DETAILED COURSE SCHEDULE OF HUMAN PHYSIOLOGY
FALL/WINTER SEMESTER 2015/2016

Lab Room 13, Department of Human Physiology

INTRODUCTION AND NEUROPHYSIOLOGY (07-08.10.15)

LABORATORY CLASS 1 Introduction to the practical classes of human physiology. Electrical signals in neurons. Action potentials along an axon. Electrical properties of neurons: resting membrane potentials and action potentials of neurons; relative and absolute refractory periods; chronaxy and rheobase (simulation programs).

NEUROPHYSIOLOGY (21-22.10.15.)

LABORATORY CLASS 2 Study of spinal reflexes. Monosynaptic and polysynaptic somatic motor reflexes: flexion reflexes; crossed extensor reflexes; myotatic reflexes – the patellar tendon (knee jerk) reflex. Examination of reaction times to visual, auditory and tactile stimuli.

NEUROPHYSIOLOGY (28-29.10.15)

LABORATORY CLASS 3 Sensory physiology the eye and vision: calculation of the visual field by automated perimetry exam; subjective and objective methods of the eye investigation; ophthalmoscopy; measurements of the visual acuity, contrast sensitivity and colors vision, binocular vision, stereoscopic depth perception, central and peripheral vision; the retinal and cortical mechanisms of the visual illusions. Assessment of papillary reflexes. The Stroop test. Principles of electroencephalography.

NEUROPHYSIOLOGY (04-05.11.15)

LABORATORY CLASS 4 Sensory physiology continue: hearing, sound transmission through the ear, (the Rinne and the Weber tests); the ear: equilibrium, the vestibular apparatus (the vestibulo-ocular reflex, the vestibulo-spinal reflex); Chemoreception smell and taste: (distribution of taste buds), touch receptors in skin; a receptive fields, two-point discrimination.

NEUROPHYSIOLOGY TEST
PHYSIOLOGY OF SKELETAL MUSCLES (18-19.11.15)


PHYSIOLOGY OF SMOOTH MUSCLES (25-26.11.15.)


PHYSIOLOGY OF MUSCLES, AUTONOMIC SYSTEM AND ENDOCRINOLOGY
LABORATORY CLASS 7 - PHYSIOLOGY OF BLOOD (02-03.12.15.)

Plasma and the cellular elements of blood Composition of blood. Red blood cells: Osmotic changes to the red blood cell shape. Red cell fragility test. The red blood cell count. The hematocrit measurement. The hemoglobin content determination. Determination of red blood cells indices

LABORATORY CLASS 9 - PHYSIOLOGY OF BLOOD (09-10.12.15)


LABORATORY CLASS 10 - PHYSIOLOGY OF BLOOD (16-17.12.15)


PHYSIOLOGY OF BLOOD AND IMMUNE SYSTEM TEST
THE CARDIOVASCULAR PHYSIOLOGY (13-14.01.2016)

LABORATORY CLASS 11 Artery blood pressure: Determination of the systolic blood pressure using a sphygmomanometer, cardiomicrophon and detection of a peripheral pulse. Measurements of the artery blood pressure by sphygmomanometer and stethoscope. Analyze of the differences between measurements on the right and left arm, between different types of the sphygmomanometers and different size of cuff. Estimation of MAP (mean arterial blood pressure), stroke volume, CO (cardiac output) Orthostatic reaction of the artery blood pressure.

THE CARDIOVASCULAR PHYSIOLOGY (20-21.01.2016)

LABORATORY CLASS 12 Peripheral circulation: Arterial palpation of the radial, ulnar, brachial and carotid pulses; simultaneously registration of the ECG and pulse; investigation of the arterial blood supply to the fingers by palmar arches - anastomoses of the radial and ulnar arteries. Measurement of the pulse wave velocity. Thermoregulation: warm, cold, temperature and thermography. Measurements of the temperature, the amplitude of the finger pulse and artery blood pressure changes after provocation with warm water and after cold pressure test. Paradoxal regulation of the skin perfusion by cold provocation.

THE CARDIOVASCULAR PHYSIOLOGY (27-28.01.2016)

LABORATORY CLASS 13 Cardiac muscle and the heart. Conduction pathways, myocardial autorhythmic cells. The stages of the cardiac action potential. Heart rate under the influence of the sympathetic and parasympathetic system. Electrical stimulation of a frog heart (stimulation experiment program). Effects of various drugs, hormones, ions and temperature on heart rate.