

## 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 starting at 13.00 or as it appears in Neptun  
(the starting time of the exam may change according to the number of students registered)

#### 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**

## PARTS OF THE SEMIFINAL 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: 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.

### 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 a topic of the material studied during the two semesters (see the Topic list).

Further questions, other than the identification of the presented specimens, may arise, e.g. discussing the theoretical 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 **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.

**We wish you a successful examination period!**

Dr Gábor Gerber  
Associate Professor, Dean  
Head of the Dentistry programme

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

## **Lymphatic organs**

Histological structure of lymph nodes  
Spleen (fine structure and circulation)  
Thymus  
Tonsils, MALT

## **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

### ***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  
External ocular muscles, eye movements  
Accessory and protective apparatus of the eye (palpebrae, conjunctiva, fasciae, lacrimal apparatus)  
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  
Organ of olfaction, olfactory pathway, olfactory nerve  
Organ of taste, central processing of taste (tracts)