit	Teacher	Type of practical	Group	Location / time	Literature
28/2/2019	Cytology Histological methods	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	AUGHEY, E., F. L. FRYE (2001): Comparative Veterinary Histology with Clinical Correlates. Manson Publishing/The Veterinary Press, London, UK.
1/3/2019	Epithelial tissue I	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 8-10	
5/3/2019	Epithelial tissue II	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 12-14	
6/3/2019	Epithelial tissue III	Assoc. Prof.	laboratory	1,2	DAHE	

		Snježana Kužir Lucija Bastiančić, DVM			15-17	<p>BACHA, W. J., L. M. BACHA (2012): Colour Atlas of Veterinary Histology. 3rd ed. J. Willey-Blackwell, Chichester, UK</p> <p>BANKS, W. J. (1993): Applied Veterinary Histology. Mosby-Year Book, Inc. St. Louis.</p> <p>HYTTEL, P., F. SINOWATZ, M. VEJLSTED (2010): Essentials of Domestic Animal Embryology. Saunders Elsevier, Philadelphia.</p>
11/3/2019	Connective tissue I	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 16-18	
12/3/2019	Connective tissue II	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 8-10	
14/3/2019	Supportive tissue, cartilage	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 8-10	
15/3/2019	Supportive tissue, bone	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 12-14	
20/3/2019	Blood in mammals and birds	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 8-10	
22/3/2019	Muscle tissue	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 12-14	
28/3/2019	Nerve tissue	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 10-12	
29/3/2019	RECAPITULATION I	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	
1/4/2019	TEST I	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	test	1,2	DAHE 14-14,30	
8/4/2019	Central nervous system	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 16-18	
10/4/2019	Eye	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	

16/4/2019	Endocrine system	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	<p>Mc GEADY, T. A., P. J. QUINN, E. S. FITZPATRICK, M. T. RYAN (2006): Veterinary Embryology. Blackwell Publishing, Dublin.</p> <p>SAMUELSON, D. A. (2006): Textbook of Veterinary Histology. Saunders (W. B.) Co Ltd, London, UK</p> <p>PP of lectures and exercises</p>
30/4/2019	Integumentary system	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 16-18	
7/5/2019	Cardiovascular system	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	
8/5/2019	Lymphatic system I	Assist. Prof. Valentina Kubale Dvojmoč Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	
10/5/2019	Lymphatic system II	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 12-14	
14/5/2019	RECAPITULATION II	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 10-12	
16/5/2019	TEST II	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	test	1,2	DAHE 14-14,30	
16/5/2019	Digestive system Ia	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14,30-16,30	
17/5/2019	Digestive system Ib	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 13-15	
22/5/2019	Digestive system IIa	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	
23/5/2019	Digestive system IIb	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 14-16	
27/5/2019	Respiratory system	Assoc. Prof. Snježana Kužir	laboratory	1,2	DAHE 16-18	

		Lucija Bastiančić, DVM				
29/5/2019	Urinary system	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 16-18	
3/6/2019	Male reproductive system	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 10-12	
4/6/2019	Female reproductive system	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 12-14	
5/6/2019	Extra embryonic membranes	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 12-14	
6/6/2019	RECAPITULATION III	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	laboratory	1,2	DAHE 11-13	
7/6/2019	TEST III	Assoc. Prof. Snježana Kužir Lucija Bastiančić, DVM	test	1,2	DAHE 11-11,30	

STUDENT OBLIGATIONS

Lecture attendance	During "Histology and general embryology" course a student must attend 15 of 30 lecture hours in order to gain 3 minimal points. The maximum number of points from this evaluation element is 6. Checking of attending lectures will be done during the lectures by signatures of students. One hour of lecture (45 minutes) is equal to 0.2 points.
Seminars attendance	
Practicals attendance	During "Histology and general embryology" course a student must attend 40 of 60 exercise hours in order to gain 8 minimal points. The maximum number of points from this evaluation element is 12. The checking of the attending exercises will be done by calling the students out at the beginning of each exercise lesson. One hour of practicals (45 minutes) is equal to 0.2 points
Active participation in seminars and practicals	Students are expected to participate actively by making questions, drawing microscopic slides and by active studying from the literature. The participation of each student at the exercises will be evaluated by 1-10 points. A student must gain minimal 5 points. The maximum number of points from this evaluation element is 10.

Final exam	<p>The final exam is oral and it consists of revision and knowledge of histological slides (according to course goals and outcomes). For each slides (there are 5 of them) a student can gain 8 points max. To pass the exam a student must gain 24 points. The maximum number of points is 40.</p> <p>The final grade is formed on the basis of total sum of all five evaluation elements in course of what the student must gain minimal number of points from each element. The final mark is expressed in quantity, by a numeric point-system value and by a grade adequate to its value in points, from 1 to 5. Student is marked by grade 1 in case she/he did not master the curriculum successfully, in other words grade 1 means insufficient standing.</p>
Examination requirements	<p>Student requirements are defined in the Regulations on the Integrated Undergraduate and Graduate Study of Veterinary Medicine. Given the above, the student must acquire a minimum number of points from all assessment elements in order to take the final exam. Article 45: a student can justifiably be absent from up to 50 % of the lectures; 30% of the seminars and 30 % of the exercises.</p>

GRADING AND EVALUATING STUDENT WORK

Continuous knowledge-checking (mid-terms)	<p>The first 10-16 points; the second 5-8 points; the third 5-8 points.</p> <p>Three preliminary exams will be organized during the course. First is worth minimal 10 and maximal 16 points. Second and third are worth minimal 5 and maximal 8 points. To take the oral exam a student must have 20 points from this domain. In case she/he does not earn enough points, a student has right to repeat preliminary exam once again (second attempt), and the third time (third attempt) with permission from vice dean. In this context it is possible to gain 32 points max.</p>
Final exams (dates)	22/3/2019; 26/4/2019 ; 15/5/2019; 12/6/2019; 28/6/2019; 12/7/2019; 4/9/2019; 18/9/2019
Form of final exam	oral

LITERATURE

Obligatory literature	<p>AUGHEY, E., F. L. FRYE (2001): Comparative Veterinary Histology with Clinical Correlates. Manson Publishing/The Veterinary Press, London, UK.</p> <p>BACHA, W. J., L. M. BACHA (2012): Colour Atlas of Veterinary Histology. 3rd ed. J. Willey-Blackwell, Chichester, UK</p> <p>BANKS, W. J. (1993): Applied Veterinary Histology. Mosby-Year Book, Inc. St. Louis.</p> <p>HYTTEL, P., F. SINOWATZ, M. VEJLSTED (2010): Essentials of Domestic Animal Embryology.</p>
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	<p>Saunders Elsevier, Philadelphia. Mc GEADY, T. A., P. J. QUINN, E. S. FITZPATRICK, M. T. RYAN (2006): Veterinary Embryology. Blackwell Publishing, Dublin. SAMUELSON, D. A. (2006): Textbook of Veterinary Histology. Saunders (W. B.) Co Ltd, London, UK PP of lectures and exercises</p>
Optional literature	<p>DELLMAN, H.-D. (1993): Textbook of Veterinary Histology. Lea & Febiger. Philadelphia. KERR, J. B. (2000): Atlas of Functional Histology. Mosby, London, St. Louis, Philadelphia, Sydney, Tokyo. MESCHER, A. (2013): Junqueira's Basic Histology: Text and Atlas. 13th ed. Mc Graw Hill Companies, Inc NODEN, D. M., A. DE LAHUNTA (1985): The Embryology of Domestic Animals. Developmental Mechanisms and Malformations. Williams & Wilkins. Baltimore, Hong Kong, London, Sydney. SADLER, T. W. (2006): Langman's Medical Embryology, Lippincott Williams & Wilkins a Wolters Kluwer business. 10th ed. Philadelphia, Baltimore, New York, London, Buenos Aires, Hong Kong, Sydney, Tokyo. YOUNG, B., J. W. HEATH (2000): Wheater's Functional Histology, A Text and Colour Atlas. Churchill Livingstone, Edinburgh, London, New York, Oxford, Philadelphia, St. Louis, Sydney, Toronto.</p>

OBJECTIVES AND LEARNING OUTCOMES

Course objectives	<p>Histology is one of the basic subjects of the medical sciences; it studies the structure of human and animal bodies, which can be seen only with the help of optic aids. Etymologically, histology is a science that studies the tissues of a body. However, it explores the complete microscopic and submicroscopic system of the organism.</p> <p>During the study, students of veterinary medicine improve their knowledge from macroscopic anatomy and at the same time, they gain insight into the correlation between the structure and function of organs and organic systems. Knowledge of the normal structures is essential for the recognition of changes in the structure of the tissue, organs and organic systems.</p> <p>Embryology deals with the embryonic development and enables the understanding of complex interrelations in the body of an animal. It is also of practical importance since, it explains the emergence of anomalies during development.</p>
Learning outcomes	<p>This course builds on the knowledge acquired in the anatomy courses. Students will be able to identify, describe, connect, analyse, explain and integrate the macroscopic and microscopic structure of individual</p>

organs and systems. It is also the basis for understanding and linking the physiology, pathophysiology and pathology. Students will be able to explain the characteristics of individual cells and tissues that will give a further understanding of physiological, pathophysiological and pathological processes, which is a prerequisite for understanding the pathomorphological changes in the pathogenesis of diseases.

By the end of this course the student should be able to:

- recognize and define the basic elements of the microscopic structures of tissues and organs of animals
- explain and compare the structure of certain organs in different animal species;
- propose the necessary histological method of processing the sample;
- independently cut off a piece of tissue and fix it correctly for the selected histological method;
- use the microscope efficiently for the purpose of analysis and study of histological slides;
- recognize and analyse the histological slides of various organs and tissues;
- examine the relations between the structures and development of domestic animals

GRADING SCHEME

<i>Points</i>	<i>Grade</i>
Up to 59	1 (F)
60-68	2 (E)
69-76	2 (D)
77-84	3 (C)
85-92	4 (B)
93-100	5 (A)

Course leader:

S. Muzir

Head of Department/Clinic:

Martina Dum

Note: The course leader is required to submit a Course Syllabus to all teachers and associates pertaining to the Course.

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES,
SEMINARS and PRACTICALS**

Type of activity	Minimum number of points	Maximum number of points
Lectures attendance	3	6
Seminar attendance	4	6
Practicals attendance	4	6
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH LECTURES and
SEMINARS**

Type of activity	Minimum number of points	Maximum number of points
Lecture attendance	3	6
Practicals attendance	8	12
Active participation in practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100

**GRADING AND EVALUATION OF STUDENT WORK ON COURSES WITH SEMINARS and
EXERCISES**

Type of activity	Minimum number of points	Maximum number of points
Seminar / practicals attendance	11	18
Active participation in seminars and practicals	5	10
Continuous knowledge checking (mid-terms)	20	32
Final exam	24	40
TOTAL	60	100