

ED II

ANNOUNCEMENTS CONCERNING THE FINAL EXAMINATIONS IN MICROSCOPIC ANATOMY AND EMBRYOLOGY

Final examinations are held on Tuesdays and Thursdays during the entire examination period.

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

Writing time: 40 minutes

Passing rate: 20 points = 50% (0-50%-fail, 50% - satisfactory, 65% - average, 75% - good, 85% - 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 50% 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 an average (3), good (4), or excellent (5), result from the written test.
- **EXEMPTIONS** - Students are exempted from writing the test in case the sum of their midterm marks is at least 8.00 (an average of 4.00).
The following marks will be counted in: 4 in case of 3+5 or 4+4; 5 in case of 4+5 or 5+5.
These Students will have to describe 2 slides and explain one theory topic during the oral examination part. In case they fail in the practical/oral part, their exemptions will not expire during the present examination period, however, they **will not be taken into** account if the examination is postponed to the Spring examination period as a CV exam.

In general, the written exam part starts at 13.00 in the Histology computer laboratory

If there is a high number of students and so the pandemic protocol may not be followed (i.e. keeping the 1,5 m distance between seated students) it is possible that students will write the online test in two subsequent groups starting at 13.00 and 14.00. If such a situation emerges, students will be notified in writing prior to the examination.

ORAL / PRACTICAL PART

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

- 2 digitized tissue slides (description)
- 1 theoretical question from the subject matter of the two semesters (see the Topic list).

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).

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 $\frac{1}{2}$ (i.e. **between 1 and 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*.
- **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.

Rubber gloves and masks should be worn at all times

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

Rubber gloves are provided in the Histology lab, similar to the 2nd midterm

We wish you good health and a successful examination period!
All the best,

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
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 and bone tissue
Intramembranous ossification. Endochondral ossification. Growth and remodeling of bone
Smooth muscle and myoepithelial cells
Skeletal muscle tissue
Cardiac muscle tissue
Histology of arteries and arterioles
Histology of veins and capillaries

Histology of organs

Wall structure of hollow organs
General composition of parenchymal (solid/compact) organs
Histology of the lip and tongue
Histology of the respiratory tract. Larynx. Trachea. Lung
Histology of the esophagus and stomach
Histology of the small and large intestines. Fine structure of the intestinal villi, enteroendocrine system
Histology of the liver. Gall bladder, biliary ducts
Histology of the pancreas
Histology of kidney. Ureter. Urinary bladder
Histology of the male and female gonads and genital organs/ducts
Histology of the uterus (proliferative, secretory phases) menstrual cycle, vagina

General Embryology

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

Development of internal organs

Development of the heart, looping of the heart tube
Formation of atria, development of the interatrial septum
Formation of ventricles, development of the aorticopulmonary septum
Development of arteries
Development of the inferior vena cava

Development of the portal vein
Development of the superior vena cava, azygos and hemiazygos veins
Fetal circulation
Development and differentiation of the midgut
Development and differentiation of the hindgut
Formation of the liver and pancreas
Development of the lower airways including the lungs
Kidney development
Development of the urinary passages
Gonadal development
Development of the male genital tract
Development of the female genital tract
Development of the male/female external genitals
Development and divisioning of the body cavities
Development of the peritoneum

Maxillofacial Histology and Embryology

Enamel
Amelogenesis
Dentin
Dentinogenesis
Structure of the dental papilla
Cementum (two types)
Parodontium
Gingiva – subdivisions and histology
Tooth development
Tooth eruption
Development of the mandible and maxilla
Development of the face. Formation of the nasal cavity and paranasal sinuses
Microscopic Anatomy and development of the primary and secondary palates
Microscopic Anatomy and development of the tongue
Microscopic Anatomy and development of salivary glands
Derivatives of pharyngeal pouches and grooves
Derivatives of pharyngeal arches

Lymphatic organs

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

Histology of the nervous system

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)

Endocrine organs

Microscopical anatomy of the pituitary gland; development of the posterior lobe
Microscopical anatomy and development of the anterior and intermediate lobes of the pituitary gland
Blood supply of the pituitary gland
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 and development of the skin (scalp and palm)
Histology and development of skin appendages, mammary gland
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

External ocular muscles, eye movements
Accessory and protective apparatus of the eye (palpebrae, conjunctiva, fasciae, lacrimal apparatus)
External ear, tympanic membrane. Tympanic cavity, auditory tube. Hearing ossicles (joints, muscles)
Organ of Corti. Auditory pathway. Vestibulocochlear nerve.
Vestibular system
Bony and membranous labyrinth, vestibulum
Cochlea, cochlear duct
Organ of olfaction, olfactory pathway, olfactory nerve
Organ of taste, central processing of taste (tracts)