

# BLOOD PHYSIOLOGY AND APPLICATIONS

|           |                                                         |                                                                                                                                                 |                                                            |
|-----------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| <b>1</b>  | Course Title:                                           | BLOOD PHYSIOLOGY AND APPLICATIONS                                                                                                               |                                                            |
| <b>2</b>  | Course Code:                                            | VFZ 6001                                                                                                                                        |                                                            |
| <b>3</b>  | Type of Course:                                         | Compulsory                                                                                                                                      |                                                            |
| <b>4</b>  | Level of Course:                                        | Third Cycle                                                                                                                                     |                                                            |
| <b>5</b>  | Year of Study:                                          | 1                                                                                                                                               |                                                            |
| <b>6</b>  | Semester:                                               | 1                                                                                                                                               |                                                            |
| <b>7</b>  | ECTS Credits Allocated:                                 | 5.00                                                                                                                                            |                                                            |
| <b>8</b>  | Theoretical (hour/week):                                | 2.00                                                                                                                                            |                                                            |
| <b>9</b>  | Practice (hour/week):                                   | 2.00                                                                                                                                            |                                                            |
| <b>10</b> | Laboratory (hour/week):                                 | 0                                                                                                                                               |                                                            |
| <b>11</b> | Prerequisites:                                          | none                                                                                                                                            |                                                            |
| <b>12</b> | Language:                                               | Turkish                                                                                                                                         |                                                            |
| <b>13</b> | Mode of Delivery:                                       | Face to face                                                                                                                                    |                                                            |
| <b>14</b> | Course Coordinator:                                     | Prof. Dr. FAHRÜNISA CENGİZ                                                                                                                      |                                                            |
| <b>15</b> | Course Lecturers:                                       |                                                                                                                                                 |                                                            |
| <b>16</b> | Contact information of the Course Coordinator:          | fnisa@uludag.edu.tr<br>+90 224 294 1271<br>Uludag University Faculty of Veterinary Medicine Department of Physiology Gorukle Bursa Turkey 16059 |                                                            |
| <b>17</b> | Website:                                                |                                                                                                                                                 |                                                            |
| <b>18</b> | Objective of the Course:                                | The aim of the course is to explain the blood physiology and experiments and to interpret the issues related to blood.                          |                                                            |
| <b>19</b> | Contribution of the Course to Professional Development: |                                                                                                                                                 |                                                            |
| <b>20</b> | Learning Outcomes:                                      |                                                                                                                                                 |                                                            |
|           |                                                         | <b>1</b>                                                                                                                                        | To be able to explain blood structure and it's composition |
|           |                                                         | <b>2</b>                                                                                                                                        | To be able to describe the blood cells                     |
|           |                                                         | <b>3</b>                                                                                                                                        | To be able to explain coagulation and clotting factors     |
|           |                                                         | <b>4</b>                                                                                                                                        | To be able to explain bleeding                             |
|           |                                                         | <b>5</b>                                                                                                                                        | To be able to describe anemia                              |
|           |                                                         | <b>6</b>                                                                                                                                        | To be able to describe blood groups                        |
|           |                                                         | <b>7</b>                                                                                                                                        | To be able to describe blood-related diseases              |
|           |                                                         | <b>8</b>                                                                                                                                        | To be able to explain the transfer of blood in animals     |
|           |                                                         | <b>9</b>                                                                                                                                        |                                                            |
|           |                                                         | <b>10</b>                                                                                                                                       |                                                            |
| <b>21</b> | Course Content:                                         |                                                                                                                                                 |                                                            |
|           |                                                         | <b>Course Content:</b>                                                                                                                          |                                                            |
| Week      | Theoretical                                             | Practice                                                                                                                                        |                                                            |

|                           |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |                        |
|---------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------|
| 1                         | Blood cells, plasma,serum<br>Anticoagulant substances<br>Interactions between bleeding and vitamin K | To provide information on issues related to blood sampling in animals                                                                                                                                                                                                                                                                                                                                                                       |                 |                        |
| 2                         | Erythrocytes<br>Red blood cell production<br>Life span of red blood cells                            | Introduction of tools and equipment used in blood count, give information about the dilutions melts                                                                                                                                                                                                                                                                                                                                         |                 |                        |
| 3                         | Hemoglobin Compounds<br>Methemoglobin                                                                | Determination the amount of hemoglobin                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                        |
| 4                         | Anemia, causes of formation, types<br>The amount of blood<br>Blood storage organs                    | Hematocrit                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |                        |
| 5                         | Myoglobin<br>Breakdown of red blood cells                                                            | Red blood cell count                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |                        |
| 6                         | White blood cell<br>White blood cell types                                                           | Staining Blood Smear and Formula of leucocytes                                                                                                                                                                                                                                                                                                                                                                                              |                 |                        |
| 7                         | Tissue macrophage system<br>Life span of white blood cells                                           | White blood cell count                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                        |
| 8                         | Thrombocytes<br>Coagulation                                                                          | Determination of the clotting time with capillary tube method                                                                                                                                                                                                                                                                                                                                                                               |                 |                        |
| 9                         | Interrenal mechanism (Aldosterone)                                                                   | Determination of blood clotting                                                                                                                                                                                                                                                                                                                                                                                                             |                 |                        |
| Activites                 |                                                                                                      | Number                                                                                                                                                                                                                                                                                                                                                                                                                                      | Duration (hour) | Total Work Load (hour) |
| Theoretical               | Fibrinolysis                                                                                         | 14                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2.00            | 28.00                  |
| Practicals/Labs           |                                                                                                      | 14                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2.00            | 28.00                  |
| Self study                | Hyandrophilia disorder (hemophilia)                                                                  | 14                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.00            | 14.00                  |
| Homeworks                 |                                                                                                      | 2                                                                                                                                                                                                                                                                                                                                                                                                                                           | 10.00           | 20.00                  |
| 12 Projects               | Blood plasma, Blood plasma components, Plasma proteins, Blood groups and Rh                          | 0                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.00            | 0.00                   |
| Field Studies             |                                                                                                      | 0                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.00            | 0.00                   |
| Midterm exams             |                                                                                                      | 0                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.00            | 0.00                   |
| 13 Others                 | Blood groups in animals                                                                              | 3                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15.00           | 45.00                  |
| Final Exam                | Blood transfer in animals                                                                            | 1                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15.00           | 15.00                  |
| Total Work Load           |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 | 150.00                 |
| Total work load/ 30 hr    |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 | 5.00                   |
| ECTS Credit of the Course |                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 | 5.00                   |
|                           |                                                                                                      | 2- GUYTON, AC. HALL JE. Textbook of Medical Physiology, Saunders, 2005.<br>3- YILMAZ, B. Fizioloji. Medisan Yayınevi, Ankara, 2000.<br>4- YAMAN, K. Fizioloji. Güven Mücellit Matbaacılık Ltd. Şti. Bursa, 2009.<br>5- Swenson, M. J. Duke's Physiology of Domestic Animals, 10. Ed. Cornell University, Rsess, Ithaca New York, 1984.<br>6- Frandso RD, Wilkw WL, Fails AD, Anatomy and Physiology of Farm Animals 7th Edition, USA, 2009. |                 |                        |
| 23                        | Assesment                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |                        |
| TERM LEARNING ACTIVITIES  |                                                                                                      | NUMBE R                                                                                                                                                                                                                                                                                                                                                                                                                                     | WEIGHT          |                        |
| Midterm Exam              |                                                                                                      | 0                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.00            |                        |

