جامعة الكويت
KUWAIT UNIVERSITY

نموذج توصيف مقرر
Course Description Form

Name of College\Faculty : **Faculty of Science** **اسم الكلية:**

Name of Department: **Biological Sciences** **اسم القسم العلمي:**

Course Name	**Histology and histochemistry** **علم الأنسجة والكيمياء النسيجية**	**اسم المقرر**
Course No.	**0493 - 301**	**رقم المقرر**
No. of Credits	**3**	**عدد الوحدات**
Theoretical Hours	**2**	**عدد الساعات النظرية**
Practical Hours	**1**	**عدد الساعات المحلية**

Course topics **مواضيع المقرر**

1. Epithelial and glands:

Junctional complex, Salivary glands, Simple epithelia and pseudostratified epithelium. Stratified epithelia and transitional epithelium. pseudostratified ciliated columnar epithelium, epithelial junctions, glands.

2. Connective tissue.

Collagen, connective tissue cells, embryonic and connective tissue proper I, connective tissue proper II, connective tissue proper III, fibroblasts and collagen, mast cell, mast cell degranulation, development of fat cell.

3. Cartilage and Bone.

Compact bone, endochondral bone formation, embryonic and hyaline cartilage, elastic and fibrocartilages, compact bone and intermembranous ossification, endochondral ossification, osteoblasts, osteoclasts.

4. Blood and Hemospoiesis.

Circulating blood, blood and hemopoiesis, bone marrow and circulating blood, erythropoiesis, granulocytopoiesis.

5. Muscle.

Muscular structure of skeletal muscle, types of muscle, skeletal muscle, myoneural junction, muscle spindle, smooth muscle, cardiac muscle.

6. Nerve Tissue.

Spinal nerve morphology, nervous and myoneural junction, spinal cord, cerebellum, synapse, cerebrum, neuroglial cells, sympathetic ganglia, sensory ganglia, peripheral nerve, choroid plexus, neuron cell body.

7. Circulatory System.

Artery and vein, capillary types, elastic artery, muscular artery, vein, arteioles, venules, capillaries, lymph vessels, heart, capillary, freeze etch, fenestrated capillary.

8. Lymphoid Tissue.

Lymphoid tissue, lymph node, thymus and spleen, B memory and plasma cell formation, cytotoxic T cell activation and killing of virally transformed cells, macrophage activation by T_H1 cells, lymphatic infiltration, lymphatic nodule, lymph node, tonsils, thymus, spleen.

9. Urinary System.

Uriniferous tubules, renal corpuscle, kidney – survey and general morphology, renal cortex, glomerulus, renal corpuscle, renal medulla, ureter and urinary bladder.

10.Special Senses

Eye, ear, eye, cornea, sclera, iris and ciliary body, retina, fovea, lens, eyelid and lacrimal glands, inner ear, cochlea, spiral organ of corti.

Practical Topics (Laboratory):

1. Principles involved in fixation. Single fixative and fixative mixture.
2. Preparation of Tissues for microscopy.
3. Microtomy I. Embedding and Trimming.
4. Microtomy II. Sectioning and mounting.
5. Staining of paraffin sections.
6. Best's Carmine and Periodic Acid-Schiff methods for Glycogen and mucopolysaccharides.
7. Preparation of frozen sections. Staining of lipids – Sudan black and Oil red O.
8. Enzymosphae Histochemistry. Acid phosphatase, Alkaline phosphatase, and esterase.

Ultrastructural localization of enzymes. Electron micrograph demonstration.

9. Studies of the slides prepared by the students (from LabII): Liver, Kidney, Intestine, Skin, Lung and tongue.
10. Prepared slides and electron micrographs: Salivary glands, Esophagus and Stomach (comparison of various zones).
11. Prepared slides and electrn micrographs: Lymph gland, Lymph node, Tonsils, Spleen, Thin skin. Thick skin.
12. Prepared slides and electron micrographs: Organs of special sense; Eye Ear, Tonque (taste buds) and Skin (nerve endings).

Text book: (Name, Author , Year , Publisher) **عنوان الكتاب : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)**

1. Leslie P Gartner and James L Hiatt. 2006. Color Atlas of Histology 4th Edition, Lippincott Williams and Wilkins, A Wolters Kluwer Company ,Philadelphia,USA.

References: (Name , Author , Year . Publisher) **عنوان المرجع : (الاسم ، المؤلف ، سنة الطبع ، دار النشر)**

1. Luiz Carlos Junqueira and Jose Carneiro. 2005. Basic Histology, Text and Atlas 11th Edition. McGraw-Hill. Medical Publishing. USA.

Prerequisites					متطلبات المقرر	
Grading	Exams	20	%		الاختبارات	آلية رصد المقرر
	Quizzes		%		امتحانات قصيرة	
	H.W.	10	%		واجبات	
	Lab. work	30	%		مختبر	
	Final	40	%		الاختبار النهائي	
	100 %					

Course objectives					
No.	Course Objectives (Learning Outcomes)	Example(s) of relevant (Topics and activities)	Recommended Level to satisfy the objectives		
			High	Medium	Low
1	Understand, in-depth, the structure of the four types of tissues.	Connective tissues, unlike epithelia, are composed mainly of intercellular elements with a limited number of cells.		×	
2	Associate how cells and tissues perform their functions for which they have acquired skills during the span of this course.	The role played by collagen in various connective tissue types; proper and modified.	×		
3	Comprehend the organizational frame of groups of cells that constitute the organ systems of the body.	Impact of the organizational frame of skeletal muscles, nerve tissues on body function.		×	
4	Associate histology with histochemistry, both at the light and electron microscopy levels	Observation of the architecture of hepatocyte by the H & E compared to hepatocytes after acid phosphatase localization. Observation of the architecture of the renal proximal tubules by H & E compared to that after alkaline phosphatase localization	×		

5	Correlate cell and tissue architecture with histophysiology and histological organization of each type of tissue and organ system within the body	Impact of the architecture of compact bone and its physiology on body activity	×		
6	Have a reasonable knowledge to contrast normal histology with histopathological changes and associated implications	Contrast normal renal tubular cells with that of tubular necrosis			×
Fields					
Skills					

Coordinator (Name and Rank) :	**Dr. Bedour Alsayegh (Assist. Prof)**
Signature and stamp :	*Bedour Alsayegh*
Date:	**23 \ 11 \2025**