האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

SYSTEM HISTOLOGY B - 75202

Last update 26-09-2016

HU Credits: 3.5

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: medicine - basic studies

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Ein Karem

Course/Module Coordinator: Dr. Einav Gross

Coordinator Email: einavg@ekmd.huji.ac.il

Coordinator Office Hours: Upon appointment , by email

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Ms.
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Course/Module description:

Endocrine system: General principles of functions of the endocrine system, types of hormones, types of hormone receptors. Hypophysis: function, structure and division into anatomical and histological regions. Structure and functional connection between the nervous and epithelial parts of the glands, portal system. Thyroid gland: unique structure, existence of follicles, extracellular storage, function of gland hormones. Parathyroid gland: structure and cell types, function of PTH. Adrenal glands: typical structure of steroid-secreting cells, cortex and medulla, zoning of cortex, neural origin of adrenal medulla, the functional relationship between the cortex and medulla, function of adrenal hormones. Islets of Langerhans in pancreas: cell types, secreted hormones and their functions.

Digestive tract: mouth and tongue, the general structure of digestive tract (mucosa, submucosa, muscularis externa and serosa or adventitia), adaptation of the structure of each organ of the digestive tract to its specific function: esophagus, stomach, small intestine (duodenum, jejunum, ileum), colon, appendix, rectum and anus. Innervation of digestive tract (Aurbach's and Meissner's plexus), lymphatic tissue in digestive tract.

Digestive system glands: salivary glands (mucous and serous), structure of acini and ducts (intercollated, striated and excretory). Structure of salivon. Liver: structure and function, three definitions of liver lobule, classical liver lobule: central vein, blood sinuses, cords of hepatocytes, portal canal (portal vein, hepatic artery and bile duct), blood flow in the liver, structure of hepatocyte and its adaptation to its many functions. Creation of bile and its flow. Gallbladder: structure and function. Exocrine pancreas: structure and function, acini and ducts.

Respiratory system: Structure of the system and division into conducting and respiratory regions. Function of each part, nose, pharynx, larynx, trachea (mucosal cells, hyaline cartilage), lungs. Changes in structure of tubes during their descent in the bronchial tree: bronchi, regular bronchioles, terminal bronchioles (Clara cells),

respiratory bronchioles. Structure of alveoli and alveolar septum (pneumocytes type I and II, dust cells, surfactant), blood-air barrier and gas transport.

Urinary system: Structure of kidney (cortex and medulla), division into lobes and lobules, structure of nephron and its location in the kidney, nephron tubules and their adaptation to their function, juxtaglomerular apparatus, control of blood pressure, excretory passages: ureters, urinary bladder and urethra.

Male reproductive system: structure of testis, development of sperm cells in the seminiferous tubules, spermatogenic cells, Sertoli and Leydig cells, intratesticular tubules and extratesticular tubes (epididymus, vas deferens, penis), accessory glands: prostate gland, seminal vesicles, bulbouretral gland.

Female reproductive system: structure of ovaries, development of follicles in the cortex of the ovary and the structure of the follicle in each developmental stage, hormonal control of follicle development. Ovulation and creation of corpus luteum, fertilization of oocyte. Atresia of follicles. Oviducts: general structure and division into four structural regions. Adaptation of each region to its function. Uterus: structure, menstrual cycle, structural changes in uterine wall throughout the cycle. Cervix, vagina, mammary gland: structure, structural changes in different life stages: before and between pregnancies, during pregnancy and during lactation.

The eye: structure of eye, three layers of eye and structural changes between their anterior and posterior aspects, eye chambers (anterior chamber, posterior chamber and vitreous space), cornea, iris, retina, ciliary body and lens. Embryonic development of the eye.

Cartilage and bone: Cartilage: cells (chondroprogenitor cells, chondroblasts and chondrocytes). Hyaline cartilage, elastic cartilage, fibrocartilage. Embryonal processes in cartilage formation and growth processes. Bone: bones of the skeleton, bone composition: extracellular matrix and cells (osteoprogenitor cells, osteoblasts, osteocytes, osteoclasts), osteons, blood vessel canals, processes of mineralization. Intramembranus ossification, development and growth of long bones, epiphyseal plate, modeling and remodeling.

<u>Course/Module aims:</u>
To become familiar with the normal and healthy structures of body systems and how tissues interact to form a complete unit, emphasizing the connection between structure and function of the organs.

<u>Learning outcomes - On successful completion of this module, students should be able to:</u>
To become familiar with the normal and healthy structures of body systems and how tissues interact to form a complete unit, emphasizing the connection between

structure and function of the organs.

Attendance requirements(%):
participance in lab

Teaching arrangement and method of instruction: Frontal teaching
Lab

Course/Module Content:
Endocrine system
Bone and Cartilage
digestive tract
digestive glands
female reproductive system
male reproductive system
Eye
Urinary system
Respiratory system

Required Reading:
HISTOLOGY, a Text and Atlas, by Ross H.M., Gordon I. K. and Pawlina W. LWW, 5th edition (2006).

Additional Reading Material:
Any histology book and Atlas

Course/Module evaluation:
End of year written/oral examination 100 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information: