Semmelweis University
Department of Anatomy, Histology and Embryology
2019/2020

Faculty of Medicine
1st year

ANATOMY HANDBOOK

Dr. Sándor Katz
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Course Director

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Head of Department
Anatomy, Histology and Embryology for EM students

TEACHING DEPARTMENT:
SEMMELWEIS UNIVERSITY
Department of Anatomy, Histology and Embryology
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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 dissection 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 dissection room.

LECTURES: First semester: 1x 45 min; second semester: 2x 45 min.
PRACTICAL CLASSES: First semester: 6x 45 min; second semester: 7x 45 min.
ECTS CREDITS: Altogether 16 (first semester: 7; second semester: 9).
MIDTERM TESTS: Oral and/or written

ACCEPTANCE OF THE SEMESTER:
Active participation in lectures, and 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. Cavities, muscles and internal organs of the Head & Neck region.

Credits: 7
Prerequisite: none
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<thead>
<tr>
<th>Week</th>
<th>Lectures</th>
<th>Dissection room classes</th>
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</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>1. The role of anatomy in the medical curriculum. Terminology (Prof. Szél)</td>
<td>General introduction to practical work in the dissection room, tools and rules. Upper limb Bones</td>
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<td></td>
<td>3. General arthrology and myology. Joints, muscles and movements of the shoulder and the upper girdle (Dr. Minkó)</td>
<td>Upper limb Bones and joints</td>
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<tr>
<td>Week 2</td>
<td>3. Muscles and actions of the elbow joint (Prof. Kiss)</td>
<td>Upper limb Dissection of the muscles, vessels and nerves</td>
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<td>Week 3</td>
<td>4. Joints, muscles and actions of the wrist and the hand (Dr. Dóra)</td>
<td>Upper limb Dissection of the muscles, vessels and nerves</td>
</tr>
<tr>
<td>Week 4</td>
<td>5. Bones, joints, construction of the pelvis. Muscles and actions of the hip joint (Dr. Nagy)</td>
<td>Lower limb Bones and joints Dissection of joints of the lower limb</td>
</tr>
<tr>
<td>Week 5</td>
<td>6. Muscles and actions of the knee joint Muscles and joints of the foot. Architecture of the foot (Prof. Wenger)</td>
<td>Lower limb Dissection of the muscles, vessels and nerves Cadaver and free limb dissection</td>
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<tr>
<td>Week 6</td>
<td>7. National holiday</td>
<td>Lower limb and pelvis Dissection of the muscles, vessels and nerves Cadaver and free limb dissection</td>
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<td>Week 7</td>
<td>8. Ribs, components and movements of the thorax. Diaphragm. (Prof. Szél)</td>
<td>Dissection of the limbs and superficial regions of the the trunk (cadaver). Demostration of the components of the body wall on prospected specimens</td>
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<td>Week 8</td>
<td>9. Components of the abdominal wall. Rectus sheath. Subinguinal hiatus. Inguinal canal. Adductor and femoral canals. (Prof. Szél)</td>
<td>Dissection of the limbs and superficial regions of the the trunk (cadaver). Demostration of the components of the body wall on prospected specimens</td>
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<td>Week 9</td>
<td>10. Components, muscles, joints and ligaments of the vertebral column. Intervertebral, atlantooccipital and atlantoaxial joints (Dr. Kocsis)</td>
<td>Dissection of the limbs and superficial regions of the the trunk (cadaver). Demostration of the components of the body wall on prospected specimens</td>
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<td>Week 11</td>
<td>12. Temporomandibular joint, muscles of mastication; muscles of facial expression. Muscles, fasciae and movements of the neck. (Dr. Nagy)</td>
<td>Head and neck specimens Topography of the superficial regions Temporomandibular joint Muscles of mastication and facial expression</td>
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<td>Week 12</td>
<td>13. Composition and part of the oral cavity, palate, faucial isthmus and pharynx (Dr. Molnár)</td>
<td>Dissection of superficial regions of the head and neck. Demostration of the cavities on prospected specimen</td>
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<tr>
<td>Week 13</td>
<td>14. Nasal cavity, paranasal sinuses, larynx (Dr. Nemeskéri)</td>
<td>Dissection of superficial regions of the head and neck. Demostration of the cavities on prospected specimen</td>
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</table>
# Faculty of Medicine

## Academic Year 2019/2020, 1st Semester EM I. 7 – 12, 15, 17, 18, 19

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<tr>
<th>Week</th>
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<th>Dissection room classes</th>
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<tr>
<td><strong>Week 1</strong>&lt;br&gt;Sep 9-13</td>
<td>1. The role of anatomy in the medical curriculum. Terminology (Prof. Szél)</td>
<td><strong>EM 7-12:</strong> Mondays 12.00, Tuesdays 10.00, Thursdays 11.00  &lt;br&gt;<strong>EM 15-17:</strong> Tuesdays 8.00, Wednesdays 14.30, Fridays 10.00  &lt;br&gt;<strong>EM 18-19:</strong> Mondays 16.20, Tuesdays 16.30, Thursdays 17.00</td>
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<tr>
<td><strong>Week 2</strong>&lt;br&gt;Sep 16-20</td>
<td>3. General arthrology and myology. Joints, muscles and movements of the shoulder and the upper girdle (Dr. Minkó)</td>
<td><strong>General introduction to practical work in the dissection room, tools and rules</strong>  &lt;br&gt;<strong>Upper limb</strong>  &lt;br&gt;Bones</td>
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<td><strong>Week 3</strong>&lt;br&gt;Sep 23-27</td>
<td>3. Muscles and actions of the elbow joint (Prof. Kiss)</td>
<td><strong>Upper limb</strong>  &lt;br&gt;Dissection of the muscles, vessels and nerves</td>
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<td><strong>Week 4</strong>&lt;br&gt;Sep 30 – Oct 4</td>
<td>4. Joints, muscles and actions of the wrist and the hand (Dr. Dóra)</td>
<td><strong>Upper limb</strong>  &lt;br&gt;Dissection of the muscles, vessels and nerves</td>
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<td><strong>Week 5</strong>&lt;br&gt;Oct 7-11</td>
<td>5. Bones, joints, construction of the pelvis. Muscles and actions of the hip joint (Dr. Nagy)</td>
<td><strong>Lower limb</strong>  &lt;br&gt;Bones and joints  &lt;br&gt;Dissection of joints of the lower limb</td>
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<td><strong>Week 6</strong>&lt;br&gt;Oct 14-18</td>
<td>6. Muscles and actions of the knee joint (Prof. Wenger)</td>
<td><strong>Lower limb</strong>  &lt;br&gt;Dissection of the muscles, vessels and nerves  &lt;br&gt;Cadaver and free limb dissection</td>
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<td><strong>Week 7</strong>&lt;br&gt;Oct 21-25&lt;br&gt;<strong>October 23 is a national holiday</strong></td>
<td>7. Muscles and joints of the foot. Architecture of the foot (Dr. Katz)</td>
<td><strong>Lower limb and pelvis</strong>  &lt;br&gt;Dissection of the muscles, vessels and nerves  &lt;br&gt;Cadaver and free limb dissection</td>
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<tr>
<td><strong>Week 8</strong>&lt;br&gt;Nov 1-5&lt;br&gt;<strong>November 1 is a national holiday</strong></td>
<td>8. Ribs, components and movements of the thorax. Diaphragm. (Prof. Szél)</td>
<td><strong>Grs 15-16:</strong> NO CLASS ON WEDNESDAY  &lt;br&gt;1. Midterm test (oral): Upper and lower limbs including the girdles.</td>
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<td><strong>Week 9</strong>&lt;br&gt;Nov 4-8</td>
<td>9. Components of the abdominal wall. Rectus sheath. Subinguinal hiatus. Inguinal canal. Adductor and femoral canals. (Prof. Szél)</td>
<td><strong>Grs 15-16:</strong> NO CLASS ON FRIDAY</td>
</tr>
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<td><strong>Week 10</strong>&lt;br&gt;Nov 11-15</td>
<td>10. Components, muscles, joints and ligaments of the vertebral column. Intervertebral, atlantooccipital and atlantoaxial joints (Dr. Kocsis)</td>
<td><strong>Dissection of the limbs and superficial regions of the the trunk (cadaver). Demonstration of the components of the body wall on prosected specimens</strong></td>
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<tr>
<td><strong>Week 11</strong>&lt;br&gt;Nov 18-22</td>
<td>11. Bony framework of the skull. Sphenoid and ethmoid. Temporal bone. Cavities and spaces of the viscerocranium. (Dr. Csáki)</td>
<td><strong>Dissection of the limbs and superficial regions of the the trunk (cadaver). Demonstration of the components of the body wall on prosected specimens</strong></td>
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<td><strong>Week 12</strong>&lt;br&gt;Nov 25-29</td>
<td>12. Temporomandibular joint, muscles of mastication; muscles of facial expression. Muscles, fasciae and movements of the neck. (Dr. Nagy)</td>
<td><strong>Head and neck specimens</strong>  &lt;br&gt;Bones, joints, muscles and fasciae of the trunk and head&amp;neck</td>
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<tr>
<td><strong>Week 13</strong>&lt;br&gt;Dec 2-6</td>
<td>13. Composition and part of the oral cavity, palate, faucial isthmus and pharynx (Dr. Molnár)</td>
<td><strong>2. Midterm test (e-learning type)</strong>  &lt;br&gt;Bones, joints, muscles and fasciae of the trunk and head&amp;neck</td>
</tr>
<tr>
<td><strong>Week 14</strong>&lt;br&gt;Dec 9-13</td>
<td>14. Nasal cavity, paranasal sinuses, larynx (Dr. Nemeskéri)</td>
<td><strong>Dissection of superficial regions of the head and neck. Demonstration of the cavities on prosected specimen</strong></td>
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Macroscopic Anatomy I.

Subject matter of the 1st semester

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).
Internal organs, cavities, muscles of the head & neck region.

Test I. (oral, obligatory to attend)
Topics: Gross anatomy of the upper and lower limbs together with their girdles (bones, joints, muscles and fasciae)
Date: 7th week, October 21-25

Test II. (written, obligatory to attend)
Topics: Bones, joints, muscles and fasciae of the trunk and head&neck
Date: 12th week, November 25-29.

Semifinal examination
Topics: Subject matter of the semester

1) Written ‘e-learning type’ pretest

2) Practical examination including theoretical questions (oral examination)
   Gross anatomy of the musculoskeletal system including the skull.
   Internal organs of the head and neck region.


EM I  ANNOUNCEMENTS

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

**Semester acceptance (i.e. signature):** active participation in dissection room lab sessions (including mid-term tests) 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. Attendance is obligatory at the two mid-term tests. Students absent from the mid-term test should reattend at a given timepoint or their semester will not be accepted. Anatomy mid-terms may be oral or written exams. Oral exams, held in the dissection room, are composed of both identification of several structures on the specimen and theoretical questions related to the subject. The written mid-term test is organised as an e-learning type examination where a valid SeKa account (including a user name&password) is required.

**Cadaver preparation / dissection work** – every student is required to produce a fully dissected specimen during the 1st or the 2nd semester to prove excellence and to 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 composed of practical and theoretical questions in Macroscopy, i.e., identification and full description of the morphological features of the relevant body parts. Please note, that relevant theoretical questions may too arise during the practical examination part.

**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 dissecting 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) URBFI, 2013.


Regional Anatomy, by T Tömböl, Medicina 2008, ISBN 963 242 186 8


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

MACROSCOPIC ANATOMY 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
Muscles of mastication
Muscles of facial expression
Superficial muscles of the neck, muscle triangles
Deep muscles of the neck and the laminae of the cervical fascia

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

Internal organs of the head & neck region
Subclavian artery and its branches
Common and external carotid arteries and their branches
Maxillary artery and its branches
Veins of face and neck
Oral cavity (divisions, boundaries)
Floor of mouth, sulcus lateralis linguæ
Types and morphology of teeth
Blood supply and innervation of teeth
Tonsils (anatomy)
Fauces isthmus, palate
Macroscopy of the tongue
Salivary glands together with topography
Pharynx and parapharyngeal spaces
Blood supply and innervation of pharynx
Pharyngeal muscles
Nose, nasal cavity (boundaries, nasal meatus, vessels)
Paranasal sinuses (connections, vessels)
Larynx (shape, position, vessels, nerves)
Skeleton and joints of larynx
Laryngeal ligaments (fibroelastic membranes, mucous membrane)
Muscles of larynx, innervation