



**AYDIN ADNAN MENDERES UNIVERSITY  
GRADUATE SCHOOL OF HEALTH SCIENCES  
VETERINARY PHYSIOLOGY  
PHYSIOLOGY (VETERINARY)  
PHYSIOLOGY (VETERINARY) MASTER  
COURSE INFORMATION FORM**

Course Title	Blood and Circulatory Physiology								
Course Code	VFZ503		Course Level		Second Cycle (Master's Degree)				
ECTS Credit	6	Workload	150 (Hours)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course	To be comprehended that blood composition and its functions, and understanding of the principles of blood and lymphatic circulation								
Course Content	Blood composition and its functions, development and function of shaped cellular elements of the blood, structure and functional properties of the heart, blood vessels and their functions, hemodynamics, microcirculation and the lymphatic system, blood flow control mechanisms, regulation of the blood and circulation								
Work Placement	N/A								
Planned Learning Activities and Teaching Methods	Explanation (Presentation), Experiment, Demonstration, Discussion, Case Study, Individual Study, Problem Solving								
Name of Lecturer(s)	Prof. Hümeýra ÜNSAL								

#### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	38
Final Examination	1	60
Quiz	4	1
Term Assignment	1	1

#### Recommended or Required Reading

1	Reece W.O. (2008) Dukes Veteriner Fizyoloji Cilt I ve II, Onikinci Baskı (Türkçe Çeviri). Ed: Yıldız S. Medipres, Malatya
2	Guyton AC, Hall JE (2001) Tıbbi Fizyoloji Onuncu baskı (Türkçe Çeviri). Ed: Çavuşoğlu H. Nobel Tıp Kitabevi, İstanbul
3	Noyan A. (2003). Yaşamda ve Hekimlikte Fizyoloji. 13. baskı, Meteksan-Ankara
4	Randall D., Burggren W., French K, Fernald R., (1997). Eckert Animal Physiology. Mechanisms and Adaptations. 4th Ed., New York
5	G.C. Whittow et al. (1998). Sturke's Avian Physiology
6	Willmer P., Stone G., Johnston I. (2005). Environmental Physiology of Animals. 2nd Ed. Blackwell Publishing
7	Despopoulos A., Silbernagl S. (2003). Color Atlas of Physiology 5th Ed. Thieme, Stuttgart New York
8	Vander et al. (2001). Human Physiology: The Mechanism of Body Function, 8th Ed. The McGraw-Hill Companies
9	Harvey J.W. (2001). Atlas of Veterinary Hematology. W.B. Saunders Company
10	Weiss D.J., Wardrop J. (2010). Schalm's Veterinary Hematology. 6th Ed. Blackwell Publishing Ltd

Week	Weekly Detailed Course Contents	
1	Theoretical	The structure of the blood
	Practice	Factors affecting blood collection and blood collection sites according to species
2	Theoretical	Classification of blood shaped cellular elements and their functions
	Practice	Processing and storage of blood samples
3	Theoretical	Structure and composition of red blood cells
	Practice	Erythrocyte counting
4	Theoretical	Leukocytes
	Practice	Determination of the amount of hematocrit and hemoglobin



5	Theoretical	Platelets and their functions
	Practice	Wintrobe erythrocyte indexes and anemias
6	Theoretical	Mechanical activity of the heart and heart sounds
	Practice	Blood groups and blood transfusion in animals
7	Theoretical	The general structure and functional characteristics of the heart
	Practice	Determination of erythrocyte sedimentation rate and osmotic fragility
8	Theoretical	Midterm
	Practice	Midterm
9	Theoretical	Electrophysiology of the heart
	Practice	Leukocyte counting and blood smear
10	Theoretical	Neuronal and hormonal regulation of heart activity
	Practice	Evaluation of the blood smear and leukocyte differentiation
11	Theoretical	The general structure and characteristics of blood vessels
	Practice	Determination of bleeding and clotting time, coagulation tests
12	Theoretical	The factors affecting the movement of the blood vessel system
	Practice	Specific conduction system of heart, simulations regarding action potential of the heart muscle
13	Theoretical	Blood pressure
	Practice	Heart sounds
14	Theoretical	Regulation of blood flow in capillaries and tissues
	Practice	ECG
15	Theoretical	Lymphatic circulation and edema
	Practice	Blood pressure and pulse

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	2	42
Lecture - Practice	14	1	2	42
Assignment	4	2	1	12
Term Project	1	15	1	16
Quiz	4	2	1	12
Midterm Examination	1	8	1	9
Final Examination	1	16	1	17
Total Workload (Hours)				150
[Total Workload (Hours) / 25*] = ECTS				6

\*25 hour workload is accepted as 1 ECTS

### Learning Outcomes

1	To have knowledge about development, features and functions of blood shaped cellular elements
2	Understanding the general characteristics of the structures that consisted of the cardiovascular system
3	To comprehend general properties and structure of the heart and to learn the heart's mechanical and electrophysiological activities and to learn about organization of the heart function



4	To learn general characteristics of the vessel, movement of the blood in the vessels system and factors that affect it
5	To have knowledge about microcirculation, lymphatic system and edema

### Programme Outcomes (Physiology (Veterinary) Master)

1	Understands and defines the interdisciplinary interaction with the associated fields
2	Uses theoretical and practical information learned in the education
3	Creates solution proposals by using background education
4	Combines and interprets the information from different disciplines, and creates solution proposals and scientific information to contribute the solution process, when needed
5	Involves in professional organizations and institutions related with the educational background
6	Takes responsibility for individual and group work, and do the assignments in line with the skills
7	Communicates with the professionals out of the field when it is necessary, and contributes to the solution as a team member
8	Understands the production and publishing methods of scientific information
9	Determines the source and the type of information that is needed related with the field and chooses the activities that s/he wants to participate, by using his/her critical thinking abilities that is developed in the education
10	Excels technological devices both for professional and social purposes
11	Compiles any kind of data related with the field (field observations, produced scientific information etc.) and analyzes and interprets the results according to the aims of the research
12	Determines the environmental health rules and applies them for prevention
13	Applies the knowledge gained in professional level with the awareness of the needs of the region and the country, and develops a defense capability
14	Conceptualizes the phenomena and the events related with the field, studies scientific methods and techniques, interprets results; analyzes and hypothesizes methods in accordance with the results and designs solution or treatment alternatives addressing the problems
15	Follows up the updates of information in the field by using all kinds of sources (scientific information, legislations etc.), and uses when needed

### Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	2	2	2	2	2
P2	4	4	4	4	4
P3	4	4	4	4	4
P4	2	2	2	2	2
P5	2	2	2	2	2
P6	1	1	1	1	1
P7	1	1	1	1	1
P8	2	2	2	2	2
P9	2	2	2	2	2
P10	3	3	3	3	3
P11	4	4	4	4	4
P12	1	1	1	1	1
P13	4	4	4	4	4
P14	2	2	2	2	2
P15	3	3	3	3	3

