Anatomy, Histology and Embryology for Dentistry students

TEACHING DEPARTMENT:
SEMMELWEIS UNIVERSITY
Department of Anatomy, Histology and Embryology
Budapest, Tűzoltó utca 58.
H-1094 Budapest
http://semmelweis.hu/anatomia

LEARNING OBJECTIVES

Aims of the lectures in anatomy: Presentation of the important and/or complicated chapters such as introductory chapters, thorax, pelvis, hand, foot, skull, heart, chapters of the visceral organs, central nervous system, organs of special senses, topographical anatomy.

Aims of the practical sessions in the dissecting room: Based on the weekly programs (see separate), students will both observe prosected cadaver specimens (bones, joints, muscles, viscera, brain) and perform dissections on parts of, or on an entire, enbalmed cadaver. Students are supervised by the lab instructors. Bones, joints, muscles and peripheral nervous system will be primarily taught in the dissecting room.

LECTURES: First semester: 1x 45 min; second semester: 2x 45 min.
PRACTICAL CLASSES: First semester: 5 x 45 min; second semester: 6 x 45 min.
ECTS CREDITS: Altogether 14 (first semester: 6; second semester: 8).

MIDTERM TESTS: Oral
ACCEPTENCE OF THE SEMESTER:
Active participation in dissection room sessions is obligatory for every student. Students should attend at least 75% of the scheduled hours to gain a signature proving the validity of the semester. Absences are therefore limited in 25%. Attendance will be recorded in the dissection room classes.

TYPE OF EXAMS: oral and written
First semester: semifinal examination, second semester: final exam

Semifinal and final examinations consist of written and oral (practical and theoretical) parts
1. Written pretest (e-learning module – access to SeKA account is obligatory)
2. Macroscopic Anatomy (identification of structures on true anatomical specimens) including relevant theoretical questions

COURSE DESCRIPTION

Macroscopic Anatomy I.

Lectures and dissection classes
Subject matter: Macroscopy and clinically oriented anatomy of the parts of the musculoskeletal system, i.e. osteology, arthrology and myology, together with the vascular and nervous supply of the limbs and the trunk. Skull (viscerocranium, neurocranium). Cavities, muscles of the head & neck region. Macroscopy of the brain and spinal cord, membranes (dura, arachnoid and pia mater).

Credits: 6
Prerequisite: none
<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Dissection room classes</th>
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<tbody>
<tr>
<td>Week 1  Sept 9-13</td>
<td>1. The role of anatomy in the medical curriculum. Terminology</td>
<td>General introduction to practical work in the dissection room, tools and rules</td>
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<td>Bones of the upper limb and the girdle, shoulder joint</td>
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<td>Week 2.  Sep 16-20</td>
<td>3. General arthrology and myology.  Joints, muscles and movements of the shoulder and the upper girdle</td>
<td>Muscles of the upper limb/ girdle</td>
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<td>Elbow joint arm, forearm</td>
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<td>Muscles and joints of the hand</td>
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<td>Week 3.  Sept 23-27</td>
<td>3. Muscles and actions of the elbow joint</td>
<td>Dissection of the muscles, vessels and nerves of the upper limb</td>
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<td>(branches of the axillary a+v, brachial plexus)</td>
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<td>Week 4.  Sept 30 - Oct 4</td>
<td>4. Joints, muscles and actions of the wrist and the hand</td>
<td>Dissection of the muscles, vessels and nerves of the upper limb</td>
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<td>(branches of the axillary a+v, brachial plexus)</td>
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<td>Week 5.  Oct 7-11</td>
<td>5. Bones, joints, construction of the pelvis. Muscles and actions of the hip joint</td>
<td>Lower limb, pelvis, hip joint</td>
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<td>Dissection of the muscles, vessels and nerves</td>
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<td>Cadaver and free limb dissection</td>
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<td>Dissection of the muscles, vessels and nerves</td>
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<td>Cadaver and free limb dissection</td>
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<td>Week 7.  Oct 21-25 October 23 is a national holiday</td>
<td>7. Components, muscles, joints, ligaments and movements of the vertebral column. Intervertebral, atlantooccipital and atlantoaxial joints together with the muscles</td>
<td>Dissection of the limbs and superficial regions of the the trunk (cadaver)</td>
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<td>Knee joint, bones, ligaments joint and muscles of the leg and foot</td>
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<td>Femoral vessels, lumbar plexus</td>
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<td>1. test (oral, obligatory)</td>
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<td>Upper and lower limbs including the girdles; bones, joints, muscles and fasciae of the trunk, hernia canals</td>
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<td>Diaphragm</td>
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<td>Components of the body wall, rectus sheath, hernia canals</td>
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<td>Internal and external skull bases</td>
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<td>Bones of the facial skeleton, mandible. Orbit, nasal cavity, pterygopalatine fossa</td>
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<td>Week 12.  Nov 25-29</td>
<td>12. Introduction to the study of the nervous system Meninges, hemispheres, CSF, lateral ventricles</td>
<td>Bones of the skull</td>
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<td>Internal and external skull bases</td>
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<td>Bones of the facial skeleton, mandible. Orbit, nasal cavity, pterygopalatine fossa</td>
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<td>CSF circulation, cisterns. Telencephalic hemispheres, gyri and sulci, Diencephalon, lateral and 3rd ventricles, brain stem, cerebellum, 4th ventricle. Frontal sections of the brain</td>
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<td>Musculoskeletal system. Skull, bones and spaces. Macroscopy of the brain and spinal cord</td>
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<td>Revision</td>
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Subject matter of the 1st semester

Macroscopic Anatomy I.

**Macroscopy** and clinically oriented anatomy of the parts of the musculoskeletal system
- osteology
- arthrology
- myology,
- vascular and nervous supply of the limbs and the trunk

**Skull** (viscerocranium, neurocranium).

**Cavities, muscles of the head & neck region.**

**Macroscopy of the brain and spinal cord**, membranes (dura, arachnoid and pia mater).

**Test I. (OBLIGATORY MIDTERM EXAMINATION)**
**Topics:** Gross anatomy of the limbs, together with their girdles (bones, joints, muscles and fasciae, action, innervation, blood supply)
**Date:** 8th week, October 31.

**Test II. (ELECTIVE/ NOT OBLIGATORY ORAL TEST)**
**Topics:** Musculoskeletal system. Skull, bones and spaces. Macroscopy of the brain and spinal cord
**Date:** 14th week, December 12.

**Semifinal examination**
**Topics:** Subject matter of the semester

1) **Written ‘e-learning type’ pretest**

2) **Practical examination and theoretical questions** (oral examination)
   Gross anatomy of the musculoskeletal system including the skull.
   Gross anatomy of the CNS and peripheral nerves
ED I  ANNOUNCEMENTS

**Evaluation** is made using a five-grade scale (1-5).

**Semester acceptance (i.e. signature):** active participation in dissection room lab sessions is obligatory. Students should attend at least 75% of the scheduled hours to gain a signature proving the validity of the semester. Absences are therefore limited in **25%**.

**Midterm examinations:** During the semester, both practical and theoretical knowledge will regularly be evaluated. Anatomy mid-terms are held as oral/practical tests. The test will include both identification of several structures on the specimen and theoretical questions related to the subject. The results of all tests will appear on the personal achievement cards.

**Test 1** is obligatory and will have to be retaken in case the students was absent from the midterm test. Retake possibilities are offered during the subsequent two weeks.

**Test 2** is not obligatory and students who pass the test with a 3-4-5 will be exempted* from the practical part of the semifinal examination with the mark earned at the test. This test cannot be retaken.

**Cadaver dissection** – every students is required to produce a fully dissected specimen during the 1st or the 2nd semester to prove excellence and be exempted from the dissection part of the final examination. The specimen will be evaluated by a departmental jury.

**Semifinal examinations** are composed of the following parts:

1. written pretest
2. oral examination (unless exempted*) - composed of practical and theoretical questions in Macroscopy i.e., identification and full description of the morphological features of the relevant body parts and. Please note, that relevant theoretical questions may arise during the practical examination parts.

*Please note: Examinations are usually held twice a week on Tuesdays and Thursdays starting at 1 pm. Students may register for, or deregister from, the examination via the neptun system.

In case neither the first nor the repeated takes of a semifinal exam have been successful the exam has to be postponed to the following exam period as a ’CV’ exam (if there are possibilities left). Students may apply with the department to be exempted from passing the prerequisite.
RULES AND REGULATIONS IN THE DISSECTING ROOM

IT IS STRICTLY FORBIDDEN TO eat, drink, to chew a gum, or to use music devices / phones.
Bags and coats should ALWAYS be left in the lockers PRIOR TO entering the dissecting room.
The lockers will have to be locked using your OWN padlocks.
Please, remember to keep your valuables always on you, or lock them in the lockers.
The department takes no responsibility for lost items.

Students are expected to be prepared for the practical work.
Everybody is supposed to behave in the dissecting room conforming to the spirit of the site. Loud speech, out-of-place jokes and any kind of behaviour, disregarding the dignity of human corpses, should strictly be avoided.
Students should take care of the equipment of the dissecting room. Do not sit on the dissection tables or stand on the tripod stools to avoid accidents. Fire and work safety regulations should be maintained. The dissection room is a hazard area. Cleanliness and order should be kept.

Working in the dissection room involves the use of sharp and pointed tools, injuries should be reported to the lab instructor. The technical personnel will provide first aid when necessary.
The white lab coats should be worn while in the dissection room, but should be removed before leaving the dissection room area. The purpose of wearing the lab coats is to protect one’s clothing from contacting the cadaver specimen. Furthermore we strictly advise you to wear closed toed shoes and clothing covering the legs. In the end of the class, lab coats should be emptied and left in order on the coat hangers. The department is not responsible for valuables left in the dissecting room.

Only the members of the study group can participate in the sessions, visitors may be present only with prior permission by the lab instructor. Students can leave the sessions only with the approval of the lab instructor.

Photos of the black board drawings can only be made with the agreement of the lab instructor.
Specimen preparations should be wrapped and labeled. Dissection materials of other groups or individuals should not be handled. Dissected cadaver pieces should be discarded in a designated container and discarded blades have to be collected separately.
Dissecting rooms are closed between 6:00 PM to 8:00 AM and over the weekends (with the exception of special workdays appearing in the schedule). Students may not stay in the dissecting room without the supervision of one of the assistants of the department. In the absence of an instructor, the technical personnel should ask the students to leave the dissecting room.

SMOKING IS STRICTLY FORBIDDEN ON THE DEPARTMENTAL PREMISES, INCLUDING THE GARDEN AND THE YARD
LIST OF TEXTBOOKS


Recommended textbooks:


Bräuer: Sobotta Flashcards (Muscles; Bones, Ligaments, and Joints) URBI, 2013.


During dissection classes keep your belongings in the lockers and lock them with your padlock!

**PADLOCK SIZE: 6 mm**

Please, remember to keep your valuables always on you, or lock them in the lockers since the department takes no responsibility for lost items.

**DISSECTION ROOM TOOLS**

**SCALPEL**

**OR**

A PAIR OF ANATOMICAL FORCEPS

**RUBBER GLOVES**

**PROTECTIVE CLOTHING**  
(LABCOAT)

**GOGGLES**
TOPICS OF THE SEMIFINAL EXAMINATION

ED I.

Musculoskeletal Anatomy

General osteology, classification of bones
Bones, spaces and connections of the skull, external and internal skull bases
Neurocranium, components and cavities (anterior, middle and posterior cranial fossae)
Viscerocranium, components and cavities (walls and connections of the nasal cavity, orbit, oral cavity, pterygopalatine and infratemporal fossae)
Bones of the axial and appendicular skeleton
Vertebrae, ribs, sternum
Bones of the girdles and limbs
General arthrology
Fibrous and cartilaginous joints
Components of the synovial joints
Classification of synovial joints; movements and mechanisms
Structure of the vertebral column, the gross anatomy of the muscles acting upon it
Movements and muscles of the head&neck (atlantooccipital and atlantoaxial joints)
Joints of the shoulder girdle, the gross anatomy of the muscles acting upon them
Shoulder joint, the gross anatomy of the muscles acting upon it
Elbow joint, the gross anatomy of the muscles acting upon it
Structure and movements of the radiocarpal joint, gross anatomy of the muscles acting upon it
Metacarpophalangeal and interphalangeal joints, the gross anatomy of the muscles concerned with the movements
Carpometacarpal, metacarpophalangeal and interphalangeal joints of the thumb, the gross anatomy of the muscles concerned with the movements
Hip joint and the gross anatomy of the muscles concerned with the movements
Knee joint and the gross anatomy of the muscles concerned with the movements
Ankle joint together with the gross anatomy of the muscles acting upon it
Subtalar and talocalcaneonavicular joints, the muscles acting upon them
Temporomandibular joint and the gross anatomy of the muscles acting on it
Architecture and classification of bones
Structure and actions of somatic muscles
Osteofibrous structure of the thoracic cage (bones, joints, ligaments, movements)
Muscles and movements of the thorax
Muscles of the back and nape (occipital region)
Axilla, the quadrangular and triangular spaces
Cubital fossa
Muscles and cross section of the arm
Muscles and cross section of the forearm
Osteofibrous spaces and muscle compartments of the hand, tendinous sheaths
Muscles and spaces of the abdominal wall, rectus sheath
Composition of the pelvis (bones, ligaments and membranes)
Inguinal canal, femoral canal
Subinguinal hiatus, vascular and muscular compartments; adductor canal, femoral canal
Muscles of the buttock, the posterior abdominal wall and the pelvis (external and internal muscles of the hip)
Osteofibrous compartments, muscles and cross section of the thigh
Popliteal fossa
Osteofibrous compartments, muscles and the cross section of the leg
Structure of the foot, arches of the foot
Osteofibrous compartments of the foot, tendinous sheaths

**Vessels and nerves**
Dorsal branches of the spinal nerves, intercostal nerves
Cervical plexus, brachial plexus, lumbar plexus, sacral plexus.
Innervation of limbs
Innervation of the trunk
Cutaneous innervation
Axillary artery and branches
Arteries and veins of the arm, forearm, and hand
Arteries and veins of the lower limb

**Lymphatic drainage**
Lymph nodes and vessels of the limbs
Lymphatic drainage of the thoracic wall including the mamma
Lymph nodes and lymphatic vessels of the head & neck

**Macroscopy of the nervous system**
Intracranial topography
Dura mater, dural sinuses
Arachnoid mater, pia mater, cisterns, CSF circulation
Description and meninges of the spinal cord
Brain stem (medulla oblongata, pons, midbrain)
Cerebellum
Diencephalon (parts, blood supply).
Thalamus, hypothalamus
Lateral ventricles
III. ventricle
IV. ventricle
Hemispheres
Basal ganglia
Internal carotid artery (course, parts and branches)
Vertebral artery (course and branches)
Circle of Willis
Veins of the brain