

**SCHOOL OF MEDICINE UNIVERSITY OF BELGRADE  
PROGRAMME OF EXERCISES IN MEDICAL PHYSIOLOGY**

**IV (summer) semester 2025/2026 academic year**

<p><b>Exercises</b> will be held on <b>Monday</b> and <b>Tuesday</b> at <b>Classrooms A/C (group I-A/II-A)</b> and at <b>Classrooms B/D (group I-B/II-B)</b> of the Institute of Medical physiology, from 13:00 to 16:00</p>	
<p>First part of exercise (13:00 – 15:15) will be performed at the Classroom A (group I-A/II-A) and Classroom B (group I-B/II-B), while the rest (15:15 – 16:00) will be held at Classrooms C (group I-A/II-A) and Classroom D (group I-B/II-B)</p>	
<b>WEEK 1 (02-05.03.2026.)</b>	<p><b>Exercise 14 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Palpation of arterial pulse oscillations on various sites of the body</li> <li>2. Estimation of radial artery pulse qualities in humans</li> <li>3. Recording and analysis of arterial pulse oscillations (sphygmogram)</li> <li>4. Measurement of velocity of fluid flow (ml/min) on the various models of piezometer</li> <li>5. <i>Video presentation of vascular system (A.D.A.M.)</i></li> <li>6. <i>Principles of hemodynamics (PhysioEx 4.0): Measurement of blood flow (ml/min) under condition of changes in the blood vessel radius, viscosity of blood, length of the blood vessel and pressure gradient</i></li> </ol> <p><b>March 02, 2026, 13:00-16:00</b>  <b>Group I-A (Monday, Classroom A/C): dr R. Jeremić, Assistant Professor; lab. J. Despotović</b>  <b>Group I-B (Monday, Classroom B/D): dr D. Todorović, Assistant Professor; lab. lab. M. Diković</b></p> <p><b>March 03, 2026, 13:00-16:00</b>  <b>Group II-A (Tuesday, Classroom A/C): dr R. Jeremić, Assistant Professor; lab. J. Despotović</b>  <b>Group II-B (Tuesday, Classroom B/D): dr D. Todorović, Assistant Professor; lab. lab. M. Diković</b></p>
<b>WEEK 2 (09-12.03.2026.)</b>	<p><b>Exercise 15 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Measurement of arterial blood pressure using palpatory and auscultatory methods in human</li> <li>2. Demonstration of the effects of hydrostatic pressure and the role of venous valves on venous blood flow</li> <li>3. Assessment of functional capacity of the heart and circulation during physical activity in human (Lorentz and Harvard step tests)</li> <li>4. Explanation of oculocardiac reflex</li> <li>5. <i>Interactive presentation of the experiment: the direct measurement of arterial blood pressure and influence of vasopressor and vasodepressor agents on the value of arterial blood pressure</i></li> <li>6. <i>Interactive videosimulation of the effects of vasoactive substances on the isolated blood vessel</i></li> </ol> <p><b>March 09, 2026, 13:00-16:00</b>  <b>Group I-A (Monday, Classroom A/C): dr J. Jakovljević Uzelac, Assistant Professor; lab. K. Živanović</b>  <b>Group I-B (Monday, Classroom B/D): dr J. Maričić, Teaching Assistant; lab. B. Ranković</b></p> <p><b>March 10, 2026, 13:00-16:00</b>  <b>Group II-A (Tuesday, Classroom A/C): dr J. Jakovljević Uzelac, Assistant Professor; lab. K. Živanović</b>  <b>Group II-B (Tuesday, Classroom B/D): dr J. Maričić, Teaching Assistant; lab. B. Ranković</b></p>
<b>WEEK 3 (16-19.03.2026.)</b>	<p><b>Exercise 16 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Obtaining of blood samples for laboratory analysis from the finger tip</li> <li>2. Preparation and staining of the blood smear by Pappenheim's method</li> <li>3. Identification of blood cells</li> <li>4. Determination of reticulocyte count staining a slide using brilliant cresyl blue stain</li> <li>5. Determination of erythrocyte sedimentation rate (ESR)</li> </ol> <p><b>March 16, 2026, 13:00-16:00</b>  <b>Group I-A (Monday, Classroom A/C): dr S. Mutavdžin Krneta, Assistant Professor; lab. lab. M. Diković</b>  <b>Group I-B (Monday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. J. Despotović</b></p> <p><b>March 17, 2026, 13:00-16:00</b>  <b>Group II-A (Tuesday, Classroom A/C): dr S. Mutavdžin Krneta, Assistant Professor; lab. lab. M. Diković</b>  <b>Group II-B (Tuesday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. J. Despotović</b></p>

WEEK 4 (23-26.03.2026.)	<p><b>Exercise 17 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Determination of red blood cell count by haemocytometer and erythrocyte suspension optical density</li> <li>2. Hematocrit (Htc) or Packed Cell Volume (PCV) determination (microhematocrit method)</li> <li>3. Hemoglobin determination</li> <li>4. Calculation of the mean corpuscular values (MCV, MCH, MCHC) using the former obtained values</li> </ol> <p><b>March 23, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr J. Jakovljević Uzelac, Assistant Professor; lab. B. Ranković  Group I-B (Monday, Classroom B/D): dr D. Todorović, Assistant Professor; lab. K. Živanović</p> <p><b>March 24, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr J. Jakovljević Uzelac, Assistant Professor; lab. B. Ranković  Group II-B (Tuesday, Classroom B/D): dr D. Todorović, Assistant Professor; lab. K. Živanović</p>
WEEK 5 (30.03. – 02.04.2026.)	<p><b>Exercise 18 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. OAB blood typing on the slide and in test tubes</li> <li>2. Rh typing (RhD)</li> <li>3. Performing of cross matching reaction and direct Coombs' test</li> </ol> <p><b>March 30, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr S. Mutavdžin Krneta, Assistant Professor; lab. J. Despotović  Group I-B (Monday, Classroom B/D): dr E. Đurić, Teaching Assistant; lab. lab. M. Diković</p> <p><b>March 31, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr S. Mutavdžin Krneta, Assistant Professor; lab. J. Despotović  Group II-B (Tuesday, Classroom B/D): dr E. Đurić, Teaching Assistant; lab. lab. M. Diković</p> <p><b>COLLOQUIUM II – Monday, March 30, 2026</b>  <b>(1. MOTOR NEUROPHYSIOLOGY; 2. AUTONOMIC NERVOUS SYSTEM; 3. HIGH NERVOUS FUNCTIONS AND THE LIMBIC SYSTEM; 4 HEART PHYSIOLOGY; 5. PHYSIOLOGY OF CIRCULATION)</b></p>
WEEK 6 (06-09.04.2026.)	<p><b>Exercise 19 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Determination of white blood cell count</li> <li>2. Determination of differential white blood cell count</li> <li>3. Calculation of absolute white blood cell count</li> <li>4. <i>Interactive video presentation of homeostasis of body electrolytes (A.D.A.M.) – repetition</i></li> </ol> <p><b>April 06, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr J. Jakovljević Uzelac, Assistant Professor; lab. K. Živanović  Group I-B (Monday, Classroom B/D): dr J. Maričić, Teaching Assistant; lab. B. Ranković</p> <p><b>April 07, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr J. Jakovljević Uzelac, Assistant Professor; lab. K. Živanović  Group II-B (Tuesday, Classroom B/D): dr J. Maričić, Teaching Assistant; lab. B. Ranković</p>
WEEK 7 (20-23.04.2026.)	<p><b>Exercise 20 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Determination of platelet count by Fonio (indirect method)</li> <li>2. Determination of platelet count by hemocytometer method</li> <li>3. Determination of bleeding time – Duke's method</li> <li>4. Determination of blood coagulation time – Bürker method</li> <li>5. Determination of prothrombin time (PT)</li> </ol> <p><b>April 20, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr S. Mutavdžin Krneta, Assistant Professor; lab. lab. M. Diković  Group I-B (Monday, Classroom B/D): dr N. Šutulović, Assistant Professor; lab. J. Despotović</p> <p><b>April 21, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr S. Mutavdžin Krneta, Assistant Professor; lab. lab. M. Diković  Group II-B (Tuesday, Classroom B/D): dr N. Šutulović, Assistant Professor; lab. J. Despotović</p>

WEEK 8 (27-30.04.2026.)	<p><b>Exercise 21 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Calculation of the clearance of inulin, creatinine and para-aminohippuric (PAH) acid</li> <li>2. Calculation of GFR in dependence on changed values of renal blood flow (RBF), hydrostatic pressure (HP) and colloid-osmotic pressure (COP)</li> <li>3. Calculation of diuresis in dependence on osmotic load of the kidneys (osmolar clearance and “free water clearance”</li> <li>4. <i>Interactive video simulation of function of the nephron (PhysioEx 4.0): studying the effect of factors that affect glomerular filtration rate, volume and osmolality of final urine</i></li> <li>5. <i>Interactive video presentation of functions of the urinary tract (A.D.A.M.)</i></li> </ol> <p><b>April 27, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr D. Todorović, Assistant Professor; lab. B. Ranković  Group I-B (Monday, Classroom B/D): dr N. Šutulović, Assistant Professor; lab. K. Živanović</p> <p><b>April 28, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr D. Todorović, Assistant Professor; lab. B. Ranković  Group II-B (Tuesday, Classroom B/D): dr N. Šutulović, Assistant Professor; lab. K. Živanović</p>
WEEK 9 (04-07.05.2026.)	<p><b>Exercise 22 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Demonstration of the role of the diaphragm in respiration (Donders' model)</li> <li>2. Spirometry: determination of the static lung volumes and capacities</li> <li>3. Performing of the ergometric step-test and indirect determination of the maximal oxygen consumption (VO<sub>2</sub>max)</li> </ol> <p><b>May 04, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr R. Jeremić, Assistant Professor; lab. J. Despotović  Group I-B (Monday, Classroom B/D): dr J. Maričić, Teaching Assistant; lab. lab. M. Diković</p> <p><b>May 05, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr R. Jeremić, Assistant Professor; lab. J. Despotović  Group II-B (Tuesday, Classroom B/D): dr J. Maričić, Teaching Assistant; lab. lab. M. Diković</p>
WEEK 10 (11-14.05.2026.)	<p><b>Exercise 23 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Auscultation of breathing</li> <li>2. <i>Interactive video simulation of alveolar ventilation (PhysioEx 4.0): a.measuring respiratory volumes and capacities (simulating spirometry); b. examining the effect of changing airway resistance, the action of surfactant and the effect of changing intrapleural pressure on the lung functions; c. analysis of the effect of various breathing patterns on PCO<sub>2</sub> values in the alveolar air and blood</i></li> <li>3. <i>Interactive video presentation of functions of the respiratory system (A.D.A.M.)</i></li> </ol> <p><b>May 11, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr E. Đurić, Teaching Assistant; lab. K. Živanović  Group I-B (Monday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. B. Ranković</p> <p><b>May 12, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr E. Đurić, Teaching Assistant; lab. K. Živanović  Group II-B (Tuesday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. B. Ranković</p>
WEEK 11 (18-21.05.2026.)	<p><b>Exercise 24 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Spirometry: measuring dynamic lung volumes: FEV<sub>1</sub>, the maximal voluntary ventilation (MVV), and recording of the flow-volume curve</li> <li>2. Cardiopulmonary resuscitation: basic principles of performing CPR by various methods (practicing on a model)</li> <li>3. <i>Interactive video presentation of acid-base balance (A.D.A.M.)</i></li> <li>4. <i>Acid-base balance – computer simulation (PhysioEx 4.0): demonstration of buffering action of the lung and the kidney in acid-base homeostasis (compensation of acidosis and alkalosis)</i></li> </ol> <p><b>May 18, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr J. Maričić, Teaching Assistant; lab. lab. M. Diković  Group I-B (Monday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. J. Despotović</p> <p><b>May 19, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr J. Maričić, Teaching Assistant; lab. lab. M. Diković  Group II-B (Tuesday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. J. Despotović</p>

WEEK 12 (25-28.05.2026.)	<p><b>Exercise 25 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Calculation of the basal metabolic rate (BMR) for students</li> <li>2. Calculation of the daily energy turnover in students</li> <li>3. Assembling of the nutritious meal on the basis of the determined turnover of the energy</li> <li>4. <i>Interactive video session of the gastric antrum contractile response(SimVessel): demonstration of the effects of substances that affect the spontaneous activity and the effect of passive stretching</i></li> <li>5. <i>Interactive video presentation of gastrointestinal system (A.D.A.M.)</i></li> </ol> <p><b>May 25, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr D. Todorović, Assistant Professor; lab. B. Ranković  Group I-B (Monday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. K. Živanović</p> <p><b>May 26, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr D. Todorović, Assistant Professor; lab. B. Ranković  Group II-B (Tuesday, Classroom B/D): dr N. Radisavljević, Teaching Assistant; lab. K. Živanović</p> <p><b>COLLOQUIUM III – Monday, May 25, 2026</b>  <b>(1. BLOOD PHYSIOLOGY; 2. KIDNEY PHYSIOLOGY; 3. RESPIRATORY PHYSIOLOGY; 4. ACID-BASE BALANCE; 5. PHYSIOLOGY OF THE GASTROINTESTINAL SYSTEM; 6. ENERGETICS AND METABOLISM; 7. PHYSIOLOGY OF NUTRITION; 8. THERMOREGULATION. 9. INTRODUCTION TO ENDOCRINOLOGY AND NEUROENDOCRINE INTEGRATION: HYPOTHALAMIC-HYPOPHYSIAL SYSTEM)</b></p>
WEEK 13 (01-04.06.2026.)	<p><b>Exercise 26 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Assessment of the oral glucose tolerance test (OGTT)</li> <li>2. <i>Interactive video simulation of the endocrine system physiology (PhysioEx 4.0):</i> <ol style="list-style-type: none"> <li>a. <i>determination of rat’s basal metabolic rate and demonstration of the effects of thyroxine, TSH and propylthiouracil on the rat’s basal metabolic rate</i></li> <li>b. <i>demonstration of the effect of estrogen on the morphological and functional characteristics of the uterus</i></li> <li>c. <i>measurement of plasma glucose concentration using spectrophotometric method and demonstration of the effect of insulin on glucose concentration in the blood</i></li> </ol> </li> <li>3. <i>VIRTUAL PATIENT: assessment of disturbed homeostatic variables in (“SimBioSys Physiology”)</i></li> </ol> <p><b>June 01, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr E. Đurić, Teaching Assistant; lab. J. Despotović  Group I-B (Monday, Classroom B/D): dr N. Šutulović, Assistant Professor; lab. lab. M. Diković</p> <p><b>June 02, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr E. Đurić, Teaching Assistant; lab. J. Despotović  Group II-B (Tuesday, Classroom B/D): dr N. Šutulović, Assistant Professor; lab. lab. M. Diković</p>
WEEK 14 (08-11.06.2026.)	<p><b>Exercise 27 (4hrs)</b></p> <ol style="list-style-type: none"> <li>1. Examination of vaginal smear cytological features in the time course of menstrual cycle</li> <li>2. Early diagnosis of the pregnancy: laboratory tests</li> <li>3. Analysis of the blood cells (number of cell types, ESR, and mean corpuscular values) in a.physiological conditions</li> <li>4. Analysis of the plasma composition in physiological conditions</li> <li>5. Analysis of the urine composition in physiological conditions</li> <li>6. Signitures, makeup of exercises and seminars</li> </ol> <p><b>June 08, 2026, 13:00-16:00</b>  Group I-A (Monday, Classroom A/C): dr R. Jeremić, Assistant Professor; lab. B. Ranković  Group I-B (Monday, Classroom B/D): dr E. Đurić, Teaching Assistant; lab. K. Živanović</p> <p><b>June 09, 2026, 13:00-16:00</b>  Group II-A (Tuesday, Classroom A/C): dr R. Jeremić, Assistant Professor; lab. B. Ranković  Group II-B (Tuesday, Classroom B/D): dr E. Đurić, Teaching Assistant; lab. K. Živanović</p>