

EM II

ANNOUNCEMENTS CONCERNING THE FINAL EXAMINATIONS IN MICROSCOPIC ANATOMY AND EMBRYOLOGY

Final examinations are held on Tuesdays and Thursdays during the entire examination period starting at 13.00 or as it appears in Neptun (the starting time of the exam may change according to the total number of students registered)

PARTS OF THE FINAL EXAMINATION

WRITTEN PART (Students may not leave the room during the test)

The test is composed of 40 simple / multiple choice questions
(30% Histology, 40% Microscopy of CNS, 30% Embryology)

Writing time: 40 minutes

Passing rate: 60% (0-23.99 points=fail, 24-27.99=satisfactory, 28-31.99=average, 32-35.99=good, 36-40=excellent)

- Following the completion of the test Students may view their results, however, neither questions may be asked nor notes may be taken during this time. Students may not leave the room before the inspection time expires.
- Students not reaching 60% percent in the written part cannot continue (i.e. fail) the examination and should leave.
- Students failing the examination in a subsequent practical part may be exempted from the written test during the retake examination if they gained a good (4) or excellent (5) result from the written test.

ORAL / PRACTICAL PART

This part is also held in the Histology Laboratory. The oral examination consists of

- 2 digitized tissue slides (one from each semester)

Further questions, other than the identification of the presented specimens, may arise, e.g. discussing the histological or developmental relevances. Students may be asked to produce schematic drawings as part of the examination (e.g. reflexes, cross sections of the brain stem or schematic drawings of developmental stages).

Exemptions/bonus marks - if the average of the two midterm marks is at least 4.00, students may earn a „bonus mark“ to be counted with the examination marks at the final examination. Bonus marks are calculated as follows: good (4) - if the midterm results equal to 4+4 or 3+5; excellent (5)- if the midterm results equal to 4+5 or 5+5.

PLEASE NOTE – According to the decision of the Senate of the Semmelweis University, a successful Microscopic Anatomy and Embryology 2 final examination is the prerequisite for registering for Physiology 2

MARKING SYSTEM

The examination finishes in the Histology room, where Students are given a mark calculated from all the marks they earned during the examination.

- If one part of an examination results in fail (1), the entire examination is terminated with a fail (1).
- In case the result of one of the parts is **1/2**, the overall result of the examination CANNOT be better than a pass (2). This mark can only be earned once during the examination.
- **Students failing the examination, may repeat the exam once „free“, every further attempt will be charged for.** The total number of examination seats is set (200% of the number of students in a given course), therefore the number of examination seats will not be increased*.

- Students may request in writing to sit for an oral theory exam to replace the written part in case of a 2nd or 3rd retake examination. A request will have to be sent to the Course Director 48 hours before the examination day.
- **Retake of a successful examination** - students unhappy with the result of the examination may apply in writing with the Course Director, to retry the examination. They will be registered by the Course Director in neptun. **Please note, that such a retake examination does not necessarily result in a better mark.**
- **Technical problems** concerning registration or deregistration via the neptun system are beyond the scope of the Department, Students should seek help from the neptun group of the Secretariat.
- The Registrar of the English Secretariat is not entitled to register or deregister students with the only exception of using the 4th chance upon getting the Dean's permission.

REGISTRATION ISSUES

Registration has to be done in neptun according to the Study and Examination Policy. Registration is open until 6.00 on the day of the examination. You may deregister from the examination before midnight on the preceding day.

Absences – no-show at the semifinal examination reduces the remaining examination possibilities and Students will have to pay a missed examination fee via neptun.

In case of health problems, students will have to present a **doctor's note within 3 working days** to be evaluated by the Head of Department. If accepted, the number of the student's examination possibilities will not be reduced.

On the day of the examination, leave your bags in a locker and gather in front of the Histology lab 10 minutes before starting time. Please make sure you have the following items on you:

- ID card/student card** (you may not start the examination without it)
- SeKA login details** (memorize or write them down on a small piece of paper) *
- a pen or pencil** to aid you with the explanation of the slides and the oral question
- in case of a retake exam – proof of payment** (except for the 1st retake)

*Students who cannot login /forgot their password will be considered as „absent” (see above) and have to sit for the examination on a different day

Phones and smart watches have to be stored elsewhere during examinations. Neither pens+papers may be with you during the written part. You cannot take notes or talk to your peers during the examination. Students found to use such items or breaking the aforementioned rules will be immediately suspended, the case recorded and the examination is terminated with a fail (1).

For safety reasons you may keep your valuables (money, cards, IDs, etc) on you, however „large” items, such as phones (switched off), tablets (switched off) and pencil cases will be collected upon entering the examination room.

Masks should be worn at all times

No chewing gum, no food, no drinks are allowed while on the premises

We wish you good health and a successful examination period!

Dr Andrea D Székely
Associate Professor, Course Director

TOPICS OF THE FINAL EXAM

General Histology

Concept of basic tissues
Definition and classification of epithelial tissue
Simple epithelia
Stratified epithelia
Membrane specializations of epithelia
Glandular epithelia
Pigment epithelium, sensory neuroepithelium
Cells of connective tissue
Ground substance and fibres of connective tissue
Types of connective tissue
Blood and the corpuscular elements of blood
Histology of the bone marrow, maturation of erythrocytes and platelets
Differentiation of granulocytes, lymphocytes and monocytes
Histology of cartilage
Histology of the bone tissue
Intramembranous ossification
Endochondral ossification
Growth and remodeling of bone
Smooth muscle and myoepithelial cells
Skeletal muscle tissue
Cardiac muscle tissue
Nervous tissue

Histology of organs

Histological structure of arteries and arterioles
Composition of capillaries and veins
Wall structure of hollow organs
Histology of the lip, tongue and teeth
Structure of the esophagus
Histology of the airways (epiglottis, larynx, trachea, lung)
Histology of the stomach
Structure of the small and large intestines
Histology of the liver and biliary passages including the gall bladder
Histology of the pancreas
Histology of the kidney and the urinary passages (ureter, urinary bladder)
Histology of the testicles together with the epididymis
Histology of the prostate, seminal vesicle, spermatic cord
Histology of the penis
Histology of the ovary, uterine tube; corpus luteum
Histology of the uterus
Histology of the vagina
Placenta, umbilical cord

General Embryology

Spermatogenesis, spermiogenesis
Oogenesis
Fertilization, cleavage of the zygote
Blastocyst formation; the bilaminar embryonic disc
Implantation
Formation of body axes, parts of the early embryo (yolk sac, amnion, chorion, body stalk)
Gastrulation
Formation of the intraembryonic mesoderm; the notochord
Neurulation (neural tube and neural crest)
Derivatives of ectoderm, endoderm and mesoderm
Folding of the embryo
The structure and function of the placenta
Development of the fetal membranes (chorion and amnion), umbilical cord

Twin formation

Development of internal organs

Development of the primitive vascular systems

Development of the heart

Development of arteries

Development of veins (inferior vena cava, portal vein, superior vena cava, azygos and hemiazygos)

Fetal circulation

Face development (oral and nasal cavities)

Development and differentiation of the foregut

Derivatives of pharyngeal pouches and grooves

Derivatives of pharyngeal arches

Development of the tongue, tooth development

Development and differentiation of the midgut

Development and differentiation of the hindgut

Formation of the liver and pancreas

Development of the peritoneum

Development of the lower airways including the lungs

Development of the diaphragm, divisioning of the body cavities

Kidney development

Development of the urinary passages

Gonadal development, formation and migration of primordial stem cells

Development of the male genital tract

Development of the female genital tract

Development of the male/female external genitals

Lymphatic organs

Lymphatic tissues in general, cellular components

Histological structure of lymph nodes

Spleen (fine structure and circulation)

Thymus

Tonsils, MALT

Development of the nervous system and organs of special senses

Development and primary differentiation of the neural tube

Development of brain vesicles

Development of the peripheral nervous system (neural crest, placodes)

Development of the organ of vision

Development of the organ of hearing&equilibrium

Development of the locomotor system

Membranous and cartilaginous neurocranium and viscerocranium

Development of the limbs and vertebral column

Development of the muscular system

Neurohistology

Histology of the neurons developing from the neural tube

Glial cells

Histology of the neurons and supporting cells developing from the neural crest

Fine structure of peripheral nerves

Receptors and effectors

Interneuronal synapses

Microscopy of the central nervous system

Fine structure (microscopy) of the spinal cord

Proprioceptive reflexes

Nociceptive reflexes

Autonomic reflexes

Fine structure of the medulla oblongata
Fine structure of the pons
Fine structure of the midbrain
Classification of cranial nerve nuclei
Tracts of the brain stem
Reticular formation, monoaminergic systems
Fine structure of the cerebellum
Cerebellar afferents and efferents
Fine structure of the thalamus
Hypothalamo-hypophyseal system
Fine structure of the basal ganglia
Fine structure of the cerebral cortex, cortical fields
Tracts of the protopathic sensibility (anterolateral system)
Tracts of the epicritic sensibility (posterior funiculus/medial lemniscus)
Corticospinal tract (pyramidal tract)
Extrapyramidal system
Limbic system (nuclei and tracts)
Microscopy of the autonomic nervous system, tracts

Endocrine organs

Microscopical anatomy and development of the pituitary gland. Portal circulation
Microscopical anatomy of the pineal gland
Microscopical anatomy and the development of the thyroid gland
Microscopical anatomy and the development of the parathyroid gland
Microscopical anatomy and the development of the suprarenal gland
Histology of the islands of Langerhans

Organs of special senses

Microscopical structure of the skin (scalp and palm)
Histology of the mammary gland (mamma lactans et non-lactans)
Coats of the eyeball
Chambers of the eye, vitreous body
Lens, accommodation
Visual pathway, visual reflexes
External ear, tympanic membrane. Tympanic cavity, auditory tube, hearing ossicles.
Organ of Corti. Auditory pathway
Vestibular system
Bony and membranous labyrinth
Cochlea and cochlear duct
Organs of olfaction and taste