



First Grade

First Year Curriculum: Building the Foundations of Medical Knowledge

College of Medicine – University of Al-Ameed

First year curriculum map (30 weeks)					
Code	Subject	Theory	Practice	Total hours	Units
ANAT 101	<u>Anatomy</u>	60	120	180	8
MCHE 102	<u>Medical chemistry</u>	60	60	120	6
BIO 103	<u>Medical Biology</u>	60	60	120	6
MPSY 104	<u>Medical physics</u>	45	60	105	5
COMP 105	<u>Computer</u>	30	60	90	4
MEDF 106	<u>Medical Foundations</u>	30	60	90	4
TERM 107	<u>Terminology</u>	30		30	2
HUMR 108	<u>Human rights</u>	30		30	2
	Extracurricular Activity	30			
		375	420	765	37

Anatomy



First Grade

Academic program discretion

This academic program description provides a brief overview of the key features of the program and the expected learning outcomes for the student, demonstrating whether the student has made the most of the available opportunities. It is accompanied by a description of each course within the program.

1 Educational Establishment	University of al-ameed
2-Scientific Department	College of medicine
3-Name of the Professional Academic Program.	Modified traditional curriculum
4-Final Graduation Certificate	M.B.Ch.B
5- Educational system: Annual/courses/other	Annual
6-Approved accreditation program	Applied for Iraqi National Guideline on Standards for Established and Accrediting Medical School
7-Other external factors	• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms • Use of free online communication platforms (e.g., Free Conference Call)
8-Date the description was written	2024/9/15
9- objectives of academic program The objective of the Anatomy course in the first stage is to provide medical students with a comprehensive understanding of the anatomical structures, functions, and	

clinical correlations of the upper limb, lower limb, and thorax. The course aligns with the **mission** of the College of Medicine by fostering foundational medical knowledge, integrating basic and clinical sciences, and preparing students for future clinical practice and research.

- **10- Resources:**

- 1- R.M.H.McMinn, LAST'S anatomy regional and applied, Churchill livingstone;
- 2- Richard L.Drake, Wayne Vogl,AdamW.M.Mitchell, GRAYS anatomy for
i. students, Elsevier Inc.
- 3- Harold Ellis, Clinical Anatomy,Applied anatomy for students and junior doctors,Blackwell Publishing Ltd,
- 4- Richard S.Snell, Clinical Anatomy by Regions, . Lippincott Williams & Wilkins.
- 5- Moore, Keith L.; Dalley, Arthur F, Clinically Oriented Anatomy, Lippincott Williams & Wilkins

ANATOMY \ Grade 1

Code: ANAT 1

8 Credits

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Introduction				
ANAT1.1	Learn descriptive terminology used in anatomy.	K	Large group teaching	MCQ & Short answer question
ANAT1.2	A. Learn the general arrangement and components of the cardiovascular and lymphatic systems.	K	Large group teaching	MCQ & Short answer question
ANAT1.3	Structural Classification of the Nervous System: A. Differentiate between the central nervous system (CNS) and peripheral nervous system (PNS).	K	Large group teaching	MCQ & Short answer question
ANAT1.4	Functional Classification of the Nervous System: A. 1.Distinguish between the somatic nervous system (voluntary control) and autonomic nervous system (involuntary control).	K	Large group teaching	MCQ & Short answer question
Introduction				
ANAT2.1	Understand the Anatomical Position: A. Describe the standard anatomical position and its significance in studying human anatomy.	K	Large group teaching	MCQ & Short answer question
ANAT2.2	Identify Anatomical Planes and Sections: A. 1.Define and differentiate between the sagittal, coronal (frontal), and transverse (horizontal) planes.	K	Large group teaching	MCQ & Short answer question
ANAT2.3	Master Directional and Relational Terms: A. 1.Use terms like anterior/posterior, superior/inferior, medial/lateral, proximal/distal, and superficial/deep to	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	describe body structures accurately.			
ANAT2.4	Recognize Body Regions and Cavities: A. 1.Distinguish between the axial and appendicular regions. B. 2.Locate major body cavities and their subdivisions.	K	Large group teaching	MCQ & Short answer question
Bones of upper limb				
ANTA3.1	A. Describe the composition of bone tissue (cells, fibers, matrix) and its mechanical properties (hardness, elasticity). B. Explain the functions of bones, including support, protection, movement, mineral storage, and blood-cell formation.	K	Large group teaching	MCQ & Short answer question
ANAT3.2	A. Differentiate between long bones , short bones flat bones irregular bones , and sesamoid bones B. Compare compact bone (dense, solid) and cancellous (spongy) bone (trabecular network).	K	Large group teaching	MCQ & Short answer question
ANAT3.3	A. Define terms like diaphysis, epiphysis, medullary cavity, and bony markings (e.g., tubercle, fossa, foramen). B. Locate major components of the axial (skull, vertebrae) and appendicular (limbs, girdles) skeleton.	K	Large group teaching	MCQ & Short answer question
ANAT3.4	Explore Joint Types and Their Functions and Analyze Joint Movements	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Arm and muscle of shoulder and pectoral region				
ANAT4.1	A. Identify and Classify Bones and Joints of the Upper Limb: B. Name the 30 bones of the upper limb and group them into regions (arm, forearm, hand). C. Describe the types of joints in the upper limb and their locations	K	Large group teaching	MCQ & Short answer question
ANAT4.2	Describe the Humerus in Detail: A. Label key structures of the humerus (e.g., head, anatomical/surgical neck, greater/lesser tubercles, deltoid tuberosity, condyles, fossae). B. Explain the functional significance of these structures (e.g., muscle attachments, articulation sites, clinical relevance like surgical neck fractures).	K	Large group teaching	MCQ & Short answer question
ANAT4.3	A. Define the origins, insertions, innervations, blood supply, and actions of upper limb muscles (e.g., rotator cuff muscles, deltoid, trapezius, pectoralis major/minor). B. Correlate muscle actions with joint movements (e.g., deltoid's role in abduction, trapezius in scapular rotation).	K	Large group teaching	MCQ & Short answer question
Muscle of shoulder and pectoral region				
ANAT5.1	A. Name and locate the major muscles of the shoulder, arm, and thorax, including: B. Pectoralis major/minor, deltoid, trapezius, and rotator cuff muscles (supraspinatus, infraspinatus, teres minor, subscapularis). C. Define their origins, insertions, innervations, and actions (e.g., abduction, flexion, rotation).	K	Large group teaching	MCQ & Short answer question
ANAT5.2	Correlate Anatomy with Clinical Conditions: A. Discuss common injuries (e.g., anterior shoulder dislocations, rotator cuff tears)	K/C	Large group teaching	MCQ & Short answer question

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	and their anatomical basis (e.g., lax capsule, labral tears). B. Predict functional deficits from nerve injuries			
ANAT5.3	A. Describe the articular surfaces, capsule, ligaments and bursae of the shoulder joint. B. Explain how the coracoacromial arch and rotator cuff tendons prevent superior dislocation.	K	Large group teaching	MCQ & Short answer question
ANAT5.4	Explore Neurovascular Supply: A. Trace the innervation of upper limb muscles (e.g., axillary nerve for deltoid, medial/lateral pectoral nerves for pectoralis major/minor). B. Identify blood supply sources (e.g., thoracoacromial artery, circumflex humeral arteries).	K	Large group teaching	MCQ & Short answer question
Axilla				
ANAT6.1	A. Describe the apex, base, and walls (anterior, posterior, medial, lateral) of the axilla and their anatomical structures (e.g., clavicle, scapula, ribs, muscles). B. Explain the functional significance of the axilla as a transition zone between the neck and upper limb.	K	Large group teaching	MCQ & Short answer question
ANAT6.2	A. List the major neurovascular structures, including the axillary artery (and its branches), axillary vein, and brachial plexus (cords and terminal branches). B. Describe the lymphatic drainage pathways and the axillary lymph node groups (e.g., humeral, pectoral, apical)	K	Large group teaching	MCQ & Short answer question
ANAT6.3	Analyze Vascular Anatomy and Anastomoses: A. Trace the axillary artery through its three parts, noting key branches (e.g., thoracoacromial,	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	lateral thoracic, subscapular) and their distributions. B. Highlight collateral circulation around the scapula (e.g., circumflex scapular artery anastomoses).			
ANAT6.4	Correlate Anatomy with Clinical Conditions: A. Discuss axillary nerve injuries (e.g., crutch palsy) and vascular compression syndromes (e.g., thoracic outlet syndrome due to cervical ribs). B. Interpret axillary lymph node involvement in pathologies like breast cancer metastasis.	K	Large group teaching	MCQ & Short answer question
Breast				
ANAT7.1	A. Identify the gross structure of the breast, including the nipple, areola, lactiferous ducts, lobules, and suspensory ligaments. B. Explain the differences between male and female breast development and function.	K	Large group teaching	MCQ & Short answer question
ANAT7.2	A. Trace the arterial supply (e.g., lateral thoracic, internal thoracic, intercostal arteries) and venous drainage (e.g., axillary, internal thoracic veins). B. Describe the sensory innervation of the breast, particularly the role of the 4th intercostal nerve in nipple sensation.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT7.3	Analyze Lymphatic Drainage Pathways: A. Map the primary lymphatic drainage routes (75% to axillary nodes, 25% to parasternal nodes) and their clinical significance in breast cancer metastasis. B. Identify key axillary lymph node groups (e.g., pectoral, subscapular, apical) and their roles in staging cancer.	K	Large group teaching	MCQ & Short answer question
ANAT7.4	Correlate Anatomy with Clinical Conditions: A. Discuss breast cancer and the importance of axillary tail evaluation during physical exams. B. Explain sentinel lymph node biopsy and its anatomical basis for cancer staging.	K/C	Large group teaching	MCQ & Short answer question
Elbow and cubital fossa				
ANAT8.1	A. Describe the Bones and Joints of the Arm and Forearm: B. Explain the articulations of the elbow joint (humeroulnar, humeroradial, proximal radioulnar) and their functional roles in hinge/pivot movements.	K	Large group teaching	MCQ & Short answer question
ANAT8.2	A. Classify Muscles of the Arm and Forearm: B. Summarize the origins, insertions, innervations, and actions of major muscles: Arm: Biceps brachii, brachialis, triceps brachii. Forearm: Superficial/deep flexors (e.g., flexor carpi radialis, pronator teres) and extensors (e.g., extensor digitorum, supinator).	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT8.3	A. Analyze the Cubital Fossa and Neurovascular Structures: B. Locate the boundaries and contents of the cubital fossa (e.g., biceps tendon, brachial artery, median nerve). C. Trace the brachial artery and its branches (e.g., profunda brachii, collateral anastomoses around the elbow).	K	Large group teaching	MCQ & Short answer question
ANAT8.4	A. Describe the synovial hinge joint structure, including ligaments (radial/ulnar collateral), capsule, and synovial membrane.	K	Large group teaching	MCQ & Short answer question
Forearm				
ANAT9.1	A. Identify the radius and ulna, including their key anatomical landmarks (e.g., radial tuberosity, olecranon, styloid processes). B. Explain the articulations at the proximal and distal radioulnar joints, as well as the interosseous membrane.	K	Large group teaching	MCQ & Short answer question
ANAT9.2	Classify the Muscles of the Forearm: A. Compare the anterior (flexor-pronator) and posterior (extensor-supinator) compartments, including their nerve supply (median, ulnar, radial nerves).	K	Large group teaching	MCQ & Short answer question
ANAT9.3	B. Trace the pathways of the radial, ulnar, and median nerves through the forearm and their motor/sensory distributions. C. Map the radial and ulnar arteries, including their branches (and contributions to hand circulation).	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Hand				
ANAT10.1	A. Name and classify the carpal bones , metacarpals, and phalanges. B. Describe the wrist joint and intercarpal joints, including their structural type and movements	K	Large group teaching	MCQ & Short answer question
ANAT10.2	A. Define the boundaries of the carpal tunnel (flexor retinaculum, carpal bones) and list its contents (median nerve, flexor tendons). B. Relate carpal tunnel anatomy to carpal tunnel syndrome and scaphoid fractures (e.g., avascular necrosis risk).	K	Large group teaching	MCQ & Short answer question
ANAT10.3	A. Compare the thenar (thumb), B. hypothenar C. (Little finger), and central compartments (lumbricals, interossei).	K	Large group teaching	MCQ & Short answer question
ANAT10.4	Map the Neurovascular Supply of the Hand: A. Trace the radial and ulnar arteries, including their contributions to the superficial and deep palmar arches. B. Identify the motor and sensory roles of the median, ulnar, and radial nerves in the hand (e.g., recurrent branch of median nerve to thenar muscles).	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Brachial plexus and upper limb nerve injury				
ANAT11.1	Identify the five roots (C5–T1), three trunks, six divisions, three cords, and terminal branches of the brachial plexus (Roots, Trunks, Divisions, Cords, Branches).	K	Large group teaching	MCQ & Short answer question
ANAT11.2	the musculocutaneous, axillary, radial, median, and ulnar nerves to their respective motor and sensory distributions in the upper limb.	K	Large group teaching	MCQ & Short answer question
ANAT11.3	A. Map the musculocutaneous, axillary, radial, median, and ulnar nerves to their respective motor and sensory distributions in the upper limb. B. Summarize the functions of key branches (e.g., radial nerve for extensor muscles, ulnar nerve for intrinsic hand muscles).	K	Large group teaching	MCQ & Short answer question
ANAT11.4	A. Associate specific nerve injuries with clinical presentations B. Differentiate Upper vs. Lower Plexus Injuries: C. Contrast Erb's palsy (C5–C6 injury, "waiter's tip" posture) with Klumpke's palsy (C8–T1 injury, claw hand ± Horner's syndrome). D. Explain mechanisms of injury (e.g., traction during childbirth, trauma)	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Bones of the thorax, thoracic wall				
ANAT12.1	A. Identify the bony elements (sternum, 12 pairs of ribs, thoracic vertebrae) and their classifications (true, false, floating ribs). B. Explain the articulations (costovertebral, costotransverse, sternocostal joints) and their functional significance.	K	Large group teaching	MCQ & Short answer question
ANAT12.2	A. Compare the superior thoracic aperture (inlet) and inferior thoracic aperture (outlet) in terms of boundaries and transmitted structures. B. Describe the role of the diaphragm in separating thoracic and abdominal cavities.	K	Large group teaching	MCQ & Short answer question
ANAT12.3	A. Map the intercostal neurovascular bundle (VAN) and its position in the costal groove. B. Differentiate posterior intercostal arteries (aortic origin) from anterior intercostal arteries (internal thoracic origin). C. Explain the sensory and motor functions of intercostal nerves (T1–T11) and the subcostal nerve (T12).	K	Large group teaching	MCQ & Short answer question

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The lungs and pleurae and diaphragm				
ANAT13.1	A. Describe the structure, attachments, and functions of the diaphragm. B. Explain the role of the diaphragm as the major muscle of respiration. C. Identify the openings in the diaphragm and the structures passing through them. D. Discuss the arterial supply, venous drainage, and innervation of the diaphragm.	K	Large group teaching	MCQ & Short answer question
ANAT13.2	A. Define the boundaries and contents of the thoracic cavity, including the pulmonary cavities and mediastinum. B. Differentiate between the visceral and parietal pleura and describe their roles. C. Explain the concept of pleural recesses (costodiaphragmatic and costomediastinal) and their clinical significance.	K	Large group teaching	MCQ & Short answer question
ANAT13.3	A. Describe the surface features, lobes, and fissures of the lungs. B. Compare the anatomical differences between the right and left lungs. C. Identify the structures related to the medial surfaces of the lungs.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT13.4	A. Trace the branching pattern of the bronchial tree from the main bronchi to the bronchioles. B. Define bronchopulmonary segments and explain their clinical importance. C. Discuss why inhaled foreign bodies are more likely to lodge in the right main bronchus.	K	Large group teaching	MCQ & Short answer question
Mediastinum and anterior mediastinum				
ANAT14.1	A-Describe the mediastinum as the central partition separating the pleural cavities. B- Identify its anatomical boundaries	K	Large group teaching	MCQ & Short answer question
ANAT14.2	Explain the transverse plane at the sternal angle (T4/T5) dividing the mediastinum into: • Superior mediastinum (above the sternal angle). • Inferior mediastinum, further subdivided into: • Anterior mediastinum (between sternum and pericardium). • Middle mediastinum (pericardial sac and heart). • Posterior mediastinum (between pericardium and vertebrae).	K	Large group teaching	MCQ & Short answer question
ANAT14.3	A- Identify Superior mediastinum: Thymus, great vessels (aortic arch, SVC, brachiocephalic veins), trachea, esophagus, thoracic duct, vagus and phrenic nerves.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	B- Define Anterior mediastinum: Thymic remnants, fat, lymph nodes, internal thoracic vessels. C- Describe Middle mediastinum: Pericardium, heart, roots of great vessels, phrenic nerves.			
ANAT14.4	A-Trace the course of major nerves (vagus, phrenic, recurrent laryngeal) and vessels (aorta, SVC, brachiocephalic veins) through the mediastinum. B-Highlight the lymphatic drainage via the thoracic duct and its clinical relevance (e.g., chylothorax).	K	Large group teaching	MCQ & Short answer question
The heart and pericardium				
ANAT15.1	A. Describe the fibrous pericardium (structure, attachments, protective role) and serous pericardium (parietal/visceral layers, pericardial cavity). B. Explain the arterial supply (pericardiophrenic, musculophrenic arteries), venous drainage (azygos system, pericardiophrenic veins), and innervation (phrenic, vagus, sympathetic nerves). C. Discuss clinical relevance: pericarditis, cardiac tamponade, and pericardiocentesis.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT15.2	A. Identify the four chambers: • Right atrium (crista terminalis, fossa ovalis, venous drainage from SVC/IVC/coronary sinus). • Right ventricle (trabeculae carneae, papillary muscles, tricuspid/pulmonary valves). • Left atrium (pulmonary veins, smooth walls). • Left ventricle (thicker walls, bicuspid/aortic valves). B. Compare the structure and function of atria vs. ventricles.	K	Large group teaching	MCQ & Short answer question
ANAT15.3	A. Describe the fibrous pericardium (structure, attachments, protective role) and serous pericardium (parietal/visceral layers, pericardial cavity). B. Explain the arterial supply (pericardiophrenic, musculophrenic arteries), venous drainage (azygos system, pericardiophrenic veins), and innervation (phrenic, vagus, sympathetic nerves). C. Discuss clinical relevance: pericarditis, cardiac tamponade, and pericardiocentesis.	K	Large group teaching	MCQ & Short answer question
ANAT15.4	A. Identify Coronary Circulation B. Identify venous drainage routes:	K	Large group teaching	MCQ & Short answer question

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	- Coronary sinus - Anterior cardiac veins and venae cordis minimi. - Correlate ischemia (e.g., myocardial infarction) with arterial blockages.			
Superior and posterior mediastinum				
ANAT16.1	Identify the major structures in the superior mediastinum,	K	Large group teaching	MCQ & Short answer question
ANAT16.2	A. Describe the course and branches of the ascending aorta, aortic arch, and thoracic aorta. B. Explain the clinical significance of the ligamentum arteriosum	K	Large group teaching	MCQ & Short answer question
ANAT16.3	A. Study the Great Vessels and Venous System B. Trace the formation and pathway of the brachiocephalic veins and superior vena cava. C. Describe the azygos venous system, including its tributaries and connections to the superior and inferior vena cava.	K	Large group teaching	MCQ & Short answer question
ANAT16.4	Identify the Posterior Mediastinum - Esophagus (constrictions, arterial supply, venous drainage, innervation). - Thoracic aorta and its branches - Thoracic duct (course, cisterna chyli, lymphatic drainage). - Sympathetic chain and thoracic splanchnic nerves.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Bones of the lower limb and the hip girdle				
ANAT17.1	A. Describe the functional roles of the lower limb: weight-bearing, locomotion, and balance maintenance. B. Identify the major regions: gluteal, thigh, leg, ankle, and foot.	K	Large group teaching	MCQ & Short answer question
ANAT17.2	A. Explain the composition of the pelvic girdle and its articulations B. Describe key landmarks: Ilium: Iliac crest, ASIS/PSIS, iliac fossa, gluteal lines. & Ischium: Ischial spine, tuberosity, sciatic notches. & Pubis: Pubic crest, tubercle, obturator foramen. C. Discuss the acetabulum and its role in the hip joint.	K	Large group teaching	MCQ & Short answer question
ANAT17.3	A. Outline the anatomy of the femur B. Compare the tibia (weight-bearing) and fibula C. Identify interosseous membrane function. D. Identify bone of foot (tarsal, metatarsal, phalanges)	K	Large group teaching	MCQ & Short answer question
ANAT17.4	Identify Joints and Functional Movements: hip, knee, and ankle joint articulations.	K	Large group teaching	MCQ & Short answer question
Femoral triangle and medial and anterior compartment of the thigh				
ANAT18.1	A. Describe the superficial fascia (contents: veins, lymphatics, cutaneous nerves) and deep fascia of the lower limb. B. Explain the role of deep fascia in muscle	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT18.2	A. Identify the superficial and deep inguinal lymph nodes, their locations, and drainage territories (e.g., abdominal wall, perineum, lower limb). B. Correlate lymphatic pathways with clinical conditions (e.g., infections, metastases)	K	Large group teaching	MCQ & Short answer question
ANAT18.3	A. Weight-bearing: Support body weight during standing and movement. B. Locomotion: Enable walking, running, and other movements. C. Balance maintenance: Stabilize the body during static and dynamic activities.	K	Large group teaching	MCQ & Short answer question
ANAT18.4	A. Clinical and Applied Anatomy • Compartment Syndrome • Femoral Hernia • Lymphatic Spread	K	Large group teaching	MCQ & Short answer question
The gluteal region and back of the thigh				
ANAT19.1	Outline the boundaries and muscles of the gluteal region	K	Large group teaching	MCQ & Short answer question
ANAT19.2	Discuss the functional role of gluteal muscles in hip stability and gait.	K	Large group teaching	MCQ & Short answer question
ANAT19.3	Identify and describe the three hamstring muscles and posterior thigh.	K	Large group teaching	MCQ & Short answer question
ANAT19.4	Identify the arterial and venous system of lower limb Describe Innervation of the Thigh and Gluteal Region	K	Large group teaching	MCQ & Short answer question

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Hip joint and knee joints				
ANAT20.1	Describe the Hip Joint Explain its articular surfaces Discuss its ligamentous support	K	Large group teaching	MCQ & Short answer question
ANAT20.2	A. Describe the Knee Joint B. Detail its articular surfaces, menisci, and ligaments C. Review its vascular supply and nerve supply	K	Large group teaching	MCQ & Short answer question
ANAT20.3	Provide a Comparative Understanding: Contrast the stability and mobility of the hip (strong capsule, deep socket) versus the knee (modified hinge, meniscal support)	K	Large group teaching	MCQ & Short answer question
The leg				
ANAT21.1	Identify the tibia and fibula and their roles in weight-bearing and stability.	K	Large group teaching	MCQ & Short answer question
ANAT21.2	Classify the anterior, lateral, and posterior compartments of the leg, including their muscles, functions (e.g., dorsiflexion, plantarflexion), and innervation	K	Large group teaching	MCQ & Short answer question
ANAT21.3	Correlate compartment-specific neurovascular structures (e.g., anterior tibial artery, fibular artery) with clinical implications (e.g., "foot drop" from deep fibular nerve injury).	K	Large group teaching	MCQ & Short answer question
Ankle joint and foot				
ANAT22.1	Name the bones of the ankle and foot and their articulations.	K	Large group teaching	MCQ & Short answer question

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ANAT22.2	A. Describe the ankle joint as a synovial hinge joint, including its ligaments and movements B. Outline the arches of the foot and their supporting structures	K	Large group teaching	MCQ & Short answer question
ANAT22.3	A. Recognize common injuries (e.g., lateral ankle sprains) B. Locate key pulse points (e.g., dorsalis pedis, posterior tibial)	K	Large group teaching	MCQ & Short answer question
ANAT22.4	A. Trace the blood supply (e.g., dorsalis pedis, posterior tibial arteries) and innervation	K	Large group teaching	MCQ & Short answer question

Practical

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Introduction(muscle)				
ANAT1.1	1. Identify Major Muscle Groups: Recognize and locate key superficial and deep muscles of the human body in prosected specimens or models.	K	LAB, VR	CIVA & OSPE
ANAT1.2	1. Understand Muscle Attachments: Describe the origin, insertion, and functional relationships of selected muscles.	K	LAB, VR	CIVA & OSPE
ANAT1.3	Relate Structure to Function: Explain how muscle fiber arrangement and joint anatomy influence movement	K	LAB, VR	CIVA & OSPE
ANAT1.4	Differentiate Muscle Types	K	LAB, VR	CIVA & OSPE
Introduction (bones)				
ANAT2.1	1. Identify Major Bones & Markings: Recognize and name principal bones of the axial and appendicular skeleton, along with their key anatomical landmarks (e.g., tubercles, foramina,	K	LAB, VR	CIVA & OSPE

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	condyles) on synthetic models.			
ANAT2.2	1. Classify Bone Types: Differentiate between long, short, flat, irregular, and sesamoid bones based on shape, location, and functional adaptations.	K	LAB, VR	CIVA & OSPE
ANAT2.3	Understand Articulations: Describe the structural features of bones that form joints (e.g., head of femur + acetabulum) and correlate them with movement types	K	LAB, VR	CIVA & OSPE
ANAT 2.4	Apply Clinical Relevance: Explain the significance of bone landmarks (e.g., fractures, surgical approaches, or muscle attachments)	K	LAB, VR	
The clavicle				
ANAT 3.1	Identify Anatomical Features: Locate and describe the key structures of the clavicle, including its sternal (medial) end, acromial (lateral) end, shaft, conoid tubercle, and trapezoid line	K	LAB, VR	CIVA & OSPE
ANAT 3.2	1. Determine Side Orientation: Apply anatomical landmarks to distinguish between the right and left clavicle accurately.	K	LAB, VR	CIVA & OSPE
ANAT 3.3	Relate to Muscular/Ligament Attachments	K	LAB, VR	CIVA & OSPE
ANAT 3.4	Discuss Clinical Relevance: Analyze common clavicular injuries (e.g., midshaft fractures)	K	LAB, VR	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
The scapula				
ANAT 4.1	Identify Key Anatomical Landmarks: Recognize and label the major features of the scapula, including the spine, acromion, coracoid process, glenoid cavity, supraspinous/infraspinous fossae, and medial/lateral borders	K	LAB, VR	CIVA & OSPE
ANAT 4.2	Determine Side Orientation: Use structural landmarks to differentiate between the right and left scapula accurately	K	LAB, VR	CIVA & OSPE
ANAT 4.3	1. Relate to Muscle Attachments & Function: Explain the role of the scapula in muscle attachment (e.g., rotator cuff muscles, trapezius, deltoid) and its contribution to shoulder movement (e.g., abduction, rotation).	K	LAB, VR	CIVA & OSPE
ANAT 4.4	Discuss Clinical & Biomechanical Relevance: Analyze common scapular-related conditions (e.g., winging, fractures, or rotator cuff injuries)	K	LAB, VR	CIVA & OSPE
Axilla and breast				
ANAT 5.1	A. Identify Boundaries & Contents of the Axilla B. Identify key contents: axillary vessels, brachial plexus, lymph nodes, and fat	K	LAB, VR	CIVA & OSPE
ANAT 5.2	Describe Breast Anatomy & Lymphatic Drainage	K	LAB, VR	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT 5.3	A. Explain the importance of the axillary artery branches (e.g., thoracoacromial, lateral thoracic) and brachial plexus cords in surgical/medical contexts	K	LAB, VR	CIVA & OSPE
ANAT 5.4	Palpate and mark axillary folds, lymph node locations, and breast quadrants on models to correlate with clinical exams	K	LAB, VR	CIVA & OSPE
Scapula				
ANAT 6.1	Identify the anatomical landmarks of the scapula on a model or minikan, including the spine, acromion, coracoid process, borders, and angles.	K	LAB	CIVA & OSPE
ANAT 6.2	Differentiate between the anterior (costal) and posterior surfaces of the scapula and describe their features.	K	LAB	CIVA & OSPE
ANAT 6.3	Describe the articulations of the scapula, including its role in the shoulder joint (glenohumeral joint) and its connection with the clavicle at the acromioclavicular joint.	K	LAB	CIVA & OSPE
ANAT 6.4	Explain the muscular attachments on the scapula and relate them to movements of the shoulder and upper limb (e.g., rotator cuff muscles).	K	LAB	CIVA & OSPE
humerus				
ANAT 7.1	A. Identify Key Anatomical Landmarks:	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	Locate and describe the major features of the humerus, including the head, anatomical neck, surgical neck, greater and lesser tubercles, deltoid tuberosity, medial and lateral epicondyles, trochlea, and capitulum			
ANAT 7.2	Use structural landmarks (e.g., head facing medially, olecranon fossa posteriorly) to distinguish between the right and left humerus accurately.	K	LAB	CIVA & OSPE
ANAT 7.3	Explain the role of the humerus in muscle attachment (e.g., rotator cuff muscles, deltoid, biceps brachii, triceps brachii) and its contribution to shoulder and elbow joint movements	K	LAB	CIVA & OSPE
ANAT 7.4	Analyze common humeral injuries (e.g., fractures of the surgical neck, supracondylar fractures) and their anatomical basis using manikin demonstrations.	K	LAB	CIVA & OSPE
Shoulder joint				
ANAT 8.1	A. Identify Structural Components: Recognize and label the bony articulations (glenoid cavity of scapula and head of humerus),	K	LAB	CIVA & OSPE
ANAT 8.2	Explain the multiaxial ball-and-socket structure of the joint and demonstrate its wide range of movements (flexion/extension, abduction/adduction, rotation) using manikin demonstrations.	K	LAB	CIVA & OSPE
ANAT 8.3	A. Relate Supporting Structures to Stability: Describe the roles of the rotator cuff muscles, long head of biceps tendon, and coracoacromial arch in maintaining joint stability and preventing dislocation	K	LAB	CIVA & OSPE
ANAT 9.4	A. Discuss Clinical Correlations: Analyze common shoulder pathologies (e.g., rotator cuff tears,	K		

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	dislocations, impingement syndrome)			
Radius and ulna				
ANAT 10.1	Identify Key Anatomical Landmarks: Locate and label the major features of the radius (head, neck, radial tuberosity, styloid process) and ulna (olecranon, coronoid process, trochlear notch, styloid process)	K	LAB	CIVA & OSPE
ANAT 10.2	Use structural landmarks (e.g., radial styloid lateral, ulnar head distal) to distinguish between right and left radius/ulna accurately.	K	LAB	CIVA & OSPE
ANAT 10.3	Explain the roles of the radius and ulna in forming the elbow joint (with humerus) and radioulnar joints (proximal/distal), and their contribution to forearm rotation (supination/pronation).	K	LAB	CIVA & OSPE
ANAT 10.4	Analyze common injuries (e.g., Colles' fracture, radial head dislocation) and their anatomical basis using manikin demonstrations	K	LAB	CIVA & OSPE
Elbow and cubital fossa				
ANAT 11.1	A. Identify Key Anatomical Structures: Locate and label the bony landmarks of the elbow joint (humerus trochlea & capitulum, ulna trochlear notch, radial head) and boundaries of the cubital fossa	K	LAB	CIVA & OSPE
ANAT 11.2	Identify the median cubital vein, brachial artery, biceps tendon, and median/radial nerves and explain their clinical significance	K	LAB	CIVA & OSPE
ANAT 11.3	Analyze common elbow/cubital fossa conditions (e.g., tennis elbow, cubital tunnel syndrome, supracondylar fractures) using manikin demonstrations.	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT 11.1	B. Identify Key Anatomical Structures: Locate and label the bony landmarks of the elbow joint (humerus trochlea & capitulum, ulna trochlear notch, radial head) and boundaries of the cubital fossa	K	LAB	CIVA & OSPE
Carpal, metacarpal bones and phalanges				
ANAT 12.1	Identify Bony Structures and Classifications	K	LAB	CIVA & OSPE
ANAT 12.2	Understand Articulations and Joint Mechanics	K	LAB	CIVA & OSPE
ANAT 12.3	Relate Surface Anatomy to Clinical Procedures	K	LAB	CIVA & OSPE
ANAT 12.4	A. Discuss the surgical and diagnostic importance of these bones (e.g., scaphoid blood supply concerns, metacarpal fracture management). B. Recognize anatomical variations and their implications in medical practice.	K	LAB	CIVA & OSPE
Joints of the upper limb				
ANAT 13.1	A. Identify and Classify Upper Limb Joints Recognize and name all major joints of the upper limb (shoulder, elbow, wrist, and hand joints) on the minikan model and cadaveric specimens.	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT 13.2	A. Understand Biomechanics and Movements Describe the type of movements permitted at each joint (e.g., flexion/extension, abduction/adduction, rotation).	K	LAB	CIVA & OSPE
ANAT 13.3	A. Correlate Anatomy with Clinical Conditions Link joint structures to common injuries and disorders (e.g., shoulder dislocation, tennis elbow, carpal tunnel syndrome).	K	LAB	CIVA & OSPE
ANAT 13.4	Identify key anatomical landmarks used in clinical examinations and injections (e.g., glenohumeral joint aspiration).	K	LAB	CIVA & OSPE
Injuries of the upper limb nerves				
ANAT 14.1	A. Identify and Locate Major Upper Limb Nerves Accurately identify the brachial plexus and its terminal branches (median, ulnar, radial, musculocutaneous, and axillary nerves) on the minikan model and cadaveric specimens	K	LAB	CIVA & OSPE
ANAT 14.2	A. Understand Nerve Injury Mechanisms and Clinical Presentations Describe common mechanisms of injury for each major upper limb nerve (e.g., Erb's palsy, wrist lacerations, Saturday night palsy)	K	LAB	CIVA & OSPE
ANAT 14.3	A. Correlate Anatomy with Diagnostic and Surgical Approaches	k	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	Identify key anatomical landmarks for nerve examination and surgical approaches			
ANAT 14.4	Recognize characteristic clinical signs of nerve injuries (motor deficits, sensory loss, and reflex changes)	k	LAB	CIVA & OSPE
The rib and sternum, thoracic vertebrae				
ANAT 15.1	Identify and classify all rib types (true, false, floating) and their articulations	K	LAB	CIVA & OSPE
ANAT 15.2	Locate key landmarks on the sternum (manubrium, body, xiphoid) and costal cartilages	K	LAB	CIVA & OSPE
ANAT15.3	Demonstrate proper counting of ribs clinically using anatomical landmarks	K	LAB	CIVA & OSPE
ANAT 15.4	Relate rib fractures to potential complications (e.g., pneumothorax)	K	LAB	CIVA & OSPE
The lungs and pleurae				
ANAT 16.1	Identify all lung surfaces, borders, and fissures on models	K	LAB	CIVA & OSPE
ANAT1 6.2	1. Trace the pleural reflections and recesses (cost diaphragmatic, cost mediastinal)	K	LAB	CIVA & OSPE
ANAT 16.3	Correlate surface anatomy to clinical procedures (thoracentesis, chest tube insertion)	K	LAB	CIVA & OSPE
ANAT 16.4	Distinguish between visceral and parietal pleura histologically	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Mediastinum and anterior mediastinum				
ANAT 17.1	Define the anatomical boundaries of the mediastinum	K	LAB	CIVA & OSPE
ANAT 17.2	Identify the contents of the anterior mediastinum in a cadaveric specimen or model.	K	LAB	CIVA & OSPE
ANAT 17.3	Compare the subdivisions of the mediastinum (superior, anterior, middle, and posterior).	K	LAB	CIVA & OSPE
ANAT 17.4	Describe the clinical significance of the thymus and other anterior mediastinal structures.	K	LAB	CIVA & OSPE
The rib and sternum, thoracic vertebrae				
ANAT 18.1	Identify and classify all rib types (true, false, floating) and their articulations	K	LAB	CIVA & OSPE
ANAT 18.2	Locate key landmarks on the sternum (manubrium, body, xiphoid) and costal cartilages	K	LAB	CIVA & OSPE
ANAT 18.3	Demonstrate proper counting of ribs clinically using anatomical landmarks	K	LAB	CIVA & OSPE
ANAT 18.1	Identify and classify all rib types (true, false, floating) and their articulations	K	LAB	CIVA & OSPE
The lungs and pleurae				
ANAT 19.1	Identify all lung surfaces, borders, and fissures on models	K	LAB	CIVA & OSPE
ANAT 19.2	Trace the pleural reflections and recesses (cost diaphragmatic, cost mediastinal)	K	LAB	CIVA & OSPE
ANAT 19.3	Correlate surface anatomy to clinical procedures (thoracentesis, chest tube insertion)	K	LAB	CIVA & OSPE
ANAT 19.4	Distinguish between visceral and parietal pleura histologically	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Mediastinum and anterior mediastinum				
ANAT 20.1	Define the anatomical boundaries of the mediastinum	K	LAB	CIVA & OSPE
ANAT 20.2	Identify the contents of the anterior mediastinum in a cadaveric specimen or model.	K	LAB	CIVA & OSPE
ANAT 20.3	Compare the subdivisions of the mediastinum (superior, anterior, middle, and posterior).	K	LAB	CIVA & OSPE
ANAT 20.4	Describe the clinical significance of the thymus and other anterior mediastinal structures.	K	LAB	CIVA & OSPE
The heart and pericardium				
ANAT 21.1	Identify the layers of the pericardium and their anatomical relations	K	LAB	CIVA & OSPE
ANAT 21.2	Recognize the external features of the heart (chambers, sulci, apex, base)	K	LAB	CIVA & OSPE
ANAT 21.3	Recognize the external features of the heart (chambers, sulci, apex, base)	K	LAB	CIVA & OSPE
ANAT 21.4	Correlate internal cardiac structures with their functional roles	K	LAB	CIVA & OSPE
Superior and posterior mediastinum				
ANAT 22.1	Identify the major vessels (aorta, superior vena cava, azygos vein) and their relations in the superior and posterior mediastinum.	K	LAB	CIVA & OSPE
ANAT 22.2	Trace the path of the esophagus and thoracic duct through the posterior mediastinum	K	LAB	CIVA & OSPE
ANAT 22.3	Recognize the sympathetic trunk and splanchnic nerves in the posterior thoracic cavity	K	LAB	CIVA & OSPE
ANAT 22.4	Describe the anatomical relationships between the trachea, esophagus, and	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
The bony pelvis and the femur				
ANAT 23.1	Identify key anatomical landmarks of the bony pelvis (ilium, ischium, pubis)	K	LAB	CIVA & OSPE
ANAT 23.2	Describe the features of the pelvic inlet and outlet.	K	LAB	CIVA & OSPE
ANAT 23.3	Examine the anatomical landmarks of the femur (head, neck, trochanters, condyles).	K	LAB	CIVA & OSPE
ANAT 23.4	Relate pelvic structure to weight-bearing and locomotion functions.	K	LAB	CIVA & OSPE
The anteromedial compartment of the thigh				
ANAT 24.1	Identify muscles of the anterior and medial thigh compartments and their innervation.	K	LAB	CIVA & OSPE
ANAT 24.2	Locate the femoral triangle and its contents.	K	LAB	CIVA & OSPE
ANAT 24.3	Trace the course of the femoral artery, vein, and nerve.	K	LAB	CIVA & OSPE
ANAT 24.4	Demonstrate the attachments and actions of major thigh muscles (e.g., quadriceps, adductors)	K	LAB	CIVA & OSPE
The gluteal region and back of the thigh				
ANAT 25.1	Identify gluteal muscles and their functions.	K	LAB	CIVA & OSPE
ANAT 25.2	Locate the sciatic nerve and describe its anatomical course.	K	LAB	CIVA & OSPE
ANAT 25.3	Describe the origin, insertion, and action of hamstring muscles.	K	LAB	CIVA & OSPE
ANAT 25.4	Examine the relationship between gluteal landmarks and intramuscular injection sites.	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
The heart and pericardium				
ANAT 26.1	Identify the layers of the pericardium and their anatomical relations	K	LAB	CIVA & OSPE
ANAT 26.2	Recognize the external features of the heart (chambers, sulci, apex, base)	K	LAB	CIVA & OSPE
ANAT 26.3	Recognize the external features of the heart (chambers, sulci, apex, base)	K	LAB	CIVA & OSPE
ANAT 26.4	Correlate internal cardiac structures with their functional roles	K	LAB	CIVA & OSPE
Superior and posterior mediastinum				
ANAT 27.1	Identify the major vessels (aorta, superior vena cava, azygos vein) and their relations in the superior and posterior mediastinum.	K	LAB	CIVA & OSPE
ANAT 27.2	Trace the path of the esophagus and thoracic duct through the posterior mediastinum	K	LAB	CIVA & OSPE
ANAT 27.3	Recognize the sympathetic trunk and splanchnic nerves in the posterior thoracic cavity	K	LAB	CIVA & OSPE
ANAT 27.4	Describe the anatomical relationships between the trachea, esophagus, and	K	LAB	CIVA & OSPE
The bony pelvis and the femur				
ANAT 28.1	Identify key anatomical landmarks of the bony pelvis (ilium, ischium, pubis)	K	LAB	CIVA & OSPE
ANAT 28.2	Describe the features of the pelvic inlet and outlet.	K	LAB	CIVA & OSPE
ANAT 28.3	Examine the anatomical landmarks of the femur (head, neck, trochanters, condyles).	K	LAB	CIVA & OSPE
ANAT 28.4	Relate pelvic structure to weight-bearing and locomotion functions.	K	LAB	CIVA & OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
The anteromedial compartment of the thigh				
ANAT 29.1	Identify muscles of the anterior and medial thigh compartments and their innervation.	K	LAB	CIVA & OSPE
ANAT 29.2	Locate the femoral triangle and its contents.	K	LAB	CIVA & OSPE
ANAT 29.3	Trace the course of the femoral artery, vein, and nerve.	K	LAB	CIVA & OSPE
ANAT 29.4	Demonstrate the attachments and actions of major thigh muscles (e.g., quadriceps, adductors)	K	LAB	CIVA & OSPE
The gluteal region and back of the thigh				
ANAT 30.1	Identify gluteal muscles and their functions.	K	LAB	CIVA & OSPE
ANAT30.2	Locate the sciatic nerve and describe its anatomical course.	K	LAB	CIVA & OSPE
ANAT 30.3	Describe the origin, insertion, and action of hamstring muscles.	K	LAB	CIVA & OSPE
ANAT 30.4	Examine the relationship between gluteal landmarks and intramuscular injection sites.	K	LAB	CIVA & OSPE
Hip joint and knee joints				
ANAT 31.1	Describe the bony components forming the hip and knee joints.	K	LAB	CIVA AND OSPE
ANAT 31.2	Identify ligaments supporting each joint (e.g., iliofemoral, cruciate ligaments).	K	LAB	CIVA AND OSPE
ANAT 31.3	Demonstrate the capsule and synovial membrane of each joint on a model or dissection.	K	LAB	CIVA AND OSPE
ANAT 31.4	Explain movements at the hip and knee joints and their muscular control	K	LAB	CIVA AND OSPE
Tibia and fibula				
ANAT 32.1	Identify the anatomical landmarks of the tibia and fibula.	K	LAB	CIVA AND OSPE

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
ANAT 32.2	Differentiate between proximal and distal ends of both bones.	K	LAB	CIVA AND OSPE
ANAT 32.3	Explain the role of the interosseous membrane in leg stability.	K	LAB	CIVA AND OSPE
ANAT 32.4	Correlate surface markings with underlying bony structures	K	LAB	CIVA AND OSPE
Tarsal and metatarsal bones				
ANAT.33.1	Identify all tarsal and metatarsal bones on a skeletal model.	K	LAB	CIVA AND OSPE
ANAT.33.2	Describe the articulations of the ankle and foot	K	LAB	CIVA AND OSPE
ANAT.33.3	Recognize surface landmarks of the foot and their clinical importance.	K	LAB	CIVA AND OSPE
ANAT.33.4	Distinguish between medial and lateral foot structures.	K	LAB	CIVA AND OSPE

Medical Chemistry



First Grade

Academic Program Description

This academic program description summarizes the course's most essential qualities and the

learning objectives that the student is expected to attain, indicating whether he or she made

advantage of all of the resources that are accessible. It includes a description of each course in the program of study.

1) Educational Establishment	University of Al-Ameed
2) Scientific Department	College of Medicine – Department of Chemistry and Biochemistry
3) Name of the Professional Academic Program.	Modified Traditional Curriculum
4) Final Graduation Certificate	M.B.Ch.B
5) Educational system: Annual/courses/other	Annual
6) Approved accreditation program	Iraqi National Guideline on Standards for Established and Accrediting Medical School
7) Other external factors	• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms

	• Use of free online communication platforms (e.g., Free Conference Call)
8) Date the description was written	2024/9/15
9) Objectives of the academic program: 1. Build a Strong Foundation in Chemistry and Biochemistry Study the structure and function of amino acids, proteins, carbohydrates, lipids, nucleic acids, and enzymes. 2. Develop Practical Laboratory Skills Enable students to use basic laboratory techniques such as titration, solubility analysis, and biochemical assays. 3. Enhance Analytical Thinking and Problem-Solving Skills Apply theoretical concepts to real medical scenarios, such as interpreting lab results. 4. Integrate Biochemical Knowledge with Clinical Medicine Understand the relationship between biochemical processes and diseases, and apply this knowledge in diagnostics and treatment. 5. Teach Basic and Advanced Biochemical Techniques Train students in techniques such as enzyme assays, protein analysis, and qualitative tests for biomolecules. 6. Promote Safety and Ethical Laboratory Practices Teach safety protocols and ethical behavior in laboratory settings. 7. Encourage Lifelong Learning and Research Develop research skills and encourage students to keep up with advancements in medical science. 8. Prepare Students for Advanced Medical Practice Equip students with the necessary knowledge for further studies in clinical biochemistry and related fields.	
10) The most reliable resources for program information are: 1- Harper's Biochemistry 2- Lippincott's Illustrated Review 3- Essential Medical Genetics Textbook	

CHEMISTRY \ Grade 1	
Code: MCHM 102	6 Credits

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
General introduction				
MCHM 1.1	a) Understand the foundational concepts of biochemistry b) Define biochemistry and its importance in medicine and health sciences. c) Explain the relationship between biochemistry, molecular biology, and clinical medicine.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 1.2	a) Identify the basic components of biochemistry b) Recognize the key biomolecules (proteins, lipids, carbohydrates, nucleic acids) and their functions c) Discuss the structure and function of cells and organelles in relation to biochemical processes.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 1.3	a) Explore the role of biochemistry in medical science b) Explain how biochemical knowledge aids in understanding diseases and medical conditions. c) Relate basic biochemistry to physiological and pathological processes.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 1.4	a) Introduce the concept of medical genetics in biochemistry b) Understand the role of genetics in the biochemical pathways and disease mechanisms. c) Recognize the importance of genetic information in clinical diagnosis and therapy.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Biochemical Perspective to Medicine				
MCHM 2.1	a) Understand the biochemical basis of human health and disease b) Describe how biochemical processes maintain normal physiological functions.	K	Large group lectures	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	c) Explain how biochemical imbalances contribute to the development of diseases.			Short Answer Questions
MCHM 2.2	a) Analyze the role of biomolecules in disease mechanisms b) Discuss the molecular and cellular mechanisms underlying common diseases (e.g., diabetes, cardiovascular diseases, metabolic disorders). c) Identify how defects in enzymes, proteins, or metabolic pathways lead to clinical symptoms.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 2.3	a) Apply biochemical knowledge to clinical diagnosis b) Understand how biochemical tests (e.g., blood tests, enzyme activity assays) help in diagnosing diseases. c) Recognize the importance of biochemical markers in disease detection and prognosis.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 2.4	a) Link biochemistry to public health and preventative medicine b) Recognize the role of biochemistry in preventing and managing chronic diseases. c) Discuss how lifestyle factors (e.g., diet, exercise) influence biochemical processes and overall health.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Subcellular Organelles and Cell Membranes				
MCHM 3.1	a) Understand the structure and function of organelles and membranes b) Learn about the key organelles (nucleus, mitochondria, etc.) and their functions within the cell. c) Recognize how these structures work together to support cellular processes and homeostasis.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 3.2	a) Explain membrane transport mechanisms b) Explore how substances move across cell membranes through passive and active transport.	K	Large group lectures	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	c) Understand the importance of this in maintaining the cell's internal environment.			Short Answer Questions
MCHM 3.3	a) Link organelle and membrane functions to overall cell activity b) Discuss how the organization and interaction of organelles and membranes enable the cell to perform essential biochemical functions, such as energy production, protein synthesis, and communication.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Acid - Base and salt of medical interest				
MCHM 4.1	a) Understand acid-base balance in the body b) Learn about the importance of pH regulation in maintaining homeostasis and how the body controls pH through buffers and respiratory mechanisms.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 4.2	a) identify acids, bases, and salts relevant to medical practice b) Recognize common acids, bases, and salts found in the body, such as carbonic acid, bicarbonate, and sodium chloride, and their roles in physiological processes.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 4.3	a) Explain the clinical significance of acid-base disorders b) Understand how imbalances in acid-base levels (e.g., acidosis, alkalosis) can affect the body and lead to medical conditions that require clinical intervention.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
International system of units (SI units)				
MCHM 5.1	a) Understand the role and importance of SI units in scientific and medical practice. b) Students will learn why standardized units are crucial for consistency in measurements, ensuring reliable	K	Large group lectures	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	communication of results between laboratories and healthcare providers worldwide.			Short Answer Questions
MCHM 5.2	a) Identify and comprehend key SI units used in biochemistry and clinical settings b) Students will become familiar with the primary SI units used in scientific practice, c) understanding their significance in both laboratory and clinical applications.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
The PH concept and acid – base balance				
MCHM 6.1	Understand the concept of pH measures the concentration of hydrogen ions in a solution. In biological systems, maintaining a stable pH is crucial for enzyme activity and metabolic reactions.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 6.2	Learn how the body regulates pH The body uses buffering systems, like the bicarbonate buffer system, to prevent large fluctuations in pH.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Buffer and buffer system of physiological importance				
MCHM 7.1	Understand the concept of buffers and their role in maintaining pH Students will learn what buffers are and how they resist changes in pH when acids or bases are added.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 7.2	Explore the major buffer systems in the body The lecture will focus on key physiological buffer systems, especially the bicarbonate buffer system	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MCHM 7.3	Discuss the physiological importance of buffering systems in health Students will understand how buffer systems maintain the pH of blood and tissues within a narrow range, preventing harmful effects of acidosis or alkalosis.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 7.4	a) Apply knowledge of buffer systems in clinical settings Students will learn how to interpret buffer-related changes in conditions like respiratory acidosis, metabolic alkalosis, and renal dysfunction. b) Understanding how these disorders affect buffer systems will aid in diagnosing and managing patients.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Chelation and possible application in medicine				
MCHM 8.1	Understand the concept of chelation Students will learn what chelation is, including the chemical process where a molecule binds to a metal ion, forming a stable complex	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 8.2	Explore the physiological role of chelation in detoxification The lecture will highlight how chelation helps in the removal of toxic metals, such as lead, mercury, and iron, which can accumulate in the body and cause damage to tissues and organs. The importance of chelation in preventing or treating poisoning will be discussed.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 8.3	Learn about chelation therapy in clinical medicine Students will explore how chelation therapy is used in treating metal toxicity (e.g., lead poisoning) and conditions like hemochromatosis (iron overload).	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MCHM 8.4	a) Examine the clinical applications and limitations of chelation therapy. Students will evaluate the potential uses and limitations of chelation in clinical practice, including its role in cardiovascular disease and chelation as an alternative medicine approach. b) learn about potential side effects, safety concerns, and current research.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
balance Ions in living system and their importance				
MCHM 9.1	Understand the role of ions in cellular function. Students will learn that ions (such as Na^+ , K^+ , Ca^{2+} , Mg^{2+} , Cl^- , and H^+) are essential for maintaining cellular homeostasis, generating electrical potentials, and enabling processes like muscle contraction, nerve signaling, and enzyme activation.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 9.2	Explore the importance of ion gradients across cell membranes. The lecture will cover the concept of ion gradients, particularly the Na^+/K^+ pump, which maintains resting membrane potential and enables action potentials in neurons and muscles.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 9.3	Learn about the impact of ion imbalances on health. Students will explore how imbalances in ion concentrations can lead to disorders like hyperkalemia, hyponatremia, and hypocalcemia, which affect the nervous system, cardiovascular function, and muscle activity.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 9.4	Discuss the role of ions in physiological processes. The lecture will discuss how ions are involved in processes such as acid-base balance, intracellular signaling, and enzyme activity, emphasizing their importance in metabolism, cell communication, and maintaining overall health.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Trace elements				
MCHM 10.1	Understand the concept of trace elements Students will learn what trace elements are—elements that are required in small amounts but are essential for various biochemical and physiological processes in the body.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 10.2	Explore the biological roles of trace elements The lecture will focus on the critical roles of these trace elements in enzymatic reactions, hormone synthesis, immune function, and antioxidant defense.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 10.3	a) Discuss the consequences of deficiencies and excesses Students will examine the health effects of deficiencies in trace elements, such as iron-deficiency anemia, iodine deficiency (goiter), and selenium deficiency (Keshan disease). b) learn about the harmful effects of excessive intake of certain trace elements, such as zinc toxicity or copper overload.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Carbohydrates				
MCHM 11.1	a) understand the basic classification of carbohydrates and their structure. This knowledge will allow them to recognize different sugar types and their functional roles in the body. b) learn how the 3D structure of monosaccharides impacts their biochemical functions.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 11.2	a) students will be able to explain the role of carbohydrates in energy production and cell function b) identify their role in forming glycogen in muscles and liver ,and demonstrate their understanding of carbohydrates' impact on metabolism and tissue integrity through a short quiz or discussion.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MCHM 11.3	learn how carbohydrate metabolism impacts health and the treatment of these diseases. The lecture will highlight the clinical importance of carbohydrates, particularly in disorders like diabetes and lactose intolerance.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 11.4	explore the role of carbohydrates in the structure of bacterial cell walls, particularly peptidoglycan, and how this knowledge can aid in understanding bacterial infections and drug development.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 11.5	Explain the essential roles of carbohydrates in energy production (glucose metabolism), cell signaling (glycoproteins), and structural components (glycogen, mucopolysaccharides in connective tissue). Their involvement in immune responses and molecular recognition will also be emphasized.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Lipids				
MCHM 12.1	Understand the major classes of lipids (fatty acids, triglycerides, phospholipids, steroids) and how their chemical structures determine their function in biological systems.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 12.2	Explain the importance of lipids in energy storage, membrane structure, hormone synthesis, and cell signaling, emphasizing their role in maintaining cellular integrity and function.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 12.3	Describe the classification of fatty acids (saturated, unsaturated) and their biochemical reactions, including β -oxidation and essential fatty acids' role in health and disease.	K	Large group lectures	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
				Short Answer Questions
MCHM 12.4	Recognize the physiological functions of eicosanoids (prostaglandins, thromboxanes, leukotrienes) in inflammation, vascular function, and immune responses.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 12.5	Discuss the structure and function of steroids, including cholesterol, and their role in synthesizing sex hormones, corticosteroids, and their clinical relevance (e.g., oral contraceptives, lipid metabolism disorders).	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Proteins and amino acids				
MCHM 13.1	a) Understand the classification of amino acids and their physiological roles, emphasizing essential amino acids and their dietary importance. b) Recognize disorders like phenylketonuria (PKU) and maple syrup urine disease (MSUD) caused by defects in amino acid metabolism.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 13.2	a) Explain key reactions of amino acids, such as transamination and decarboxylation, and their role in neurotransmitter synthesis (e.g., dopamine from tyrosine). b) Discuss clinical conditions related to enzyme deficiencies, such as albinism due to tyrosinase deficiency	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 13.3	a) students will be able to explain the role of carbohydrates in energy production and cell function, b) identify their role in forming glycogen in muscles and liver as well as glycosaminoglycans in connective tissues, and demonstrate their understanding of carbohydrates' impact on	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	metabolism and tissue integrity through a short quiz or discussion.			
MCHM 13.4	a) students will be able to describe the physiological roles of bioactive peptides, including insulin and glucagon in blood sugar regulation, b) identify peptide-based drugs used in clinical applications, such as treating diabetes and pain management, c) evaluate the clinical importance of peptides and polypeptides in medical practice through a case study or discussion.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
Nucleic acids				
MCHM 14.1	a) differentiate between DNA and RNA by identifying their structural components and describing their functional roles in cellular processes. b) explain the significance of nucleotide sequences in the storage and transmission of genetic information, and apply this knowledge in discussing genetic disorders or related clinical cases.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 14.2	a) students will be able to outline the processes of transcription and translation and emphasize the roles of mRNA, tRNA, and rRNA in protein synthesis. b) They will also identify and explain the importance of regulatory sequences and epigenetic modifications in gene expression, applying this knowledge to understand how gene expression is regulated in health and disease.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 14.3	a) Discuss genetic mutations and their impact on health, including disorders such as <u>sickle cell anemia</u> and <u>thalassemia</u> . b) Explain how nucleic acid-based technologies (e.g., PCR, gene therapy) are used in medical diagnostics and treatment.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Enzymes				
MCHM 15.1	a) Define enzymes and classify them based on their function and reaction type. b) Explain the lock-and-key and induced-fit models of enzyme action, emphasizing their role as biological catalysts	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 15.2	Analyze the influence of temperature, pH, substrate concentration, and inhibitors on enzyme kinetics. Introduce Michaelis-Menten kinetics and its clinical relevance in understanding metabolic disorders.	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions
MCHM 15.3	a) Differentiate between competitive, non-competitive, and irreversible enzyme inhibition. b) Discuss the medical importance of enzyme inhibitors, such as drugs targeting enzymes in metabolic diseases, infections, and cancer therapy	K	Large group lectures	multiple choice questions (MCQ) & Short Answer Questions

Practical

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Laboratory Safety Rules				
MCHM 1.1	a) Understand Essential Safety Measures b) Learn the fundamental safety rules in the lab, including wearing personal protective equipment (PPE), proper handling of chemicals, and maintaining a contamination-free environment	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 1.2	a) Recognize and Prevent Laboratory Hazards b) Identify potential dangers such as chemical spills, fire risks, and biological hazards. Knowing how to prevent accidents and respond to emergencies is crucial for working in both research and clinical laboratories.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 1.3	Understand the correct methods for disposing of chemical, biological, and sharps waste to prevent contamination and infections. Following strict hygiene protocols is essential, especially in medical diagnostics and hospital labs.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 1.4	students will be able to identify and demonstrate the proper use of safety equipment including fire extinguishers, eyewash stations, and emergency exits.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Hazard Signs				
MCHM 2.1	a) Recognize Common Laboratory Hazard Symbols b) Identify and understand the meaning of key hazard signs. c) Recognizing these symbols is crucial for personal safety in medical and clinical laboratories.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 2.2	a) Understand the Risks Associated with Each Hazard b) Learn the potential dangers posed by different hazardous materials and how they can affect human health, particularly in clinical and diagnostic settings. This includes chemical burns, toxic exposure, and infectious risks.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 2.3	Apply appropriate safety measures when handling hazardous substances, such as using fume hoods, wearing protective gear, and following storage guidelines to prevent accidents.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 2.4	Respond to Hazardous Situations Effectively Develop quick decision-making skills for dealing with spills, leaks, or accidental exposure. Knowing emergency protocols can prevent harm and ensure a safe laboratory environment.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Instrument Name				
MCHM 3.1	a) Identify Common Laboratory Instruments and Their Functions b) Recognize essential biochemical lab instruments such as spectrophotometers, centrifuges, pH meters, micropipettes, and electrophoresis units, understanding their role in	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	medical and clinical investigations.			
MCHM 3.2	Learn how to correctly operate, calibrate, and maintain laboratory instruments to ensure accuracy and reliability in diagnostic and biochemical testing.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 3.3	a) Understand the Clinical Applications of Laboratory Instruments b) Explore how these instruments are used in medical diagnostics,	K	Small group learning & Practical session	(MCQ) & Short Answer Questions
MCHM 3.4	students will be able to identify and implement proper safety precautions when using laboratory instruments, including preventing electrical hazards, avoiding contamination, and ensuring correct sample handling, thereby creating a safe and efficient laboratory environment.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Lambert Beer's Law and Spectrophotometer				
MCHM 4.1	a) Understand the Principles of Lambert-Beer's Law b) Explain the relationship between absorbance, concentration, and path length in a solution, emphasizing its significance in quantitative biochemical analysis.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 4.2	Learn how to calibrate, set wavelengths, and measure the absorbance of solutions, ensuring accuracy in biochemical and clinical applications.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 4.3	a) Apply Spectrophotometry in Clinical Diagnosis b) Explore its role in medical tests such as blood glucose estimation, liver function tests,	K	Small group learning & Practical session	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	and hemoglobin measurement, highlighting its importance in disease diagnosis and monitoring.			Short Answer Questions
MCHM 4.4	a) interpret Spectrophotometric Data b) Analyze and calculate sample concentrations using absorbance values, demonstrating the ability to correlate laboratory findings with physiological and pathological conditions.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 4.5	Implement proper handling, cleaning, and maintenance of spectrophotometers to ensure precision, longevity, and safety in the biochemical laboratory.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Determination The Concentration of an Unknown Solution				
MCHM 5.1	a) Understand the Concept of Concentration Measurement b) Learn how to determine the concentration of an unknown solution using various methods, including titration and spectrophotometry, which are foundational techniques in both laboratory and clinical settings.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 5.2	a) Ensure Accuracy and Precision in Measurements b) Focus on correct technique for measuring volumes, maintaining proper equipment calibration, and avoiding common errors that could impact the results in concentration determination.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 5.3	Apply the knowledge gained to analyze clinical samples (e.g., blood, urine), understanding how precise concentration measurements play a vital role in diagnosing and monitoring diseases.	K	Small group learning & Practical session	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
				Short Answer Questions
Determination of PH				
MCHM 6.1	Understand pH Concept and Importance Grasp the concept of pH as a measure of acidity or alkalinity and its significance in biological systems, especially in maintaining homeostasis.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 6.2	Learn how to use pH meters and indicators effectively to determine the pH of various solutions, ensuring accurate results.	K	Small group learning & Practical session	(MCQ) & Short Answer Questions
MCHM 6.3	Understand the role of pH measurement in clinical practice, such as assessing blood and urine pH, which can indicate various medical conditions like metabolic acidosis or alkalosis.	K	Small group learning & Practical session	(MCQ) & Short Answer Questions
MCHM 6.4	Recognize how pH influences enzyme activity and metabolic processes, and how deviations from normal pH can impact overall health and disease states.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 6.5	Ensure safe handling of chemicals and equipment during pH measurement to maintain safety in the lab while achieving reliable results.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Biochemistry Carbohydrates Tests				
MCHM 7.1	a) Understand Carbohydrate Identification Tests	K	Small group learning &	multiple choice

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	b) Learn the principles behind common tests for identifying different types of carbohydrates, such as Benedict's, Fehling's, and Barfoed's tests.		Practical session	questions (MCQ) & Short Answer Questions
MCHM 7.2	a) Interpret Results of Carbohydrate Tests b) Understand how to interpret the results of these tests and identify specific carbohydrate types, such as monosaccharides, disaccharides, and polysaccharides.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 7.3	Recognize the importance of carbohydrate testing in diagnosing metabolic disorders such as diabetes, lactose intolerance, and glycogen storage diseases.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 7.4	students will be able to accurately perform laboratory tests, ensuring correct reagent usage and timing to achieve reliable results.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Molisch Test				
MCHM 8.1	a) Understand the Principle of Molisch Test b) Learn the principle behind the Molisch test, a general test for the presence of carbohydrates, particularly its reaction with carbohydrates to form a purple ring when sulfuric acid is added.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 8.2	a) Identify Carbohydrates Using Molisch Test b) Be able to perform the Molisch test and identify the presence of carbohydrates in a sample based	K	Small group learning & Practical session	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	on the formation of the characteristic purple ring.			Short Answer Questions
MCHM 8.3	Interpret the results accurately, understanding that a positive result (purple ring formation) indicates the presence of carbohydrates, while a negative result indicates their absence.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 8.4	Understand the relevance of Molisch's test in clinical settings for detecting sugars and carbohydrates in biological samples such as urine and blood.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Review				
MCHM 9.1	students will be able to demonstrate reinforced understanding of core biochemical and clinical principles—including carbohydrates, lipids, proteins, and enzymes—through case discussions and applied clinical examples relevant to medical practice	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 9.2	students will be able to identify and clarify previously misunderstood theoretical or practical biochemical concepts through guided discussion and instructor feedback	K	Small group learning & Practical session	(MCQ) & Short Answer Questions
MCHM 9.3	Encourage critical thinking and problem-solving by discussing clinical case studies, practical lab scenarios, and applying the concepts to real-life situations in the medical field.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MCHM 9.4	Assess student understanding through discussions, quizzes, and interactive activities, identifying areas where additional study or practice may be needed before final exams or clinical rotations.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Seliwanoff Test				
MCHM 10.1	students will be able to explain the principle and purpose of the Seliwanoff Test and accurately distinguish between ketose and aldose sugars (e.g., fructose vs. glucose) based on their chemical reactivity and test outcomes.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 10.2	students will be able to describe the chemical reaction involved in the Seliwanoff test, including the role of resorcinol and hydrochloric acid, and interpret the appearance of a cherry-red color as a positive indicator for ketose sugars, such as fructose.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 10.3	students will be able to recognize the clinical significance of the Seliwanoff Test by explaining its application in detecting specific sugars in biological fluids and discuss its diagnostic value in identifying metabolic disorders in clinical biochemistry.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Bial Test				
MCHM 11.1	students will be able to recognize the clinical significance of the Seliwanoff Test by explaining its application in detecting specific sugars in biological fluids and discuss its diagnostic value in identifying metabolic disorders in clinical biochemistry.	K	Small group learning & Practical session	(MCQ) & Short Answer Questions
MCHM 11.2	students will be able to explain the purpose of the Bial Test and analyze	K	Small group learning	multiple choice

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	its application in detecting pentose sugars like ribose, emphasizing its relevance in identifying RNA components in clinical and biochemical contexts.		& Practical session	questions (MCQ) & Short Answer Questions
MCHM 11.3	students will be able to explain the clinical significance of the Bial Test by identifying its role in detecting pentoses in biological fluids and discuss its application in diagnosing disorders of nucleic acid metabolism and related genetic conditions.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Benedict's Test				
MCHM 12.1	students will be able to explain the clinical significance of the Bial Test by identifying its role in detecting pentoses in biological fluids and discuss its application in diagnosing disorders of nucleic acid metabolism and related genetic conditions.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 12.2	students will be able to describe the purpose of Benedict's Test and interpret its role in detecting reducing sugars (e.g., glucose, fructose) in clinical samples, emphasizing its diagnostic value in conditions such as diabetes mellitus.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 12.3	a) students will be able to explain the clinical applications of Benedict's Test, b) recognize its use in monitoring blood sugar levels and diagnosing diabetes mellitus, c) demonstrate its importance in routine clinical practice, and apply this knowledge to interpret test results for glucose in urine in the context of metabolic health monitoring.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Fehling's Test				
MCHM 13.1	a) students will be able to describe the purpose of Fehling's Test in detecting reducing sugars, b) explain its application in identifying monosaccharides and certain disaccharides like glucose, c) understand its significance in diagnosing metabolic abnormalities, and apply this knowledge in a clinical context to interpret test results effectively.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 13.2	a) students will be able to analyze the results of Fehling's Test, explaining the formation of a brick-red precipitate when reducing sugars are present. b) They will demonstrate an understanding of the chemical reactions involved, and be able to apply this knowledge in diagnosing metabolic disorders related to reducing sugars.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 13.3	a) students will be able to explain the clinical relevance of Fehling's Test in diagnosing conditions such as diabetes mellitus b) They will demonstrate an understanding of how this test is applied in clinical practice for patient diagnosis and management, applying this knowledge to real-world clinical scenarios.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Barfoed's test				
MCHM 14.1	students will be able to explain the chemical reaction involved in Barfoed's Test, including the role of copper acetate in an acidic medium.	K	Small group learning & Practical session	(MCQ) & Short Answer Questions
MCHM 14.2	They will interpret the formation of a red precipitate as a positive result, indicating the presence of monosaccharides, and differentiate	K	Small group learning & Practical session	(MCQ) & Short Answer Questions
MCHM 14.3	a) students will be able to explain the clinical significance of Barfoed's Test in distinguishing between monosaccharides and disaccharides, b) understand its role in diagnosing metabolic disorders related to carbohydrate metabolism, and apply the test in clinical settings to interpret results accurately. c) They will be able to assess the presence of monosaccharides in urine or blood samples using the test.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Summary of Carbohydrates test				
MCHM 15.1	a) students will be able to explain the clinical significance of Barfoed's Test in distinguishing between monosaccharides and disaccharides, b) understand its role in diagnosing metabolic disorders related to carbohydrate metabolism, and apply the test in clinical	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MCHM 15.2	a) Students will explore how each test differentiates between types of sugars. For example, Benedict's and Fehling's tests identify reducing sugars, while Barfoed's test differentiates between monosaccharides and disaccharides. b) understood the chemical basis of these tests and the formation of precipitates or color changes	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 15.3	a) students will be able to describe the purpose and chemical reactions of key carbohydrate tests b) They will also apply these tests in the laboratory to accurately detect carbohydrates in samples, ensuring they understand the practical applications of these tests in clinical biochemistry.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Qualitative Tests of Amino Acids				
MCHM 16.1	a) students will be able to identify the clinical importance of carbohydrate testing in diagnosing conditions such as diabetes, metabolic disorders, and malabsorption issues. b) They will be able to perform carbohydrate tests to detect glucose and other sugars in urine or blood samples and interpret the results to aid in the diagnosis and management of these diseases.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 16.2	a) Students will learn to perform and interpret key tests, such as the Ninhydrin Test, which produces a purple color in the presence of free amino acids.	K	Small group learning & Practical session	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	b) The ability to interpret these reactions will be emphasized, including the expected colors and the amino acids they detect.			Short Answer Questions
MCHM 16.3	a) students will be able to identify the clinical significance of qualitative amino acid tests in diagnosing metabolic disorders b) demonstrate how to apply these tests in clinical settings, and discuss the role of amino acid tests in assessing nutritional deficiencies and monitoring clinical conditions. c) Students will also connect these applications to both clinical and research practices,	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
Determination Solubility of Amino Acid				
MCHM 17.1	Students will learn how the solubility of amino acids varies depending on their side chain characteristics (polar, non-polar, acidic, or basic).	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 17.2	a) Students will practice the procedure to determine the solubility of different amino acids by dissolving them in solvents like water, alcohol, and saline. b) observe and record the solubility patterns and learn to interpret the results to classify amino acids based on their solubility profile	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 17.3	a) students will be able to identify the clinical significance of qualitative amino acid tests in diagnosing metabolic disorders b) Students will also connect these applications to both clinical and	K	Small group learning & Practical session	multiple choice questions (MCQ) &

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	research practices, reinforcing their understanding of amino acid testing's relevance in medical diagnostics.			Short Answer Questions
Review				
MCHM 18.1	a) students will be able to summarize the core biochemical and clinical principles related to carbohydrates, lipids, proteins, and enzymes, b) apply these concepts in clinical scenarios, and demonstrate their understanding by explaining how these biomolecules are critical for medical practice.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 18.2	Students will also evaluate their knowledge and identify any gaps in understanding to ensure a comprehensive grasp of essential topics.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 18.3	Encourage critical thinking and problem-solving by discussing clinical case studies, practical lab scenarios, and applying the concepts to real-life situations in the medical field.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions
MCHM 18.4	Assess student understanding through discussions, quizzes, and interactive activities, identifying areas where additional study or practice may be needed before final exams or clinical rotations.	K	Small group learning & Practical session	multiple choice questions (MCQ) & Short Answer Questions

Medical biology



First Grade

Academic program discretion

This academic program description provides a brief overview of the key features of the program and the expected learning outcomes for the student, demonstrating whether the student has made the most of the available opportunities. It is accompanied by a description of each course within the program.

1- Educational Establishment	University of al-ameed
2- Scientific Department	College of medicine
3- Name of the Professional Academic Program.	Modified traditional curriculum
4- Final Graduation Certificate	M.B.Ch.B
5- Educational system: Annual/courses/other	Annual
6-Approved accreditation program	Applied for Iraqi National Guideline on Standards for Established and Accrediting Medical School
7-Other external factors	• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms • Use of free online communication platforms (e.g., Free Conference Call)
8-Date the description was written	2024/9/15
9- objectives of academic program The objective of the Anatomy course in the first stage is to provide medical students with a comprehensive understanding of the anatomical structures, functions, and	

clinical correlations of the upper limb, lower limb, and thorax. The course aligns with the **mission** of the College of Medicine by fostering foundational medical knowledge, integrating basic and clinical sciences, and preparing students for future clinical practice and research.

10- Resources:

- 1- R.M.H.McMinn, LAST'S anatomy regional and applied, Churchill livingstone;
- 2- Richard L.Drake, Wayne Vogl,AdamW.M.Mitchell, GRAYS anatomy for students, Elsevier Inc.
- 3- Harold Ellis, Clinical Anatomy,Applied anatomy for students and junior doctors,Blackwell Publishing Ltd,
- 4- Richard S.Snell, Clinical Anatomy by Regions, Lippincott Williams & Wilkins.
- 5- Moore, Keith L.; Dalley, Arthur F, Clinically Oriented Anatomy, Lippincott Williams & Wilkins

Medical biology \ Grade 1	
Code: BIO 103	6 Credits

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
cell structure and function				
BIO 1.1	Identify the basic components of a eukaryotic cell under the microscope.	K	Large group teaching	MCQ & Short answer question
BIO 1.2	Describe the structure and function of the plasma membrane and cytoplasm.	K	Large group teaching	MCQ & Short answer question
BIO 1.3	Recognize the morphology and role of mitochondria in cellular energy production.	K	Large group teaching	MCQ & Short answer question
BIO 1.4	Explain the presence and significance of mitochondrial DNA (mtDNA)	K	Large group teaching	MCQ & Short answer question
ribosome, endoplasmic reticulum, Golgi complex				
BIO2.1	Differentiate between rough and smooth endoplasmic reticulum using diagrams or models.	K	Large group teaching	MCQ & Short answer question
BIO2.2	Describe the structure and function of ribosomes in protein synthesis.	K	Large group teaching	MCQ & Short answer question
BIO2.3	Identify the location and role of the Golgi complex in post-translational modification.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO2.4	Interpret electron micrographs showing the ER, ribosomes, and Golgi apparatus.	K	Large group teaching	MCQ & Short answer question
lysosome, cytoskeleton, nucleus				
BIO3.1	Describe the structure and digestive role of lysosomes.	K	Large group teaching	MCQ & Short answer question
BIO3.2	Identify components of the cytoskeleton and explain their role in cellular shape and transport.	K	Large group teaching	MCQ & Short answer question
BIO3.3	Locate the nucleus and its parts (nuclear membrane, nucleolus, chromatin) under the microscope.	K	Large group teaching	MCQ & Short answer question
BIO3.4	Understand the significance of nuclear organization in cellular function and gene expression.	K	Large group teaching	MCQ & Short answer question
lysosome, cytoskeleton, nucleus				
BIO4.1	Recognize the different stages of mitosis under the microscope.	K	Large group teaching	MCQ & Short answer question
BIO4.2	Describe the sequence of events in the cell cycle.	K	Large group teaching	MCQ & Short answer question
BIO4.3	Differentiate between interphase and mitotic phases.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO4.4	Understand the biological significance of mitosis in growth and repair.	K	Large group teaching	MCQ & Short answer question
Meiosis				
BIO5.1	Identify the phases of meiosis I and II using microscopic slides or illustrations.	K	Large group teaching	MCQ & Short answer question
BIO5.2	Compare the processes and outcomes of mitosis and meiosis.	K	Large group teaching	MCQ & Short answer question
BIO5.3	Explain the importance of meiosis in genetic variation and reproduction.	K	Large group teaching	MCQ & Short answer question
BIO5.4	Recognize chromosomal crossover and its role in genetic diversity.	K	Large group teaching	MCQ & Short answer question
Gene and chromosome				
BIO6.1	Describe the basic structure of a gene and chromosome.	K	Large group teaching	MCQ & Short answer question
BIO6.2	Identify chromosomal features under the microscope (e.g., centromere, arms, banding patterns).	K	Large group teaching	MCQ & Short answer question
BIO6.3	Differentiate between autosomes and sex chromosomes using karyotypes.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO6.4	Explain the relationship between genes, alleles, and genetic traits.	K	Large group teaching	MCQ & Short answer question
Genetics / Gene and chromosome				
BIO 7.1	Interpret human karyotypes and identify chromosomal abnormalities.	K	Large group teaching	MCQ & Short answer question
BIO 7.2	Recognize common chromosomal disorders (e.g. Down syndrome, Turner syndrome).	K	Large group teaching	MCQ & Short answer question
BIO 7.3	Understand chromosomal inheritance patterns through pedigree charts	K	Large group teaching	MCQ & Short answer question
BIO 7.4	Correlate gene mutations with disease phenotypes.	K	Large group teaching	MCQ & Short answer question
Genetic engineering				
BIO8.1	Describe the basic principles of genetic engineering.	K	Large group teaching	MCQ & Short answer question
BIO8.2	Identify tools used in genetic manipulation (e.g. restriction enzymes, plasmids).	K	Large group teaching	MCQ & Short answer question
BIO8.3	Understand the steps involved in recombinant DNA technology.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO8.4	Discuss practical applications of genetic engineering in medicine and agriculture.	K	Large group teaching	MCQ & Short answer question
Genetic engineering				
BIO9.1	Illustrate the process of gene cloning using diagrams or models.	K	Large group teaching	MCQ & Short answer question
BIO9.2	Understand the role of PCR (Polymerase Chain Reaction) in DNA amplification.	K	Large group teaching	MCQ & Short answer question
BIO9.3	Explain how genetically modified organisms (GMOs) are produced.	K	Large group teaching	MCQ & Short answer question
BIO9.4	Discuss ethical considerations and biosafety issues in genetic engineering.	K	Large group teaching	MCQ & Short answer question
Blood group				
BIO10.1	Determine ABO and Rh blood groups using blood typing tests.	K	Large group teaching	MCQ & Short answer question
BIO10.2	Understand the antigen-antibody interactions involved in blood grouping.	K	Large group teaching	MCQ & Short answer question
BIO10.3	Interpret blood typing results and identify compatible donors/recipients.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO10.4	Explain the clinical significance of blood group compatibility in transfusion	K	Large group teaching	MCQ & Short answer question
cancer cell				
BIO11.1	Describe the morphological differences between normal and cancerous cells.	K	Large group teaching	MCQ & Short answer question
BIO11.2	Understand the basic characteristics of cancer cells such as uncontrolled growth and loss of contact inhibition.	K	Large group teaching	MCQ & Short answer question
BIO11.3	Identify histological slides showing malignant vs. benign tumors.	K	Large group teaching	MCQ & Short answer question
BIO11.4	Correlate cell cycle dysregulation with cancer development.	K	Large group teaching	MCQ & Short answer question
tumor suppressor gene				
BIO12.1	Explain the function of tumor suppressor genes such as p53 and Rb.	K	Large group teaching	MCQ & Short answer question
BIO12.2	Understand the consequences of loss-of-function mutations in tumor suppressor genes.	K	Large group teaching	MCQ & Short answer question
BIO12.3	Identify laboratory methods used to detect gene mutations.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO12.4	Discuss the role of tumor suppressor genes in cancer prevention and therapy.	K	Large group teaching	MCQ & Short answer question
stem cells				
BIO13.1	Define stem cells and differentiate between embryonic and adult stem cells.	K	Large group teaching	MCQ & Short answer question
BIO13.2	Understand the concepts of totipotency, pluripotency, and multipotency.	K	Large group teaching	MCQ & Short answer question
BIO13.3	Identify potential clinical applications of stem cell therapy.	K	Large group teaching	MCQ & Short answer question
BIO13.4	Discuss ethical issues and challenges related to stem cell research.	K	Large group teaching	MCQ & Short answer question
Epithelial tissue				
BIO14.1	Identify different types of epithelial tissue under the microscope.	K	Large group teaching	MCQ & Short answer question
BIO14.2	Classify epithelial tissues based on the number of layers and cell shape.	K	Large group teaching	MCQ & Short answer question
BIO14.3	Describe the locations and functions of each epithelial type.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO14.4	Recognize pathological changes in epithelial tissues.	K	Large group teaching	MCQ & Short answer question
Cartilage Connective Tissue				
BIO15.1	Identify the three main types of cartilage (hyaline, elastic, fibrocartilage) under the microscope.	K	Large group teaching	MCQ & Short answer question
BIO15.2	Describe the structural differences and specific locations of each cartilage type.	K	Large group teaching	MCQ & Short answer question
BIO15.3	Understand the role of chondrocytes and extracellular matrix in cartilage function.	K	Large group teaching	MCQ & Short answer question
BIO15.4	Correlate cartilage pathology with clinical conditions like osteoarthritis.	K	Large group teaching	MCQ & Short answer question
Blood Tissue				
BIO16.1	Identify various blood cells (RBCs, WBCs, platelets) on stained blood smears.	K	Large group teaching	MCQ & Short answer question
BIO16.2	Differentiate between types of leukocytes based on morphology.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO16.3	Understand the functions of different blood cell types.	K	Large group teaching	MCQ & Short answer question
BIO16.4	Recognize abnormal blood cells in conditions like anemia or leukemia.	K	Large group teaching	MCQ & Short answer question
Bone Tissue				
BIO17.1	Identify compact and spongy bone under the microscope.	K	Large group teaching	MCQ & Short answer question
BIO17.2	Describe the structure of the Haversian system (osteon).	K	Large group teaching	MCQ & Short answer question
BIO17.3	Understand the roles of osteoblasts, osteocytes, and osteoclasts.	K	Large group teaching	MCQ & Short answer question
BIO17.4	Relate bone microanatomy to bone strength and remodeling.	K	Large group teaching	MCQ & Short answer question
Muscle Tissue				
BIO18.1	Differentiate between skeletal, cardiac, and smooth muscle in histological slides.	K	Large group teaching	MCQ & Short answer question
BIO18.2	Describe the structural and functional characteristics of each muscle type.	K	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO18.3	Identify intercalated discs and striations in muscle tissue.	K	Large group teaching	MCQ & Short answer question
BIO18.4	Correlate muscle tissue types with their physiological roles.	K	Large group teaching	MCQ & Short answer question
Nervous Tissue				
BIO19.1	Identify neurons and neuroglial cells in stained tissue samples.	K	Large group teaching	MCQ & Short answer question
BIO19.2	Describe the structural components of a neuron: soma, axon, dendrites.	K	Large group teaching	MCQ & Short answer question
BIO19.3	Understand the function of neuroglia in supporting neural activity.	K	Large group teaching	MCQ & Short answer question
BIO19.4	Recognize histological changes associated with nerve injury or degeneration.	K	Large group teaching	MCQ & Short answer question
Entamoeba histolytica				
BIO20.1	Identify the trophozoite and cyst stages of Entamoeba histolytica under the microscope.	k	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO20.2	Describe the morphology and diagnostic features of <i>E. histolytica</i> .	K	Large group teaching	MCQ & Short answer question
BIO20.3	Understand the mode of transmission and life cycle of the parasite.	K	Large group teaching	MCQ & Short answer question
BIO20.4	Discuss the clinical significance and diseases caused by <i>E. histolytica</i> (e.g., amoebic dysentery)	K	Large group teaching	MCQ & Short answer question
Giardia lamblia				
BIO21.1	Recognize the trophozoite and cyst stages of <i>Giardia lamblia</i> .	K	Large group teaching	MCQ & Short answer question
BIO21.2	Describe key microscopic features used for identification.	K	Large group teaching	MCQ & Short answer question
BIO21.3	Understand the transmission, life cycle, and pathogenesis of <i>Giardia</i> .	K	Large group teaching	MCQ & Short answer question
BIO21.4	Correlate laboratory findings with symptoms of giardiasis.	K	Large group teaching	MCQ & Short answer question
MALARIA				
BIO22.1	Identify different stages of <i>Plasmodium</i> (e.g., ring, trophozoite, schizont) in blood smears.	k	Large group teaching	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO22.2	Differentiate between species of Plasmodium (e.g., P. falciparum, P. vivax).	k	Large group teaching	MCQ & Short answer question
BIO22.3	Understand the life cycle of the malaria parasite, including the mosquito vector.	K	Large group teaching	MCQ & Short answer question
BIO22.4	Discuss diagnostic methods and clinical relevance of malaria.	K	Large group teaching	MCQ & Short answer question
LEISHMANIA				
BIO23.1	Identify the amastigote (Leishman-Donovan) bodies in tissue samples	K	Large group teaching	MCQ & Short answer question
BIO23.2	Describe the morphology and diagnostic features of Leishmania.	K	Large group teaching	MCQ & Short answer question
BIO23.3	Understand the life cycle of the malaria parasite, including the mosquito vector.	K	Large group teaching	MCQ & Short answer question
BIO23.4	Discuss diagnostic methods and clinical relevance of malaria.	K	Large group teaching	MCQ & Short answer question

Practical

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Cell Organelles				
BIO1.1	1. Use a light microscope to observe and identify major cell organelles (e.g., nucleus, mitochondria, Golgi apparatus).	K	Practical session	MCQ & Short answer question
BIO1.2	1. Compare and contrast plant vs. animal cell structures based on microscopic observations.	K	Practical session	MCQ & Short answer question
BIO1.3	1. Prepare wet mount slides correctly and apply staining techniques to enhance organelle visibility.	K	Practical session	MCQ & Short answer question
BIO1.4	1. Relate organelle structure to its function through experimental observations.	K	Practical session	MCQ & Short answer question
Cell Division (Mitosis)				
BIO2.1	1. Identify and sketch the different stages of	K	Practical session	MCQ & Short

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	mitosis (prophase, metaphase, anaphase, telophase) under a microscope.			answer question
BIO2.2	1. Prepare and analyze onion root tip squashes to observe mitotic phases.	K	Practical session	MCQ & Short answer question
BIO2.3	1. Calculate the mitotic index to estimate cell division activity in a sample.	K	Practical session	MCQ & Short answer question
BIO2.4	1. Compare normal vs. abnormal mitotic divisions (e.g., effects of chemicals on mitosis).	K	Practical session	MCQ & Short answer question
Cell Division (Meiosis)				
BIO3.1	1. Describe the life cycle of Echinococcus granulosus and identify the roles of definitive and intermediate hosts in disease transmission.	K	Practical session	MCQ & Short answer question
BIO3.2	1. Recognize the microscopic and macroscopic features of	K	Practical session	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	hydatid cysts and differentiate them from other parasitic structures.			
BIO3.3	1. Recognize the microscopic and macroscopic features of hydatid cysts and differentiate them from other parasitic structures.	K	Practical session	MCQ & Short answer question
BIO3.4	1. Recognize the microscopic and macroscopic features of hydatid cysts and differentiate them from other parasitic structures.	K	Practical session	MCQ & Short answer question
DNA and Chromosomes				
BIO4.1	Extract DNA from plant/animal cells using basic lab protocols	K	Practical session	MCQ & Short answer question
BIO4.2	Visualize in karyotypes and identify structural abnormalities.	K	Practical session	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO4.3	Perform DNA gel electrophoresis to separate and analyze DNA fragments.	K	Practical session	MCQ & Short answer question
BIO4.4	Explain the relationship between DNA structure, genes, and chromosomes.	K	Practical session	MCQ & Short answer question
Genetic engineering				
BIO5.1	Perform a plasmid digestion using restriction enzymes and analyze results via gel electrophoresis.	K	Practical session	MCQ & Short answer question
BIO5.2	Simulate bacterial transformation (e.g., p GLO plasmid) to understand recombinant DNA technology.	K	Practical session	MCQ & Short answer question
BIO5.3	Discuss real-world applications of genetic engineering (e.g., CRISPR, GMOs)	K	Practical session	MCQ & Short answer question
BIO5.4	Follow biosafety protocols when handling genetically modified organisms	K	Practical session	MCQ & Short answer question
Tissue Processing				
BIO6.1	1. Learn the steps of tissue fixation, dehydration, embedding, and sectioning.	K	Practical session	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO6.2	1. Prepare paraffin-embedded tissue samples for microscopic examination.	K	Practical session	MCQ & Short answer question
BIO6.3	1. Operate a microtome to obtain thin tissue sections.	K	Practical session	MCQ & Short answer question
BIO6.4	1. Identify common artifacts in tissue processing and ways to avoid them.	K	Practical session	MCQ & Short answer question
Epithelial Tissue				
BIO7.1	Identify different types of epithelial tissues (squamous, cuboidal, columnar) under the microscope	K	Practical session	MCQ & Short answer question
BIO7.2	1. Relate epithelial structure to its function in different organs (e.g., skin, intestines).	K	Practical session	MCQ & Short answer question
BIO7.3	1. Distinguish between simple vs. stratified epithelium in histological slides.	K	Practical session	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
BIO7.4	Practice drawing and labeling epithelial tissue specimens accurately.	K	Practical session	MCQ & Short answer question
Connective Tissue				
BIO8.1	1. Recognize major connective tissue types (e.g., loose, dense, adipose, cartilage, bone).	K	Practical session	MCQ & Short answer question
BIO8.2	1. Compare the extracellular matrix composition of different connective tissues.	K	Practical session	MCQ & Short answer question
BIO8.3	1. Analyze collagen, elastic, and reticular fibers in stained slides (e.g., H&E, Masson's trichrome).	K	Practical session	MCQ & Short answer question
BIO8.4	1. Correlate tissue structure with its mechanical and supportive roles in the body.	K	Practical session	MCQ & Short answer question
Blood Film				
BIO9.1	1. Prepare and stain a peripheral blood	K	Practical session	MCQ & Short answer question

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	smear using Wright/Giemsa stain.			
BIO9.2	1. Identify and count different blood cells (RBCs, WBCs, platelets) under a microscope.	K	Practical session	MCQ & Short answer question
BIO9.3	1. Recognize abnormal blood cell morphologies (e.g., sickle cells, leukocytosis).	K	Practical session	MCQ & Short answer question
BIO9.4	Relate blood cell observations to common disorders (anemia, infections).	K	Practical session	MCQ & Short answer question

Medical Physics



First Grade

Academic Program Description

This academic program description provides a concise summary of the program's key characteristics and the learning outcomes expected from students, demonstrating whether they have maximized the available opportunities. It is accompanied by a description of each course within the program.

1) Educational Establishment	University of Al-Ameed
2) Academic Department / Center	Faculty of Medicine / Department of Physiology and Medical Physics
3) Name of the Professional Academic Program	Modified Traditional Curriculum
4) Final Graduation Certificate	M.B.Ch.B
5) Educational system: Annual/courses/other	Annual
6) Approved accreditation program	Iraqi National Guideline on Standards for Established and Accrediting Medical School
7) Other External Influences	• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms • Use of free online communication platforms (e.g., Free Conference Call)
8) Date the description was Standardized Short Answer Questions	15\9\2024
9) Academic Program Objectives The program aims to give students a comprehensive understanding of the physics principles underlying various medical applications and technologies.	

It seeks to develop students' knowledge and skills in applying physics to the human body, diagnostic techniques, and therapeutic procedures. This includes studying matter in its various forms, from crystals and semiconductors to atoms and nuclei, grasping the principles of lasers and their medical applications, and analyzing data from medical devices like X-ray machines, gamma cameras, accelerators, and nuclear magnetic resonance imaging, aiding in diagnosis.

10) The most reliable resources for program information are:

1. John R. Cameron and James G. Skofronick, Medical physics.
2. Irving P. Herman, Physics of the human body.
3. Jerrold T. Bushberg, The Essential Physics of Medical Imaging (2nd Edition).
4. Bushberg, Essentials of Medical Physics.

Medical Physics \ Grade 1				
Code: MPSY 104			Credits	
			5	

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Physics of the Skeleton				
MPSY1.1	A. Explain the functions of bones in the human body. This includes support, locomotion, protection of organs, storage of chemicals, nourishment, and sound transmission. B. Describe the composition and structure of bone tissue. This includes the living and nonliving components, the process of bone remodeling, and the different types of bone (compact and spongy).	K	large group lecture	Short Answer Questions and MCQ
MPSY1.2	Discuss bone remodeling and related conditions. This includes the process of bone remodeling, osteoporosis, and bone densitometry.	K	large group lecture	Short Answer Questions and MCQ
MPSY1.3	Explain the physical properties of bone. This includes density, elasticity, viscoelasticity, and piezoelectricity.	K	large group lecture	Short Answer Questions and MCQ
MPSY1.4	Describe the lubrication of bone joints. This includes the components of the joint and the properties of synovial fluid.	K	large group lecture	Short Answer Questions and MCQ
Heat and Cold in Medicine				
MPSY2.1	A. Explain the concept of heat and its relationship to molecular motion and temperature. B. Describe the different temperature scales and the conversion formulas between them.	K	large group lecture	Short Answer Questions and MCQ

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MPSY2.2	Discuss the principles and types of thermometry used for measuring temperature, including glass thermometers, infrared thermometers, etc.	K	large group lecture	Short Answer Questions and MCQ
MPSY2.3	Explain the applications of heat in medicine, specifically thermography and heat therapy.	K	large group lecture	Short Answer Questions and MCQ
Energy, Work, and Power of the Body				
MPSY3.1	A. Explain the concept of energy conservation in the body using the first law of thermodynamics. B. Define and discuss the units of energy and power in the context of the human. C. Discuss the regulation of body temperature in warm-blooded animals.	K	large group lecture	Short Answer Questions and MCQ
MPSY3.2	A. Explain the concepts of work and power in relation to the human body and how energy is converted. B. Describe the different methods of heat transfer from the body, including radiation, convection, and evaporation.	K	large group lecture	Short Answer Questions and MCQ
Pressure within the Body				
MPSY4.1	A. Define pressure and its units. B. Explain how pressure in a liquid increase with depth and differentiate between absolute pressure and gauge pressure.	K	large group lecture	Short Answer Questions and MCQ
MPSY4.2	A. Describe how pressure is measured in the body, specifically blood pressure using a sphygmomanometer. B. Explain the pressure in the respiratory system, skull, and eye. C. Discuss pressure in the digestive system and the urinary bladder.	K, S	large group lecture	Short Answer Questions and MCQ
MPSY4.3	Explain the pressure in the skeleton and the concept of hyperbaric oxygen therapy.	K	large group lecture	Short Answer Questions and MCQ

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Physics of Respiratory System				
MPSY5.1	Describe the functions of the lungs in respiration, including gas exchange, maintaining blood pH, heat exchange, fluid balance, and voice production.	K	large group lecture	Short Answer Questions and MCQ
MPSY5.2	Explain the physics of breathing, including the mechanics of inspiration and expiration and the role of intrapleural pressure.	K	large group lecture	Short Answer Questions and MCQ
MPSY5.3	A. Describe the measurement of lung volumes using a spirometer. B. Define various lung volumes and capacities.	K	large group lecture	Short Answer Questions and MCQ
MPSY5.4	A. Explain lung compliance and airway resistance and their significance in respiratory function. B. Discuss the physics of common lung diseases, including emphysema, asthma, and fibrosis.	K	large group lecture	Standardized Short Answer Questions and MCQ
Physics of Cardiovascular System				
MPSY6.1	A. Describe the components of the cardiovascular system, including the roles of blood, the circulatory system, and the heart. B. Explain the two separate systems of blood flow.	K	large group lecture	Short Answer Questions and MCQ
MPSY6.2	A. Explain the role of diffusion in oxygen and carbon dioxide exchange within tissue. B. Describe the cardiac cycle, including the events in diastole and systole.	K	large group lecture	Short Answer Questions and MCQ
Electricity within the Body				
MPSY7.1	A. Explain the structure and function of the nervous system, including the central nervous system, peripheral nerves, and autonomic nervous system. B. Describe the anatomy of a neuron and the roles of its main	K	large group lecture	Short Answer Questions and MCQ

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	components: cell body, dendrites, and axon.			
MPSY7.2	Explain the electrical potentials of nerves, including the resting potential and action potential, and how these potentials are generated and propagated.	K	large group lecture	Short Answer Questions and MCQ
MPSY7.3	Describe the electrical signals from the heart, including the (ECG), the cardiac cycle, and the significance of different waves and intervals in the ECG.	K, S	large group lecture	Short Answer Questions and MCQ
MPSY7.4	Explain the electrical signals from the brain, including the (EEG) and the different types of brain waves.	K	large group lecture	Short Answer Questions and MCQ
MPSY7.5	Discuss the electrical signals from the eye, including the electroretinogram (ERG) and the electrooculogram (EOG), and the measurements derived from these recordings.	K	large group lecture	Short Answer Questions and MCQ
Light in Medicine				
MPSY8.1	Describe the properties of light, including refraction, dual behavior (wave-particle duality), heat production, fluorescence, and reflection.	K	large group lecture	Short Answer Questions and MCQ
MPSY8.2	Discuss the applications of visible light in medicine, such as its use in visual examinations, medical instruments (ophthalmoscopes, otoscopes, endoscopes), transillumination, and phototherapy.	K	large group lecture	Short Answer Questions and MCQ
MPSY8.3	Explain the applications of ultraviolet (UV) light, infrared (IR) light and lasers in medicine, including their use in surgery, ophthalmology, dermatology, dentistry, and ENT treatments.	K, S	large group lecture	Short Answer Questions and MCQ
Physics of Eye and Vision				
MPSY9.1	A. Explain the basic components of the eye and their functions in the process of vision.	K	large group lecture	Short Answer Questions and MCQ

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
	B. Describe the function of the retina in converting light images into electrical nerve impulses.			
MPSY9.2	A. Discuss the concept of visual acuity and how it is measured. B. Explain common vision defects, and their correction methods.	K, S	large group lecture	Short Answer Questions and MCQ
Sound in Medicine				
MPSY10.1	A. Explain the nature of sound as mechanical energy that propagates through a medium. B. Describe the properties of sound waves. C. Discuss the dependence of sound speed on the compressibility and density of the transmitting medium.	K	large group lecture	Short Answer Questions and MCQ
MPSY10.2	Explain the concepts of reflection and refraction of sound waves.	K	large group lecture	Short Answer Questions and MCQ
MPSY10.3	A. Discuss the Doppler Effect and its application in measuring the speed of moving objects or fluids within the body. B. Describe the physiological effects of ultrasound and its use in therapy.	K	large group lecture	Short Answer Questions and MCQ
Physics of Speech and Hearing				
MPSY11.1	Explain the mechanics of the vocal tract, including the respiratory system, larynx, and articulators and study the physics of sound wave generation and propagation as it relates to speech.	K	large group lecture	Short Answer Questions and MCQ
MPSY11.2	A. Understand the physical basis of common hearing impairments (e.g., conductive vs. sensorineural hearing loss). B. Discuss how physical principles relate to the use of hearing aids and cochlear implants.	K, S	large group lecture	Short Answer Questions and MCQ

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Physics of Diagnostic X-ray				
MPSY12.1	Explain the fundamental physical principles of X-ray generation, including the production of Bremsstrahlung and characteristic radiation, and their clinical relevance.	K	large group lecture	Short Answer Questions and MCQ
MPSY12.2	Describe the various interactions of X-rays with human tissue (photoelectric effect, Compton scattering, pair production) and their impact on image contrast and diagnostic accuracy.	K	large group lecture	Short Answer Questions and MCQ
MPSY12.3	Explain the physical principles behind different X-ray imaging modalities, such as conventional radiography, fluoroscopy, and computed tomography (CT), and their clinical applications.	K	large group lecture	Short Answer Questions and MCQ
Physics of Nuclear Medicine				
MPSY13.1	Explain the fundamental principles of radioactive decay and nuclear transformations relevant to nuclear medicine.	K	large group lecture	Short Answer Questions and MCQ
MPSY13.2	Describe the properties of commonly used radionuclides in diagnostic and therapeutic nuclear medicine, including their decay modes and emitted radiations.	K	large group lecture	Short Answer Questions and MCQ
MPSY13.3	Compare and contrast the physical principles behind different nuclear medicine imaging modalities, such as planar imaging, SPECT, and PET.	K	large group lecture	Short Answer Questions and MCQ

Practical

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
Blood Pressure Measurement by Using Sphygmomanometer				
MPSY1.1	Describe the physiological principles underlying blood pressure measurement, including systolic and diastolic pressure, and their relationship to arterial blood flow.	K, S	Small group, Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY1.2	Explain the mechanism by which a sphygmomanometer measures blood pressure, including the role of the cuff, pressure gauge, and stethoscope.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY1.3	Accurately measure blood pressure on a simulated patient or fellow student, and record the results.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
Measurement of the Refractive Index of a Liquid by Abbe Refractometer				
MPSY2.1	Describe the principle of refraction and its relationship to the refractive index of a substance.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY2.2	A. Accurately measure the refractive index of a given liquid sample using the Abbe refractometer. B. Record and document the measured refractive index, including relevant experimental conditions.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MPSY2.3	Discuss the clinical significance of refractive index measurements in relevant medical fields (e.g., ophthalmology, analysis of bodily fluids).	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
Electromyography (EMG)				
MPSY3.1	Explain the physiological principles underlying muscle contraction and the generation of electrical signals within muscle fibers.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY3.2	A. Illustrate the relationship between muscle activity and the resulting EMG waveform. B. Describe how changes in electrolyte concentrations (e.g., potassium, calcium, magnesium) can alter waveform morphology.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY3.3	Relate EMG findings to clinical symptoms and other diagnostic test results.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
Absorbance of Solution				
MPSY4.1	Explain the relationship between the concentration of a solution and its absorbance of light, as described by Beer-Lambert's Law.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY4.2	A. Construct a calibration curve (absorbance vs. concentration). B. Determine the concentration of an unknown solution.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
MPSY4.3	Discuss the applications of absorbance measurements in clinical laboratories and different medical devices.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
Speed of sound				
MPSY5.1	A. Define sound waves and explain their nature as longitudinal waves. B. Explain the relationship between the speed of sound, frequency, and wavelength ($v = f\lambda$).	K	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY5.2	Measurement the speed of sound from the sound waves set up in the closed resonance tube.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY5.3	Explain the basic physics of sound transmission through the stethoscope's components.	K	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
Bending of Beam				
MPSY6.1	A. Define the concepts of stress, strain, and bending moment in a beam. B. Describe the relationship between bending moment, curvature, and the flexural rigidity (EI) of a beam.	K	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY6.2	A. Design and conduct experiments to measure the deflection of beams under various loading conditions. B. Calculate Young's modulus from the results.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY6.3	Relate the measured Young's modulus values to the biomechanical function of bones, joints, tendons, the vertebral column, and lungs.	K	Small group , Practical Sessions	Short Answer Questions,

Number	Learning Objective	Domain K/S/A/C	Teaching Learning Methods	Assessment Methods
				OSPE, and VIVA
Determine the Focal Length of a Convex Lens by Magnification Method				
MPSY7.1	A. Define focal length, magnification, and the lens formula. B. Explain how a convex lens forms real and virtual images.	K	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY7.2	A. Determine the magnification of the image for various object distances. B. Record and organize experimental data in a clear and concise manner.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY7.3	Explain how the human eye functions as a convex lens system, including the formation of an inverted image on the retina and the brain's correction mechanism.	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
Heart Rate and Oxygen Sensing for Human				
MPSY8.1	Describe the physiological mechanisms that regulate heart rate and oxygen saturation in the human body.	K	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY8.2	Describe how a fingertip pulse oximeter uses light absorption at different wavelengths to determine oxygen saturation (SpO ₂).	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA
MPSY8.3	Identify and explain factors that can affect the accuracy of fingertip pulse oximeter readings (e.g., poor circulation, motion artifacts, ambient light).	K, S	Small group , Practical Sessions	Short Answer Questions, OSPE, and VIVA

Computer



First Grade

Academic Program Description

This academic program description provides a concise summary of the program's key features and the learning outcomes expected of the student, demonstrating whether the student has made the most of the opportunities available. It is accompanied by a description of each course within the program.

1. Education Institution	University of Al-Ameed
2. Scientific Department/Center	College of Medicine/Computer Science
3. Name of academic or professional program	Modified Traditional Curriculum
4. Name of the final certificate	M.B.Ch.B
5. Academic System: Annual / Courses / Other	Annual
6. Accredited Certification Program	Iraqi National Guideline on Standards for Established and Accrediting Medical School
7. Other external influences	• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms • Use of free online communication platforms (e.g., Free Conference Call)
8. Description preparation date	15/9/2024

9- Objectives of the academic program:

- **Should aim for students to:** Explain basic computer hardware and software components, define fundamental data types and data structures (e.g., numbers, text, lists, tables) and their relevance to medical data.
- **Describe the role of basic statistical software in analyzing medical data.**
- **Differentiate between various types of software** relevant to healthcare (e.g., Electronic Health Records (EHRs), medical imaging software, research databases).
- **Explain basic concepts of databases and data retrieval.**

Computer Science \ Grade 1	
Code: COMP105	4 Credits

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
1. Introduction to Computer				
COMP1.1	List the three main parts of computer hardware.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP1.2	Identify the two main categories of computer software.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP1.3	Compare and contrast the functions of input and output units.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
2. Windows 10 Shortcuts				
COMP2.1	a. Recall the keyboard shortcuts for basic Word functions like opening, creating, saving, and closing a document. b. List the shortcuts for cut, copy, paste, and select all.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP2.2	Create a training exercise for fellow students to practice using the shortcuts.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
3. Word Learning 1				
COMP3.1	Recall the steps to open a blank document in Word.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP3.2	Explain the purpose of Microsoft Word as a word processing application.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP3.3	Determine the most efficient way to perform a specific task in Word.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
4. Word Learning 2 – Working with Word Environment				
COMP4.1	Identify the location of the Ribbon, Quick Access Toolbar, Ruler, and document view commands within the Word interface.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP4.2	Format text in a Word document using the Font group commands (e.g., bolding keywords, using appropriate font sizes for headings and body text in a patient case report).	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
5. Word Learning 3 – Tables				
COMP5.1	a. Identify the steps to insert a blank table. b. List the steps to convert existing text to a table.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP5.2	Recall how to add or delete rows and columns in a table.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP5.3	Explain the purpose of using tables to organize information.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
6. Word Learning 4 – Pictures and Text Wrapping				
COMP6.1	Identify the steps to insert a picture from a file. Define "text wrapping" in the context of word processing.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP6.2	Summarize the steps involved in resizing and moving an image within a Word document.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
7. Word Learning 5 – Chart				
COMP7.1	Identify the basic components of a chart (title, axes, data points, legend).	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP7.2	a. List the different types of charts available in Word b. Interpret the information presented in a chart.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
8. Word Learning 6 – Headers, Footers, Page				
COMP8.1	Define the terms "header" and "footer" and state their location in a document.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP8.2	List common information that can be included in headers and footers (e.g., page numbers, dates, author's name).	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP8.3	Explain how to insert preset headers and footers and edit Content Control fields.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
9. Word Learning 7 – Text Box				
COMP9.1	a. Define what a text box is and its purpose in a Word document. b. Recall the steps to insert a text box.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP9.2	Summarize the process of creating and typing within a text box.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
10. Power Point – Introduction				
COMP10.1	Define "PowerPoint " as presentation software.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP10.2	Explain the purpose of PowerPoint for creating dynamic slide presentations.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP10.3	Evaluate the importance of slide organization for clarity and audience comprehension.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
11. Excel 1 – Introduction				
COMP11.1	Define key Excel terminology (e.g., workbook, worksheet, cell, row, column, cell address, cell range).	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP11.2	Explain the purpose of Excel as a tool for storing, organizing, and analyzing information.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
12. Excel 2				
COMP12.1	List ways to manipulate rows and columns (insert, delete, resize, freeze, hide/unhide).	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP12.2	Summarize the process of inserting and deleting rows or columns.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP12.3	Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose.	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work
COMP12.4	List ways to manipulate rows and columns (insert, delete, resize, freeze, hide/unhide).	K	Large group lectures, Laboratory Exercise	Practical assignment and lab work

Practical

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
1. Introduction about Excels /A Look at Microsoft Excel				
COMP1.1	Explain the purpose and common uses of Microsoft Excel in data organization and analysis, particularly in a medical context	K/S	Small group, practical sessions	Practical assignment and lab work
COMP1.2	Open and navigate a Microsoft Excel workbook	K/S	Small group, practical sessions	Practical assignment and lab work
2. Modifying A Worksheet				
COMP2.1	Describe how to insert, delete, and move cells, rows, and columns within a worksheet.	K/S	Small group, practical sessions	Practical assignment and lab work
COMP2.2	Modify an existing worksheet by inserting, deleting, and adjusting the size of rows and columns.	K/S	Small group, practical sessions	Practical assignment and lab work
3. Performing Calculations				
COMP3.1	Explain the concept of formulas and how to enter them into cells.	K/S	Small group, practical sessions	Practical assignment and lab work
COMP3.2	Perform basic calculations using formulas and common functions on medical-related data.	K/S	Small group, practical sessions	Practical assignment and lab work
4. Formatting a worksheet				
COMP4.1	Identify various formatting options available in Excel (e.g., font, alignment, number format, borders).	K/S	Small group, practical sessions	Practical assignment and lab work
COMP4.2	Explain how different formatting options can improve the readability and presentation of data.	K/S	Small group, practical sessions	Practical assignment and lab work

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
5.Developing a work book				
COMP5.1	Recall how to create new worksheets and save workbooks in different formats.	K/S	Small group, practical sessions	Practical assignment and lab work
COMP5.2	Describe the importance of organizing data across multiple worksheets within a workbook.	K/S	Small group, practical sessions	Practical assignment and lab work
6.Introduction about Microsoft Power point/starting power point				
COMP6.1	Recall the basic interface elements of Microsoft PowerPoint	K/S	Small group, practical sessions	Practical assignment and lab work
COMP6.2	Explain the purpose of PowerPoint in creating and delivering presentations, especially in academic and professional medical settings.	K/S	Small group, practical sessions	Practical assignment and lab work
7.Formatting text				
COMP7.1	Identify various text formatting options (e.g., font, size, color, alignment, bullet points)	K/S	Small group, practical sessions	Practical assignment and lab work
COMP7.2	Explain how effective text formatting contributes to clear and engaging presentations.	K/S	Small group, practical sessions	Practical assignment and lab work
8. Using Multimedia Elements				
COMP8.1	Recognize different types of multimedia elements that can be inserted into PowerPoint (e.g., images, videos, audio).	K/S	Small group, practical sessions	Practical assignment and lab work
COMP8.2	Explain how multimedia elements can enhance the understanding and engagement of a medical presentation.	K/S	Small group, practical sessions	Practical assignment and lab work

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
9.Power point Management				
COMP9.1	Recall how to add, delete, duplicate, and rearrange slides.	K/S	Small group, practical sessions	Practical assignment and lab work
COMP9.2	Describe strategies for organizing slides logically to create a coherent presentation flow.	K/S	Small group, practical sessions	Practical assignment and lab work
10.Introduction about Microsoft Access/ A look at Microsoft Access				
COMP10.1	Recall the basic objects within Microsoft Access	K/S	Small group, practical sessions	Practical assignment and lab work
COMP10.2	Explain the purpose of a database management system like Access in organizing and managing structured data, particularly patient or research data.	K/S	Small group, practical sessions	Practical assignment and lab work
11.Creating a New Table/ Designing				
COMP11.1	Identify the fundamental components of a table	K/S	Small group, practical sessions	Practical assignment and lab work
COMP11.2	Explain the importance of defining appropriate fields and data types for storing different kinds of medical information.	K/S	Small group, practical sessions	Practical assignment and lab work
12.Creating a Data Entry Form& Entering Data Table				
COMP12.1	Recall the purpose of a data entry form in simplifying data input.	K/S	Small group, practical sessions	Practical assignment and lab work
COMP12.2	Explain how forms can improve accuracy and user-friendliness when entering data into tables.	K/S	Small group, practical sessions	Practical assignment and lab work

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
13.Introduction about internet				
COMP13.1	Recall basic terms related to the internet (e.g., World Wide Web, URL, browser, search engine).	K/S	Small group, practical sessions	Practical assignment and lab work
COMP13.2	Explain the fundamental concepts of how the internet works and its significance as a resource for medical information and research.	K/S	Small group, practical sessions	Practical assignment and lab work
14.Introduction about email				
COMP14.1	Explain the principles of effective email communication in a professional medical context, including etiquette and security considerations.	K/S	Small group, practical sessions	Practical assignment and lab work
COMP14.2	Compose, send, and reply to a basic email message with appropriate subject lines and professional tone.	K/S	Small group, practical sessions	Practical assignment and lab work

Medical Foundation



First Grade

Academic Program Description

This academic program description provides a concise summary of the program's key features and the learning outcomes expected of the student, demonstrating whether the student has made the most of the opportunities available. It is accompanied by a description of each course within the program.

1. Educational Institution	University of Al-Ameed
2. Scientific Department/Center	College of Medicine/Department of Public Health and Family Medicine (Medical Foundation)
3. Name of academic or professional program	Modified Traditional Curriculum
4. Name of the final certificate	M.B.Ch.B
5. Academic System: Annual / Courses / Other	Annual
6. Accredited Certification Program	Iraqi National Guideline on Standards for Established and Accrediting Medical School
7. Other external influences	• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms • Use of free online communication platforms (e.g., Free Conference Call)
8. Description preparation date	15/9/2024

9- Objectives of the academic program:

- **Students will be able to:** Explain the structure and function of major organ systems in their normal state, identify key concepts in human behavior, cognition, emotion, and development relevant to health and illness.
- **Describe the basic principles** of the patient-physician relationship and the influence of psychological factors on health outcomes.
- **Begin to integrate basic science knowledge with clinical relevance:** Relate foundational scientific concepts to simple clinical scenarios introduced in lectures or discussions, identify the basic scientific basis for common signs and symptoms.

10. The most reliable resources for program information are:

- Richard S. Snell, Clinical Anatomy by Regions, . Lippincott Williams & Wilkins.
- Moore, Keith L.; Dalley, Arthur F, Clinically Oriented Anatomy, Lippincott Williams & Wilkins .
- ABC OF LEARNING AND TEACHING IN MEDICINE by PETER CANTILLON 2003 ISBN 07279 16785.
- Teaching and Learning Communication Skills in Medicine by Suzanne Kurtz Professor of Communication Faculties of Education and Medicine 2004

Medical Foundation \ Grade 1	
Code: MEDF 106	4 Credits

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
1. History of Medicine in the Arab World				
MEDF1.1	Trace the historical development of medicine in Arab and Islamic civilization.	K	Large group lecture	comprising multiple choice questions
MEDF1.2	Discuss the influence of Arab and Islamic civilization on the development of medicine in the world.	K	Large group lecture	comprising multiple choice questions
2.Introduction to Health Care System				
MEDF2.1	a. Identify different types of health care settings (e.g., hospitals, clinics, primary care centers). b. Paraphrase the concepts of primary, secondary, and tertiary levels of care.	K	Large group lecture	comprising multiple choice questions
MEDF2.2	a. Compare and contrast the advantages and disadvantages of different health care. b. Assess the strengths and weaknesses of a given health care system model based on specific criteria (e.g., equity, efficiency, quality).	K	Large group lecture	comprising multiple choice questions
3.Concept of Health and Disease				
MEDF3.1	a. Define health according to the WHO definition. b. Apply the principles of health promotion to develop a basic health promotion plan for a community.	K	Large group lecture	comprising multiple choice questions
MEDF3.2	a. Identify the determinants of health or ill health using the "BEINGS" model. b. Design a community health intervention program based on the principles of health promotion.	K	Large group lecture	comprising multiple choice questions

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
4.Natural History of Disease				
MEDF4.1	a. Define "natural history of disease." b. List the four stages of the natural history of disease. c. Describe the epidemiologic triad and its components.	K	Large group lecture	comprising multiple choice questions
MEDF4.2	a. Explain what happens during the stage of subclinical disease. b. Describe the transition from subclinical to clinical disease.	K	Large group lecture	comprising multiple choice questions
5. medical psychology= Communication Skills 1				
MEDF5.1	a. Identify the components of a structured framework for patient history. b. Explain the importance of empathy and respect in establishing a conducive environment for open communication.	K	Large group lecture	comprising multiple choice questions
MEDF5.2	a. Describe the components of active listening and their role in gathering crucial details. b. Identify potential barriers to effective communication in healthcare settings. c. Develop a communication strategy for a specific patient scenario, incorporating principles of empathy, active listening, and cultural sensitivity.	K	Large group lecture	comprising multiple choice questions
6. medical psychology= Communication Skills 2				
MEDF6.1	a. List the steps involved in clinical history taking. b. Describe the type of information to be gathered when identifying the patient.	K	Large group lecture	comprising multiple choice questions
MEDF6.2	a. Explain the importance of summarizing information and planning next steps with the patient.	K	Large group lecture	comprising multiple choice questions

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
	b. Analyze the impact of effective communication on the patient-doctor relationship.			
7. Medical Psychology				
MEDF7.1	Understand the fundamental principles of psychology relevant to healthcare settings.	K	Large group lecture	comprising multiple choice questions
MEDF7.2	Explain the principles of effective communication and the therapeutic relationship in healthcare.	K	Large group lecture	comprising multiple choice questions
8. Rumors and Misinformation				
MEDF8.1	Identify the psychological and social factors that contribute to the spread of rumors and misinformation, particularly in health-related contexts.	K	Large group lecture	comprising multiple choice questions
MEDF8.2	Develop skills in communicating accurate health information effectively to counter misinformation.	K	Large group lecture	comprising multiple choice questions
9. Critical Thinking and Problem _Solving Skills				
MEDF9.1	Identify the key elements of critical thinking, such as analysis, evaluation, inference, and interpretation.	K	Large group lecture	comprising multiple choice questions
MEDF9.2	Apply critical thinking skills to evaluate medical information, research findings, and clinical guidelines.	K	Large group lecture	comprising multiple choice questions
10. Medical Ethics- The Principles				
MEDF10.1	List the four key principles of clinical ethics: autonomy, beneficence, non-maleficence, and justice.	K	Large group lecture	comprising multiple choice questions
MEDF10.2	Discuss the importance of patient autonomy in the doctor-patient relationship.	K	Large group lecture	comprising multiple choice questions

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
11. Medical Ethics – Doctors Duties				
MEDF11.1	a. List the duties of a doctor as outlined. b. Describe the doctor's responsibility to protect and promote the health of patients and the public.	K	Large group lecture	comprising multiple choice questions
MEDF11.2	a. Describe the importance of working in partnership with patients, respecting their concerns and preferences, giving them information, they can understand, respecting their right to make decisions, and supporting them in caring for themselves. b. Provide equitable care to all patients, avoiding discrimination.	K	Large group lecture	comprising multiple choice questions
12. Medical Ethics – Patients' Confidentiality				
MEDF12.1	a. Define patient confidentiality and its ethical and legal basis in healthcare. b. Understand the importance of maintaining patient privacy and trust in the doctor-patient relationship.	K	Large group lecture	comprising multiple choice questions
MEDF12.2	Describe practical strategies for ensuring patient confidentiality in various healthcare settings (e.g., electronic health records, consultations, discussions with colleagues).	K	Large group lecture	comprising multiple choice questions
13. Medical Ethics – Informed Consent				
MEDF13.1	Identify the core components of informed consent (e.g., understanding, acceptance/rejection, consequences).	K	Large group lecture	comprising multiple choice questions
MEDF13.2	Discuss the ethical and legal implications of informed consent in medical practice.	K	Large group lecture	comprising multiple choice questions
14. Medical Ethics – Medical Legislation, complementary medicine, alternative medicine.				
MEDF14.1	Identify key pieces of legislation and regulations that govern medical practice in [mention the relevant jurisdiction, e.g., Iraq].	K	Large group lecture	comprising multiple choice questions

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
MEDF14.2	Explain the legal requirements for medical licensure and registration.	K	Large group lecture	comprising multiple choice questions
MEDF14.3	a. Distinguish between "complementary medicine" and "alternative medicine." Analyze the stated benefits and goals of various CAM therapies, such as acupuncture, chiropractic medicine, and reflexology.	K	Large group lecture	comprising multiple choice questions
MEDF14.4	Propose how conventional medicine and complementary therapies might be integrated for patient care, considering the evidence presented.	K	Large group lecture	comprising multiple choice questions
15. Medical Ethics – Patients’ rights				
MEDF15.1	a. Identify the fundamental rights of patients, including confidentiality, informed consent, and safety. b. Apply ethical and legal principles to ensure transparency in clinical care.	K	Large group lecture	comprising multiple choice questions
MEDF15.2	a. Demonstrate effective communication techniques that respect patient autonomy. b. Evaluate the role of healthcare providers in maintaining trust with patients, providing equitable treatment, upholding patient dignity.	K	Large group lecture	comprising multiple choice questions
16. Patient Safety				
MEDF16.1	a. Explain the importance of patient safety in healthcare delivery. b. Summarize the principles of patient safety.	K	Large group lecture	comprising multiple choice questions
MEDF16.2	a. List common causes of patient harm. b. Apply strategies to prevent patient harm in simulated clinical situations.	K	Large group lecture	comprising multiple choice questions
17. social sciences= Primary Health Care				
MEDF17.1	a. Define primary health care (PHC) as outlined by the World Health Organization. b. Identify examples of health promotion and disease prevention activities within a PHC framework.	K	Large group lecture	comprising multiple choice questions

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
MDEF17.2	a. Demonstrate an understanding of the referral process from primary to secondary care when necessary. b. Differentiate between primary, secondary, and tertiary levels of healthcare.	K	Large group lecture	comprising multiple choice questions
18. Seven stars Doctors				
MEDF18.1	Understand the importance of the seven key roles: Care provider, Decision-maker, Communicator, Manager, Community leader, Scholar, and Professional.	K	Large group lecture	comprising multiple choice questions
MEDF18.2	Understand how the Seven Star Doctor concept contributes to providing holistic and patient-centered care within the community.	K	Large group lecture	comprising multiple choice questions
19. Evidence Based Medicine				
MEDF19.1	1. Identify different types of evidence sources used in EBM. 2. Recognize key terms related to EBM, such as systematic review, meta-analysis, randomized controlled trial (RCT), and bias.	K	Large group lecture	comprising multiple choice questions
MEDF19.2	Summarize how EBM integrates the best research evidence with clinical expertise and patient values.	K	Large group lecture	comprising multiple choice questions
20. Research Principles- Quantitative Designs				
MEDF20.1	a. Define quantitative research and differentiate it from qualitative research. b. Explain the purpose of quantitative research in medical science.	K	Large group lecture	comprising multiple choice questions
MEDF20.2	a. Develop a basic research question suitable for a specific quantitative research design. b. Design a simple data collection method appropriate for a specific quantitative research question.	K	Large group lecture	comprising multiple choice questions
21. Research Principles – Qualitative Designs				
MEDF21.1	a. List common types of qualitative research designs. b. Identify common methods of data collection in qualitative research.	K	Large group lecture	comprising multiple choice questions
MEDF21.2	a. Explain the purpose of qualitative research in medical science.	K	Large group lecture	comprising multiple

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
	b. Summarize the fundamental principles underlying different qualitative research designs.			choice questions
22. Research Principles – Critical Appraisal				
MEDF22.1	Identify common sources of bias in medical research.	K	Large group lecture	comprising multiple choice questions
MEDF22.2	a. Apply basic screening questions to determine the relevance of a research article. b. Differentiate between statistically significant and clinically significant findings based on a brief description of results.	K	Large group lecture	comprising multiple choice questions

Practical

- **Outline of the practical aspect of the curriculum:**

- **Format: 2-hour practical sessions**
- **Duration: 30 weeks**

- **Session Structure:**

- 1. Introduction (30 mins):**

- Brief overview of the week's case study
- Define learning goals and expected outcomes.

- 2. Group Work (90 mins):**

- Students work in small groups to analyze the case, discuss their findings, and develop solutions.
- Facilitate discussions around the medical ethics, patient safety, and psychological aspects relevant to the case.

- 3. Presentation and Feedback (30 mins):**

- Groups present their solutions to the class.
- Provide constructive feedback and facilitate a reflective discussion.

- 4. In the second semester, medical students will visit primary care centers and Al Kafeel Hospital for two hours for each group.**

Revised Learning Objectives:

- Enhance clinical reasoning and critical thinking skills through clinical case scenarios.
- Foster collaborative learning and teamwork among students.
- Develop Leadership Skills: Students will learn to lead teams effectively in clinical settings, demonstrating the ability to motivate peers and manage conflicts.
- Decision-Making: Students will enhance their decision-making skills by applying ethical considerations and medical guidelines in high-pressure situations.
- Innovation in Healthcare: Students will explore entrepreneurial opportunities within the healthcare sector, encouraging innovative thinking and problem solving.
- Apply theoretical knowledge in practical settings to reinforce learning outcomes.
- HISTORY: Students will master the art of obtaining comprehensive and relevant patient histories, identifying key information for diagnosis and management.
- EXAMINATION: Students will develop proficiency in performing thorough and focused physical examinations, interpreting findings accurately to inform clinical decisions.
- COMMUNICATION: Students will cultivate effective communication skills with patients, families, and healthcare team members, ensuring clear information exchange, empathy, and patient-centered care.

Medical Terminology



First Grade

Academic Program Description

This academic program description provides a concise summary of the program's key features and the learning outcomes expected by the students. It should demonstrate whether the students can make the most of the opportunities available. It is accompanied by a description of each course within the program.

1. Education Institution	University of Al-Ameed
2. Scientific Department	College of Medicine /Department of Pharmacology (Medical terminology)
3. Name of academic or professional Program	Modified Traditional Curriculum
4. Name of the final certificate	M.B.Ch.B
5. Academic System: Annual / Courses / Other	Annual
6. Accredited Certification Program	Iraqi National Guideline on Standards for Establishing and Accrediting Medical Schools
7. Other external influences	• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms • Use of free online communication platforms (e.g., Free Conference Call)
8. Preparation date	1/4/2025

9. Objectives of the academic program:

- **Students will be able to** define and correctly pronounce common prefixes, suffixes, and word roots used in medical terminology; also, to recognize and understand abbreviations and acronyms frequently used in medical documentation and communication.
- **Students will be able to** identify and define TERMS related to body planes, anatomical positions, and directional TERMS; define and explain basic TERMS related to normal body functions and processes.
- **Students will be able to** define and understand basic TERMS related to common diseases and conditions.
- **Students will be able to** identify and understand basic TERMS related to common diagnostic tests and procedures.

13. The most reliable resources for program information are:

- Chabner D-E (Editor)
- Medical Terminology
- A Short Course
- 8th Edition, 2018
- Elsevier (Missouri, 63043)
- Collins CE, DePetrus A (Editors)
- A Short Course in Medical Terminology
- 2nd Edition, 2011
- Walter Kluwer/ Lippincott Williams and Wilkins

Medical Terminology \ Grade 1	
Code: TERM107	2 Credits

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
1. Medical Terminology: Introduction				
TERM1.1	Distinguish among the four elements of medical TERMS	K	Large group Lectures: Interactive and case studies	Multiple choice questions, reports and posters
TERM1.2	State the rules for determining singular and plural endings	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM1.3	Recognize the importance of proper spelling and pronunciation of medical TERMS	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
2. Medical Discoveries: (Penicillin)				
TERM2.1	Recall the name of the scientist who discovered penicillin.	K, A	Large group lectures: interactive and case studies	Multiple choice questions, reports and posters
TERM2.2	Explain the impact of the discovery of penicillin on the treatment of bacterial infections.	K, A	Large group lectures: interactive and case studies	Multiple choice questions, reports and posters
TERM2.3	Summarize the process of penicillin's development from discovery to clinical use.	K, A	Large group lectures: interactive and case studies	Multiple choice questions, reports and posters
3. Medical TERMS – Body Systems				
TERM3.1	a. List the structural levels of the body. b. Identify examples of organs within the human body.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM3.2	Use anatomical directional TERMS to describe the relative location of body parts.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
TERM3.3	Use word roots to understand the meaning of medical TERMS related to body systems.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
4. Medical Discoveries – Heart Transplant				
TERM4.1	Recall the year of the first successful human heart transplant.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM4.2	Explain the significance of the first heart transplant in the history of medicine.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
5. Case Study – OA Medical TERMS				
TERM5.1	Recall common synonyms for osteoarthritis, such as degenerative joint disease	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM5.2	Remember the meaning of the suffix "-itis" in the context of osteoarthritis.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM5.3	Recall the meaning of the prefix "osteo-" and "arthr-"	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
6. Skeletal System				
TERM6.1	List the two main divisions of the skeleton.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM6.2	Explain the meaning of medical TERMS related to the skeletal system	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM6.3	Relate the roots to their corresponding anatomical structures.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
7. Medical Discoveries – DNA				
TERM7.1	Recall the year in which the double helix structure of DNA was described.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
TERM7.2	Explain the significance of the discovery of DNA's structure for modern genetics.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM7.3	Compare and contrast the components of DNA and RNA.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
8. Case Study- DM				
TERM8.1	Define Type 2 Diabetes Mellitus.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM8.2	Explain the physiological effects of diabetes on the body.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM8.3	Calculate a patient's BMI given their weight and height.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
9. Medical Discoveries – IVF				
TERM9.1	a. Define <i>in vitro</i> Fertilization (IVF) b. Summarize the IVF procedure.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM9.2	Explain the purpose of IVF.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
10. Medical TERMS – CV System				
TERM10.1	a. Define the TERMS "Cardio-" and "Vascular". b. Name the three types of blood vessels.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM10.2	Describe the function of the endocardium, myocardium, and pericardium.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
11. Medical Discoveries – HIV				
TERM11.1	State the year in which the virus responsible for AIDS was identified.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM11.2	Describe the basic characteristics of HIV.	K, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
12. Medical TERMS – GIT				
TERM12.1	a. List the main parts of the GIT. b. Identify the accessory organs of the digestive system.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM12.2	Describe the overall function of the digestive system.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
13. Case Study – Peptic Ulcer				
TERM13.1	a. Identify the locations of gastric and duodenal ulcers. b. List common symptoms of peptic ulcers.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM13.2	Describe the role of H. pylori in the pathology of peptic ulcers.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
14. Case Study – Thyroid				
TERM14.1	Identify signs of hyperthyroidism from a physical examination.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM14.2	Describe the presentation of hyperthyroidism caused by Graves' disease.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters

Number	Learning Objective	Domain K/S/A/C*	Teaching Learning Methods	Assessment Methods
15. Medical TERMS – Skin				
TERM15.1	List the accessory structures of the skin.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM15.2	Describe the basic structure and components of the skin.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM15.3	Identify examples of skin lesions.	K	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
16. Case Study – Eye				
TERM16.1	Identify the symptoms reported by the patient in the case study.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM16.2	Use appropriate medical terminology to describe the patient's condition in the case study	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
17. Case study – Renal Stone				
TERM17.1	Recall common locations where renal stones can be found (e.g., kidney, ureter, bladder).	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM17.2	Identify different types of renal stones (e.g., calcium oxalate, uric acid, struvite).	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters
TERM17.3	Use medical terminology to accurately document a patient's symptoms related to renal stones.	K, S, A	Large group lectures: interactive and case studies.	Multiple choice questions, reports and posters

Human Rights



First Grade

وصف البرنامج الأكاديمي

يوفر وصف البرنامج الأكاديمي هذا إيجازاً مقتضياً لأهم خصائص البرنامج ومخرجات التعلم المتوقعة من الطالب تحقيقها مبرهنًا عما إذا كان قد حقق الاستفادة القصوى من الفرص المتاحة. ويصاحبه

جامعة العميد	1. المؤسسة التعليمية
Human Rights	2. القسم العلمي / المركز
Modified Traditional Curriculum	3. اسم البرنامج الأكاديمي او المهني
M.B.ch.B	4. اسم الشهادة النهائية
سنوي	5. النظام الدراسي: سنوي / مقررات / أخرى
Iraqi National Guideline on Standards for Established and Accrediting Medical School	6. برنامج الاعتماد المعتمد
• Availability of relevant scientific research in the field of specialization • Access to global electronic networks • Access to traditional and digital libraries • Teaching aids such as data show and PowerPoint presentations • Availability of equipped classrooms • Use of free online communication platforms (e.g., Free Conference Call)	7. المؤثرات الخارجية الأخرى
2024\9\15	8. تاريخ إعداد الوصف
9. أهداف البرنامج الأكاديمي • أن يستطيع الطالب ربط أنواع مختلفة من انتهاكات حقوق الإنسان (مثل التعذيب، الاعتقال التعسفي، التمييز) بالعواقب الصحية الجسدية والنفسية على الأفراد والمجتمعات. • أن يكون الطالب قادراً على تحليل وتقييم التأثيرات طويلة الأمد للجرائم الجماعية (مثل الإبادة الجماعية والجرائم ضد الإنسانية) على الصحة العامة والنفسية للمجتمعات المتضررة.	

- أن يتعرف الطالب على المؤسسات والآليات القانونية والإجرائية المختلفة التي تهدف إلى حماية وتعزيز حقوق الإنسان، وكيفية تفاعلها مع القطاع الصحي.
- أن يكتسب الطالب القدرة على التواصل الفعال والتعاطف مع الأفراد الذين عانوا من انتهاكات حقوق الإنسان، وفهم احتياجاتهم الصحية والنفسية الخاصة.
- أن يحلل الطالب كيف يمكن لآليات العدالة الانتقالية المختلفة (مثل المحاكمات، ولجان الحقيقة، والتعويضات) أن تساهم في التعافي الصحي والنفسي للمجتمعات المتضررة.

10. أهم مصادر المعلومات عن البرنامج

المقرر الدراسي لمادة حقوق الانسان للجامعات الحكومية والأهلي

حقوق الإنسان\ المرحلة الأولى	
Code: HUMR 108	2 Credits

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
1. مفهوم حقوق الإنسان وحياته				
HUMR 1.1	تعريف حقوق الإنسان والحريات الأساسية في سياق عالمي. شرح العلاقة بين حقوق الإنسان والكرامة الفردية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 1.2	تحليل كيفية تطبيق مفهوم الحرية في الرعاية الصحية. تحديد الوثائق التاريخية والقانونية الرئيسية الداعمة لحقوق الإنسان.	K	Large group lecture	Comprising multiple choice questions.
HUMR 1.3	وصف الآثار المترتبة على انتهاكات حقوق الإنسان في الأوساط الطبية.	K	Large group lecture	Comprising multiple choice questions.
2. تعريف الحق والحرية				
HUMR 2.1	التمييز بين مفهومي "الحق" و "الحرية"، شرح كيف أن الحقوق هي استحقاقات، والحريات هي خيارات.	K	Large group lecture	Comprising multiple choice questions.
HUMR 2.2	تطبيق هذه التعريفات في حالات رعاية المرضى (مثل الموافقة المستنيرة)، إدراك كيف يشكل هذان المفهومان أساس المسؤوليات الأخلاقية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 2.3	ربط المفهومين بالقوانين المحلية والمواثيق الدولية.	K	Large group lecture	Comprising multiple choice questions.
3. تعريف الحق والحرية لغة واصطلاحاً				
HUMR 3.1	تحديد أصل ومعنى مصطلحي "الحق" و "الحرية" في اللغتين العربية والإنجليزية، تعريف "الحق" و "الحرية" باستخدام المصطلحات القانونية والفلسفية. مقارنة المعنى اللغوي بالتطبيقات العملية في الحياة والقانون..	K	Large group lecture	Comprising multiple choice questions.
HUMR 3.2	تحليل النصوص أو الخطابات باستخدام التفسير اللغوي للحقوق، تطبيق التعريفات القانونية	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
	على سيناريوهات حقوق الإنسان الواقعية في الطب.			
HUMR 3.3	وصف كيف تؤثر اللغة على الفهم الثقافي لحقوق الإنسان. , التمييز بين الحقوق الفردية وحقوق الجماعات. , التفكير في أهمية وضوح اللغة في توصيل الحقوق للمرضى.	K	Large group lecture	Comprising multiple choice questions.
4. الأسس التي يستند إليها الحق				
HUMR 4.1	شرح الأسس الفلسفية والأخلاقية لحقوق الإنسان. , تحديد المصادر الدينية والثقافية والقانونية الداعمة لفكرة الحقوق.	K	Large group lecture	Comprising multiple choice questions.
HUMR 4.2	وصف دور الكرامة الإنسانية والمساواة كمبادئ أساسية، تحليل كيف شكلت الأحداث التاريخية الاعتراف بحقوق الإنسان..	K	Large group lecture	Comprising multiple choice questions.
HUMR 4.3	فهم كيف تساهم قيم مثل العدل والإنصاف في تكوين الحقوق.	K	Large group lecture	Comprising multiple choice questions.
5. اركان الحق				
HUMR 5.1	تحديد العناصر الأساسية الثلاثة للحق: صاحب الحق، ومحل الحق، والملزم بالحق.	K	Large group lecture	Comprising multiple choice questions.
HUMR 5.2	وصف كيفية عمل هذه العناصر في النظم القانونية العملية. , تطبيق المفهوم على حقوق المرضى في الممارسة السريرية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 5.3	تحليل حالة رعاية صحية بناءً على هذه العناصر الهيكلية. , شرح كيف يضمن التوازن بين هذه العناصر تحقيق العدالة.	K	Large group lecture	Comprising multiple choice questions.
6. تعريف مصطلح حقوق الإنسان				
HUMR 6.1	تعريف حقوق الإنسان كما ورد في الإعلان العالمي لحقوق الإنسان. , تحديد الخصائص التي تميز حقوق الإنسان عن الحريات المدنية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 6.2	ربط هذا التعريف بالتزامات المهنيين الطبيين. , استكشاف كيف تعرف المنظمات المختلفة حقوق الإنسان وتعززها. , التفكير في كيف يعزز التعريف الواضح المساءلة في الرعاية الصحية.	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
a. انواع حقوق الإنسان				
HUMR 7.1	التمييز بين الحقوق المدنية والسياسية والاقتصادية والاجتماعية والثقافية والجماعية,, تصنيف حقوق المرضى وفقاً لفئات حقوق الإنسان.	K	Large group lecture	Comprising multiple choice questions.
HUMR 7.2	تحليل كيفية تطبيق هذه الحقوق على الوصول إلى الرعاية الصحية والإنصاف فيها.	K	Large group lecture	Comprising multiple choice questions.
HUMR 7.3	تقديم سياسة طبية من حيث تأثيرها على حقوق الإنسان,, وصف كيف تتفاعل فئات الحقوق وتدعم بعضها البعض.	K	Large group lecture	Comprising multiple choice questions.
b. مميزات حقوق الانسان				
HUMR 8.1	تحديد السمات الرئيسية لحقوق الإنسان: العالمية، والتكاملية، وعدم القابلية للتصرف، شرح لماذا تنطبق حقوق الإنسان على جميع البشر بغض النظر عن وضعهم	K	Large group lecture	Comprising multiple choice questions.
HUMR 8.2	التفكير في كيف يؤثر التكامل على صنع القرار الأخلاقي في الرعاية الصحية,, مناقشة كيف تحمي النظم القانونية هذه الخصائص,, تحليل العواقب المترتبة على انتهاك هذه الميزات في الممارسة الطبية.	K	Large group lecture	Comprising multiple choice questions.
c. حقوق الإنسان عبر التاريخ				
HUMR 9.1	تتبع تطور حقوق الإنسان من الحضارات القديمة إلى العصر الحديث,, تحديد الأحداث التاريخية الرئيسية التي ساهمت في ظهور التفكير القائم على الحقوق.	K	Large group lecture	Comprising multiple choice questions.
HUMR 9.2	مقارنة المفاهيم القديمة والحديثة للعدالة والحرية,, التفكير في تطور أخلاقيات مهنة الطب في ضوء التقدم التاريخي لحقوق الإنسان	K	Large group lecture	Comprising multiple choice questions.
HUMR 9.3	تحليل كيف تؤثر وجهات النظر التاريخية حول الكرامة الإنسانية على المعايير الأخلاقية المعاصرة.	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
d. حقوق الإنسان في حضارة ما بين النهرين				
HUMR 10.1	وصف الهيكل المجتمعي ومفهوم العدالة في بلاد ما بين النهرين، تحديد الأشكال المبكرة للحماية القانونية والالتزامات الاجتماعية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 10.2	استكشاف كيف وجد مفهوم الإنصاف والمسؤولية الاجتماعية في القوانين المبكرة، مقارنة ممارسات بلاد ما بين النهرين بمبادئ حقوق الإنسان الحديثة.	K	Large group lecture	Comprising multiple choice questions.
HUMR 10.3	تحليل النصوص التاريخية (مثل سجلات المعابد أو المدونات) بحثاً عن أدلة على التفكير القائم على الحقوق.	K	Large group lecture	Comprising multiple choice questions.
e. حقوق في شريعة حمورابي				
HUMR 11.1	تلخيص المبادئ الرئيسية الواردة في شريعة حمورابي، تحديد فئات الحقوق والواجبات المتضمنة في القانون، تحليل كيف شكلت العدالة والعقاب والوضع الاجتماعي الحقوق الفردية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 11.2	مناقشة قيود الحقوق في عصر حمورابي (مثل الجنس والطبقة)، مقارنة الحماية القانونية في عهد حمورابي بالمعايير القانونية الحالية في الرعاية الصحية.	K	Large group lecture	Comprising multiple choice questions.
f. حقوق الإنسان في الشريعة الإسلامية حقوق الإنسان عند الامام علي عليه السلام.				
HUMR 12.1	شرح أسس حقوق الإنسان في التعاليم الإسلامية، وتحديد المبادئ الأخلاقية والحكمية المتعلقة بالكرامة الإنسانية في تعاليم الإمام علي.	K	Large group lecture	Comprising multiple choice questions.
HUMR 12.2	وصف كيف يضمن القانون الإسلامي الحقوق المتعلقة بالحياة والملكية والدين والكرامة، تحليل كيف تتوافق الأخلاق الإسلامية مع حقوق المرضى الحديثة والأخلاقيات المهنية الطبية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 12.3	ربط قيم الإمام علي بالقضايا الحالية في حقوق الإنسان والرعاية الصحية، تشجيع التعاطف والعدل والتواضع في تفاعلات الطلاب مع المرضى.	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
g. حقوق الإنسان في رسالة الحقوق للأمام زين العابدين عليه السلام				
HUMR 13.1	تحديد الحقوق الرئيسية الواردة في "رسالة الحقوق"، استكشاف النظرة الشاملة للحقوق بما في ذلك حق النفس والمجتمع	K	Large group lecture	Comprising multiple choice questions.
HUMR 13.2	تحليل الآثار الأخلاقية لهذه الحقوق في رعاية المرضى والمسؤولية، مقارنة قيم الرسالة مع المدونات الحديثة للأخلاقيات الطبية، التفكير في البعد الروحي للكرامة الإنسانية ومكانتها في الممارسة الطبية.	K	Large group lecture	Comprising multiple choice questions.
h. حقوق الإنسان في المواثيق الدولية				
HUMR 14.1	تذكر أسماء ثلاثة مواثيق دولية رئيسية على الأقل لحقوق الإنسان، تحديد الغرض العام ونطاق مواثيق حقوق الإنسان الدولية، يلخص المبادئ والقيم الأساسية التي تقوم عليها مواثيق حقوق الإنسان الدولية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 14.2	تعرف على الحالات التي قد تكون فيها مواثيق حقوق الإنسان الدولية ذات صلة في سياق الرعاية الصحية (مثل حقوق المرضى، والأبحاث الأخلاقية).	K	Large group lecture	Comprising multiple choice questions.
HUMR 14.3	يناقش نقاط القوة والقيود في مواثيق حقوق الإنسان الدولية في تعزيز وحماية حقوق الإنسان على مستوى العالم.	K	Large group lecture	Comprising multiple choice questions.
i. حقوق الإنسان في الإعلانات العالمية				
HUMR 15.1	يذكر خمسة حقوق أساسية على الأقل منصوص عليها في الإعلان العالمي لحقوق الإنسان، يشرح السياق التاريخي وأهمية الإعلان العالمي لحقوق الإنسان.	K	Large group lecture	Comprising multiple choice questions.
HUMR 15.2	صنف الحقوق الواردة في الإعلان العالمي لحقوق الإنسان إلى أجيال مختلفة (مثل الحقوق المدنية والسياسية، والاقتصادية والاجتماعية والثقافية)، حدد مواد محددة في الإعلان العالمي لحقوق الإنسان تتعلق بالصحة أو الرفاهية أو الأخلاقيات الطبية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 15.3	يقيم تأثير الإعلانات العالمية على تطوير قوانين حقوق الإنسان الدولية والوطنية.	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
16. حقوق الإنسان في المعاهدات الدولية والإقليمية				
HUMR 16.1	تعريف الطبيعة الملزمة للمعاهدات الدولية والإقليمية لحقوق الإنسان للدول الموقعة، اذكر معاهدة دولية رئيسية واحدة على الأقل لحقوق الإنسان ومعاهدة إقليمية واحدة ذات صلة بالشرق الأوسط.	K	Large group lecture	Comprising multiple choice questions.
HUMR 16.2	يحدد كيف يمكن لمواد محددة في المعاهدات الدولية أو الإقليمية لحقوق الإنسان أن تحمي حقوق المرضى أو العاملين في الرعاية الصحية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 16.3	يقارن بين نطاق وآليات إنفاذ معاهدة دولية محددة ومعاهدة إقليمية محددة، وناقش تحديات ونجاحات تنفيذ المعاهدات الدولية والإقليمية لحقوق الإنسان على المستوى الوطني.	K	Large group lecture	Comprising multiple choice questions.
17. حقوق الإنسان في الدساتير العراقية				
HUMR 17.1	تحديد أهمية تكريس حقوق الإنسان في دستور وطني، بصف كيف يتم إنفاذ الأحكام الدستورية المتعلقة بحقوق الإنسان داخل النظام القانوني الوطني.	K	Large group lecture	Comprising multiple choice questions.
HUMR 17.2	تعداد مواد محددة تتعلق بالحقوق والحريات الأساسية في الدساتير العراقية السابقة، يقارن بين النهج المتبع في حقوق الإنسان في مختلف الدساتير العراقية التاريخية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 17.3	يقيم مدى فعالية الدساتير العراقية السابقة في حماية حقوق الإنسان على أرض الواقع.	K	Large group lecture	Comprising multiple choice questions.
18. حقوق الانسان في دستور العراق لسنة ٢٠٠٥				
HUMR 18.1	اذكر ثلاثة فصول أو أقسام على الأقل في دستور عام 2005 تتناول حقوق الإنسان صراحة، قيم مدى توافق أحكام حقوق الإنسان في دستور عام 2005 العراقي مع المعايير الدولية لحقوق الإنسان.	K	Large group lecture	Comprising multiple choice questions.
HUMR 18.2	اشرح المبادئ والقيم الأساسية المتعلقة بحقوق الإنسان كما هي منصوص عليها في دستور عام 2005 العراق، صف الحقوق والحريات المحددة التي يضمنها دستور عام 2005، بما في ذلك تلك المتعلقة بالصحة والرفاهية..	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
HUMR 18.3	حلل نقاط القوة والضعف في أحكام حقوق الإنسان في دستور عام 2005 العراق، قارن أحكام حقوق الإنسان في دستور عام 2005 مع تلك الموجودة في الدساتير العراقية السابقة..	K	Large group lecture	Comprising multiple choice questions.
19. مفهوم الديمقراطية				
HUMR 19.1	تعريف الديمقراطية، تحديد المبدأ الأساسي الذي يقوم عليه مفهوم الديمقراطية (مثل حكم الشعب)، يناقش نقاط القوة والضعف في الديمقراطية كنظام حكم، تقييم أهمية المبادئ الديمقراطية في ضمان حقوق الإنسان والعدالة الاجتماعية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 19.2	شرح الفكرة الأساسية بأن السلطة السياسية في الديمقراطية تعود في النهاية إلى الشعب، تلخيص القيم الأساسية التي غالباً ما ترتبط بالديمقراطية (مثل الحرية والمساواة والمشاركة).	K	Large group lecture	Comprising multiple choice questions.
HUMR 19.3	توضيح الحالات في المجتمع التي يتم فيها دعم أو تحدي المبادئ الديمقراطي تحديد كيف يمكن للقيم الديمقراطية أن تؤثر على تطوير سياسات الرعاية الصحية..	K	Large group lecture	Comprising multiple choice questions.
20. تعريف الديمقراطية لغة واصطلاحاً				
HUMR 20.1	اذكر تعريفاً لغوياً شائعاً للديمقراطي، صف العناصر الأساسية التي يتم تضمينها عادةً في التعريفات الاصطلاحية للديمقراطية في العلوم السياسية..	K	Large group lecture	Comprising multiple choice questions.
HUMR 20.2	التمييز بين الفهم اللغوي البحت للديمقراطية وتعريف أكثر شمولية في العلوم السياسية، قارن كيف يمكن لمختلف العلماء أو المفكرين السياسيين التأكيد على جوانب مختلفة في تعريفاتهم الاصطلاحية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 20.3	توضيح الاختلافات والتشابهات الرئيسية بين التعريفات اللغوية والاصطلاحية للديمقراطية، تقييم مدى كفاية التعريفات المختلفة للديمقراطية في النقاط تعقيدات الأنظمة الديمقراطية في العالم الحقيقي.	K	Large group lecture	Comprising multiple choice questions.
21. تطور الديمقراطية عبر التاريخ				
HUMR 21.1	تحديد فترة أو حدثاً تاريخياً هاماً واحداً على الأقل أثر في تطور الديمقراطية الحديثة (مثل عصر التنوير، الثورة الفرنسية).	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
HUMR 21.2	تلخيص المراحل أو الفترات الرئيسية في التطور التاريخي للديمقراطية، توضيح كيف تغير مفهوم الديمقراطية وممارستها بمرور الوقت، ناقش مدى تحقيق الأنظمة الديمقراطية الحديثة لمثل الحركات الديمقراطية المبكرة.	K	Large group lecture	Comprising multiple choice questions.
HUMR 21.3	المقارنة بين الممارسات الديمقراطية في فترات تاريخية مختلفة، تحليل العوامل التي دفعت تطور وانتشار الديمقراطية على مستوى العالم.	K	Large group lecture	Comprising multiple choice questions.
22. بعض المصطلحات المشابهة لمصطلح الديمقراطية				
HUMR 22.1	توضيح ثلاث مصطلحات على الأقل غالباً ما تستخدم فيما يتعلق بالديمقراطية أو أحياناً بالتبادل معها (مثل الجمهورية والليبرالية والتعددية)، مع ذكر خاصية أساسية لكل من هذه المصطلحات ذات الصلة.	K	Large group lecture	Comprising multiple choice questions.
HUMR 22.2	تعداد أوجه التشابه والاختلاف بين الديمقراطية والمفاهيم ذات الصلة مثل الجمهورية والليبرالية والتعددية، مع توضيح كيف يشكل التفاعل بين الديمقراطية وهذه المفاهيم ذات الصلة الأنظمة السياسية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 22.3	التمييز بين الحالات الديمقراطية الخالصة والحالات التي تتطوي على مفاهيم ذات صلة ولكنها متميزة، وتحديد كيف يمكن لمفاهيم مثل الليبرالية أو التعددية أن تؤثر على عمل نظام الرعاية الصحية الديمقراطي.	K	Large group lecture	Comprising multiple choice questions.
23. اشكال وصور الديمقراطية				
HUMR 23.1	توضيح الأشكال الرئيسية الثلاثة للديمقراطية: المباشرة وشبه المباشرة وغير المباشرة (النيابية)، مع ذكر خاصية رئيسية واحدة لكل شكل من أشكال الديمقراطية.	K	Large group lecture	Comprising multiple choice questions.
HUMR 23.2	شرح الاختلافات الأساسية بين الديمقراطية المباشرة وشبه المباشرة وغير المباشرة من حيث مشاركة المواطنين في صنع القرار، المقارنة بين مزايا وعيوب الديمقراطية المباشرة وشبه المباشرة وغير المباشرة	K	Large group lecture	Comprising multiple choice questions.
HUMR 23.3	تحديد أمثلة لدول أو أنظمة سياسية تستخدم بشكل أساسي كل شكل من الأشكال الثلاثة للديمقراطية، مع توضيح العوامل التي تؤثر على اختيار بلد ما لشكل معين من أشكال الديمقراطية.	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
24. الديمقراطية المباشرة				
HUMR 24.1	تعريف الخاصية الأساسية للديمقراطية المباشرة: يتخذ المواطنون القرارات بشكل مباشر، مع تحديد مثال تاريخياً أو معاصراً للديمقراطية المباشرة (مثل جمعية أثينا القديمة، بعض كانتونات سويسرا واستفتاءاتها)..	K	Large group lecture	Comprising multiple choice questions.
HUMR 24.2	توضيح كيف يشارك المواطنون في عمليات صنع القرار في الديمقراطية المباشرة (مثل التصويت على القوانين والسياسات صف الشروط التي تعتبر ضرورية غالباً لكي تعمل الديمقراطية المباشرة بفعالية (مثل صغر عدد السكان، مستويات عالية من المشاركة المدنية) ..	K	Large group lecture	Comprising multiple choice questions.
HUMR 24.3	مناقشة جدوى ورغبة تطبيق الديمقراطية المباشرة النقية في المجتمعات الحديثة الكبيرة والمعقدة، تقييم التأثير المحتمل للديمقراطية المباشرة على كفاءة واستقرار الحكم.	K	Large group lecture	Comprising multiple choice questions.
25. الديمقراطية شبه المباشرة				
HUMR 25.1	توضيح آليتين على الأقل من آليات الديمقراطية شبه المباشرة (مثل الاستفتاء، المبادرة الشعبية، سحب الثقة، مع توضيح كيف تسمح آليات مثل الاستفتاء والمبادرة الشعبية وسحب الثقة للمواطنين بممارسة تأثير مباشر أكبر على الحكم داخل نظام تمثيلي في الغالب ..	K	Large group lecture	Comprising multiple choice questions.
HUMR 25.2	تعرف على أمثلة لدول تستخدم آليات الديمقراطية شبه المباشرة، تحديد التطبيقات المحتملة لأدوات مثل المبادرات الشعبية في التأثير على سياسات أو قوانين الرعاية الصحية ..	K	Large group lecture	Comprising multiple choice questions.
HUMR 25.3	المقارنة بين الآليات المختلفة للديمقراطية شبه المباشرة من حيث تأثيرها على سلطة المواطنين ومساءلة الحكومة، مع تقييم مدى قدرة الديمقراطية شبه المباشرة على سد الفجوة بين حكم المواطنين المباشر والحكومة التمثيلية.	K	Large group lecture	Comprising multiple choice questions.
26. الديمقراطية غير المباشرة				
HUMR 26.1	توضيح الخاصية الأساسية للديمقراطية غير المباشرة: ينتخب المواطنون ممثلين لاتخاذ القرارات نيابة عنهم، شرح مفهوم التمثيل في الديمقراطية غير المباشرة ودور المسؤولين المنتخبين.	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
HUMR 26.2	توضيح الأسباب التي تجعل الديمقراطية غير المباشرة هي الشكل الأكثر شيوعاً للديمقراطية في الدول الحديثة الكبيرة، مع مناقشة التحديات التي تواجه ضمان التمثيل الفعال وسيطرة المواطنين في الأنظمة الديمقراطية غير المباشرة.	K	Large group lecture	Comprising multiple choice questions.
HUMR 26.3	التعرف على المستويات المختلفة التي تجري فيها الانتخابات في نظام ديمقراطي غير مباشر (مثل المحلية والإقليمية والوطنية)، مع شرح كيف يمكن لانتخاب ممثلين على مختلف المستويات أن يؤثر على سياسة وتمويل الرعاية الصحية.	K	Large group lecture	Comprising multiple choice questions.
27. أنظمة الحكم في ظل الديمقراطية غير المباشرة				
HUMR 27.1	توضيح النوعين الرئيسيين لأنظمة الحكم في ظل الديمقراطية غير المباشرة: الرئاسي والبرلماني، مع شرح الاختلافات الهيكلية الأساسية بين النظامين الرئاسي والبرلماني فيما يتعلق بفصل السلطات والعلاقة بين السلطتين التنفيذية والتشريعية..	K	Large group lecture	Comprising multiple choice questions.
HUMR 27.2	تحديد أمثلة لدول لديها أنظمة حكم رئاسية وبرلمانية، مع وصف أدوار ومسؤوليات رئيس الدولة ورئيس الحكومة في كل نظام..	K	Large group lecture	Comprising multiple choice questions.
HUMR 27.3	توضيح كيف يمكن لهيكل نظام الحكم أن يؤثر على عملية صياغة وتنفيذ سياسات الرعاية الصحية، تقييم نقاط القوة والضعف النسبية لكل نظام في تعزيز الحكم الديمقراطي وحماية حقوق الإنسان..	K	Large group lecture	Comprising multiple choice questions.
28. النظام الرئاسي				
HUMR 28.1	تعريف الخاصية الرئيسية للنظام الرئاسي: فصل السلطات بين السلطتين التنفيذية والتشريعية، مع رئيس منتخب بشكل مستقل، شرح مبادئ فصل السلطات والضوابط والتوازنات كما تعمل في النظام الرئاسي.	K	Large group lecture	Comprising multiple choice questions.

العدد	الاهداف التعليمية	Domain K/S/A/C*	طريقة التعليم والتعلم	طريقة التقييم
HUMR 28.2	مناقشة الظروف التي قد يكون فيها النظام الرئاسي شكلاً مناسباً للحكم، وتقييم أهمية الضوابط والتوازنات في منع إساءة استخدام السلطة في النظام الرئاسي.	K	Large group lecture	Comprising multiple choice questions.
HUMR 28.3	توضيح عملية انتخاب الرئيس والمدة النموذجية للولاية، مع توضيح كيف يمكن للمدة الثابتة للرئيس والسلطة التنفيذية المستقلة أن تؤثر على استقرار واتجاه سياسة الرعاية الصحية.	K	Large group lecture	Comprising multiple choice questions.
29. النظام البرلماني				
HUMR 29.1	تعريف النظام البرلماني: دمج السلطات بين السلطتين التنفيذية والتشريعية، حيث تستمد السلطة التنفيذية (الحكومة/مجلس الوزراء) من البرلمان وتكون مسؤولة أمامه.	K	Large group lecture	Comprising multiple choice questions.
HUMR 29.2	شرح مبدأ السيادة البرلمانية ومفهوم مسؤولية مجلس الوزراء في النظام البرلماني، مع توضيح كيف يتم اختيار رئيس الحكومة وكيف يمكن عزله من منصبه (مثل اقتراح حجب الثقة).	K	Large group lecture	Comprising multiple choice questions.
HUMR 29.3	توضيح كيف يمكن للعلاقة الوثيقة بين السلطتين التنفيذية والتشريعية في النظام البرلماني أن تسهل تمرير تشريعات الرعاية الصحية.	K	Large group lecture	Comprising multiple choice questions.
30. النظم الانتخابية				
HUMR 30.1	تعريف النظم الانتخابية هي القواعد التي تحكم كيفية ترجمة الأصوات إلى مقاعد في هيئة تمثيلية، مع تحديد نوعين شائعين على الأقل من النظم الانتخابية (مثل نظام الفائز الأول يحصل على كل شيء، ونظام التمثيل النسبي).	K	Large group lecture	Comprising multiple choice questions.
HUMR 30.2	توضيح آلية التي تعمل بها النظم الانتخابية المختلفة من حيث كيفية عد الأصوات وتوزيع المقاعد، ووصف صف التأثير المحتمل للنظم الانتخابية المختلفة على تمثيل المجموعات المختلفة وتشكيل الحكومات.	K	Large group lecture	Comprising multiple choice questions.
HUMR 30.3	توضيح كيف يمكن للنظم الانتخابية المختلفة أن تؤثر على تمثيل وجهات النظر المتنوعة بشأن سياسة الرعاية الصحية، المقارنة بين المزايا والعيوب المحتملة للنظم الانتخابية المختلفة (مثل عدالة التمثيل، واستقرار الحكومة، وخيار الناخب).	K	Large group lecture	Comprising multiple choice questions.