

HISTOLOGY AND EMBRYOLOGY

Learning objectives

The aim of the Histology and Embryology exercises is to become practically acquainted with the structural organization of the cell, tissue and organs, structure of cell organelles, functional aspects of the structures, interaction of cells and organelles including the mechanisms of their control.

Classical aspect of histology is to be considered rather within the program of exercises. The program includes problems of cell biology, cytology, general histology (tissue) and microscopic anatomy (structure of organs and systems). From a morphological point of view the problems are considered with regarding light and electron microscopy level. As to the scientific interests, this department is mainly focused on the cellular basis for endocrine and immunologic systems in the course of differentiation and functioning. The department utilizes full instrumentation for modern lectures, seminars and practical exercises.

1. The course will continue for two semesters, from October 9th 2019 to June 15th, 2020 (65 practices and 45 lectures, 110 hours in total), according to schedule.
2. The program is realized as non-controlled (lectures) and controlled exercises courses. In this department the program of lectures is intercalated with the program of exercises and seminars. The subjects considered within lectures continue to be discussed during exercises, and acquiring of the knowledge by the students is verified jointly. Students are expected to prove their preliminary preparation before going to the class.
3. The aim of the exercises is to become acquainted in practice with the structural organization of the cell, tissue and organs, structure of cell organelles, functional aspects of the structures, interaction of cells and organelles including the mechanisms of their control. Practically students will analyze histological preparations using NetImage software, light microscopes and moreover, micrographs, electron micrographs, diagrams.
 - before each exercise the student has to prove preliminary preparation. Knowledge will be tested in a **short test form, oral answers or essay-type answers**. For each exercise the student can receive from 0 to 2 points. During the whole course, the student can gather from 0 to 42 points. All short tests are performed only once for the whole group of students. **There is no possibility of an individual taking of these quizzes out of the accepted term,**

4. The students' task is to reproduce their own color impression from the analyzed objects and to draw, primarily these analyzed details, which may help in preparation for partial tests and for the practical exam; the details should be described. For this purpose each student is obligated to have an exercise-book or blank copy-book. Each chapter in a student's exercise-book or copy-book should be accepted and sign by the assistant. The deadline for acquiring all of these assistant's confirmations (21 in total) is **two weeks before the practical examination.**
5. Throughout this course the student can have **only two absences** (justified or not, it counts as an absence). It will not be possible to take any supplementary classes to recompensate these absences. Students who overstep this absence limit are not eligible to participate in integrative exam and futher exams (practical and NBME).
6. The scoring system is used for continuous and objective evaluation of the the student's progress in histology and embryology.
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 - each part of the course, is to be passed on the basis of **partial verification in a test form**. Each from 5 quizzes comprises of a 50 questions. Correct answer for one question gives 0,5 point. During the whole course, the student can gather from 0 to 125 points. The form of the partial and final tests is a "one answer test". All quizzes are performed only once for the whole group of students. **There is no possibility of an individual taking of these quizzes out of the accepted term,**
 - to get a credit student has to collect **105 points** during whole course (from short and partial tests together). If doesn't - then he/she must to pass the integrated tests which can be repeated only once,
7. To be admitted to a practical examination the student is obligated to:
 - have at least 105 points
 - have an exercise- or copy-book with assistant's confirmation (21 in

8. To pass the practical examination student have to recognize, name and describe at least **5 from 6 given histological preparations** with the rules of techniques, methods and approaches applied in the histological examination of the cell, tissues and organs. The form of practical examination is oral. Student can repeat practical examination twice only.
9. To be admitted to a NBME the student is obligated to:
 - have at least 105 points
 - have an exercise- or copy-book with assistant's confirmation
 - pass the practical examination
10. Student who fails the NBME exam can repeat the internal final test twice only.

Required textbooks

L.C. Junqueira, J. Carneiro, O. Kelly: **Basic Histology**
Sobotta/Hammersen: **Histology, A color atlas of cytology, histology and microscopic anatomy**
T. Wysocka, E. Jagoda, M. Podhorska-Okotów, U. Ciesielska, P. Dzięgiel, M. Zabel: **Excercise notebook for medicine and dentistry student.**
Leslie P. Gartner: **Text book of histology**
Victor P. Eroschenko: **di Fiore's Atlas of Histology with Functional Correlations.**
B.M. Carlson: **Human embryology & developmental biology**
T.W. Sadler: **Langman's medical embryology**
K.L. Moore, T.V.N. Persaud: **Developigh human**

Rules of practices

1. Each student takes assigned place by computer through whole year.
2. Eating, drinking and using mobile phones in the lab room is prohibited.
3. Coats, jackets, rain coats and umbrellas should be left in the cloakroom.
4. Each student has two assistants/caretakers through whole year. That's why exercises confirmation should become from one of them only.
5. In exercise-book or blank copy-book should be given following informations:
 - student's name and surname,
 - date, exercise number and theme
 - name of histological preparation with information about method of staining

Attached table can be used.

No	Date	Exercise theme	Confirmation
1.	16.10.2019	CYTOLOGY - CYTOPLASM, NUCLEUS, CELL DIVISION	
2.	23.10.2019	EPITHELIAL TISSUE	
3.	30.10.2019	CONNECTIVE TISSUE I	
4.	06.11.2019	CONNECTIVE TISSUE II	
5.	13.11.2019	BONE	
6.	20.11.2019	MUSCLE TISSUE	
7.	27.11.2019	NERVOUS TISSUE	
8.	04.12.2019	BONE MARROW. BLOOD	
9.	11.12.2019	CARDIOVASCULAR SYSTEM	
10.	18.12.2019	LYMPHOID SYSTEM	
11.	08.01.2020	ENDOCRINE SYSTEM	
12.	15.01.2020	RESPIRATORY SYSTEM	
13.	22.01.2020	DIGESTIVE SYSTEM I	
14.	29.01.2020	DIGESTIVE SYSTEM II	
15.	05.02.2020	DIGESTIVE SYSTEM III	
16.	12.02.2020	DIGESTIVE SYSTEM IV	
17.	27.02.2020	CENTRAL NERVOUS SYSTEM (CNS)	
18.	05.03.2020	SKIN	
19.	12.03.2020	URINARY SYSTEM	
20.	19.03.2020	FEMALE REPRODUCTIVE SYSTEM	
21.	26.03.2020	MALE REPRODUCTIVE SYSTEM	