



**Ministry of Higher Education and Scientific Research
Apparatus for Supervision and Scientific Evaluation**



**Warith Al-Anbiyaa University (AS)
College of Medicine**

Academic Program Description Form for Institutes and Colleges 2026-2027

Course Syllabus

Academic Program Description Form

University Name: Warith Al-Anbiyaa University

College/Institute: College of Medicine — Warith Al-Anbiyaa University (AS)

Scientific Department: College of Medicine

Academic or Professional Program Name: Respiratory system

Final Certificate Name: Bachelor of Medicine and Surgery (M.B.Ch.B)

Study System: Annual

Date of Preparing the Description: September 2026

Date of Filling the Form: 10th September 2026

Signature:



Head of Department Name: Dr. Ahmed Hamdi Mehdi

Date:

14/9/2026

Signature:



Scientific Assistant Name: Dr. Ali A.A. AlGhurub

Date:

Reviewed by

Quality Assurance and University Performance Division

Name of Director of Quality Assurance and University Performance Division:

Date:

14.9.2026

Signature:



Dr. Ayad Ali AlMunawi

14/09/2026

Ayad

Approved by the Dean

prof. Ali A. Saadeh



Course Description Form

1. Course Name
Respiratory system
2. Course Code
medu205
3. Semester / Year
Second semester
4. Date of Preparing this Description
10/9/2026
5. Available Attendance Forms
Actual attendance
6. Number of Study Hours (Total) / Number of Units (Total)
52 hours – Theory and 23 hours – Practical / Number of units 5.5 unit
7. Name of Course Coordinator (list all names if more than one)
Name: Ahmed Hamdi Mehdi Email: Email: ahmed.hm@uowa.edu.iq

8. Course Objectives
Course Objectives: By the end of this course, the second-grade students will be able to learn and possess the basic knowledge about the main topics regarding the respiratory system and its diseases in multiview aspects in theoretical lectures, practical sessions and clinical cases. These aspects cover mainly: Anatomy, Histology, Pathology, Pharmacology, Physiology, Microbiology, Immunology, Parasitology, Community Medicine and linking all these items by Clinical Cases through weekly sessions of PBL (Problem – Based Learning).

9. Teaching and Learning Strategies

Strategy:

Given that the target audience consists of second-year medical students, the main focus centers on acquiring a comprehensive foundation in the basic medical sciences, while systematically integrating this knowledge with clinical correlates. This approach is designed to optimize students' understanding of the multi-faceted aspects of respiratory system pathologies, with a particular emphasis on high-prevalence conditions. Ultimately, this strategy aims to prepare students scientifically and academically for advanced clerkships, fostering a gradual and seamless transition toward clinical medicine. This progressive educational model ensures a structured learning curve, effectively qualifying students to enter a professional practice that directly impacts human lives.

10. Course Structure

Week One / Total hours 21 hours	Learning Methods	Assessment Methods
	1. Theoretical lectures 2. Practical sessions 3. Clinical skills labs	1. Weekly exams 2. Unit's end exams 3. Assessing students according to their participation in weekly-held small group teaching
Unit or Topic Name	Required Learning Outcomes	
1. PBL case study	Being familiar with the main clinical features regarding obstructive pulmonary diseases in a simple and basic way.	
2. Pathology	1. Definition and types of obstructive lung diseases. 2. The pathogenesis of COPD, Asthma, chronic bronchitis and emphysema. 3. The role of α_1 ATD in relation to emphysema. 4. The pathogenesis of pneumothorax.	
3. Histology	1. Divisions of the bronchial tree. 2. Functional histology of the trachea. 3. Structural differences between trachea and bronchus. 4. Histological structure of the lung: bronchioles, respiratory bronchioles, alveolar duct, alveolar sac, and alveoli. 5. Functional histology of the alveoli: type I & II alveolar cells, production and function of the surfactant, alveolar macrophages, alveolar septum and collateral air.	
4. Physiology	1. The functional components of the respiratory system. 2. The relationship between airflow pressure and volume. 3. Non respiratory function of lungs and reflexes.	

	<p>4. The cough reflex, sneezing reflex and pulmonary receptors.</p> <p>5. The forces or pressures necessary for the bulk flow of air between the atmosphere and the alveoli of the lung.</p> <p>6. The actions of the different respiratory muscles responsible for lung inflation and deflation.</p> <p>7. The nature of the elastic forces in the lung and chest wall.</p> <p>8. Compliance and its role.</p> <p>9. Surface tension and how surfactants work to alter surface tension.</p> <p>10. The lung volumes and capacities measured by spirometry.</p> <p>11. Distinguish a resting vital capacity (VC) from a forced vital capacity (FVC).</p> <p>12. Forced expiratory volume at one second (FEV1).</p> <p>13. Define and contrast the following terms: Anatomic dead space. Wasted (dead space) ventilation, total minute ventilation and alveolar minute ventilation.</p>
5. Immunology	The different mechanisms of Respiratory Immunology and Host Defense during normal healthy state and Allergy.
6. Pharmacology	<p>1. The strategy of asthma treatment.</p> <p>2. The autonomic control of bronchial smooth muscle and glands.</p> <p>3. The role of bronchodilator drugs, including adrenergics, ipratropium, and theophylline in treatment of asthma.</p>
7. Clinical Resources	<p>1. Definition of asthma & COPD.</p> <p>2. Epidemiology and scope of the problem.</p> <p>3. Pathogenesis</p> <p>4. Clinical presentation at various stages.</p> <p>5. Practical approach to diagnosis.</p> <p>6. Acute and long-term management outlines.</p> <p>7. Future perspectives.</p>
8. Practical Labs	<p>Lung Volumes and capacities</p> <p>Respiratory System</p> <p>Skin prick test</p> <p>Respiratory System History & Clinical Reasoning</p>
<p>Physiology Lab</p> <p>Histology Lab</p> <p>Microbiology Lab</p> <p>Clinical Skills Lab</p>	

Week Two / Total hours 16 hours	Learning Methods	Assessment Methods
	1. Theoretical lectures 2. Practical sessions 3. Clinical skills labs	1. Weekly exams 2. Unit's end exams 3. Assessing students according to their participation in weekly-held small group teaching
Unit or Topic Name	Required Learning Outcomes	
1. PBL case study	Being familiar with the main presentations of sleep apnea with their main causative factors in a simple and basic way.	
2. Pathology	1. Definition, causes, classification and pathogenesis of Restrictive lung diseases. 2. Comparison and contrast between the pathophysiology of restrictive and obstructive lung diseases. 3. Pathology of upper respiratory tract a. Rhinitis & Sinusitis b. Tumors of URT	
3. Anatomy	1. Anatomy of nose, nasal cavity, paranasal sinuses, pharynx, and larynx. 2. The structures maintaining patent airway. 3. The common structural causes of upper airway obstruction: nasal septum, mucosa of the nose, pharyngeal tonsil, palatine tonsil, genioglossus, laryngeal edema, paralysis of recurrent laryngeal nerve. 4. The parts of pleura. 5. Surface anatomy of lungs and pleura. 6. Pleural recesses. 7. The origin and referral of pleural pain. 8. Lobes, fissures and bronchopulmonary segments of right and left lungs. 9. The blood supply of lungs and pleura. 10. The relations of the surfaces of the lung. 11. The applied anatomy of pneumothorax, pleural effusion, bronchography & postural drainage	
4. Physiology	1. The partial pressure of gases and its role in the exchange of gases between alveolar air & capillary blood. 2. Physiological changes in hypoventilation and hyperventilation. 3. Some examples of diseases that impair gas exchange. 4. Explain the concept of diffusion capacity. 5. Identify the respiratory centers. 6. Describe the generation of breathing rhythm by the brain stem. 7. Describe the chemical control of breathing.	

5. Pharmacology	<ol style="list-style-type: none"> 1. Differentiate between short- acting and long- acting inhaled beta 2-Adrenergic agonists. 2. Discuss the uses of anti- inflammatory drugs, including corticosteroids, 3. Leukotriene modifiers and mast cell stabilizers. 4. Histamine and antihistamines
6. Clinical Resources	<ol style="list-style-type: none"> 1. How do we maintain O₂ & CO₂? 2. What happens with sleep naturally? 3. Why do we snore? 4. What is sleep apnea vs central apnea? 5. Central vs peripheral apnea? 6. Is all snoring apnea? 7. What are the signs and symptoms of sleep apnea? 8. Why do we care? Discuss the complications of sleep apnea. 9. How do we treat it? (Applying our anatomy and physiology knowledge)
7. Practical Labs	
Anatomy Lab Pathology Lab Clinical Skills Lab	

	Learning Methods	Assessment Methods
Week Three / Total hours 17 hours	<ol style="list-style-type: none"> 1. Theoretical lectures 2. Practical sessions 3. Clinical skills labs 	<ol style="list-style-type: none"> 1. Weekly exams 2. Unit's end exams 3. Assessing students according to their participation in weekly-held small group teaching
Unit or Topic Name	Required Learning Outcomes	
1. PBL case study	Being familiar with the main presentations of pulmonary infections specially pneumonia with its different types, their main causative factors in a simple and basic way.	
2. Pathology	<ol style="list-style-type: none"> 1. Pathogenesis of lung infection. 2. Classification of pneumonia. 3. Pathological changes in pneumonia. 4. Treatment & prognosis. 5. Difference between acute and chronic pneumonia, lobar and bronchopneumonia. 6. Overview of tuberculosis. 	
3. Anatomy	<ol style="list-style-type: none"> 1. Describe the basic divisions of the mediastinum and their positions in the chest. 2. Describe the contents and relations: arch of aorta and branches, ligamentum arteriosum, superior vena cava & tributaries, thoracic duct, phrenic & vagus nerves, trachea, and esophagus. 3. Discuss the applied anatomy of coarctation of aorta, normal esophageal constrictions, and tracheal deviation. 4. Identify the sectional and imaging anatomy of superior mediastinum. 	

4. Physiology	<ol style="list-style-type: none"> 1. Describe the modes of transport of O₂ and CO₂ in blood. 2. Discuss the Oxygen- Hemoglobin Dissociation Curve. 3. Explain the transport of oxygen and carbon dioxide in blood and tissue fluids. 4. Explain the Bohr and Haldane effects.
5. Immunology	<ol style="list-style-type: none"> 1. Discuss the classification, risk factors and causative microorganisms of Pneumonia. 2. Microbiological diagnostic procedures of pneumonia. 3. Describe the pulmonary immune system. 4. Explain the mechanism of acute inflammation in the lung tissue.
6. Parasitology	Hydatid cyst
7. Pharmacology	<ol style="list-style-type: none"> 1. Know what is meant by empirical therapy of microbial infection. 2. Enumerate different antibiotics that can be used for treatment of pneumonia. 3. Select the most appropriate antibiotic according to the situation. 4. Understand mechanism of action, kinetics, adverse effects and mechanisms of resistance to antibiotics used for treatment of pneumonia.
8. Clinical Resources	<ol style="list-style-type: none"> 1. Be self-educator for common concepts of cough and how to prevent them. 2. Be aware of anatomy physiology of cough. 3. Explain the different causes and presentation of cough. 4. Describe the principles of treatment of cough.
9. Practical Labs	<p>Interpretation of chest x-rays</p> <ol style="list-style-type: none"> 1. The different imaging modalities used in chest imaging 2. The rationale for the use of contrast in chest imaging 3. Understand usefulness of PACS in viewing a chest imaging
Microbiology Lab Clinical Skills Lab Imaging Lab.	

Week Four / Total hours 16 hours	Learning Methods	Assessment Methods
	<ol style="list-style-type: none"> 1. Theoretical lectures 2. Practical sessions 3. Clinical skills labs 	<ol style="list-style-type: none"> 1. Weekly exams 2. Unit's end exams 3. Assessing students according to their participation in weekly-held small group teaching
Unit or Topic Name	Required Learning Outcomes	
1. PBL case study	Being familiar with the main presentations of lung cancers with their main types and complications.	
2. Pathology	<ol style="list-style-type: none"> 1. Pathogenesis of lung cancers. 2. Classification of lung tumor. 3. Characteristics of squamous cell carcinoma, small cell carcinoma, adenocarcinoma and mesothelioma. 	

3. Anatomy	<ol style="list-style-type: none"> 1. Describe the contents and relations of each part: anterior, middle and posterior mediastinum. 2. Outline the azygous system of veins. 3. Describe the lymphatic drainage of the thorax. 4. Summarize the anatomy of autonomic nervous system in the thorax. 5. Discuss the applied anatomy of Horner's syndrome, injury of phrenic and recurrent laryngeal nerves. 6. Identify the sectional and imaging anatomy of inferior mediastinum.
4. Physiology	<ol style="list-style-type: none"> 1. Explain how blood gases affect the respiratory centers of the brain. 2. Explain how the respiratory centers homeostatically control blood gases and PH. 3. Explain how brain stem regulates respiration. 4. Describe the stimuli that modify the respiratory rhythm.
5. Microbiology	<ol style="list-style-type: none"> 1. Differentiate between oncogene and proto- oncogenes. 2. Identify the immune system as second line defense in cancers. 3. Explain tumor specific Antigens. 4. Describe immune evasion strategies employed by tumors. 5. Discuss immune surveillance. 6. Enlist the cancer killing immune cells. 7. Recall the use of antibodies for diagnostic and therapeutic purposes.
6. Pharmacology	<ol style="list-style-type: none"> 1. Conventional methods of Treating Cancer. 2. Classification of anticancer drugs. 3. General mechanisms of resistance to anticancer Drugs. 4. General adverse effects of anticancer drugs. 5. Combination chemotherapy. 6. Drugs used for treatment of lung cancer: <ul style="list-style-type: none"> - Mechanism of action - Therapeutic applications - Specific adverse effects - How they are administered
7. Clinical Resources	<ol style="list-style-type: none"> 1. Know the signs and symptoms of lung cancer. 2. Recognize what we investigate with lung cancer. 3. Know the general lines of treatment.
8. Practical Labs	
Pathology Lab	
Immunology Lab Clinical Skills Lab	

	Learning Methods	Assessment Methods
Week Five / Total hours 12 hours	<ol style="list-style-type: none"> 1. Theoretical lectures 2. Practical sessions 3. Clinical skills labs 	<ol style="list-style-type: none"> 1. Weekly exams 2. Unit's end exams 3. Assessing students according to their participation in weekly-held small group teaching
Unit or Topic Name	Required Learning Outcomes	
1. PBL case study	Being familiar with the main presentations of pulmonary tuberculosis with their main types and complications.	

2. Pathology	<ol style="list-style-type: none"> 1. Definition and microscopic appearances of granuloma. 2. Describe the Major granulomatous diseases (introduction). 3. Describe the Morphological changes of pulmonary tuberculosis (primary and post-primary). 4. Recognize the Complications of tuberculosis
3. Community Medicine	<ol style="list-style-type: none"> 1. Screening for tuberculosis 2. Control of tuberculosis 3. Role of Public Health in TB
4. Microbiology	<ol style="list-style-type: none"> 1. Describe the general classification of mycobacterium. 2. Explain the Microbiological properties of Mycobacterium tuberculosis with clinical relevance. 3. Explain the mechanism of pathogenesis of Mycobacterium tuberculosis. 4. Describe the epidemiology and transmission of Mycobacterium tuberculosis. 5. Explain the mechanism of antibiotic resistance of Mycobacterium tuberculosis. 6. Recognize the steps of selection of specimens and tests to be ordered for microbiological diagnosis. 7. Explain the Mechanism of delayed type hypersensitivity and the role of Th1 lymphocytes and their cytokines. 8. Explain the mechanism of microbial Intracellular survival in macrophages & Macrophage activation. 9. Recognize the role of Interferon gamma and Nitric oxide derivatives in intracellular microbial killing.
5. Pharmacology	<ol style="list-style-type: none"> 1. Anti-tubercular drugs – First-line & alternative drugs. 2. Mechanism of action and ADR of first-line drugs (Chemoprophylaxis).
6. Clinical Resources	<ol style="list-style-type: none"> 1. Clinical manifestations of pulmonary tuberculosis. 2. Diagnosis of tuberculosis: conventional and rapid methods. 3. Principles of treatment of tuberculosis. 4. Tuberculosis: infection control issues. 5. Tuberculosis in immuno-compromised patients. 6. Extra-pulmonary tuberculosis.
7. Practical Labs	
Microbiology Lab Clinical Skills Lab	

11. Course Evaluation

Course evaluation can be done by many ways like: the regular weekly exams (TBL), PBL students' activities, also regular feedbacks received by students to evaluate the given scientific material and the lecturers involved in the teaching process, and accordingly the course can be mildly manipulated.

12. Learning and Teaching Resources

Required Textbooks (Curriculum, if any)	<ul style="list-style-type: none"> • Pathology: Robbins and Cotran Pathologic basis of disease ,10th edition - , KUMAR, ABBAS & ASTER. • Pharmacology: Lippincott's Illustrated Reviews / Pharmacology Katzung's Basic and Clinical Pharmacology Rang and Dale's Pharmacology • Clinical: Davidson's Principles and Practice of Medicine. 24th edition. • Anatomy: Snell's clinical anatomy by regions, 8th edition Gray's anatomy for medical students, 2nd edition • Microbiology & Immunology: 1-Essential clinical Immunology, JOHN B. Zabriskie 2-Kuby-Immunology-7th edition. 3- Murray PR, Rosenthal KS, Pfaller MA. <i>Medical Microbiology</i>. 10th ed. Elsevier; 2025. 4. Riedel S, Morse SA, Mietzner TA, Miller S. <i>Jawetz, Melnick & Adelberg's Medical Microbiology</i>. 29th ed. McGraw Hill; 2026. 5. Tille PM. <i>Bailey & Scott's Diagnostic Microbiology</i>. 16th ed. Elsevier; 2025. 6. World Health Organization. <i>Laboratory Biosafety Manual</i>. 4th ed. WHO; 2020. • Physiology: Guyton and Hall – Medical Physiology, 13th edition. Ganong's Review of Medical Physiology, 26th edition. • Clinical Imaging (Radiology): Diagnostic imaging by peter Armstrong Text book of radiology and imaging by David Sutton Radiopedia
Main References (Sources)	
Recommended Supporting Books and References (scientific journals, reports, etc.)	<ul style="list-style-type: none"> • Pathology: Ackerman surgical pathology, 10th edition, 2011, Juan Rosai. Sternberg's diagnostic surgical pathology, 5th edition, 2010. • Microbiology & Immunology: 1- Abbas AK and Lichtman Basic Immunology 2-world Journal of gastrointestinal pathophysiology 3- Review of medical microbiology and Immunology 4- Bennett JE, Dolin R, Blaser MJ, eds. <i>Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases</i>. Elsevier. 5- Garcia LS. <i>Diagnostic Medical Parasitology</i>. ASM Press. 6- Larone DH. <i>Medically Important Fungi: A Guide to Identification</i>. ASM Press. 7- Clinical and Laboratory Standards Institute. <i>Performance Standards for Antimicrobial Susceptibility Testing (M100)</i>. CLSI. 8- European Committee on Antimicrobial Susceptibility Testing. <i>Breakpoint Tables for Interpretation of MICs and Zone Diameters</i>. EUCAST.
Electronic References, Websites	<ul style="list-style-type: none"> • Pathology: http://www.pathologyoutlines.com

