

COURSE PLAN

FIRST: BASIC INFORMATION

College					
College	: Medicine				
Department	: Basic Medical So	ciences			
Course					
Course Title	: Musculoskeletal	Systems and Skir	l		
Course Code	: 31500381				
Credit Hours	: 5				
Prerequisite	: None				
Instructor					
Name	: Multi-disciplinary	staff members; D	r. Ezidin Kadd	umi (course C	Coordinator)
Office No.	:				
Tel (Ext)	:				
E-mail	: Kaddumi@bau.edu.jo				
Office Hours	: Sunday through	Thursday 9-11am			
Class Times	Building	Day	Start Time	End Time	Room No.
	College of	SMTWT	11:00	3:00	Auditorium B1
	Medicine				Auditorium B2
					L201
	College of	SMTWT	9:00	11:00	- Anatomy lab
	Medicine				- Histology &
					Pathology lab
Text Books				L	

ANATOMY:

- 1. Clinical Anatomy for Medical Students. By R.S. Snell, Latest edition.
- 2. Clinically Oriented Anatomy. K.L. Moore, et al. Latest Edition.
- 3. Basic Histology, by L. Carlos Junqueira. Latest edition.
- 4. Before we are born. By K.L. Moore and T.V.N. Persaud, Latest edition.
- 5. Grants Atlas of Anatomy or any other good colored Atlas of Human Anatomy.

BIOCHEMISTRY:

- 1. Biochemistry by Campbell & Farrell, latest edition
- 2. Lippincott's Illustrated Reviews "Biochemistry", latest edition

PHYSIOLOGY:

- 1. Textbook of Medical Physiology, by Guyton and Hall, 13th edition, 2016.
- 2. Review of Medical Physiology, by William F. Ganong, 24th edition, 2016.

PATHOLOGY:

Basic Pathology, by Kumar, Cotran and Robbins, Latest edition.



PHARMACOLOGY:

Lipincott's Illustrated Reviews: Pharmacology, Latest edition.

COMMUNITY MEDICINE:

Supplementary Departmental handouts.

SECOND: PROFESSIONAL INFORMATION

COURSE DESCRIPTION

This course covers the study of the locomotor system and skin including the anatomy and histology of nerves, muscles and skin; the physiology of nerves and muscles, the biochemistry of muscle contraction and neurotransmission. It also covers the diseases of the skin, muscles and nervous tissues including bacterial, viral, parasitic and fungal infections, together with disturbances of metabolism and genetics of the locomotor system and tumors of muscles, bones and joints. The course covers also the therapeutics of such diseases and their clinical aspects including signs and symptoms, and disease presentation.

COURSE OBJECTIVES

By the end of this course, students are expected to understand and describe:

- 1. The anatomy and histology of the human body skeletal system including bone types, External features, location and orientation with emphasis on muscular attachments.
- 2. The histological aspects of bone types and their cellular components and organization.
- 3. The vertebral column at different levels with emphasis on their parts, positions and the inter-vertebral discs and alignments.
- 4. The anatomy and histology of the muscular system as individual and muscle groups. Naming of muscles and their relations with their specific distribution within the body with emphasis on their individual and group actions, nerve and blood supply.
- 5. The histology of skin and identify the macroscopic and microscopic features of the skin and subcutaneous tissues.
- 6. The normal development and the congenital abnormalities of the musculoskeletal system
- 7. The pathogenesis of osteoporosis, osteomalacia and rickets
- 8. Different types of arthritis (including osteoarthritis, rheumatoid arthritis and crystal induced arthritis) and osteomyelitis
- 9. The main types of the skeletal muscle diseases.
- 10. The pathological changes that occur in the skin, and the etiology, pathogenesis and pathologic features of selected major diseases of the skin.
- 11. The mechanism of muscle contraction.
- 12. The mechanism of action, pharmacokinetics and therapeutic use and adverse effects of drugs that affect the musculoskeletal system and the skin.
- 13. The metabolism and the biochemical and molecular basis of diseases affecting muscles and bones
- 14. The biochemical processes of normal skin and subcutaneous tissues.
- 15. The epidemiology and control of the common injuries that may affect the human musculoskeletal and skin.



- 16. The pathogenesis and pathological features of infections and diseases that affect bones, joints, muscles, soft tissue and the skin.
- 17. The commensally and pathogenic microbes affecting the skin, subcutaneous tissue and musculoskeletal system.

COURSE LEARNING OUTCOMES

1)	Knowledge	and	Understanding	
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- a. The Anatomical structures of Musculoskeletal system, the development of the system, and its histology.
- b. The Anatomical structures of the skin, its development, and its histology.
- **c.** The nature, functions, physiologic roles and mechanisms of action of muscles and their mechanism of action and the nervous and hormone regulation and.
- **d.** The Pathogenesis, morphological changes and complications of diseases affecting the Musculoskeletal system.
- e. The use of drugs in diagnosis for the treatment of various disorders of this system

2) Professional Skills

The student should be able to differentiate the different Musculoskeletal disorders.

3) Competences (Transferable skill and attributes) The student should be able to differentiate the different investigations required for each Musculoskeletal system disorders

	COURSE SYLLABUS	
No	Title of Lectures	Learning Objectives
	(1 st .Week)	
1	Overview of the components of the MSS. (Anatomy 1)	 Discuss the components and functions of the MSS. Describe the relation between bones and skeletal muscles in producing body movements. Identify the major regions and compartments of upper and lower limbs. Contrast the structural and functional classification of joints and identify factors that determine the degree of movement at a joint. Describe the components of the synovial joints and give examples from the upper and lower limbs.
2&3	Skull bones and temporomandibular joint (TMJ) (Anatomy 2&3)	 Identify and name the bones of the skull. Identify the major regions of the skull. Describe the major foramina in the skull. Describe how a fetal skull differs from the adult skull. Explain the function of the fontanels. Describe the components of TMJ. List the ligaments associated with TM joint and their attachment.



4	Bone remodeling	 Explain Bone structure: I. Minerals, II. Organic i. Matrix of Bone Collage type L 2) Non-Collagenous Proteins ii Cellular component
	(Physiology 1)	2 Describe Bone remodeling
		3 Describe Resoration of Bone—Function of the Osteoclasts
		4 Explain extended stimulated & inhibited
		5 Explain Vectorials summated a minibled
		6 Explain Mechanism of Bone deposition: First step: osteoid formation
		 Explain Meenanism of Bone acposition. Inits step: oscold formation Second step: mineral precipitation (mineralization) and hope hardening
		8 Theories of Mineralization: 1 Booster theory or Bohinson's alkaline
		nhosphatase theory of mineralization 2 Collagen seeding theory or nucleation
		theory or collagen template theory of mineralization 3. Matrix vesicle theory of
		mineralization
		9 Explain Value of Continual Bone Remodeling
		10 Explain Control of the Rate of Bone Deposition by Bone "Stress "
5&6	Development of the MSS	1 Describe the development of skull limbs and vertebral column
000		2. Describe the development of the skeletal muscles.
		3. Identify the components of a somite and the adult derivatives of each
	(Anatomy 4&6)	component.
		4. Explain the process of development of the limbs.
		5. Explain limbs rotation
		6. Describe the development of the motor and sensory nerves of the limbs
		7. Discuss related congenital anomalies.
7&8	Vertebral column I & II.	1. Describe the regions and curvatures of the vertebral column and the
	(Anatomy 5&7)	number of vertebrae in each region.
		2. Describe the basic components of a typical vertebrae and their function.
		3. Identify and recognize the differences between cervical, thoracic and
		lumbar vertebrae.
		4. Describe and classify the joints associated with the vertebral column.
		5. Describe the location and general function of ligaments.
		 Name the true back muscles and understand their relative positions and actions.
		dullons.
		vortebral column including the points of evit of spinal perves
9	Physiology of Muscle	Explain the Motor Eurotions of the Spinal Cord
5	sensory recentors	1 Explain Organization of the spinal cord for motor function: Anterior
		interneurons Renshaw Cells
		2 Discuss multi-segmental connections proprio-spinal tract
	(Physiology 2)	3 Discuss the types of Muscle sensory receptors: the physiological role and
	()	structure of nuclear bag muscle fibers and nuclear chain fibers
		4. Discuss sensory innervations of the muscle spindle including type Ia fiber and
		type II fiber
		7. Describing Motor innervations of the muscle spindle
		8. Explain the types of gamma motor neurons static & Dynamic gamma motor
		neurons



10	Muscle relaxants	1.	Review the transmission process at the neuromuscular endplate and the
		_	points at which drugs can modify this process.
	(Pharmacology1)	2.	Compare the pharmacodynamics and pharmacokinetics of non-
		_	depolarizing and the depolarizing neuromuscular blockers.
		3.	Describe the main indications, major adverse effects and drug interaction
			of non-depolarizing and depolarizing neuromuscular blockers.
11	Anaerobes	1.	Anaerobes and clostridium perfrenges
	(Microbiology 1)	2.	Gas gangrene Trichenella Spiralis
12	Bones of the upper limb	1.	List the bones of the upper limb (shoulder girdle, arm, forearm, and hand
	(Anatomy 8)		bones).
		2.	Describe the structure, relationships and function of the upper limb bones.
		3.	Identify the surface anatomy of the upper limb bones.
13	Bones of the lower limb.	1.	List the bones of the lower limb (pelvic girdle, thigh, leg, and foot bones).
		2.	Describe the structure, relationships and function of the lower limb bones.
	(Anatomy 9)	3.	Identify the surface anatomy of the lower limb bones.
		4.	Describe the arches of the foot.
14	Joints of the upper limb I	1.	Describe the sternoclavicular and acromioclavicular joints
	(Anatomy 10)	2.	Describe the type and the components of the shoulder joint.
		3.	List the ligaments associated with the shoulder joint and their attachment.
		4.	Describe the muscles acting on the shoulder joint according to the type
			and movement they perform.
		5.	Describe the major palpable bony prominences of the shoulder joint.
15	Joints of lower limb I	1.	Describe the sacroiliac joint.
	(Anatomy 11)	2.	Describe the structure of the lesser and greater sciatic foramina.
		3.	Describe the components of the hip joint.
		4.	List the ligaments associated with the hip joint and their attachment.
		5.	Describe the muscles acting on the hip joint according to the type and
			movement they perform.
		6.	Describe the bursas in relation to the hip joint.
		7.	Describe the stability of the hip joint.
		8.	Describe the blood supply and nerve supply of the hip joint.
		9.	Describe the major palpable bony prominences of the hip joint.
		10.	Describe the joints of the foot.
16	Sensory & Motor	1.	Describe what will happen when the muscle is stretched by 10 Kg?
	Innervation of the		Explain the continuous discharge of the muscle spindles (tonic discharge)
	Muscle Spindle, General		under normal conditions, Gamma loop, Functions of gamma motor
	properties of reflexes &	_	neurons, Spinal and supraspinal control of gamma neurons.
	monosynaptic reflex	2.	Discuss Muscle reflex arc components
	(Physiology 3)	3.	Discuss General properties of reflexes
		4.	Discuss first muscle stretch reflex
			A. Dynamic Stretch Reflex including Neurological circuit, Sherrington's Law
			and Static Stretch Reflexes including Neurological circuit. B. Control of
			stretch reflex C. Clinical Significance, D. Damping Function, E. Tremor
17	Biochemistry of Muscles	Me	tabolism of muscles and energy sources in different types of exercise.
	(Biochemistry 1)		



18	Anti-rheumatoid drug	1.	List the indications to use anti-rheumatoid drugs in the treatment of
	(Dharmanalagy 2)	2	meumatoio artinnus.
	(Pharmacology Z)	2. 2	Describe the machanism of action, taxis affect and contraindications of
		э.	druge used in the treatment of rhoumateid arthritic
10	lainta of the unner limb	1	Describe the type and the components of the albert, and wrist and hand
19	Joints of the upper limb	1.	iointe
	(Anatomy 12)	2	joints. List the ligaments associated with these joints and their attachments
		2.	Describe the hurses in relation to these joints and their attachments.
		J.	Describe the stability of the albow and wrist joints.
			List the muscles acting on the wrist joint according to the type and
		0.	movement they perform.
		6.	Describe the bursas in relation to these joints.
		7.	Describe the major palpable bony prominences of the elbow and wrist
			joints.
20	Joints of the lower limb II	1.	Describe the components of the knee and ankle joint.
	(Anatomy 13)	2.	List the ligaments associated with these joints and their attachments.
		3.	List the muscles acting on these joints according to the type and movement
			they perform.
		4.	Describe the bursas in relation to these joints.
		5.	Describe the stability of these joints.
		6.	Describe the major palpable bony prominences of these joints
21	Diseases of skeletal	1.	List the main types of the skeletal muscle diseases.
	muscles	2.	Discuss the two main types of muscle atrophy.
	(Pathology 1)	3.	Discuss the main inflammatory myopathies.
		4.	Discuss muscular dystrophy.
		5.	Understand the pathogenesis and pathological features of Duchenne and
			Becker muscular dystrophy.
22	Vessels of the upper	1.	Describe the organization of upper limb blood vessels.
	limb	2.	Describe the major course, branches, and supply areas of the upper limb
	(Anatomy 14)	2	blood vessels.
841 14		პ.	Describe the innervation of the upper limb vessels.
wildter		4	Describe the structure and relationships of the structure of the
23	iverves of the upper	1.	Describe the structure and relationships of the plexuses of the upper
	(Anotomy(15)	2	IIIID. Describe the source, relationships and structures supplied for the major
	(Anatomy 13)	Ζ.	perves of the upper limb
		3	Give a general description of a peripheral perve lesion
2/	Drugs of non₋infactivo	Describ	be anti-inflammatory topical corticostaroid drugs, the tar compounds and
24	skin conditions	Descrit	keratolytic drugs
	(Pharmacology 3)		Nordiorytio drugo.
25	Bacterial infections of	1	Describe the cultural characteristics of skin and nathogenesis of skin
20	the skin	'.	commensals and pathogens
	(Microbiology 2)		
	(



		2.	Describe the dermatologic manifestations of Diphtheroids, Staphylococci, Strantagonai Actinomyces igraelii, Branianabastarium conce
			Streptococci, Actinomyces Israelli, Propionobactenum aches, Micebostaria)
		2	Mycobacteria)
		З.	Explain pathogens of wound infection, methods of specimen collection for
00	Maralas of the should be	4	proper diagnosis, and laboratory diagnosis.
20	Muscles of the shoulder	1.	List the muscles that are attached to the scapula.
	and axilla	Ζ.	Describe the attachments and the action of the above-mentioned
	(Anatomy16)	2	muscles and their nerve supply.
		3.	Discuss the inter-muscular spaces related to the scapula and their contents
		4	List the rotator cuff muscles
		5	Define the avilla
		6	Describe the boundaries and borders of the axilla
		0. 7	l ist the contents of the avilla and relations
27	Bi and polysynantic	1	Describing the Golgi tendon organ (types and functions) and Golgi
21	reflexes	1.	Tendon reflex (second type) and Clash-knife rigidity
	(Physiology /)	2	Discuss withdrawal reflex including:
	(i liysiology +)	Δ. Tho	flevor refleves. Myogram of the flevor reflev
		B Cros	s extensor reflex
28	Muscles of arm and	1	l ist the muscles that are attached to the arm and forearm
20	forearm and cubital	2	Describe the attachments and the action of the above-mentioned muscle
	fossa	۷.	and their nerve supply
	(anatomy 17)	3	Describe the cubital fossa
		J. Л	List the content of the cubital fossa
		Unders	tand the clinical importance of the cubital fossa
29	Viral infections of the	1.	Explain morphology and pathogenesis as well as diagnostic procedures
	skin.		of viruses infecting skin.
	(Microbiology 3)	2.	Describe the Herpesviruses and childhood exanthens.
30	Muscles of the hand	1.	Describe the carpal tunnel and the flexor and extensor retinacula and the
	(Anatomy 18)		structures passing in relation to the retinacula.
		2.	Describe the snuffbox.
		3.	Describe the movement of the fingers.
		4.	List the muscles acting on the fingers.
31	Diseases of the bone	1.	Describe Paget's disease of bone
	(Pathology 2)	2.	Describe the pathogenesis and pathologic features of osteomyelities.
		3.	Describe Osteoporosis, osteomalacia and rickets
32	Histology of the MSS	1.	Describe the normal bone histology including cellular and sub-cellular
	(Anatomy 19)		structure.
		2.	Describe the compact and spongy bone histological structure.
		3.	Describe the bone formation (a) endochondral and (b) intramembranous
			ossification and compare these two processes.
		4.	Identify the general times (a) of formation of primary and (b) of formation
			of secondary ossification centers, and (c) of fusion of such centers with
		5	eaun umen. Describe the muscle histology
		J.	Describe the muscle histology.



33	Vessels of the lower limb	1. Describe the major arteries of the lower limb.
	(Anatomy 20)	2. Describe the deep and superficial veins of the lower limb.
	· - ,	3. Describe the topographical relationships of the arteries and veins of the
		lower limb.
		4. Describe the lymphatic vessels of the lower limb.
34	Skin and its appendages	1. Describe briefly the development of the integumentary system.
&35	&	2. Describe the layers of the epidermis.
	(Anatomy 21 &23)	3. Describe structure of the dermis.
	· · ·	4. Compare the structure and distribution of hair follicles, nails, sebaceous
		and sweat glands.
		5. Explain bases of skin color.
36	Nerves of the lower limb	1. The structure and relationships of the plexuses of the lower limb.
&37		2. The course, relationships and structures supplied for the major nerves of
	(Anatomy 22 & 24)	the lower limb.
		3. A general description of a peripheral nerve lesion.
38	Bone metabolism	1. Bone Metabolism which includes calcium and phosphorous metabolism
	(Biochemistry 2)	and the role of PTH and vit D in bone metabolism .
	·	2. Metabolic disorders and clinical biochemistry of bone.
39	Description of types of	1. Explain Receptor Classification types of mechanoreceptors:
	skin tactile Receptors	Proprioceptors, Position senses
	(Physiology 5)	2. Description of types of skin tactile Receptors free nerve endings,
		Meissner's corpuscle, Merkel discs, hair end-organ or free nerve ending
		of root hair plexus, Ruffini's endings, Pacinian corpuscles,
		3. Description of Types of Tactile sensations (Touch / pressure / position/
		Tickle & Itch
		4. Explain Nerve fiber types and functions:
		a. Sensory Transduction,
		b. Pacinian corpuscle: Stimulus Transduction, receptor potential, receptor
		action, Loewenstein's experiments, Relation Between Stimulus Intensity
		and the Receptor Potential
		c. C. Major characteristics of receptors:1. Adaptation, 2. Law of adequate
		stimulus, 3. Sensory unit, 4. Receptive field, 5. Lateral Inhibition, 6.
		Sensory Acuity
40	Arthritis	Describe different types of arthritis (including osteoarthritis, rheumatoid arthritis
	(Pathology 3)	and crystal induced arthritis)
41	Muscles of gluteal region	1. List the muscles of the gluteal region.
	(Anatomy 25)	2. Describe the attachments of the gluteal region muscles and their nerve
		supply.
		3. Describe the greater and lesser sciatic foramina and their contents.
42	Topical antimicrobial	Describe antibacterial agents, antifungal agents, antiviral agents and ectoparasitic
	drugs	ones
	(Pharmacology 5)	
43	Parasitic infecting the	1. Discuss the parasites that infect the skin (Scabes <i>Leishmania</i> and
	skin.	Onchocerca, loaloa, and cutaneous larva migrans).
	(Microbiologv4)	



		2.	Briefly describe the life cycle, pathogenicity, control and prevention of each parasite.
44	Muscles of thigh	1.	List the muscles of the thigh.
	(Anatomy 21)	2.	Describe the femoral triangle.
		3.	Describe the femoral sheath and its contents.
		4.	Describe the attachments of the thigh muscles and their nerve supply.
45	Bone, soft tissue and	1.	Describe and list the types of skin and soft tissue tumors
	skin tumors	2.	Understand the importance of cytological and histological features of soft
	(Pathology 4)		tissue tumors in identifying type and behavior
		3.	Describe bone tumors.
		4.	Understand the classification of bone tumors
46	Epidemiology of MSS	1.	Define: Epidemiology of MSS diseases and injuries.
	diseases and injuries.	2.	Distinguish between harm, risk and hazard.
	(Community Medicine,	3.	Identify the human, situational and environmental risk factors of accidents
	Public Health 1)	4	and injuries.
47	Muccleo of log and	4.	List the muscles of the log
47		1.	List the muscles of the leg.
	popiliear iossa	2.	Describe the additional forces.
	(Anatomy 27)	J.	List the content of the popliteal fossa
		- 1 . 5	List the content of the populear lossa.
48	Acute inflammatory	Define	etiology pathogenesis and pathologic features of urticaria, acute eczema
40	dermatoses	Denne	acne vulgaris and pathologic features of panniculitis
	(Pathology 5)		
49	Sensory Coding	1.	Explain Sensory Coding: 1) stimulus location, 2) stimulus duration, 3)
	Thermal sensation		stimulus modality, 4) Stimulus intensity
	(Physiology 6)	2.	Explain Thermal Sensation, Thermal receptors (Warmth receptors, Cold
			receptors) and their excitation
		3.	Explain Mechanism of stimulation & Adaptation of thermal receptors
50	Muscles of the foot	1.	Describe the movement of the toes.
	(Anatomy 23)	2.	List the muscles acting on the toes.
		3.	Describe the flexor and extensor retinacula and the structures passing in
			relation to them.
		4.	Describe the retinacula which are related to the foot and the structures
			passing in relation to the retinacula.
54		5.	Describe the four muscle layers of the foot.
51	Drugs of	1.	Describe drugs employed in the treatment of acne, psoriasis affecting
	Non-Inflammatory Skin	0	pigmentation. Ache preparations. Drugs for psoriasis. Antipruritic agents.
	(Dharmacalagy 6)	2.	Antiopherrhoe agente
52	(rnannacology 6)	ວ. 1	Antiseponned agents.
52	rungai iniections of the	1.	identification and control (Dermatonbutos, Candida snn, and Musetoma
	(Microbiology 5)		acents)
			agonoj.
L		1	



		2. Describe the fungi that infect the skin, their clinical classification, their identification and prevention (cutaneous, subcutaneous and opportunistic infection).
Final E	Exam (Theory + Practical)	
PRAC	TICAL LABORATORY SE	SSIONS
No	Title	Objectives
1	Anatomy Lab 1	 Identify the components of the vertebral column. Identify the parts of each vertebra. Identify bony features of the vertebral column in X-rays. Identify the vertebral column ligaments and joints. Identify the back muscles. Identify the skull bones, structures, and regions.
2	Anatomy Lab 2	 Identify the components of TMJ. Identify different parts of each bone in the upper limb. Identify the features of the upper limb bones in X-rays. Identify the components of upper limb joints. Identify different parts of each bone in the lower limb. Identify the features of the lower limb bones in X-rays. Identify the features of the lower limb bones in X-rays. Identify the components of the lower limb bones in X-rays. Identify the components of the lower limb bones in X-rays.
3	Anatomy Lab 3	 Identify the muscles of the upper limb. Identify the upper limb vessels and nerves. Identify the components of the axilla and cubital fossa.
4	Anatomy Lab 4	 Identify the muscles of the lower limb. Identify the lower limb vessels and nerves. Identify the components of the femoral triangle, femoral canal, and popliteal fossa.
	Histology Lab 1	 Identify the following: a. Thick skin and thin skin. b. The layers of epidermis. c. Components of the dermis. d. Epidermal derivatives. Review the histology of the bone and muscles.



6	Pathology Lab 1	 Describe the morphology of the following soft tissue tumors a. Lipoma and liposarcoma b. Fibromatosis c. Malignant fibrous histiocytoma d. High grade sarcoma Describe the main morphological features of the different types of skin umors a. SCC b. BCC c. Melanoma Bescribe the morphology of the following bone tumors a. Osteochondroma b. Osteosarcoma c. Chondrosarcoma d. Ewing,s sarcoma e. Giant cell tumor
7	Pathology Lab 2	 Describe the main morphological features of the different types of arthritis a. RA b. OA c. Gout and pseudogout Describe the morphology of the following a. Osteomyelitis b. Paget,s disease of bone Describe the main morphological features of the following skin dermatoses a. Dermatitis and urticaria b. Erythema multiform c. Psoriasis d. Lichen planus e. Pimphious yulgaris



			f. Bullous pemphegoid
8	Microbiology Lab 1 Wound Culture	1. 2.	Describe specimen collection methods List the most common aerobic and anaerobic organisms causing the infection and their laboratory identification.

COURSE LEARNING RESOURCES

- Lectures
- Practical Sessions
- Group Discussion
- Reviews

ONLINE RESOURCES

{Write some useful websites related to the course and other material that help students to complete the course successfully.}

This system is taught by more than one staff member that represent one of the basic medical education discipline. Each staff is free to give online links to the students as learning resources.

ASSESSMANT TOOLS

(Write assessment tools that will be used to test students ability to understand the course material and gain the skills and competencies stated in learning outcomes

ASSESSMENT TOOLS	%
Midterm theory in-course exam (Online)	30
Practical final (Online)	20
Final theory end-course exam (Online)	50
TOTAL MARKS	100

THIRD: COURSE RULES

ATTENDANCE RULES



Attendance and participation are extremely important, and the usual University & college rules will apply. Attendance will be recorded for each session. Absence of 15% (up to 20% for student having some excuses that are approved by the dean) will result in that the student will not be permitted to attend the final examination and he/she will be granted zero mark in that exam.

RADING SYSTEM Example:

Α	4	С	2
A-	3.75	C-	1.75
B+	3.5	D+	1.5
В	3	D	1
B-	2.75	D-	0.75
C+	2.5	F	0.5

*Percentages are according to the number of students who passed the exam.

REMARKS

Exam remarks:

- Exam time depends on number of questions (~ I minute/question)
- Number of questions depends on the covered material
- Attendance remarks:
- Attendance will be taken at the first ten minutes of the session (lecture or lab).
- Attendance for lectures will be taken according to seating numbers.
- Attendance for labs will be taken according to the group list.

COURSE COORDINATOR

Course Coordinator: Dr. Ezidin Kaddumi	Department Head:
Signature:	Signature:
Date:	Date: