



Erasmus+

**Curriculum Development in the Anatomy  
Department of Medical School in Pécs,  
Hungary based on LEANBODY project**



**Co-funded by  
the European Union**

**ERASMUS+ Project LEANBODY - 2021-1-HU01-KA220-HED-000027542**

Disclaimer: Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

## **Curriculum Development in the Anatomy Department of Medical School in Pécs, Hungary**

### **Current Curriculum**

The Department of Anatomy of the Medical School of the University of Pécs teaches anatomy to three different groups of students. These comprise: (a) a Hungarian programme for domestic students, (b) a German programme mainly for students from Germany, Switzerland and Austria, and (c) an English programme for international students from all over the world.

Anatomy is taught in the first two years, with the German students starting in the autumn semester of the first year, and the Hungarians and English programmes later in the spring semester of the first year. Anatomy 1 covers the macroscopic structure of the human body, particularly focusing on bones, joints, muscles, and the regional anatomy of the trunk and limbs. It also addresses functional and developmental aspects. The course includes both theoretical lessons and hands-on cadaveric dissection. The examinations consist of identifying anatomical structures during cadaveric dissections and answering theoretical questions related to bones, joints, and regional anatomy. Anatomy 1 is taught in 56 teaching hours of practical classes and 14 teaching hours of lectures. The evaluation is an oral examination at the end of the semester, where the students must answer 3 theoretical questions covering 3 topics in the following areas: bones and joints, the skull and topographical anatomy. In addition, students must complete a “body walk”, which involves the identification of structures on cadavers or prosections. In parallel with Anatomy 1, the Department also teaches Histology and Embryology 1, where the students learn the basics of these subjects, with Histology 1 being taught in 28 teaching hours of practical classes and 28 teaching hours of lectures. In the oral examination, the student is given two histological slides, within which they are asked to recognise different structures and answer theoretical questions. They also need to explain a topic in embryology. (See Appendix 1 for the detailed curriculum and examination questions.)

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

Anatomy 2 builds upon this by deepening the students' knowledge of internal organs, blood vessels, and nerves, with a more integrated approach to body systems. Students also work on understanding the relationships between these systems in a clinical context, preparing them for further medical studies. As in Anatomy 1, the students also have 56 teaching hours of practical classes and 14 teaching hours of lectures. The students are also examined in a similar way to Anatomy 1, with a “body walk” and two theoretical questions, with one from upper body viscera and 1 from lower body viscera). . In parallel with Anatomy 2, we also teach Histology and Embryology 2, where the students learn the organ-specific aspects of these subjects. The teaching hours and the evaluation are the same as for Histology and Embryology 1. (See Appendix 2 for the detailed curriculum and examination questions.)

Neuroanatomy emphasises the structure and function of the nervous system, including the brain, spinal cord, and peripheral nerves. It is a critical course for understanding clinical fields such as neurology and neurosurgery. Head and neck anatomy is also taught in this semester. Students study both the gross and microscopic features of the nervous system, including developmental aspects. The Neuroanatomy course has 84 teaching hours of practical classes and 42 teaching hours of lectures. After completing the course, the students must take a final examination, which includes the material in all the above courses (Anatomy 1, Histology and Embryology 1, Anatomy 2, Histology and Embryology 2 and Neuroanatomy). The examination has a similar format, including a “body walk”, 2 theoretical questions about the nervous system, 2 histological slides and an embryology topic. (See Appendix 3 for the detailed curriculum and examination questions. ).

In addition to these compulsory classes, our department offers elective courses such as dissection course, 2 D anatomy, clinical anatomy, borderline anatomy and advanced histology.

In order to express our thanks and gratitude to our donors, we hold an annual commemoration ceremony, in which both students and faculty participate. This consists of a short programme with a choir, instrumental music, or poetry.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

# LEANbody



UNIVERSITY OF  
CAMBRIDGE



MUNI

Other students are taught in our department, including those studying to be dentists, pharmacists, physiotherapists and bioengineers.

We also provide regular training courses for clinicians, where they can practise surgical methods on Thiel-embalmed cadavers.

## Curricular development

In the past few years, we have made several changes in the anatomy, histology, embryology and neuroanatomy curricula. We have divided these into the following categories:

### 1. Demonstration videos

With the increasing global focus on the use of digital technology in medical education, our department has made considerable efforts to produce new demonstration videos for our students in all three languages (English, German, Hungarian). All digitally recorded lectures are also available. Lecture recordings started during the COVID-19 pandemic and were continued post-pandemic during the project period. Regular editing is done to include new material or corrections. Lectures are available on a YouTube channel (<https://www.youtube.com/@anatomiapecs8938>).

Password-protected dissection videos are available on our website. The following videos were recorded (while the titles are given only for the English language videos, they are also available in German and Hungarian):

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

## Anatomy-1

### Bones, joints



[The elbow joint](#)



[The shoulder girdle](#)



[The shoulder joint](#)



[Thorax, vertebra](#)



[Vertebral column, ribs](#)



[Pelvis - components, connections](#)



[Diameters of the pelvis](#)



[The hip joint](#)



[The knee joint](#)



[The static characteristics of the pelvis](#)



[The ankle joint](#)



[The talotarsal joint](#)

### Regions



[Ventral surface structures of the upper limb.](#)



[Ventral muscles of the upper limb.](#)



[Ventral vessels of the upper limb.](#)



[Ventral nerves of the upper limb.](#)



[Dorsal regions of the upper limb - demo](#)



[Muscles in the dorsal regions of the upper limb](#)



[Vessels and nerves in the dorsal regions of the upper limb](#)



[Ventral surface structures of the lower limb.](#)



[Ventral muscles of the lower limb.](#)

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

# LEANbody



MUNI

 [Ventral vessels of the lower limb.](#)

 [Ventral nerves of the lower limb.](#)

 [Dorsal regions of the lower limb.](#)

 [Muscles in the dorsal regions of the lower limb.](#)

 [Vessels and nerves of the dorsal regions of the lower limb](#)

 [The abdominal wall.](#)

## Anatomy-2

 [Nasal cavity.](#)

 [Oral cavity.](#)

 [Pharynx.](#)

 [Teeth.](#)

 [Tongue.](#)

 [Larynx.](#)

 [Thorax.](#)

 [Thoracic organs.](#)

 [The heart.](#)

 [Heart and lungs.](#)

 [Heart preparation.](#)

 [Mediastinum.](#)

 [Abdominal wall.](#)

 [Peritoneum \(male\).](#)

 [Peritoneum \(female\).](#)

 [The celiac trunk.](#)

 [The liver and the spleen.](#)

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

# LEANbody



MUNI



[Guts - blood supply and description.](#)



[Diaphragm](#)



[Kidney demo 1.](#)



[Kidney demo 2.](#)



[Kidney demo 3 \(in situ\).](#)



[Vessels in the retroperitoneum.](#)



[Nerves in the retroperitoneum.](#)



[Vessels and nerves in the lesser pelvis.](#)



[Pelvis, internal female genitalia.](#)



[Pelvic and urogenital diaphragm, external female genitalia.](#)



[Male genitalia.](#)

## Neuroanatomy

### Regions



[The regions of the face and neck](#)



[The face - trigeminal](#)



[The face - facial](#)



[The face - overview](#)



[The face - muscles](#)



[The face - deep regions](#)



[The external carotid artery](#)



[The regions of the neck.](#)

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

# LEANbody



MUNI



[The neck - overview.](#)



[The muscular triangles of the neck.](#)



[The neck - superficial regions.](#)



[The neck - deep regions.](#)



[The subclavian artery.](#)



[The ear.](#)

## The brain



[The internal base of skull](#)



[The meninges](#)



[The orientation on the brain](#)



[Brain lobes](#)



[Cranial nerves](#)



[The arteries of the brain](#)



[The cerebellum](#)



[The diencephalon and the brainstem](#)



[Brain dissection 1](#)



[Brain dissection 2; lateral ventricles](#)



[Brain dissection 3](#)



[Brain dissection 4; Flechsig's cut](#)



[Brain dissection 5; 3rd ventricle](#)



[Brain dissection 6; 4th ventricle](#)

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.



Histology slide demonstration – available on our YouTube channel (*vide supra*).

Histology labelling – we have developed our own online slide collection with labels for the most important structures, providing further help for students.

More digital material – the CorpusAnatomy website has been developed by our students.

## **2. Integrating clinical application of anatomy knowledge in the curriculum**

Over the past several decades, medical schools worldwide have recognized the importance of integrating clinical cases into anatomy teaching. As this was an important topic of discussion in the LEANbody project, we were keen for our students to develop their clinical knowledge within the anatomy course. It is important to note that most of our professors are medical doctors, with some still in clinical practice. We have updated several of our lectures to include clinical relevance. Examples include heart catheter ablation when we discuss the pulmonary veins, different neurological diseases when we describe neuroanatomy structures, and clinical review lectures at the end of Anatomy 1 studies). We have invited several clinicians to give lectures to our students within the framework of our existing curriculum and also in our elective courses.

The following are some examples of how clinical integration is achieved in our curriculum:

Anatomy 1:

Clinical aspects of the muscles of the the lower extremity – by Prof. Peter Than, orthopaedic surgeon

Lymphatic drainage of the limbs and breast.Clinical importance of the primary lymph nodes. – by dr. Erzsebet Schmidt, radiologist

Anatomy 2:

Vascular supply and lymphatic drainage of the gastrointestinal tract. The vascular anastomoses and their clinical importance. – by dr. Zalan Szanto, thoracic surgeon

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

Clinical aspects of the anatomy of nasal and oral cavities, larynx, and pharynx – by dr. Laszlo Lujbert, ENT specialist

Histology/Embryology 2:

Fetal circulation and facial development – by Dr. Gabor Horvath, paediatrician

Elective courses:

Clinicians are invited to teach on our elective courses:

2D anatomy (lecturers: cardiologist, urologist, radiologist, neurosurgeon, obstetrician, neurologist)

Advanced histology (lecturers: cardiologist, obstetrician specialising in *in vitro* fertilisation, thoracic surgeon, dentist).

Borderline anatomy (lecturers who introduce students to the clinical aspects of anatomy – general surgeon, plastic surgeon, dermatologist, ophthalmologist, neurosurgeons, anaesthetist, dentist).

Think like a doctor (each session is led by a clinician and an anatomist: neurologist, cardiologist and intensive care specialist).

Motivational games for students to promote clinical thinking in anatomy.

Clinical cases are regularly integrated into our curriculum, including problem-based learning, and team-based learning. Students work in small teams on clinical cases based on their anatomical knowledge, with small clinical tasks related to their anatomy schedule which students work on and then present to their teachers. Some of these sessions are organised separately from the regular classes.

Clinical courses for anatomy teachers

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

We regularly invite clinicians to give talks on anatomical topics, to increase our knowledge on the clinically important aspects of anatomical structures. During the period of the LEANbody project, the following lectures were given:

- Dental surgical aspects of the mandible – Prof. Jozsef Szalma, dental surgeon
- Congenital malformations of the genital organs – Dr. Daniel Kardos, pediatric surgeon
- Facial malformations – Dr. Attila Vastyan, pediatric surgeon
- Inguinal hernias – Dr. Peter Vajda, pediatric surgeon
- Endoscopic surgery of the tympanic cavity – dr. Istvan Szanyi and Dr. Barbara Bölcsföldi, ENT Clinic
- Rectal passage – Dr. Nandor Faluhelyi, Radiology Clinic
- Hand surgery in children with malformations – Dr. Gergo Jozsa, pediatric surgeon

The anatomy teachers also took part in a course on life saving techniques, which was conducted in the Skillslab of our faculty and taught by Dr. Szilard Rendeki, intensive care specialist. Parts of what we learnt have been integrated in our lectures, as, for example, in Anatomy 1: Review on upper and lower limb – clinical aspects.

### **3. A motivational approach and increased support for students**

We have adopted a motivational approach to encourage students to study anatomy with the help of several newly developed games. These consist of more team-based learning, with problems that they must solve in small teams, as well as individual tasks.

We have also provided students with summaries for more complicated lectures =, so that students are clear on the main aspects that they have to know for the examination.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.

We have increased the number of consultation sessions, as well as the number of open dissecting room hours.

Outlines are provided for many of the practical classes. Students are provided with this material before the classes, so they know what will be discussed and in what order during the class. To achieve constructive alignment, learning outcomes have been clearly identified and are accessible to students.

Demonstrator students (teaching assistants) – these are students from higher years who can provide valuable near-peer teaching. The President of the Demonstrator Circle is an anatomist, and over 80 students assist in our teaching programme. Throughout the period of the LEANbody project, both the number and organisation of these activities have increased and been greatly improved.

#### **4. Ethical concerns**

An important topic of discussion in the LEANbody project concerned ethical issues.

As a direct result of the talks given during the project period, we have increased our students' awareness of the body donation programme, helping them to appreciate the generosity of the donors. We have collected "Thank you" messages for the donors' relatives, based on samples of tributes written by students from the University of Cambridge.

The talks given by colleagues from the Karolinska Institutet increased our awareness of promoting EDI (equality, diversity, and inclusion) in our lectures. As we are an international university, we have now included more images of people from different races and ethnicities to demonstrate anatomy. This has been done in several lectures, especially where surface anatomy is shown. We continue to pay special attention to include all races in our demonstration material, and many of our lectures have been updated accordingly.

#### **5. Improvements in the Feedback system**

We have improved our feedback system, based on what we learnt in the LEANbody project, from our colleagues in Cambridge and Karolinska.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Foundation for the Development of the Education System. Neither the European Union nor entity providing the grant can be held responsible for them.