

Course Title: Anatomy & embryology
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Address: **Department of Anatomy**, 12, Kopernika St.
Year: 1–6
Total number of hours:
– lectures: 36
– labs/practicals: 152
Conduct/Dress Code: white coat

In the first semester the labs will be held on Tuesdays and Thursdays 8.00-9.30 for groups 5–8 and 9.45–11.15 for groups 1-4:

- groups 1 and 5 – prosectorium 1
- groups 2 and 6 – prosectorium 3
- groups 3 and 7 – prosectorium 6
- groups 4 and 8 – prosectorium 8

The lectures will be online on Fridays 7.45–9.15.

Student's Evaluation:

1. Credit requirements

The whole material of the course has been divided into 5 parts including:

- 1) general anatomy (incl. osteology and arthrology, skull), general embryology
- 2) thorax, upper limb
- 3) abdomen and pelvis, lower limb
- 4) head and neck
- 5) central nervous system.

CAUTION: During the course of anatomy, the student is supposed to have the knowledge acquired from all previous practical and theoretical classes.

Much of the course work is carried out in the dissection rooms. Student will need to provide and bring a clean white lab coat to the dissection room, with name on the front where it can be read by staff, and wear it always in the dissection room. Unauthorized persons are not allowed to enter the dissection rooms.

The mid-semester exams consist of two parts:

a) laboratory (identification of parts of organs) – 20 questions (for each correct answer one can receive maximally 1 point), there is 30 seconds per each specimen for its recognition.

Passing the laboratory part is NOT a prerequisite for participation in the second part of the mid-semester test.

b) theoretical (multiple choice test, matching, etc.) – 40 questions. For each correct answer a student receives 1 point. The test includes embryology questions.

The list of specimens placed in the end of syllabus is a supplementary list only (it is only a help for the Students), so both during the mid-semester and final practical exams specimens out of the list can be used.

It is not possible to postpone a mid-semester test.

Only students who received ≥ 150 points ($\geq 50\%$) of all mid-semester tests get the credit and are allowed to take the final exam.

Student who received less than 150 points to be allowed to take the final exam will have to pass a credit test ($> 50\%$).

2. Attendance requirements

Participation in classes and lectures is obligatory. Maximum 6 absences per 2 semesters are allowed, but each missed lab has to be passed. If not a Student will lose 5 points. **A student who exceeds the allowed number of six absences fails to get the credit and has to repeat the course in the following year.**

3. Type of the final exam

The final exam, held in July, is the ultimate basis for the completion of the course.

Only students who have not exceeded the allowed number of absences and have received at least 150 points (50%) of all tests are allowed to take the final exam.

Evaluation of the anatomy course is based on the results of the final exam, however we consider also the results of the mid-semester tests.

The final exam, covering the whole material of the course consists of two parts:

a) laboratory: identification of specific structures shown on cadavers; their parts; separate organs or bones (20 questions: bones (3), skull (1), upper & lower limb (4), thorax (2), abdomen & pelvis (3), head & neck (3), central nervous system (4)). A Student receives 2 points for correct answer.

Passing the laboratory part is NOT a prerequisite for participation in the second part of the final exam!!! This rule is valid for the make-up exam, as well.

b) theoretical: (multiple choice test, matching, etc., similar form to the mid-semester tests). Questions may also include problems based on histology and embryology. The test consists of 100 questions which cover the whole theoretical material.

Grading system for the final exam is as follows:

- very good (5.0) approximately $\geq 90\%$ of all available points
- good plus (4.5) $\geq 80\%$
- good (4.0) $\geq 70\%$
- satisfactory plus (3.5) $\geq 60\%$
- satisfactory (3.0) $\geq 50\%$
- failed (2,0) $< 50\%$.

A Student is exempted from the final practical exam if results of practical mid-semester tests exceed 90%.

To pass the exam one should receive at least 50% on practical and 50% on test separately.

The final grade consists of: value of points received during final practical + number of points received during final test and a bonus points (1 point for each next 10 points above 200) received during the mid-semester tests, i.e. a Student received 218 points during all six mid-semester tests, later on the final practical exam he (she) received 28 points out of 40 and on the final test 68 points out of 100. His (her) final grade is: 2 (18 points above 200) + 28 + 65 = 95 points (63,3%) = satisfactory plus

4. Retake information

The retake exam (held in September) has a form of both practical exam and test. Students who passed practical exam or theoretical exam during first option DO NOT have to repeat it in September.

DATE	CLASS	SUBJECT
		General anatomy (incl. osteology, arthrology, skull), general embriology
5 oct	lab	Vertebral column. General characteristics of a vertebra. Cervical, thoracic, lumbar vertebrae. Sacrum, coccyx. Intervertebral disc. Joints of vertebral column. Atlanto-occipital joints. Atlantoaxial joints. Curves of vertebral column.
7 oct	lab	Ribs. Sternum. The thoracic cage. Bones of the shoulder girdle: scapula and clavicle. Acromioclavicular and Sternoclavicular joints.
8 oct	lecture	Introduction to embryology. Development periods. Gametogenesis. Cell divisions (mitosis, meiosis). Primordial germ cells.
12 oct	lab	Humerus. Shoulder joint. Radius. Ulna. Bones of the hand. Elbow joint. Wrist joint. The carpal tunnel. The hand as a functional unit.
14 oct	lab	The bony pelvis. Hip bone. Sacrum. Coccyx. Sacroiliac joints. Symphysis pubis. Greater & lesser sciatic foramina. Inguinal ligament. Sex differences of the pelvis. Femur. Acetabulum. Hip joint

15 oct	lecture	Female reproductive cycle. Spermatogenesis. Sperm. Sperm maturation. First week of development. Formation of the bilaminar germ disc.
19 oct	lab	Tibia. Fibula. Patella. Knee joint. (intra- & extracapsular ligaments) Menisci. Bones of the foot. Ankle joint. Tarsal joints. The foot as a functional unit.
21 oct	lab	Divisions of the skull. Bones of the neurocranium: frontal, occipital, sphenoid, ethmoid & parietal.
22 oct	lecture	Second week of development. Trilaminar germ disc. Gastrulation. Neurulation. Development of the somites. Formation of the notochord. Early development of cardiovascular system. Folding of the embryo.
26 oct	lab	Temporal bone. Anterior, middle and posterior cranial fossae. Sutures of the vault of the skull.
28 oct	lab	Bones of the visceral cranium: mandible, hyoid, maxilla, palatine, inferior nasal concha, lacrimal, vomer & zygomatic. Orbital cavity. Nasal cavity. Oral cavity. Paranasal sinuses.
29 oct	lecture	The bony ear.
2 nov	lab	Temporomandibular joint. Pterygopalatine, retromandibular, temporal & infratemporal cranial fossae, limitations and communication.
4 nov	lab	Practical review
5 nov		Test
9 nov	lab	Practical exam
		Thorax, upper limb
16 nov	lab	Surface anatomy of the thorax (lines of orientation). Thoracic walls - muscles, vessels, nerves (intercostal spaces). Diaphragm. Endothoracic fascia The mammary gland. The thoracic cavity. Mediastinum.
18 nov	lab	Thymus. Pleura, pleural cavity. Trachea. Lungs. Mechanism of respiration. Pulmonary veins. Pulmonary trunk.
19 nov	-	-
23 nov	lab	Pericardium. Structure of the heart (chambers of the heart) Conducting system of the heart. Arterial supply & venous drainage of the heart.
25 nov	lab	Large vessels of the thorax: Superior & inferior vena cava. Aorta. Esophagus. Azygos veins. Lymph drainage of the thorax.
26 nov	lecture	Heart development. Heart defects
30 nov	lab	Vagus nerves. Phrenic nerves. Thoracic part of the sympathetic trunk.
2 dec	lab	Muscles of the scapula. The axilla & its contents. Axillary artery, vein, and lymph nodes. Brachial plexus.
3 dec	lecture	Skeletal system. Development of the bones and cartilages. Limbs development. Limbs defects. Examination of musculo-skeletal system – anatomical aspects.
7 dec	lab	Muscles of the arm. Brachial artery & vein. Nerves of the arm. The cubital fossa.
9 dec	lab	Fascial compartments of the forearm. Muscles of the anterior compartment of the forearm. Radial and ulnar artery & veins. Superficial veins of the upper limb. Nerves of the forearm.
10 dec	-	-
14 dec	lab	Muscles of the lateral & posterior compartment of the forearm. Muscles of the hand. The carpal tunnel. Superficial & deep palmar arch. Skin innervation of the upper limb. Lymph nodes & lymph drainage of the upper limb.
16 dec	lab	Practical review

17 dec	-	-
4 jan	lab	Practical review
7 jan		Test
11 jan	lab	Practical exam
		Abdomen, pelvis & lower limb
13 jan	lab	Abdomen –main divisions, lines and planes. Abdominal wall (structure) – muscles, fascial & peritoneal lining, blood supply, innervation. Surface anatomy – (landmarks): xiphoid process, costal margin, iliac crest, pubic tubercle, symphysis pubis, inguinal ligament, linea alba, umbilicus. Inguinal canal. Peritoneal cavity. Peritoneal pouches, fossae, spaces and gutters. Bursa omentalis. Peritoneal ligaments, omenta and mesenteria. Gastrointestinal tract: abdominal portion of esophagus, stomach.
14 jan	lecture	Development of the gastrointestinal system.
18 jan	lab	Small intestine (duodenum, jejunum, ileum). Pancreas. Spleen. Celiac trunk. Superior mesenteric artery.
20 jan	lab	The large intestine (ileocecal valve, cecum, vermiform appendix, colon, rectum). Inferior mesenteric artery and vein. The liver, portal vein & porto-systemic anastomoses. Gallbladder. Bile ducts.
21 jan	-	-
25 jan	lab	Retroperitoneal space. Kidneys. Suprarenal glands. Ureters. Abdominal aorta. Inferior vena cava. Lymph drainage of the abdomen.
27 jan	lab	Orientation of the pelvis. False & true pelvis. Surface landmarks of the pelvis. Floor of the pelvis. Pelvic peritoneum. Nerves and vessels of the pelvis. Urinary bladder. Urethra. Male genital organs.
28 jan	lecture	Development of the genital system.
1 mar	lab	Female genital organs. Perineum. The back.
3 mar	lab	Muscles of the anterior & medial fascial compartment of the thigh. Femoral sheath. Femoral triangle. Femoral artery and vein. Subsartorial canal. Lumbar plexus.
4 mar	-	-
8 mar	lab	Regions of the lower limb. Muscles of the buttock, subgluteal space. Greater & lesser sciatic foramina. Muscles of the posterior fascial compartment of the thigh. Sacral plexus.
10 mar	lab	Muscles of the of the lower leg. Posterior and anterior tibial vessels. Tibial and common fibular nerves. Muscles of the foot. Arterial & venous supply of the foot. Foot as a functional unit. Innervation of the skin of the lower limb. Lymph drainage of the lower limb. Superficial veins of the lower limb.
11 mar	-	-
15 mar	lab	Practical review
17 mar	lab	Practical exam
18 mar		Test
22 mar	lab	Review of the skull. Muscles of the neck. Thyroid and parathyroid glands. Cervical plexus. Accessory nerve.
24 mar	lab	External & Internal Carotid Arteries. External & Internal Jugular Veins. Lymph Drainage of the Neck
25 mar	lecture	Development of the head and neck; pharyngeal arches.
29 mar	lab	Submandibular gland & sublingual gland. Submandibular ganglion. Vagus & phrenic nerves. Cervical portion of the sympathetic trunk.
31 mar	lab	Muscles of facial expression. Blood and nerve supply of the face (facial artery & opthalmic nerve). Facial nerve. Parotid gland.
1 apr	-	-
5 apr	lab	The Orbit & its walls. Structure of the eyeball. Nerve & blood supply of the eyeball. Ciliary ganglion. The accessory organs of the eyeball

		(muscles, eyelids, lacrimal apparatus). Optic nerve. Oculomotor nerve. Trochlear nerve. Abducent nerve. Ophthalmic nerve.
7 apr	lab	Pterygopalatine fossa. Maxillary division of V-th nerve. Pterygopalatine ganglion. Dura mater – venous sinuses. (Venous drainage of the head). Blood & nerve supply of the meninges.
8 apr	lecture	The ear (external, middle & internal). Vestibulocochlear nerve.
12 apr	lab	Temporomandibular joint. Temporal, infratemporal & retromandibular fossa. Muscles of mastication. Mandibular division of V-th nerve. Otic ganglion. Maxillary artery.
21 apr	lab	Pharynx. Parapharyngeal space. Glossopharyngeal nerve. Vagus nerve. Accessory nerve. Oral cavity. Teeth. Gingiva. Tongue. Tonsils. Hypoglossal nerve.
22 apr	lecture	Cranial nerves – clinical appearances
26 apr	lab	Larynx, nasal cavity, paranasal sinuses – structure, blood supply and innervation.
28 apr	lab	Practical review
29 apr	–	–
5 may	lab	Practical review
6 may		Test
10 may	lab	Practical exam
12 may	lab	The main anatomical terms related to the CNS. The spinal cord. The spinal nerve.
13 may	lecture	Development of the central nervous system.
10 may	lab	The brainstem – the medulla, pons and midbrain. The cerebellum. Fourth ventricle.
12 may	lab	The diencephalon. (thalamus, hypothalamus, epithalamus, metathalamus). III-rd ventricle.
13 may	–	–
17 may	lab	The telencephalon – cerebral lobes, cortical centers, subcortical nuclei (basal ganglia).
19 may	lab	Blood supply of CNS. Stroke. The meninges – epi-, subdural space, subarachnoid space. Circulation of cerebro-spinal fluid.
20 may	–	–
24 may	lab	Ascending tracts of CNS.
26 may	lab	Descending tract of CNS
27 may	–	–
31 may	lab	Practical review
2 jun	lab	Practical exam
3 jun		Test
7 jun	lab	Practical review
9 jun	lab	Practical review
10 jun	lab	–
14 jun	lab	Practical review
16 jun	–	–
17 jun	–	–
27 jun		FINAL PRACTICAL EXAM
28 jun		FINAL TEST