



Ministry of Higher Education and Scientific Research  
Scientific Supervision and Evaluation Agency  
Department of Quality Assurance and Academic Accreditation

## استمارة وصف البرنامج الأكاديمي للكلية والمعاهد

University: Inheritor of the Prophets (PBUH)

Faculty/Institute: Faculty of Medicine


Department: unit - 6 -


Academic Year: 2025-2026

Date of filling out the form: 23/12/2025

Head of Department 

Signature

Scientific Assistant: Asst. Prof. Dr. Ali Abdul Ridha Al-Gharah 

Date: 23/12/2025 

Verified by the Director of the Quality Assurance and University Performance  
Division, Prof. Dr. Ali Mousa

  
Endorsement of the  
Dean

Professor Dr.  
Ali Abed Saadoun  
12/23/2025





وزارة التعليم العالي والبحث العلمي  
جامعة وارث الانبياء عليه السلام  
كلية الطب

## دليل البرنامج الأكاديمي ووصف المقررات الدراسية

2025

## نموذج وصف المقرر الدراسي

اسم المقرر الدراسي:  
الوحدة السالسة: وحدة الجهاز التنفسي

رمز المقرر  
Medu205

الفصل الدراسي / السنة:  
2025-2026  
تاريخ إعداد الوصف:  
2025

أشكال الحضور المتاحة:

عدد ساعات الاعتماد (الإجمالي) / عدد الوحدات (الإجمالي):

60 ساعة

أسماء مسؤولي المقرر:

أهداف المقرر

- وصف تشريح الجهاز التنفسي، الرئتين، الغشاء الجنبي، التروية الدموية، والتعصيب.
- شرح ميكانيكية التنفس بما يشمل أحجام الرئة، الامتثال، وتنظيم عملية التنفس.
- ، بالإضافة إلى علاقة التهوية بالتروية  $CO_2$  و  $O_2$  فهم تبادل الغازات ونقل.
- تصنيف الأمراض التنفسية الرئيسية (انسدادية، تقييدية، معدية، أورام).
- ، وسرطان الرئة ARDS، COPD التعرف على أمراض الالتهاب الرئوي، السل، الربو،.
- توضيح علم الأدوية للموسعات الشعب الهوائية، الكورتيكوستيرويدات، المخففات المخاطية، مثبطات السعال، والمضادات الحيوية.
- تطبيق المعرفة المتكاملة سريرياً على حالات مثل الانصباب الجنبي، استرواح الصدر، فشل الجهاز التنفسي، والعدوى.

استراتيجيات التدريس والتعلم :-

المحاضرات النظرية

التدريب العملي ومختبر المهارات

الندوات والمناقشات الجماعية

(PBL) التعلم القائم على حل المشكلات

هيكل المقرر

أ. خريطة المنهج الدراسي

week	discipline	objectives	hour	Practical sessions & hours
1	<b><u>Pathology</u></b>	<b><u>Obstructive lung diseases:</u></b> 1. Definition and types of obstructive lung diseases. 2. Discuss the pathogenesis of COPD, Asthma, chronic bronchitis, emphysema. 3. Briefly discuss role of A1ATD in relation to emphysema. 4. Discuss the pathogenesis of pneumothorax	2	<b><u>Practical lab</u></b> <b><u>Lab 1- Physiology (Lung Volumes and capacities) (2 Hrs) (spirometer is not working so the lab.is not given this week).</u></b> <b><u>Lab2- Histology (Respiratory System) (2 Hrs)</u></b> <b><u>Lab3- microbiology (skin prick test) (2 Hours)</u></b>
	<b><u>Anatomy</u></b>	<b><u>Histology of the bronchial tree</u></b> 1. Divisions of the bronchial tree. 2. Functional histology of the trachea 3. Structural differences between trachea and bronchus	2	



	<p>4. Histological structure of the lung: bronchioles, respiratory bronchioles, alveolar duct, alveolar sac, and alveoli</p> <p>5. Functional histology of the alveoli: type I &amp; II alveolar cells, production and function of the surfactant, alveolar macrophages, alveolar septum, collateral air</p> <p><u>Overview of Respiratory System:</u></p> <ol style="list-style-type: none"> <li>1. The functional components of the respiratory system.</li> <li>2. The relationship between airflow pressure and volume.</li> <li>3. Non respiratory function of lungs and reflexes</li> <li>4. Discuss the cough reflex, sneezing reflex and pulmonary receptors</li> </ol> <p><u>Mechanics of Breathing:</u></p> <ol style="list-style-type: none"> <li>1. The forces or pressures necessary for the bulk flow of air between the atmosphere and the alveoli of the lung,</li> <li>2. The actions of the different respiratory muscles responsible for lung inflation and deflation,</li> <li>3. The nature of the elastic forces in the lung and chest wall,</li> <li>4. Compliance and its role ,</li> <li>5. Surface tension and how surfactants work to alter surface tension,</li> </ol> <p><u>Pulmonary volumes &amp; capacities:</u></p> <ol style="list-style-type: none"> <li>1. The lung volumes and capacities measured by spirometry,</li> <li>2. Distinguish a resting vital capacity (VC) from a forced vital capacity (FVC),</li> <li>3. Forced expiratory volume at one second (FEV1.)</li> <li>4. Define and contrast the following terms: Anatomic dead space. Wasted (dead space) ventilation, total minute ventilation and alveolar minute ventilation.</li> </ol>	4	
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	<u>Microbiology</u> / <u>Immunology</u>	<u>Respiratory Immunology</u> Describe the different mechanisms of Respiratory Immunology and Host Defense during normal healthy state and Allergy	2	
	<u>Pharmacology</u>	<u>Management of Bronchial Asthma</u> 1. Understand strategy of asthma treatment 2. Know the autonomic control of bronchial smooth muscle and gland 3. Describe the role of bronchodilating drugs, including adrenergics, ipratropium, and theophylline in treatment of asthma	2	
	<u>Clinical Resource</u>	<u>Management of Asthma &amp; COPD:</u> 1. Definition of asthma & COPD 2. Epidemiology and scope of the problem 3. Pathogenesis 4. Clinical presentation at various stages 5. A practical approach to diagnosis 6. Acute and long term management outlines 7. Future perspectives	1	
2	<u>Pathology</u>	<u>Restrictive lung disease:</u> 1. Definition, causes, classification and pathogenesis of Restrictive lung diseases. 2. Comparison and contrast between the pathophysiology of restrictive and obstructive lung diseases. <u>Pathology of upper respiratory tract</u> 1. Rhinitis & Sinusitis 2. Tumors of URT	2	<u>Practical lab</u> <b>Lab 1- Anatomy</b> <b>Lab 2- Pathology</b>



	<p><b><u>Anatomy</u></b></p>	<p><b><u>Upper respiratory passages</u></b></p> <ol style="list-style-type: none"> <li>1. Anatomy of nose, nasal cavity, paranasal sinuses, pharynx, and larynx.</li> <li>2. Identify the structures maintaining patent airway.</li> <li>3. Recognize 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</li> </ol> <p><b><u>Lungs and pleura</u></b></p> <ol style="list-style-type: none"> <li>1. Describe the parts of pleura</li> <li>2. Outline the surface anatomy of lungs and pleura.</li> <li>3. Define pleural recesses.</li> <li>4. Discuss the origin and referral of pleural pain.</li> <li>5. List the lobes, fissures and bronchopulmonary segments of right and left lungs.</li> <li>6. Describe the blood supply of lungs and pleura.</li> <li>7. Describe the relations of the surfaces of the lung.</li> <li>8. Discuss the applied anatomy of pneumothorax, pleural effusion, bronchography &amp; postural drainage</li> </ol> <p><b><u>Gas exchange :</u></b></p> <ol style="list-style-type: none"> <li>1. The partial pressure of gases and its role in the exchange of gases between alveolar air &amp; capillary blood.</li> <li>2. Physiological changes in hypoventilation and hyperventilation</li> <li>3. Some examples of diseases that impair gas exchange</li> </ol>	<p><b>3</b></p>	
	<p><b><u>Physiology</u></b></p>		<p><b>2</b></p>	

	<p>4. Explain the concept of diffusion capacity.</p> <p><b><u>Control of ventilation:</u></b></p> <ol style="list-style-type: none"> <li>1. Identify the respiratory centers</li> <li>2. Describe the generation of breathing rhythm by the brain stem.</li> <li>3. Describe the chemical control of breathing</li> </ol> <p><b><u>Management of Bronchial Asthma (II)</u></b></p> <ol style="list-style-type: none"> <li>1. Differentiate between short- acting and long- acting inhaled beta 2-Adrenergic agonists.</li> <li>2. Discuss the uses of anti- inflammatory drugs, including corticosteroids,</li> <li>3. Leukotriene modifiers and mast cell stabilizers.</li> <li>4. Histamine and antihistamines</li> </ol> <p><b><u>Management of Sleep Apnea</u></b></p> <ol style="list-style-type: none"> <li>1. How do we maintain O<sub>2</sub> &amp; CO<sub>2</sub>?</li> <li>2. What happens with sleep naturally?</li> <li>3. Why do we snore?</li> <li>4. What's sleep apnea vs central apnea?</li> <li>5. Central vs peripheral apnea?</li> <li>6. Is all snoring apnea?</li> <li>7. What are the signs and symptoms of sleep apnea?</li> <li>8. Why do we care? Discuss the complications of sleep apnea</li> <li>9. How do we treat it?(applying our anatomy and physiology knowledge)</li> </ol>	2	
	<p><b><u>Pharmacology</u></b></p> <p><b><u>Clinical Resource</u></b></p>	1	
3	<p><b><u>Pathology</u></b></p> <p><b><u>Lung infection:</u></b></p> <p><b><u>Lung infection:</u></b></p> <ol style="list-style-type: none"> <li>1. Pathogenesis of lung infection.</li> <li>2. Classification of pneumonia.</li> </ol>	1	<p><b><u>Practical lab</u></b></p> <p><b><u>Lab 1- Microbiology (2 Hrs)</u></b></p>



	<p>3. Pathological changes in pneumonia</p> <p>4. Treatment &amp; prognosis.</p> <p>5. Difference between acute and chronic pneumonia, lobar and bronchopneumonia</p> <p>6. Overview of tuberculosis</p>		
<b><u>Anatomy</u></b>	<p><b><u>Anatomy of superior mediastinum:</u></b></p> <p>1. Describe the basic divisions of the mediastinum and their positions in the chest.</p> <p>2. Describe the contents and relations: arch of aorta and branches, ligamentum arteriosum, superior vena cava &amp; tributaries, thoracic duct, phrenic &amp; vagus nerves, trachea, and esophagus.</p> <p>3. Discuss the applied anatomy of coarctation of aorta, normal esophageal constrictions, and tracheal deviation.</p> <p>4. Identify the sectional and imaging anatomy of superior mediastinum.</p>	1	<p><b>Lab2- Imaging Lab of Respiratory System (2 Hrs)</b></p> <p><b>Interpretation of chest x-rays</b></p> <ul style="list-style-type: none"> <li>• know the different imaging modalities used in chest imaging</li> <li>• explain the rationale for the use of contrast in chest imaging</li> </ul> <p>understand usefulness of PACS in viewing a chest imaging</p>
<b><u>Physiology</u></b>	<p><b><u>Transport of gases:</u></b></p> <p>1. Describe the modes of transport of O<sub>2</sub> and CO<sub>2</sub> in the blood</p> <p>2. Discuss the Oxygen- Hemoglobin Dissociation Curve</p> <p>3. Explain the transport of oxygen and carbon dioxide in blood and tissue fluids</p> <p>4. Explain the Bohr and Haldane effects</p>	1	
<b><u>Microbiology</u></b> <b><u>/</u></b> <b><u>Immunology</u></b>	<p><b><u>Pneumonia:</u></b></p> <p>1. Discuss the classification, risk factors and causative microorganisms of Pneumonia.</p> <p>2. Microbiological diagnostic procedures of pneumonia.</p>	4	

	<u>Microbiology / Parasitology</u>	3. Describe the pulmonary immune system 4. Explain the mechanism of acute inflammation in the lung tissue	1	
	<u>Pharmacology</u>	Hydatid Disease  <u>Antibiotics for Pneumonia (I)</u>	2	
	<u>Clinical Resource</u>	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  <u>Cough &amp; expectoration:</u> 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.	1	
	<u>Pathology</u>	<u>Neoplasia:</u> 1. Definition & role of genes in neoplasia 2. Familiarisation with neoplasia nomenclature 3. Differentiate between benign & malignant tumor	2	<u>Practical lab</u> <u>Lab 1- Pathology (2 Hrs)</u> <u>Lab2- Immunology (2 Hrs)</u>



		<p>4. The effects of benign &amp; malignant Tumor</p> <p>5. Differentiate between carcinoma &amp; sarcoma.</p> <p>6. Classification of lung tumor</p> <p>7. Characteristics of Squamous cell carcinoma, Small cell carcinoma Adenocarcinoma and Mesothelioma</p>		
	<b><u>Anatomy</u></b>	<p><b><u>Anatomy of inferior mediastinum:</u></b></p> <p>1. Describe the contents and relations of each part: anterior, middle and posterior mediastinum.</p> <p>2. Outline the azygous system of veins.</p> <p>3. Describe the lymphatic drainage of the thorax.</p> <p>4. Summarize the anatomy of autonomic nervous system in the thorax.</p> <p>5. Discuss the applied anatomy of Horner's syndrome, injury of phrenic and recurrent laryngeal nerves.</p> <p>6. Identify the sectional and imaging anatomy of inferior mediastinum</p>	2	
	<b><u>Physiology</u></b>	<p><b><u>Respiratory regulation of acid base balance:</u></b></p> <p>1. Explain how blood gases affect the respiratory centers of the brain.</p> <p>2. Explain how the respiratory centers homeostatically control blood gases and PH.</p> <p>3. Explain how brain stem regulates respiration.</p> <p>4. Describe the stimuli that modify the respiratory rhythm</p>	2	
	<b><u>Microbiology</u></b> <b><u>/</u></b> <b><u>Immunology</u></b>	<p><b><u>Tumor immunology:</u></b></p>	2	



	<p><b>Pharmacology</b></p> <p>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</p> <p><b>Clinical Resource</b></p> <p><b><u>Role of Chemotherapy in management of Lung cancer:</u></b>  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:  - Mechanism of action - Therapeutic applications - Specific adverse effects - How they are administered</p> <p><b><u>Bronchogenic Carcinoma:</u></b>  1. Know the signs and symptoms of lung cancer  2. Recognize what we investigate with lung cancer  3. Know the general lines of treatment</p>	1	
5	<p><b><u>Microbiology:</u></b></p> <p>1. Describe the general classification of mycobacterium</p>	2	

		<ol style="list-style-type: none"> <li>2. Explain the Microbiological properties of Mycobacterium tuberculosis with clinical relevance</li> <li>3. Explain the mechanism of pathogenesis of Mycobacterium tuberculosis</li> <li>4. Describe the epidemiology and transmission of Mycobacterium tuberculosis</li> <li>5. Explain the mechanism of antibiotic resistance of Mycobacterium tuberculosis</li> <li>6. Recognize the steps of selection of specimens and tests to be ordered for microbiological diagnosis.</li> <li>7. Explain the Mechanism of delayed type hypersensitivity and the role of Th1 lymphocytes and their cytokines</li> <li>8. Explain the mechanism of microbial Intracellular survival in macrophages &amp; Macrophage activation</li> <li>9. Recognize the role of Interferon gamma and Nitric oxide derivatives in intracellular microbial killing.</li> </ol>		<p><b><u>Practical lab:</u></b></p> <ol style="list-style-type: none"> <li>1. microbiology labs <b><u>(2 hours)</u></b></li> <li>2. Skill lab</li> </ol>
	<b><u>Pathology:</u></b>	<ol style="list-style-type: none"> <li>1. Definition and microscopic appearances of granuloma.</li> <li>2. Describe the Major granulomatous diseases (introduction).</li> <li>3. Describe the Morphological changes of pulmonary tuberculosis (primary and post-primary).</li> </ol>	<b>2</b>	

	<b><u>Pharmacology</u></b>	<p>4. Recognize the Complications of tuberculosis</p> <p>1. Anti-tubercular drugs – First-line &amp; alternative drugs</p> <p>2. Mechanism of action and ADR of first-line drugs</p> <p>3. Chemoprophylaxis</p>	<b>1</b>	
	<b><u>Community</u></b>		<b>1</b>	
	<b><u>Clinical</u></b>	<p>1. Screening for tuberculosis</p> <p>2. Control of tuberculosis</p> <p>3. Role of Public Health in TB</p>	<b>2</b>	
		<p>1. Clinical manifestations of pulmonary tuberculosis</p> <p>2. Diagnosis of tuberculosis: conventional and rapid methods</p> <p>3. Principles of treatment of tuberculosis</p> <p>4. Tuberculosis: infection control issues</p> <p>5. Tuberculosis in immuno-compromised patients</p> <p>Extra-pulmonary tuberculosis</p>		



## Clinical skill theme

Week	Clinical skill	Clinical skill objectives
1	History taking	Respiratory System History & Clinical Reasoning
2	examination	Respiratory system examination
3	examination	Respiratory system examination
4	Spirometry & asthma devices	History taking of Asthma and Devices
5	History & exam	Respiratory System History & Clinical Reasoning Respiratory system examination

## Small Group PBL Tutorials:

Every week, students study a problem in a small group in the presence of a tutor. Students meet with the tutor on Sunday (first session) and Thursday (second session) every week. In the first PBL tutorial session, students: a) Read and interpret the case scenario (triggers) and define technical terms. b) Identify the key issues of the problem. c) Brainstorm, ask questions and generate hypotheses (possible causes and consequences). d) Indicate additional information, procedures, required to sort through the hypotheses and what you expect to learn from the additional information. e) Identify their learning needs i.e. objectives. 10 In between the first and second sessions, students follow a self-directed learning approach, using the relevant learning resources in studying the identified learning needs. In the second PBL tutorial session, students: - Present the newly gathered knowledge. - Relate it to the context of the problem. - Integrate the physical, biological and behavioral components in every problem. - Evaluate their tutorial performance

## Summary of the Unit Problems

week	Case presentaion	Summary
1	Naghem's out of breath	Sahar, a mother of 3 kids, is a heavy smoker and suffers from chronic bronchitis, while her 14 years old daughter Naghem suffers from frequent bouts of bronchial asthma, she is allergic and eczematous, and her father is asthmatic too. Her doctor ordered a lung function test for both of them and put Naghem on a reliever puffer for her symptoms
2	Wake up dad!	Kamal is in his forties, suffering from obesity, falling asleep frequently any time any place, and snoring loudly. A history of tonsillectomy was revealed, his doctor asked him to do the diagnostic sleep study test to confirm the diagnosis, his condition improved with the treatment called CPAP (continuous positive airway pressure).
3	Ali coughs bloody sputum	32 year old Ali got admitted to Al Hussein Teaching hospital with complains of 3 days fever with chills, cough with yellowish blood tinged sputum, sharp stabbing pain on his right side and back of his chest which becomes worse with inspiration and increasingly difficulty in breathing. Sputum gram stain report revealed polymorphs, RBCs and gram-positive diplococci. A diagnosis of community- acquired pneumococcal right lobar pneumonia was made.
4	How bad can smoking be?	Salim, a 56 years old man, heavy smokers, smokes approximately 30 cigarettes a day for the last 40 years; he was referred to Al Hussein Teaching hospital with the chief complaint of persistent cough with blood in the sputum. Complete Blood Count & radiograph were done and sputum was sent for cytology and microbiological examination which were highly suggestive of malignancy of the lung, which was confirmed by biopsy.
5	<u>HAMEED WITH FEVER AND COUGH</u>	Thitry five year old Hameed presented with complains of productive cough, fever and generalized weakness of two weeks duration. The doctor made a provisional diagnosis of bronchitis and prescribed him a course of antibiotic. Two weeks later, Hameed consulted the chest physician of Al Hussein hospital because of gradual deterioration of his conditions. Physical examination revealed: palpable non-tender right cervical lymph nodes. Chest percussion showed; stony dullness on the right side at the base of the lung consistent with pleural effusion. Auscultation of the chest revealed few crackles on the right apex and right infra-clavicular area and decreased vesicular breath sounds on the



		right base. Chest x-ray was done which showed changes consistent with tuberculosis
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### تقييم المقرر الدراسي (Course Evaluation)

تقييم الطلاب في هذه الوحدة سيتضمن ما يلي:

### 1. التقييم الختامي للوحدة (END OF UNIT SUMMATIVE ASSESSMENT)

سيغطي الامتحان:

1. (CVS) الوحدة السالسة: الجهاز القلبي الوعائي

ستعلن التواريخ والجدول لاحقاً

مكونات الامتحان:

1. المواد المخبرية + (MCQ) الورقة التحريرية: أسئلة متعددة الاختيارات

2. (OSCE) اختبار المهارات العملية

### 2. تقييم جلسة التعلم القائم على حل المشكلات (ASSESSMENT OF THE PBL SESSION)

موجود في الملحق PBL نموذج تقييم

### 3. الملف الشخصي (PORTFOLIO)

سيتم تسليم المحتوى التفصيلي للملف للطلاب بشكل منفصل

### 4. مهارات الإتقان (MASTERY SKILLS)

سيتم تخصيص امتحانات منفصلة لمهارات الإتقان

• ملاحظة مهمة: الطلاب الذين يفشلون في اجتياز امتحان مهارات الإتقان بالكفاءة الكاملة لن يُسمح لهم بدخول امتحان السنة النهائية



## Learning and Teaching Resources

- Gray's Anatomy for Students.
- Ganong's Review of Medical Physiology .
- Robbins & Cotran Pathologic Basis of Disease
- Katzung: Basic & Clinical Pharmacology.
- Jawetz, Melnick & Adelberg's Medical Microbiology
- Davidson's Principles & Practice of Medicine

## Appendix : PBL assessment form

	PBL	knowledge	Critical thinking /reasoning	Communication skill and participation	Attitude and collaborative work
unsatisfactory	1	Has no recall of previous knowledge	Identify problems(events) in the case	Not participating spontaneously most of the time	Negative influence • Interrupts others • does not respect others views • Does not help the group to identify the learning objectives
margina	2	• Has limited recall of previous knowledge	Prioritize patient problems • Differentiate important information from others	Rarely asks questions. • Limited participation in discussions	• rarely participates in identify the learning objectives • takes up tasks only one asked by others
satisfactory	3	Apply previous knowledge to the problem	• Give explanations to the patient problems	Occasionally ask questions. • Occasionally present ideas clearly	Sometimes participates in identify the learning objectives •

					Volunteer to perform tasks
good	4	Recognizes integration of knowledge and its application to the case	Can identify interrelationship between different concepts with guidance • Can identify learning objectives with guidance	Regularly asks questions that stimulate discussions. • Often present ideas and help in clarifying ideas	always participates in identify the learning objectives
excellent	5	Can recognize knowledge gap	Can identify interrelationship between different concepts without guidance • Can identify learning objectives without guidance	Leads discussion most of the time • Present clear ideas • Give summaries on the subject	Help and encourage the engagement of other members. • Explain difficult concepts to others willingly