

2025/2026. ACADEMIC YEAR							
PROGRAM OF STUDY (FOR STUDENTS OF 1ST YEAR)							
<b>Full Hungarian name of the subject:</b> Anatómia							
<b>Program:</b> Undivided program (pharmaceutical)							
<b>Schedule:</b> full-time							
<b>Short name of the subject:</b> Anatomy							
<b>English name of the subject:</b> Anatomy							
<b>German name of the subject:</b> Grundlagen der Anatomie							
<b>Type of registration:</b> obligatory/obligatory elective/elective/criteria requirement							
<b>Neptun code of the subject:</b> GYKANT272E1A							
<b>Responsible Department:</b> Department of Anatomy, Histology and Embryology							
<b>Responsible tutor:</b> Dr. Alán Alpár				<b>Title, academic degree:</b> full professor, Ph.D.			
<b>Contact information:</b> - <b>phone:</b> 215 6920 / 53609 ext. - <b>email:</b> alpar.alan@semmelweis.hu							
<b>Name of the persons responsible for the teaching of the subject:</b>  Dr. Krisztina Herberth-Minkó Dr. Katalin Kocsis Dr. Zita Puskár				<b>Title, academic degree:</b>  assistant professor, Ph.D. assistant professor, Ph.D. senior research fellow, Ph.D.			
<b>Class per week:</b>  2 lecture(s) 2 practice(s)				<b>Credit point(s):</b>  2			
<b>Professional content, intent of acquirement and it's function in order to implement the goals of the program:</b> Course principles: Principles: - to teach the terminology of the human anatomy to the future pharmacists - to discuss those special anatomical and physiological conditions which may influence the therapeutical considerations; - to discuss those anatomical conditions, wich are necessary for the understanding of the further medical subjects of the pharmacists' studies; - to teach the terminology (Latin and English) of human body parts (at a gross and microscopical anatomical level) necessary for the understanding of the medical language during the communication between the pharmacists and the doctors. Special attention is required concerning the anatomy of the central nervous system and the digestive tract, the absorption of medicines and their mechanism of action.							
<b>Short description of the subject:</b> The lectures include all topics of anatomy, histology and embryology. Locomotor system, internal organs, nervous system, general and detailed histology, general embryology and development of organs are the topics of the lectures.							
<i>Course data</i>							
Recommened term	Contact hours (lecture)	Contact hours (practice)	Contact hours (seminar)	Individual lectures	Total number of contact hours/semester	Normal course offer	Consultations
... 2. semester	28	28	-	-	56	Autumn semester* <u>Spring semester</u> Both semesters (* Please underline)	--

**Program of semester\*\***

**Topics of theoretical classes (pro week):**

- 1st week: 1. Introduction, Locomotor System  
2. Skull, vertebral column, head, neck muscles
- 2nd week: 3. Basic tissues I.  
4. Basic tissues II., Skin
- 3rd week: 5. The Immune System, the Lymphoid Organs  
6. Blood, hematopoiesis
- 4th week: 7. Heart, the Vascular System  
8. The Respiratory System, the Mechanics of Breathing
- 5th week: 9. The Digestive System I, abdominal cavity  
10. The Digestive System II
- 6th week: 11. The Liver, the Pancreas  
12. Peritoneum, abdominal cavity
- 7th week: 13. The Kidneys and the Urinary tract I.  
14. The Kidneys and the Urinary tract II.
- 8th week: 15. The Female Reproductive Organs, cycle  
16. The Male Reproductive Organs, Pelvis
- 9th week: 17. Nervous System introduction (synapses, neurotransmitters) Spinal cord, spinal nerves  
18. Central Nervous System, meninges, blood supply, CSF, Encephalon, Spinal cord, Spinal nerves
- 10th week: 19. Motor system, Sensory system, Limbic system  
20. Cranial nerves, The Autonomic Nervous System
- 11th week: 21. The Eyeball and Visual system  
22. The Organ of Hearing and Equilibrium.
- 12th week: 23. Hypothalamus, the Endocrine Organs I  
24. The Endocrine Organs II
- 13th week: 25. Germ cells, Fertilization, Development of the fetus, Placenta,  
26. Teratology
- 14th week: 27. Development of the Digestive System and Reproductive organs  
28. Malformations

**Topics of practical classes (pro week):**

- 1st week: introduction, upper and lower limbs
- 2nd week: basic tissues, skin
- 3rd week: skull, vertebral column, head, neck muscles
- 4th week: histology of the blood, vessels and the lymphoid organs
- 5th week: respiratory tract, thoracic cavity, heart, large vessels
- 6th week: respiratory tract histology, gastrointestinal tract histology
- 7th week: gastrointestinal tract, abdominal cavity
- 8th week: kidney and urinary tract histology, genital organs histology
- 9th week: urogenital system, pelvis
- 10th week: 1st Midterm- locomotor system, internal organs (not obligatory);  
nervous system histology
- 11th week: sensory organs histology
- 12th week: nervous system: brain, spinal cord, cranial nerves, spinal nerves, main vessels and nerves on limbs, sensory organs
- 13th week: endocrine organs, placenta
- 14th week: 2nd Midterm - nervous system, sensory organs, endocrine organs, general embryology (not obligatory), revision

**Schedule of consultations:**

-

## Course requirements

### Prerequisites:

Biology I. (GYKGEN109E1A)

Medical Terminology (GYKNYE111G1A)

### Conditions of attending the classes, amount of acceptable absents, way of presentation of leave, opportunity for makeup:

Attendance of a minimum of 75% of practices is necessary for the end-term signatures. There is no makeup opportunity.

### The grading method; the conditions for getting the signature; the number, topic(s) and date(s) of the mid-term assessments, ~~the end-of-term assessments~~ (reports, term tests), and the process in which they contribute to the final grade; and the possibility of their retake or their upgrading retake (as provided in §§ 25-28 of the STUDY AND EXAMINATION REGULATIONS):

The grades are the following in the Moodle tests: 0-49,9%: unsatisfactory, fail (1); 50-62,49%: satisfactory, pass (2); 62,5-74,9%: average (3); 75-87,49%: good (4), 87,5-100%: excellent (5)

Attendance of a minimum of 75% of practices is necessary for the end-term signatures. There is no makeup opportunity.

#### Midterms:

10th week and 14th week Midterms are "non-compulsory assessment", from the topics "locomotor system, internal organs" and "nervous system, sensory organs, endocrine organs, general embryology", respectively. Its form is identical with the one of the semifinal exam (electronic, Moodle test). Successful (at least 50%) midterm provides the student with the exemption of the corresponding part of the examination, and if accepted, it is counted into the result of the semifinal exam.

The Midterms are not obligatory, there is no make-up possibility.

#### Exam:

In the end of the semester written semi-final exam defines the exam grade. The exam is electronic, via the Moodle system, including multiple choice question types, and "drag and drop" question types (requiring identification). In the written (electronic Moodle) test, 50% of the maximum score available must be achieved for a successful (at least satisfactory grade) test result. The written test consists of two main parts: 75% of the questions are from topics belonging to "locomotor system, internal organs", 25% of the questions are from the topics of "nervous system, sensory organs, endocrine organs, general embryology". In the end of the test the students may review if their answers were correct.

### Number, topics and dates of tests during the semester, opportunities of makeup and improvement of results\*\*\*:

#### Midterms:

10th week and 14th week Midterms are "non-compulsory assessment", from the topics "locomotor system, internal organs" and "nervous system, sensory organs, endocrine organs, general embryology", respectively. Its form is identical with the one of the semifinal exam (electronic, Moodle test). Successful (at least 50%) midterm provides the student with the exemption of the corresponding part of the examination, and if accepted, it is counted into the result of the semifinal exam.

The Midterms are not obligatory, there is no make-up possibility.

#### Topics of the Midterms:

##### 1st Midterm:

Basic Tissues

The Skin and Its Appendages

The Locomotor System (Musculoskeletal System)

<p>The Heart and Blood Vessels  Blood, the Immune System, and Lymphoid Organs  The Respiratory System  The Digestive System  The Kidneys and Urinary Tract  The Reproductive Organs</p> <p>2nd Midterm:  The Central and Peripheral Nervous Systems  The Autonomic Nervous System  Sense Organs  The Endocrine System  Reproduction, Development, and Birth</p>
<p><b>Requirements of signature (as provided for in STUDY AND EXAMINATION REGULATIONS § 29):</b>  Attendance of a minimum of 75% of the practices is necessary for the end-term signature. There is no make-up possibility.</p>
<p><b>Number and type of projects students have to perform independently during the semester and their deadlines:</b>  -</p>
<p><b>Type of the semester-end examination:</b> <u>signature</u>*/<u>practical grade</u>*/ <u>comprehensive examination</u>*/<u>final/end-term examination</u>* (<i>Please underline</i>)</p> <p><b>Examination requirements:</b>  Exam:  In the end of the semester written semi-final exam defines the exam grade. The exam is electronic, via the Moodle system, including multiple choice question types, and "drag and drop" question types (requiring identification). In the written (electronic Moodle) test, 50% of the maximum score available must be achieved for a successful (at least satisfactory grade) test result. The written test consists of two main parts: 75% of the questions are from topics belonging to "locomotor system, internal organs", 25% of the questions are from the topics of "nervous system, sensory organs, endocrine organs, general embryology". In the end of the test the students may review if their answers were correct.</p>
<p><b>Form of the semester-end examination:</b> <u>written</u>*/<u>oral</u>*/<u>combined examination/practical examination/the assessment of completing project work (according to STUDY AND EXAMINATION REGULATIONS 30.§)</u>* (<i>Please underline</i>)</p>
<p><b>The possibility and conditions for offering grades:</b>  Successful (at least 50%) midterm provides the student with the exemption of the corresponding part of the examination, and if accepted, it is counted into the result of the semifinal exam.</p>
<p><b>A list of the basic notes, textbooks, resources and literature that can be used to acquire the knowledge necessary to master the curriculum and to complete the assessments, <del>****</del>with exact description about which of them is required to acquire which part of the syllabus (e.g. description based on topics)), as well as the main technical and other aids and study aids that can be used:</b>  <b>List of teaching material:</b>  Faller, A, Schuenke, M.: The Human Body: An Introduction to Structure and Function (Flexibook) 2004., Thieme, Stuttgart.</p>

The chapters of the textbook follow the topics of the subject. The knowledge material required for the exam is the textbook, and the materials of lectures and practices. The material for the lectures and practices is uploaded to the subject's Moodle course.

The chapters of the textbook:

3 Tissues

Epithelial Tissue

Connective and Supporting Tissues

Muscle Tissue

Nerve Tissue

4 The Locomotor System (Musculoskeletal System)

Axes, Planes, and Orientation

The Bones

The Joints

5 The Heart and Blood Vessels

The Heart (Cor)

The Vascular System—Structure and Function

Lymph Vessels

The Fetal Circulation

The Arterial System

The Venous System

6 Blood, the Immune System, and Lymphoid Organs

The Blood

Functions of the Blood

The Cells of the Blood

The Immune System

The Lymphoid Organs (Immune Organs)

7 The Endocrine System

Hypothalamic–Hypophyseal Axis

Pituitary Gland (Hypophysis)

Pineal Gland (Pineal Body, Epiphysis Cerebri)

Thyroid Gland

Adrenal Glands (Suprarenal Glands)

Islet Apparatus of the Pancreas

The Gonads

8 The Respiratory System

Organs of the Air Passages

Nasal Cavity and Paranasal Sinuses

Pharynx

Larynx

The Windpipe and Bronchial Tree

Lungs (Pulmones)

9 The Digestive System

The Digestive Organs

The Oral Cavity

The Throat (Pharynx)

The Gullet (Esophagus)

The Stomach (Ventriculus, Gaster)

The Small Bowel (Intestinum Tenue, Enteron)

The Large Bowel (Intestinum Crassum)

The Pancreas

The Liver

The Gallbladder (Vesica Biliaris) and Bile Duct

10 The Kidneys and Urinary Tract

The Kidney (Ren, Nephros)

Shape and Position

Renal Cortex and Renal Medulla

The Renal Vessels

The Renal Corpuscles and the Glomerular Filter

Urinary Tract

Renal Pelvis

Ureter  
Urinary Bladder (Vesica Urinaria)  
Urethra  
11 The Reproductive Organs  
Male Reproductive Organs  
Testis (Orchis)  
Epididymis  
Vas Deferens  
Seminal Vesicles (Vesiculae Seminales)  
Prostate Gland  
Cowper's Glands (Bulbourethral Glands)  
External Male Sex Organs  
Female Reproductive Organs  
Ovaries  
Fallopian Tube (Uterine Tube, Salpinx)  
Uterus  
Vagina  
External Female Sex Organs (Vulva)  
The Female Breast (Mamma) and Mammary Gland  
12 Reproduction, Development, and Birth  
Germ Cells  
Fertilization  
Transport through the Uterine Tube and Segmentation  
Implantation and Development of the Placenta (Afterbirth)  
Structure of the Placenta  
Umbilical Cord (Funiculus Umbilicalis)  
Development of the Embryo  
Derivatives of the Germ Layers  
13 The Central and Peripheral Nervous Systems  
Classification of the Nervous System  
Role of the Nervous System  
Development of the Nervous System  
Central Nervous System  
Development and Organization  
The Brain (Encephalon)  
Spinal Cord (Medulla Spinalis)  
Membranes of the Brain and Spinal Cord  
Cerebrospinal Fluid (CSF) and the Ventricular System  
Peripheral Nervous System  
Peripheral Nerves  
Ganglia  
Spinal Nerves  
Networks of Nerves (Plexus or Plexuses)  
Cranial Nerves  
14 The Autonomic Nervous System  
Sympathetic Nervous System  
Parasympathetic Nervous System  
Cranial Parasympathetic System  
Sacral Parasympathetic Outflow  
Nervous System of the Intestinal Wall  
15 Sense Organs  
The Eye  
The Eyeball (Globe, Bulbus Oculi)  
The Optic System  
The Ear  
The Organ of Hearing  
The Organ of Equilibrium  
The Sense of Taste  
The Sense of Smell  
16 The Skin and Its Appendages  
Skin (Cutis) and Subcutaneous Tissue (Tela Subcutanea)

Layers of the Skin Sensory Organs of the Skin Skin Appendages Glands of the Skin Hair Nails
<b>In the case of a subject lasting more than one semester, the position of the teaching/research department on the possibility of parallel enrolment and the conditions for admission****:</b> yes*/no*/on and individual assesment basis* ( <i>* Please underline</i> )
<b>The course description was prepared by:</b> Dr. Katalin Kocsis

**\*\* A tantárgy tematikáját oly módon kell meghatározni, hogy az lehetővé tegye más intézményben a kreditelismerési döntéshozatalt, tartalmazza a megszerzendő ismeretek, elsajátítandó alkalmazási (rész)kézségek, (rész)kompetenciák és attitűdök leírását, reflektálva a szak képzési és kimeneti követelményeire.**