خطة المساق الدراسي
COURSE PLAN

FIRST: COURSE IDENTIFICATION			أولاً: تعريف المساق
College & Department			**الكلية والقسم**
College	Medicine	الطب	**الكلية**
Department	Basic Medical Sciences	العلوم الطبية الأساسية	**القسم**
Academic Year	3rd	الثالثة	**السنة الدراسية**
Academic Semester	1st	الاول	**الفصل الدراسي**
Course details			**تفاصيل المساق**
Course Title	Respiratory System	الجهاز التنفسي	**اسم المساق**
Course Code	BMS 333	ع ط أ 333	**رمز المساق**
Course Type	Theory and Practical	نظري وعملي	**نوع المساق**
Credit Hours	5	5	**الساعات المعتمدة**
Pre-requisite	NA	لا يوجد	**المتطلب السابق**
☒ وجاهي ☐ الكتروني كامل ☐ مدمج			**آلية تدريس المساق**
Teaching Method	☒ Face-to-Face ☐ Online ☐ Blended		
Instructor Contact Information			**المدرس**
Name	Multi-disciplinary staff members; Dr. Refat Aboghazleh (course Coordinator)	تدريس مشترك د.رفعت أبوغزله (منسق المساق)	**اسم المدرس**
Office No.	First floor	الطابق الاول	**رقم المكتب**
Tel (Ext)			**الرقم الداخلي**
E-mail	Refat.Aboghazleh@bau.edu.jo	Refat.Aboghazleh@bau.edu.jo	**البريد الالكتروني**
Office Hours	12-2 Sun-Wed	من الاحد الى الأربعاء 12-2	**الساعات المكتبية**

وقت المحاضرة Class Times	وقت البدء Start Time	وقت النهاية End Time	اليوم Day	المبنى Building	رقم القاعة Room No.
8:00-12:00	**8:00**	**12:00**	**S M T W T**	**Faculty of Medicine**	**Auditorium 301 & 302**

Course Materials	**مصادر المساق**
Textbook	**الكتاب المقرر**

Course References, Readings and Learning Resources **المراجع والقراءات ومصادر تعلم المساق:**

Anatomy:

1. Clinical Anatomy for Medical Students. By R.S. Snell, (latest edition).
2. Grants Atlas of Anatomy or Netter Atlas.
3. Junqueira's Basic Histology text and atlas (14^{th} or 15^{th} edition).
4. Before we are born. By K.L. Moore, T.V.N. Persaud, and M.G. Torchia (9^{th} or 10^{th} edition).

Physiology:

5. Textbook of Medical Physiology, by Guyton and Hall, 13th edition, 2016.
6. Review of Medical Physiology, by William F. Ganong, 23rd edition, 2016.

Biochemistry:

7. Biochemistry. By Cample
8. Biochemistry with clinical correlation by Devline

Pharmacology:

9. Lippincott's Illustrated Reviews Pharmacology, Latest edition.
10. Basic and Clinical Pharmacology. By Katzung, Latest Edition
11. Goodman and Gilman's: The pharmacological basis of therapeutics, Latest edition
12. Clinical Pharmacology. D.R. Laurence, P.N. Bennet, and M.J. Brown. Churchill Livingstone, Latest edition

Pathology:

13. Basic Pathology. By Kumar, Cotran and Robbins, Latest Edition.
14. Essential of Pathology Rubin, Latest Edition.

Microbiology:

15. Medical Microbiology. An Introduction to Infectious Diseases. By Sheries, latest edition.

Clinical Lectures:

16. To be assigned by the lecturer.

SECOND: COURSE OVERVIEW/DESCRIPTION ثانياً: معلومات المساق

Course description وصف المساق

In this course, the respiratory system and its related topics are discussed through an integrated system-based approach that encompasses all the fundamental science disciplines. The course combines knowledge from anatomy, physiology, pathology, pharmacology, and microbiology to create a comprehensive understanding of the subject matter. The course aims to achieve its objectives through a variety of methods, including lectures, laboratory sessions, seminars, or small group discussions, as well as self-directed learning techniques. Throughout the course, students are presented with clinical scenarios whenever applicable, which serve to underscore the explanations of symptoms, signs, investigations, and forms of treatment. This approach helps to bridge the gap between theoretical knowledge and practical application, enhancing the students' understanding and preparing them for the real clinical cases.

Course Objectives أهداف المساق

By the end of this course, students should be able to مع نهاية هذا المساق يجب أن يكون الطالب قادراً على

CO1.	Describe the anatomical and histological structures of different parts of the respiratory system and understand their functions. Furthermore, we expect that students can define and understand the development of the respiratory system and the common congenital abnormalities that may occur.	الهدف 1:
CO2.	Explain the physiological mechanisms in respiratory system and understand the biochemical basis of different disorders affecting the system.	الهدف 2:
CO3.	Distinguish the pathological conditions affecting the respiratory system.	الهدف 3:
CO4.	To identify various bacteria, viruses, parasites, and fungal infections, which affect the respiratory tract and to understand principles of diagnosis, treatment and prevention.	الهدف 4:
CO5.	To identify and describe the major causes, pathogenesis, morphological changes, and complications of various disease processes which affect the respiratory tract.	الهدف 5:
CO6.	Select the appropriate diagnostic tests and treatments for different respiratory system disorders.	الهدف 6:

Program Intended Learning Outcomes (PILO):			مخرجات التعلم المستهدفة للبرنامج	
Knowledge & understanding	PILO1	Show understanding of various human body systems in terms of structure, function, and regulation, and normal anatomical, biochemical, cellular, genetic, and molecular mechanisms in human body and their disruptions during disease status	م ب1:	المعرفة والفهم
Professional Skills	PILO2	Take a history and perform physical examination and apply clinical knowledge and skills in disease diagnosis and management through rational planning in requesting necessary, updated, and accurate diagnostic procedures	م ب2:	المهارات
	PILO3	Demonstrate and apply sufficient knowledge of drugs and pharmacotherapy concepts for rational drug use in clinical: therapeutic and preventive settings	م ب3:	
	PILO4	Identify the major signs and symptoms of disease states, recognizing risk factors and etiologies, in an interdisciplinary approach to differentially diagnose patients.	م ب4:	
	PILO5	Critically appraise research studies guided by evidence-based medicine and gaining the skill to function effectively within diverse settings and communities.	م ب5:	
Competences	PILO6	Recognize and apply the basic concepts and principles in scientific research, emphasizing research ethics and the practice of evidence-based medicine	م ب6:	الكفايات
	PILO7	Appreciate and apply the principles of medical and sustainable professional development	م ب7:	
	PILO8	Respect and adhere to ethical principles in all aspects of education, training, and work	م ب8:	
Course Intended Learning Outcomes (CILO)			**مخرجات التعلم المستهدفة للمساق**	
Successful completion of the course should lead to the following outcomes:			**في نهاية المساق بنجاح يجب أن يكتسب الطالب المخرجات التالية:**	
Knowledge & understanding	CILO1	Describe the gross anatomy of the thoracic cage, thoracic cavity, and different parts of respiratory system including nasal cavity, larynx, trachea, bronchi, andlungs.	م م 1:	المعرفة والفهم
	CILO2	Describe the histology and the development of different parts of respiratory system and the most common congenital abnormalities that may occur during the development of the system.	م م 2:	
	CILO3	Understand the physiologic roles of the alveoli and identify the different types of lungs volumes and lungs function test, and explain how respiratory gases are exchanged. Student	م م 3:	

		should be able to explain the pulmonary circulation and locate the respiratory center and understand their function in regulation of respiration.		
	CILO4	Recognize different types of bacterial, viral, parasitic, and fungal infections that affect the respiratory system, and comprehend the principles of preventing, diagnosing, and treating them.	**م م 4:**	
	CILO5	Recognize and explain the primary causes, pathogenesis, morphological changes, and complications associated with various disease processes that impact the respiratory system.	**م م 5:**	
Professional Skills	**CILO6**	Comprehend the essential pharmacological principles that form the foundation for treating tuberculosis, cough, and bronchial asthma, in addition to the pharmacology of antihistamine medications.	**م م 6:**	المعارف
	CILO7	Able to differentiate the different respiratory disorders and identify the major risk factors that contribute to occupational diseases of the respiratory system.		
Compe tences	**CILO 8**	Demonstrate the ability to clarify the symptoms, signs, diagnostic tests, and treatment options associated with abnormalities of the respiratory system	**م م 8:**	الكفايات

Mapping Course Learning Outcomes CILOs to Program Learning Outcomes PILOs				**موائمة مخرجات التعلم للمساق CILOs مع مخرجات التعلم للبرنامج PILOs**			
	PILO1	**PILO2**	**PILO3**	**PILO4**	**PILO5**	**PILO6**	**PILO8**
CILO1	☒	☐	☐	☐	☐	☐	☐
CILO2	☒	☐	☐	☐	☐	☐	☐
CILO3	☐	☒	☐	☐	☐	☐	☐
CILO4	☒	☒	☐	☐	☐	☐	☐
CILO5	☐	☒	☐	☒	☐	☐	☐
CILO6	☐	☐	☒	☐	☐	☐	☐
CILO7	☐	☐	☐	☒	☐	☐	☐

CILO8	☐	☒	☒	☒	☐	☐	☐

Topic Outline/Schedule (Syllabus)

مخطط المساق (الموضوعات)

الأسبوع Week	مواضيع المساق / الفعاليات Course Topics/Events	القراءات (المراجع) Readings (Reference) رقم	رمز مخرجات المساق CILO	رمز مخرجات البرنامج PILO	أنشطة التدريس والتعلم Teaching & Learning Activity	العلامة Mark	الوقت /الموعد Duration/ Deadlines
1	Upper respiratory Tract-I and II **(Anatomy 1, 2)**	1,2	1	1	Power point &/or Videos &/or Handout	0.5-1	50 min.
1	Upper respiratory tract infections I: Group A beta-hemolytic streptococci & Hemophilus influenza **(Microbiology 1)**	15	4,7	1, 2	Power point &/or Videos &/or Handout	0.5-1	50 min.
1	Thoracic cage, thoracic wall respiratory muscles including the diaphragm. **(Anatomy 3)**	1,2	1,7	1	Power point &/or Videos &/or Handout	0.5-1	50 min.
1	Lower respiratory tract, pleura, lung and mediastinum I & II **(Anatomy 4, 5)**	1,2	1	1	Power point &/or Videos &/or Handout	0.5-1	50 min.
1	Pulmonary ventilation **(Physiology 1)**	5,6	3,7	1, 2	Power point &/or Videos &/or Handout	0.5-1	50 min.
1	**(Anatomy Lab 1)**	1,2	1	1	Small groups Models Demonstration Handout	2	2-3 hours

الأسبوع Week	مواضيع المساق / الفعاليات Course Topics/Events	القراءات (المراجع) Readings (Reference) رقم	رمز مخرجات المساق CILO	رمز مخرجات البرنامج PILO	أنشطة التدريس والتعلم Teaching & Learning Activity	العلامة Mark	الوقت /الموعد Duration/ Deadlines
2	Development of pharyngeal apparatus **(Anatomy 6)**	4	2,7	1,2	Power point &/or Videos &/or Handout	0.5-1	50 min.
2	Pulmonary volumes and capacities **(Physiology 2)**	5,6	3	1, 2	Power point &/or Videos &/or Handout	0.5-1	50 min.
2	Histology of respiratory tract **(Anatomy 7)**	3	1	1,2	Power point &/or Videos &/or Handout	0.5-1	50 min.
2	Pre- and post-natal development of respiratory system **(Anatomy 8)**	4	2,7	1,2	Power point &/or Videos &/or Handout	0.5-1	50 min.
2	Pulmonary circulation **(Physiology 3)**	5,6	3	1,2	Power point &/or Videos &/or Handout	0.5-1	50 min.
2	Upper respiratory tract infections II: Bordetella pertussis & Corynebacterium diphtheria (**Microbiology 2)**	15	4,7	1,3	Power point &/or Videos &/or Handout	0.5-1	50 min.
2	Pulmonary capillary dynamics. **(Physiology 4)**	5,6	3	1,2	Power point &/or Videos &/or Handout	0.5-1	50 min.

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2	Physical principles of gas exchange **(Physiology 5)**	5,6	3	1,2,4	Small groups Models Demonstration Handout	0.5-1	2-3 hours
2	**(Physiology Lab)**	5,6	3	1,2,4	Power point &/or Videos &/or Handout	2	2-3 hours
2	**(Anatomy Lab 2)**	1,2	1	1	Small groups Models Demonstration Handout	2	2-3 hours
3	Upper respiratory tract infections III: Influenza virus, RSV **(Microbiology 3)**	15	4,7	1,4	Power point &/or Videos &/or Handout	0.5-1	2-3 hours
3	Transport of oxygen and carbon dioxide in blood **(Physiology 6)**	5,6	3	1,2,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
3	Acid base principles and disorders **(Biochemistry 1)**	7,8	1,7	1,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
3	Obstructive lung disease **(Pathology 1)**	13,14	5,7	1,2,4	Power point &/or Videos &/or Handout	0.5-1	50 min.

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3	Chemical control. **(Physiology 7)**	5,6	3	1,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
3	Atelectasis, pulmonary edema, and acute lung injury **(Pathology 2**)	13,14	4,7	1, 2,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
3	Pathophysiology of respiratory system **(Physiology 8)**	5,6	7	1,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
3	Restrictive lung disease **(Pathology 3)**	13,14	4,7	1,2,,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
3	**(Histology Lab)**	3	1	1,4	Small groups Models Demonstration Handout	2	2-3 hours
4	Alpha 1 antitrypsin deficiency, cystic fibrosis and respiratory distress syndrome **(Biochemistry 2)**	7,8	2, 3, 6	1, 4	Power point &/or Videos &/or Handout	0.5-1	50 min.
4	Drugs used for treatment of bronchial asthma and COPD **(Pharmacology 1)**	9,10,11,12	6	1,3	Power point &/or Videos &/or Handout	0.5-1	50 min.

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4	Management of asthma and COPD **(Pharmacology 2)**	9,10,11,12	6	1, 3	Power point &/or Videos &/or Handout	0.5-1	50 min.
4	Lung diseases of vascular origin **(Pathology 4)**	13,14	5,7	1, 2,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
4	Fungal infections **(Microbiology 4)**	15	4,7	1,2,3,4	Small groups Models Demonstration Handout	2	2-3 hours
4	Mycobacterium tuberculosis **(Microbiology 5)**	15	4	1,2,3,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
4	Pulmonary TB (**Pathology 5)**	13,14	5,7	1,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
4	Treatment of tuberculosis (**Pharmacology 3)**	9,10,11,12	6	1,3	Power point &/or Videos &/or Handout	0.5-1	50 min.
4	**(Pathology Lab)**	13,14	5	1, 4	Power point &/or Videos &/or Handout	2	2-3 hours

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5	Pulmonary infections (**Pathology 6)**	13,14	5,7	1, 2, 4	Power point &/or Videos &/or Handout	0.5-1	50 min.
5	Lower respiratory tract infections I: Pseudomonas, Moraxella and Bacillus Anthracis **(Microbiology 6)**	15	4,7	1,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
5	Lower respiratory tract infections II: Mycoplasma and Legionella **(Microbiology 7)**	15	4,7	1,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
5	Lower respiratory tract infections III: Streptococcus pneumonia and other Spp. **(Microbiology 8)**	15	4,7	1, 4	Power point &/or Videos &/or Handout	0.5-1	50 min.
5	Lung tumors 1&2 **(Pathology 7 & 8)**	13,14	4, 8	1, 2, 4	Power point &/or Videos &/or Handout	0.5-1	50 min.
5	Antihistamines **(Pharmacology 4)**	9,10,11,12	6	1,3	Power point &/or Videos &/or Handout	0.5-1	50 min.
5	**(Microbiology Lab)**	15	7	1, 2,4	Power point &/or Videos &/or Handout	2	2-3 hours

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5	**Clinical Lecture I**	16	7,8	2,3,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
5	**Clinical Lecture II**	16	7,8	2, 3,4	Power point &/or Videos &/or Handout	0.5-1	50 min.
	• التقييم التجميعي • Final exam (Summative Assessment)				الامتحان النهائي (التقييم التجميعي) Summative Assessment		Week 5

Week	May use the Week number more than once	من الممكن استخدام رقم الأسبوع اكثر من مرة	**الأسبوع**
Course Topics/Events	The topic that is the focus of this part of the class in subjects' format	المحتوى التعليمي المعطى في المحاضرة على شكل مواضيع	**مواضيع المساق / الفعاليات**
CILO	The learning objective of this specific topic; what you want the students to achieve.	الهدف التعليمي لهذا الموضوع المحدد؛ ما الذي تريد أن يحققه الطلاب.	**مخرجات التعلم للمحاضرة**
Teaching & Learning Activity	Power point material, Videos, White board, overhead projector, handout, pc projector, written assignment, flip chart, objects used to illustrate something etc.	وسائل التعليم المستخدمة، مادة عرض مصورة، مقاطع مصورة، مجسمات السبورة البيضاء، جهاز عرض علوي، نشرة ، جهاز عرض كمبيوتر ، مهمة كتابية ، لوح ورقي ، أشياء مستخدمة لتوضيح شيء ما وما إلى ذلك.	**أنشطة التدريس والتعلم**
Time	Duration of this part of the class.	مدة هذا الجزء النشاط من المحاضرة.	**الوقت**
Mark	Mark weight for each topic as a part of total (100)	علامة كل مخرج وهي جزء من العلامة الكلية (100)	**العلامة**

#	LECTURE TITLE	LECTURE OBJECTIVES
1&2	Upper respiratory tract-I and II **(Anatomy 1, 2)**	1. Describe the structure of nasal cavity including nasal septum. 2. Describe the structure of lateral wall of nasal cavity including chonchae and meatuses. 3. Locate the openings of the paranasal air sinuses and naso-lacrimal duct in the meatuses. 4. Describe nasal innervations, blood supply, and its relation to epistaxis. 5. Study the structure of nasopharynx and associated openings with their clinical importance. 6. Describe the structure of various cartilages and membranes of the larynx. 7. Describe muscles of the larynx including their action, nerve and blood supply. 8. Describe the structure of vocal cords and the mechanism of voice production and control of air passageway.
3	Upper respiratory tract infections I: Group A beta-hemolytic streptococci & Hemophilus influenza **(Microbiology 1)**	1. Know the normal flora and the pathogens of the respiratory tract. 2. Know the structure of Group A beta hemolytic strep in relationship to virulent factors, pathogenesis, and laboratory diagnosis. 3. Know the diseases caused by this organism, epidemiology, pathogenesis, treatment and prevention. 4. Explain why there is no vaccine for this organism. 5. Describe the morphology and structure of H influenza. 6. Describe the growth and pathogenesis, transmission, epidemiology 7. Be familiar with different types of Hemophilus influenza infections. 8. Be familiar with the laboratory diagnosis, treatment and prevention
4	Thoracic cage, thoracic wall respiratory muscles including the diaphragm. **(Anatomy 3)**	1. Describe the shape and outline of the thoracic cage including inlet and outlet. 2. Describe the anatomical landmarks of the anterior chest wall. 3. List various structures making the thoracic wall. 4. Make a list of muscles of the thoracic wall including their nerve and blood supply and their actions. 5. List various parts of the thoracic vertebrae and name its characteristic features. 6. Describe the sternum with its joints. 7. Classify ribs, name their various parts and compare them with each other. 8. Define intercostal spaces and discuss their various components including intercostal muscles. 9. Describe the diaphragm, its origin, insertion, function, nerve, and blood supply. Study openings in the diaphragm and structures that pass through.

5&6	Lower respiratory tract, pleura, lung and mediastinum I & II **(Anatomy 4 and 5)**	1. Describe the trachea including its relations and subdivision. 2. Define pleura and pleural cavity and name its parts and recesses. 3. Discuss the pleural nerve supply. 4. Describe the lungs with their lobes and fissures and surfaces and compare between right and left lungs. 5. Make a list of bronchopulmonary segments. 6. Describe innervations, blood supply and lymphatic drainage of the lungs. 7. Identify different parts and contents of the mediastinum. 8. Study the origin, location, course, and branches of the internal thoracic artery. 9. Define the surface markings of the trachea, lungs, and pleura. 10. Describe the typical appearance of chest X-ray and CT scan.
7	Pulmonary ventilation **(Physiology1)**	1. Describe the mechanics of pulmonary ventilation. 2. Define pleural pressure, alveolar pressure, and trans-pulmonary pressure 3. Describe changes in lung volumes, alveolar pressure, pleural pressure, and trans- pulmonary pressure during normal breathing. 4. Define compliance of the lungs. 5. Draw compliance diagram of the lungs in a normal person. 6. Describe the chemical composition and function of the surfactant.
8	Development of pharyngeal apparatus **(Anatomy 6)**	1. Describe the main stages in development of pharyngeal apparatus: 2. Pharyngeal arches, pouches, grooves, and membranes 3. Describe the development of face 4. Describe the development of palate 5. Discuss some of the congenital anomalies associated with palate and pharyngeal apparatus development
9	Pulmonary volumes and capacities **(Physiology 2)**	1. Define different types of pulmonary volumes and capacities. 2. Define alveolar ventilation 3. List the factors that determine alveolar ventilation 4. Understand differences between anatomic and physiologic dead spaces 5. Describe the effect of dead space on alveolar ventilation 6. Define rate of alveolar ventilation 7. Describe the effects of alveolar ventilation on PCO2 and PO2

10	Histology of respiratory tract **(Anatomy 7)**	1. Describe the microscopic structure of the upper respiratory passage including the respiratory mucosa. 2. Correlate the structure and expected function of the different components of the nose and trachea. 3. Study the microscopic structure of the main bronchi and their subdivisions. 4. Study the microscopic structure of the lung parenchyma and correlate this structure with gas exchange function.
11	Pre- and post-natal development of respiratory system **(Anatomy 8)**	1. Describe the development of nasal cavity. 2. Describe development of the larynx. 3. Describe the development of lungs and bronchi. 4. Describe the development of the diaphragm.
12	Pulmonary circulation **(Physiology 3)**	1. Compare the pulmonary and systemic circulations listing the main differences between them. 2. Describe bronchial circulation and the concept of physiological shunt 3. Characterize pressures in the pulmonary system 4. Describe blood flow through the lungs and its distribution 5. Understand effect of hydrostatic pressure on regional pulmonary blood flow.
13	Upper respiratory tract infections II: Bordetella pertussis & Corynbacteriym diphtheria **(Microbiology 2)**	1. Describe the structure, morphology of those organisms and their significance as virulent factors and in laboratory diagnosis. 2. Know the epidemiology, pathogenesis, the mechanism of action of the toxins produced, and the role of lysogenic conversion in virulence. 3. Know the laboratory diagnosis. 4. Treatment, prevention and the use of vaccines, their schedule and their possible side effects, and the use of the cellular component of the vaccine.
14	Pulmonary capillary dynamics. **(Physiology 4)**	1. Describe the dynamics of capillary exchange of fluid in the lungs and pulmonary interstitial fluid. 2. Characterize the interrelation between interstitial fluid pressure and other pressures in the lung. 3. Define pulmonary edema and the pathophysiological mechanisms. 4. Define pleural effusion and the causing factors
15	Physical principles of gas exchange	1. Define the concept of ventilation – perfusion ratio.

	(Physiology 5)	2. Describe the effect of ventilation – perfusion ratio on alveolar gas concentration. 3. Gas pressure in a mixture of gases 4. Composition of alveolar air and its relation to atmospheric air 5. Characterize the pathophysiology of abnormal ventilation perfusion ratio. 6. Appreciate the measurement of partial pressure of gases. 7. Define the factors which affect the rate of gas diffusion 8. Identify the respiratory membrane through which gases diffuse
16	Upper respiratory tract infections III: Influenza virus, RSV **(Microbiology 3)**	1. Identify the viruses associated with upper respiratory tract, and the significance in relationship to antibiotics abuse. 2. Know the structure of the influenza virus and relate this into its evasiveness and virulence. 3. Explain the epidemiology in birds, animals, and humans, why it causes pandemics, methodology used for naming. 4. Explain the clinical presentation, pathogenesis, and the role of the immune response, ryes syndrome and significance. 5. Be familiar with the laboratory diagnosis, treatment, and vaccination
17	Transport of oxygen and carbon dioxide in blood **(Physiology 6)**	1. Describe the forms oxygen in blood 2. Understand the oxygen dissociation curve and the factors affecting it 3. Describe the physical and chemical forms of carbon dioxide in the blood 4. Understand the Bohr effect and Haldane effect on oxygen and carbon dioxide in the blood
18	Acid base principles and disorders **(Biochemistry 1)**	1. Understand bicarbonate buffer system using Henderson-Hasselbalch Equation 2. Know which organs are responsible for CO2 and HCO3- maintenance and what determines PH 3. Know normal values of CO2 and HCO3- in arterial blood and the normal arterial blood PH 4. Define acidosis/alkalosis and academia/alkalemia 5. Understand procedure for acid/base interpretation cases 6. Identify and understand compensatory changes
19	Obstructive lung disease **(Pathology 1)**	1. Define obstructive lung diseases 2. Discuss the pathogenesis, pathologic features and complication of asthma, emphysema, chronic bronchitis and bronchiectasis

20	Regulation of respiration: Neural and chemical control. **(Physiology 7)**	1. Locate and comment on the function of the dorsal and ventral groups of respiratory neurons, the pneumotaxic center, and the apneustic center in the brain stem. 2. List the effects on respiration that are mediated by the vagus nerves. 3. List the neural factors that affect the activity of respiratory center 4. Describe abnormal patterns of breathing 5. Describe cough and sneezing reflexes 6. List the specific functions of the respiratory receptors in the carotid body, the aortic body, and in the ventral surface of the medulla oblongata. 7. Describe the effects of arterial PO2, PCO2 and PH on alveolar ventilation
21	Atelectasis, pulmonary edema, and acute lung injury **(Pathology 2)**	1. Define atelectasis and describe the main types of atelectasis 2. Define pulmonary edema in addition to classification and causes 3. Define Acute lung injury, ARDS and diffuse alveolar damage 4. Know the main causes and pathologic features of ALI and ARDS
22	Pathophysiology of respiratory system **(Physiology 8)**	1. Understand the main complains of the patient with respiratory disease 2. Describe different investigation for diagnosis of respiratory disease 3. Understand the difference between obstructive and restrictive pulmonary diseases 4. Understand the possible preventable methods for protection from respiratory diseases
23	Restrictive lung disease **(Pathology 3)**	1. Define restrictive lung diseases 2. List the major categories of restrictive lung diseases 3. Describe pathogenesis and pathologic features of idiopathic pulmonary fibrosis, pneumoconiosis, and sarcoidosis
24	Alpha 1 antitrypsin deficiency, cystic fibrosis and respiratory distress syndrome **(Biochemistry 2)**	1. Know the importance of Alpha 1 antitrypsin and recognize different types 2. Understand the effect of defected Alpha 1 antitrypsin on lung 3. Know molecular basis of Cystic fibrosis 4. Know the Structure & Function of pulmonary surfactants, lipids and proteins 5. Know what is RDS (Respiratory Distress Syndrome) and its relation to surfactant function 6. Understand the biochemical tests to determine lung maturity
25	Drugs used for treatment of bronchial asthma and COPD **(Pharmacology 1)**	1. Describe the difference in pathophysiology, etiology and clinical presentations between Asthma and COPD

		2. Describe the factors known to provoke the attacks of bronchial asthma and COPD exacerbation. 3. Identify the different pathophysiologic changes targeted in bronchial asthma and COPD treatments 4. Understand the aims of therapy of bronchial asthma and COPD. 5. Be familiar with some examples of drugs that can be used in the treatment of bronchial asthma with their method of administration, mechanisms of action, pharmacokinetics and side effects, such as: Beta agonists, Corticosteroids, Anticholinergic agents, Theophylline, Mast – cell stabilizers, Anti-leukotriens and others. 6. Be familiar with some examples of drugs that can be used in the treatment of COPD with their method of administration, mechanisms of action, 7. pharmacokinetics and side effects.
26	Management of asthma and COPD **(Pharmacology 2)**	1. Understand treatment strategies for management of Asthma and COPD using GINA and GOLD guidelines. 2. Be familiar with the concepts of step up & step down in bronchial asthma treatment 3. Overlook of possible future therapies.
27	lung diseases of vascular origin **(Pathology 4)**	1. Know definition, pathogenesis, causes and morphologic features of pulmonary hypertention 2. Know pathogenesis and morphologic features of diffuse pulmonary hemorrhage syndromes 3. Know morphologic features of pulmonary embolism and pulmonary infarction
28	Fungal infections **(Microbiology 4)**	1. Describe the different fungi involved in the respiratory tract. 2. Describe their structure, clinical classification, and their significance in the disease process. 3. Explain the epidemiology, pathogenesis, clinical presentation, association with the immune status of patients. 4. Know the laboratory diagnosis and treatment 5. Know the preventive measures and the role of the immune system.
29	Mycobacterium tuberculosis **(Microbiology 5)**	1. Describe morphology, structure, staining and cultural characteristics of the organism. 2. Relate the structure to the virulence and pathogenesis of the disease. 3. Explain the range of pathogenicity, resistance, antigenic structure, virulence mechanisms and antimicrobic susceptibility.

		4. Explain the immunity, transmission and epidemiology. 5. Describe relevant laboratory diagnosis. 6. Define the immunoprophylaxis, and the vaccines used and their strategy. 7. Know the role of the PPD testing and their significance.
30	Pulmonary TB **(Pathology 5)**	Know epidemiology, pathogenesis and clinical features of TB
31	Treatment of tuberculosis **(Pharmacology 3)**	1. Understand the concepts of TB treatment with special emphasis on two phases of therapy. 2. Understand the concepts of combination therapy particularly the advantages and disadvantages with special emphasis on TB management. 3. Describe the mechanisms of action, pharmacokinetics, uses and side effects of Isoniazid, Rifampin, and Ethambetol. In addition, pyrazinamide as first line therapy of tuberculosis.
32	Pulmonary infections **(Pathology 6)**	1. Define pneumonia and pneumonitis 2. Know classification of pneumonias 3. Know pathogenesis, morphologic features, and complications of community- acquired bacterial pneumonias and community-acquired viral pneumonia 4. Discuss causes and morphologic features of lung abscess 5. Know causes, pathogenesis, and morphologic features and of chronic pneumonia 6. List the main causes of pneumonia in in the Immuno-compromised Host
33	Lower respiratory tract Infections I: Pseudomonas, Moraxella and Bacillus Anthracis **(Microbiology 6)**	1. Describe morphology and structure of the group and relate this to virulence, antibiotics resistance, pathogenesis, clinical presentation, and laboratory diagnosis. 2. Describe their growth, toxins, and extracellular products. 3. Explain their pathogenesis, immunity, and clinical manifestations. 4. Explain their mode of transmission and epidemiology. 5. Be familiar with related laboratory diagnosis.
34	Lower respiratory tract Infections II: Mycoplasma and Legionella **(Microbiology 7)**	1. Describe the structure, morphology of the group and relate this to virulence, pathogenesis, and clinical presentation. 2. Explain their pathogenesis, immunity and clinical disease. 3. Explain their mode of transmission and epidemiology. 4. Be familiar with the related laboratory diagnosis. 5. Be familiar with their treatment and prevention.

35	Lower respiratory tract infections III: Streptococcus pneumonia and other Spp. **(Microbiology 8)**	1. Name of microorganisms involved in this group. 2. Describe the classification of pneumonias, and the organisms in each group. 3. Understand the structure of S. pneumonia, and relate this to virulence, pathogenesis, clinical presentation, and vaccine development. 4. Describe the laboratory diagnosis and treatment of this organism.
Midterm Exam		
36&37	Lung tumors 1&2 **(Pathology 7 & 8)**	1. Describe the etiology of lung cancer. 2. Distinguish between Small Cell Carcinoma & Non-Small Cell Carcinoma and know the clinical & pathologic findings of the various types, together with their prognosis. 3. Be familiar with bronchial carcinoid. 4. Describe paraneoplastic syndromes associated with lung cancer. 5. List other tumors in the lung & know the commonest metastatic tumor. 6. List the diagnostic techniques used for respiratory disease. 7. Be familiar with pleural effusions pneumothorax & pleural tumors. 8. Identify nasal polyp, nasal papilloma & carcinoma. 9. Understand the etiology & pathology of nasopharyngeal carcinoma. 10. Describe laryngeal polyp, papilloma & carcinoma.
38	Antihistamines **(Pharmacology 4)**	1. Understand the pathophysiology of cough. 2. Understand the sites of actions of anti-tussives given example 3. Understand the mechanism of action of mucolytic agents and give examples 4. Understand the drugs used for treatment of allergic rhinitis. 5. Understand management of cough and allergic rhinitis.
39	**Clinical Lecture I**	Introduction on respiratory diseases
40	**Clinical Lecture II**	Selected cases related to respiratory diseases
Feedback session		
Revision sessions		
Week 8		
Practical & Final Exams		

#	PRACTICAL TITLE	OBJECTIVES
1	Histology of respiratory tract **(Histology)**	1. Identify the microscopic structure of upper respiratory tract including nasal mucosa, larynx, nasopharynx, and trachea. 2. Identify the microscopic structure of lung tissues and parenchyma. 3. Identify the microscopic structure of different parts of bronchial tree. Try to relate structure of each part to its function.
2	Anatomy of upper respiratory tract, thoracic cage, thoracic wall, and respiratory muscles. **(Anatomy 1)**	1. Identify different anatomical structures of the nose and nasal cavity. 2. Identify different parts of the laryngeal skeleton and membranes including vocal folds and cords. 3. Identify different anatomical structure of the larynx (cartilages, cavity, and muscles). 4. Revise surface markings of larynx and site for emergency tracheotomy. 5. Identify different anatomical structures of pharynx. 6. Revise the gross, surface, and radiological anatomy of the trachea. 7. Identify different components and joints of the thoracic cage. 8. Identify different respiratory muscles.
3	Pleura, Lungs & Mediastinum **(Anatomy 2)**	1. Identify different parts of pleura and recesses. Revise its innervations. 2. Identify different parts, impressions, and relations of lungs 3. Revise blood supply, innervations and lymphatic drainage of lungs and pleurae. 4. Revise surface markings of lungs and pleurae. 5. Revise different contents and relations of the mediastinum. 6. Identify different parts of the branching bronchial tree from the trachea to alveoli. 7. Examine the radiological appearance of lungs, trachea, hilum, bronchial tree and skeletal structures.
4	Throat swab sputum culture **(Microbiology)**	1. Be familiar with the selection, collection, and transport of specimen for microbiological examination. 2. Be familiar with the cultivation and isolation of viable pathogens. 3. List types of media used for throat swab culture. 4. Identify and describe the type of hemolysis. 5. Explain the value of using of some biochemical reactions. 6. Be familiar with the selection, collection, and transportation of sputum sample.

		7. Be familiar with the cultivation of acid-fast and nonacid-fast bacteria. 8. Be familiar with the procedure of Zeil-Neelsen stain. 9. Be able to visualize and observe mycobacterium under the microscope. 10. Be familiar with the LJ medium. 11. Prepare slides from the sputum for staining.
5	Web Path 1 **(Pathology)**	1. Be familiar with the use of "Webpath" program in computerized pathology teaching and look up lung edema, congestion, thromboembolism, infarction, atelectasis, and obstructive lung disease. 2. Examine glass slides of pulmonary edema, congestion, atelectasis, and emphysema. 3. Use Wabpath to look up restrictive lung disease, pneumonias granulomatous diseases and tumors. 4. Examine glass slides showing pneumonias, tuberculosis, Hydatid cyst in the lungs, and carcinoma.
	Spirometry **(Physiology)**	1. Define the different lung volumes and capacities and determine the amounts of these measurements in a spirogram. 2. Describe and perform the forced expiratory volume and maximum breathing capacity test and determine these measurements in a spirogram. 3. Understand the abbreviations and symbols used in pulmonary function studies.

ASSESSMANT TOOLS	أساليب التقييم
Write assessment tools that will be used to test students' ability to understand the course material and gain the skills and competencies stated in learning outcomes	أكتب أساليب التقييم التي سيتم استخدامها لتقييم قدرة الطلبة على استيعاب مواد المساق واكتساب المهارات والكفايات المنصوص عليها في مخرجات التعلم

وسيلة التقييم ASSESSMENT TOOLS	النوع (تكويني أو تجميعي) Type (Informative and Summative)	رمز مخرجات المساق المستهدفة CILO	العلامة Grade	النسبة % Percentage
☐ المشاركة(Participation)				
☐ تقرير(Report)				
☐ المقالات المختصرة (Essays)				
☐ واجبات(assignments)				
☐ الاختبارات الشفوية(Oral exams)				
☐ دراسة الحالة (Case study exams)				
☐ امتحانات قصيرة(Quizzes)				
☐ التجارب العملية (Experiments)				
☐ مشاريع (Project)				
☐ زيارات ميدانية(Field Trip)				
☐ الامتحان العملي(Practical Exam)	Summative	1-6	20	20
☐ امتحان منتصف الفصل(Mid Exam)	Summative	1-8	30	30
☐ الامتحان النهائي(Final Exam)	Summative	1-8	50	50
المجموع(TOTAL MARKS)			100	100

Informative	A set of formal and informal assessment procedures that teachers conduct during the learning process in order to modify teaching and learning activities to improve student achievement.	مجموعة من إجراءات التقييم الرسمية وغير الرسمية التي يجريها المعلمون أثناء عملية التعلم من أجل تعديل أنشطة التعليم والتعلم لتحسين تحصيل الطلاب.	**التكويني**
Summative	A set of formal assessment procedures that teachers conduct after the learning process in order to measure student achievement.	مجموعة من إجراءات التقييم الرسمية التي يجريها المعلمون بعد عملية التعلم من أجل قياس تحصيل الطلاب.	**التجميعي**
Assessment Tools	Technique or method of evaluating information to determine how much a Student knows and whether this knowledge aligns with the intended learning outcomes of a theory or framework.	تقنية أو طريقة لتقييم المعلومات لتحديد مدى معرفة الطالب وما إذا كانت هذه المعرفة تتوافق مع نتائج التعلم لنظرية أو إطار عمل.	**وسيلة التقييم**

THIRD: COURSE POLICIES AND INSTRUCTIONS — ثالثاً: التعليمات والإرشادات

Attendance rules	الحضور والمواظبة
Attendance and participation are critical, and the regular university norms will apply. A student is not permitted to be absent for more than 15% of the total number of credit hours given to any course. Each class's attendance will be tracked. A 10% absence will result in a first written notice. If a student misses 15% of the class, the course is dropped, and the student is not entitled to sit for the final exam. If a student has any special circumstances (medical or personal), he or she is advised to discuss this with the instructor, and documented evidence will be requested to be recorded as absence with special circumstances.	يعتبر حضور الطلبة للمحاضرات ومشاركتهم بها في غاية الأهمية، وسيتم تطبيق القواعد المعمول بها في الجامعة بهذا الخصوص. يتم تسجيل حضور الطلبة في كل محاضرة. وصول نسبة غياب الطالب إلى 10% ستتسبب في تلقيه إنذاراً أولياً خطياً. في حال وصول نسبة الغيابات إلى 15%، يتم حرمان الطالب من المساق ولن يسمح للطالب بالتقدم للامتحان النهائي في المساق. في حال تعرض الطالب إلى أي ظروف قاهرة (مرض أو ظروف شخصية)، يجدر بالطالب التواصل مع المدرس ومناقشة هذا الظرف وإظهار دليل خطي يبرر الظرف ليتم تسجيل الغياب كغياب بعذر.

GRADING SYSTEM
نظام التقديرات

التقدير Grade	النقاط Points	المدى Range
A	أ	
A-	أ-	
B+	ب+	
B	ب	
B-	ب-	
C+	ج+	
C	ج	
C-	ج-	
D+	د+	
D	د	
D-	د-	
F	هـ	

Policies and instructions

السياسات والإرشادات

• Students must read and follow the internal bylaws of BAU in relation to student conduct bylaws. • Students with special needs are highly recommended to register their cases with a valid doctor's report in the student affairs department. • Students with special needs shall be subject to special care in coordination with the head of department as per internationally recognized and benchmarked considerations and services. • The student must seek permission before making any interventions on the subject of the lecture. • The student must listen to and respect the opinions of others. • The student should not obstruct the course of the lecture. • Students should not hesitate to ask questions to the instructor. • Students should not use their mobile phones during the lecture. • Students are strongly encouraged to contact their instructor if they have course-related questions during office hours. • Students are recommended to contact their instructor using the LMS. • Cheating and Plagiarism are prohibited.	• يجب على الطالب أن يقوم بقراءة واتباع اللوائح الداخلية الخاصة بجامعة البلقاء التطبيقية المتعلقة بلوائح سلوك الطلبة. • ينصح الطلبة من ذوي الاحتياجات الخاصة أن يقوموا بتسجيل حالاتهم لدى شؤون الطلبة من خلال تقرير طبي حسب الأصول وساري المفعول. • يخضع الطلبة من ذوي الاحتياجات الخاصة إلى رعاية خاصة وذلك بالتنسيق مع رئيس القسم وفقاً للمعايير الخاصة بذلك والمعترف بها دولياً. • على الطالب الاستئذان قبل القيام بأي مداخلات على موضوع المحاضرة. • على الطالب الاستماع واحترام الرأي الآخر. • على الطالب عدم إعاقة سير المحاضرة. • على الطلاب عدم التردد في طرح الأسئلة على مدرس المادة والتواصل مع المدرس خلال الساعات المكتبية او من خلال نظام التعليم الالكتروني. • على الطلاب عدم استخدام الهاتف النقال أثناء المحاضرة. • على الطلاب عدم التردد في التواصل مع المدرس خلال الساعات المكتبية او من خلال نظام التعليم الالكتروني. • غير مسموح الغش والانتحال على الاطلاق.

COURSE COORDINATOR

منسق المساق

منسق المساق Course Coordinator:	Dr. Refat Aboghazleh	رئيس القسم Department Head:	Dr. Mohammad Shaban
رقم قرار القسم Department Decision		تاريخ القرار: Date of Decision:	
التوقيع Signature:		التوقيع Signature:	
التاريخ Date:		التاريخ Date:	