Course Specification

Respiratory system RES-233

(2025-2026)

1. Basic Information

Course Title (according to the bylaw)	**Respiratory system**			
Course Code (according to the bylaw)	**RES-233**			
Department/s participating in delivery of the course	1. Anatomy 2. Histology 3. Physiology 4. Biochemistry 5. Pathology 6. Microbiology 7. Parasitology 8. Pharmacology 9. Chest.			
Number of credit hours/points of the course (according to the bylaw)	**Theoretical**	**Practical**	**Other (class activities)**	**Total**
	2	**1.5**	**1.5**	**5**
Course Type	اجباري			
Academic level at which the course is taught	الفرقة/المستوي الثاني			
Academic Program	**بكالوريوس الطب والجراحة (2+5) نظام الساعات المعتمدة**			
Faculty/Institute	**Faculty of Medicine**			
University/Academy	**Benha University**			
Name of Course Coordinator	**Dr. Ali Bahairy**			
Course Specification Approval Date	**9/16/2025**			

Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)	**-Education and Student Affairs Committee No.(296) 14/9/2025** **-Faculty council No. (500)**

2. Course Overview (Brief summary of scientific content)

The aim of studying the respiratory course is to provide medical students with a comprehensive understanding of the structure, function, diseases and major therapies of the respiratory system, enabling them to integrate basic science knowledge with clinical skills for the diagnosis, prevention, and management of respiratory disorders.

3. Course Learning Outcomes CLOs

Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		**Course Learning Outcomes** Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4.5	**Outline the pharmacokinetics, pharmacodynamics, indications, interactions, contraindications, and side effects of various therapeutic modalities (pharmacological and non-pharmacological) for acute, chronic and life-threatening illnesses**	**4.5.1**	**Describe the pharmacokinetics, pharmacodynamics of various therapeutic modalities (pharmacological and non-pharmacological) for Bronchial, asthma COPD, pulmonary tuberculosis, upper/lower Respiratory bacterial, fungal, viral or parasitic infections**
		4.5.2	**Identify the indications, interactions, contraindications and adverse drug reactions of various therapeutic modalities (pharmacological and non-pharmacological) for Bronchial, asthma COPD, pulmonary tuberculosis, upper/lower Respiratory bacterial, fungal, viral or parasitic infections**
		4.5.3	**Explain the concepts of combination therapy particularly the advantages and disadvantages.**

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
4.7	**Integrate the facts of the basic sciences with clinical data**	**4.7.1**	**Integrate the facts of the basic medical sciences with clinical data of the respiratory system.**
		4.7.2	**Identify the parts of upper and lower respiratory system and the anatomy of each part of thoracic wall and diaphragm, external and internal features of nasal cavity, paranasal sinuses and their drainage, right and left lung (their roots, relations of medial surface, surface anatomy, contents of the hilum)**
		4.7.3	**Discuss normal growth and development of respiratory system at all stages (intrauterine, infancy, childhood, adolescence, adults & geriatrics) & their impact on individuals & families and diseases.**
		4.7.4	**Illustrate the altered development, growth, structure, behaviour and function of the respiratory system and associated common diseases & clinical conditions.**
		4.7.5	**Describe histological features of trachea, fetal and adult lungs**
		4.7.6	**Identify the LM and electron micrograph structure of trachea, bronchi and lung**
		4.7.7	**Identify acid base balance and imbalance and different metabolic functions of the respiratory system and related pathologies**
		4.7.8	**Discus the mechanical changes of the thorax during normal & deep breathing and Describe the assessment of the Respiratory System and how its function is altered in common disease states.**
		4.7.9	**List the different causes of respiratory tract infection and suggest modes of prevention and complication**

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
		4.7.10	**Describe tuberculosis and pneumonia as an example of bacterial infection of lung and their preventive roles**
		4.7.11	**Identify microorganisms associated with respiratory infections, their virulence factors, and mode of transmission, laboratory diagnosis and prevention if present**
		4.7.12	**Describe parasitic infection affecting respiratory system**
		4.7.13	**Explain different trends used in diagnosis of parasites affecting respiratory system**
		4.7.14	**Clarify fundamental basic knowledge and skills essential for proper evaluation and management of the common parasitological health problems affecting the respiratory system**
		4.7.15	**Identify the pathological changes in specimens, radiographs .etc of patient suffering from pneumonia and bronchial asthma**
		4.7.16	**Explain the role of imaging techniques in investigating normal and abnormal lung tissue.**
		4.7.17	**Use the light microscope to examine and identify microscopic findings of some selected examples of inflammatory lung diseases and lung tumors.**
		4.7.18	**Describe Pathology of respiratory system focus on main disease including inflammatory disease which can affect respiratory system. With concern of definition, etiology, pathogenesis, pathology and complications.**
		4.7.19	**Classify tumors and tumors - like conditions of the lungs**
		4.7.20	**Describe the morphology of pneumonia and Compare between**

Program Outcomes (NARS/ARS) (according to the matrix in the program specs)		Course Learning Outcomes Upon completion of the course, the student will be able to:	
Code	**Text**	**Code**	**Text**
			different types of bacterial pneumonia (lobar and lobular bronchopneumonia)
		4.7.21	**Recognize basic emergency clinical measures to be taken in respiratory distress**

4. Teaching and Learning Methods

1- Modified Lectures
2. Practical sessions (using ppt, cadavers, specimens, microscopes)
3. Tutorials
4. Case Based Learning
5. DSL
6. Lectures on Benha E- learning platform & survey.موقع منصة التعليم الإلكتروني الخاص بجامعة بنها (thinqi)
   https://belc.bu.edu.eg/%D9%85%D9%86%D8%B5%D8%A9-%D8%AB%D9%8A%D9%86%D9%83%D9%89 /

Course Schedule (5 credit hours / 5 weeks)

Number of the Week	Scientific content of the course (Course Topics)	Total Weekly Hours	Expected number of the Learning Hours			
			Theoretical teaching (lectures/tutorials/CBL	Training (Practical/Clinical/ .....)	Self-learning (DSL	Other (skill lab)
1		16				-
	Mechanics and neural control of breathing		2	-	-	-
	Anatomy of the Nasal cavity and paranasal sinus, nasopharynx, larynx, and Lung		2	-	-	-
	Histology of respiratory and conducting parts of the respiratory system		2	-	-	-
	Chemical control of breathing Gas diffusion & blood flow to the lung, regional differences		2	-	-	-
	Bones of the thoracic cage		-	2	-	-
	Pressure- volume relationship in respiratory tract		2	-	-	-
	Anatomy of the intercostal space and diaphragm		-	2	-	-
	Hypoxia and cyanosis		2	-	-	-
2	Upper respiratory tract infections Group A beta - hemolytic streptococci, Diphtheria	22	1	-	-	-
	Acid base balance and Anion gap		1	-	-	-
	The transport of CO2 and oxygen in the blood		2	-	-	-
	Bordetella pertussis,H influenza Vincet angina and Lower respiratory tract infections Streptococcus pneumonia & Klebsiella pneumonia		2	-	-	-
	Mycobacterium tuberculosis and its Treatment of tuberculosis		2	-	-	-

	Trachea/ fetal lung and adult lung		-	2	-	-
	Anatomy of pharynx, larynx and trachea		2	-	-	-
	Nasal cavity, pharynx, larynx and trachea through sagittal section of head and neck		-	2	-	-
	lung volume & capacities Static tests		2	-	-	-
	Determination of PH		-	2	-	-
	Development and anomalies of the respiratory system		2	-	-	-
	Anatomy of the pleura		2	-	-	-
3	Upper respiratory diseases (Nose & Pharynx, Tonsil & larynx)	16	2	-	-	
	Principles of treatment of pulmonary bacterial, viral and fungal chest infection		2	-	-	-
	The pathology of pulmonary microbial infection		1	-	-	-
	Restrictive lung disease (Atlectasis) and Acute adult respiratory distress syndrome (AR)		1	-	-	-
	Paragonimiasis and House dust mites and Parasitic larva migrates to lungs		2	-	-	-
	Anatomy of the lung		-	2	-	-
	Bio - Metabolic function of respiratory system		2	-	-	-
	Streptococci (group A, strept. Pneumonia) Diphtheria, Bacillus anthracis, Yersinea pestis		-	2	-	-
	Effect of drugs on isolated guinea pig trachea		-	2	-	-
	Formative assessment		-	-	-	-
	Mid assessment		-	-	-	-

4	Viral respiratory tract infections: Influenza virus Parainfluenza virus Rhinoviruses, Adenoviruses & RSV, Corona virus	18	2	-	-	-
	Mycobacterium tuberculosis Klebsiella pneumoni		-	2	-	-
	Non neoplastic lesions of the respiratory system		-	2	-	-
	Echinococcus granulosus		-	2	-	-
	Diagnosis of respiratory tract infection fungal and viral causes		-	2	-	-
	Lung surfactant & L/S ratio binding of hemoglobin to oxygen		2	-	-	-
	DSL Topics · Global crisis of Antimicrobial resistance · Management of Hospital acquired pneumonia		-	-	2	-
	Therapeutic gases		2	-	-	-
	Fungal infections: Histoplasma capsolatum Aspergillus		2	-	-	-
5	Treatment of bronchial asthma	17	1	-	-	-
	Pulmonary neoplasia		2	-	-	-
	lung volume & capacities Dynamic Lung function tests		-	2		-
	larvae affecting the lung		-	2		
	Chronic obstructive airway disease COPD		4			-
	Neoplastic lesions of the respiratory system		-	2	-	-
	Special lung function tests MVV, FEV1		2	-	-	-
	Anti-cough therapy		2	-	-	-

5. Methods of students' assessment

No.	Assessment Methods *	Assessment Timing (Week Number)	Marks/ Scores	Percentage of total course Marks
1	Formative assessment 1	3	--	--
2	Mid module assessment	3	30	24%
3	Formative assessment (theoretical)	5	--	--
4	Formative assessment (practical)	5	--	--
5	Final Written Exam	6	50	40%
6	Final practical Exam	6	37.5	30%
7	Portfolio/ Logbook	5	3	2.5%
8	CBL	5	4.5	3.5%

6. Learning Resources and Supportive Facilities *

Learning resources (books, scientific references, etc.) *	**The main (essential) reference for the course**	1. Drake, R. L., Vogl, A. W., & Mitchell, A. W. M. (2023). Gray's anatomy for students (5th ed.). Elsevier. 2. Cell Biology and Histology; 9th ed.; Gartner L.P. & Hiatt J.L., Wolters Kluwer, Philadelphia, New York, London, 2024. 3. Junqueira' s Basic Histology; Text & Atlas; 17th ed.; Mescher A.L. McGraw-Hill Education, New York, London, Toronto, 2024. 4. Oxford Handbook of Medical Sciences, third edition 2021, Robert Wilkins, Simon Cross, Ian Megson, David Meredith, OXFORD university press. 5. Guyton and Hall Textbook of Medical Physiology 14th edition. John E. Hall, PhD and Michael E. Hall, MD, MS. Copyright © 2021 by Elsevier, Inc. All rights reserved. 6. Medical Microbiology: Lecture Notes, authorized by the Department. Edited by Department Of Medical Microbiology and Immunology , Benha Faculty of Medicine, 2025-2026 7. Cornelissen, C. N., & Hobbs, M. M. (2020). Lippincott® illustrated reviews: microbiology, 4e. Lippincott Williams & Wilkins, a Wolters Kluwer business. 8. Baynes, John W., Dominiczak, Marek H. (2023). Medical Biochemistry, 6th ed (6). : Elsevier. 9. Kennelly, P.J., Botham, K.M., McGuinness, O., Rodwell, V.W., & Weil, P.A. (2022). Harper's Illustrated Biochemistry, 32nd Edition. McGraw Hill Medical. 10. Marshall WJ, Lapsley M, Day A, Shipman K. Clinical Chemistry. 9th ed. Elsevier; 2021 11. Medical Parasitology-Lecture Notes, authorized by the Department. Edited by Dept. of Parasitology, Benha Faculty of Medicine, last edition.

		12. CD for practical Module. Edited by Dept. of Parasitology, Benha Faculty of Medicine, last edition. 13. Parasites and Infectious Disease: Discovery by Serendipity and Otherwise by Gerald Esch ; Cambridge University Press; ISBN: 0521675391. 14. Molecular Mechanisms of Parasite Invasion. By Barbara Burleigh and D Soldati-Favre. Landes Bioscience and Springer Science + Business Media. 7th edition. 2008. ISBN 978-0-387-78266-9. 15. Advances in Parasitology: Control of Human Parasitic Diseases by David H. Molyneux,volume-61. Elsevier Ltd. 16. Manson's Tropical Diseases, Cook GC (ed). London: WB Saunders. 17. Kumar, V., Abbas, A. K., & Aster, J. C. (Eds.). Robbins Basic Pathology (11th ed.). Philadelphia: Elsevier, 2023 18. General pathology book of pathology department , Benha Faculty of Medicine, last edition. 19. Slides and jars books of pathology department , Benha Faculty of Medicine, last edition. 20. Robbins and Cotran :PATHOLOGIC BASIS OF DISEASE 10Edition 21. Katzung, B. G., & Vanderah, T. W. (2023). Katzung's Basic & Clinical Pharmacology (16th ed.). 22. Whalen, K. (2022). Lippincott's Illustrated Reviews: Pharmacology (8th ed.). Lippincott Williams & Wilkins. 23. Lecture notes authorized and edited by the Medical Biochemistry and Molecular Biology Department 24. Fishman's Pulmonary Diseases and Disorders, 6e, edited by Michael A. Grippi et al., McGraw-Hill Education, 2023, https://accessmedicine.mhmedical.com/content.aspx?bookid=3242&sectionid=270504606.
	Other References	• Last's Anatomy (2012) :Chummy, S.S.: Regional and applied. Pub. Churchill Livingstone, Edinburgh, London, New York. 12th ed. • Abali, Emine Ercikan, et al. Lippincott's Illustrated Reviews: Biochemistry. Wolters Kluwer, 2025. • Sherwood, Lauralee. Human Physiology : from Cells to Systems. Belmont, CA :Brooks/Cole, Cengage Learning, 2013.
	Electronic Sources	- www.ekb.eg. (Egyptian knowledge Bank) - http://www.pubmed.com. - http://sciencedirect.com.
	Learning Platforms	**Thinqi** **https://belc.bu.edu.eg/%D9%85%D9%86%D8%B5%D8%A9-%D8%AB%D9%8A%D9%86%D9%83%D9%89 /**
	Other	---

Supportive facilities & equipment for teaching and learning *	**Devices/Instruments**	1. Lecture Room with enough number of comfortable seats & supplied with; - Audiovisual equipments needed for power point presentation data show – smart boards – sound system- desktop 2. Whiteboard 3. Classrooms for small group teaching (instrument for physical examination like beds , blood pressure measuring devices , stethoscope) 4. Well-equipped laboratories 5. Digital slides 6. Gross wet specimens for demonstration
	Supplies	**--**
	Electronic Programs	**--**
	Skill Labs/ Simulators	Skill lab of Benha University
	Virtual Labs	**--**
	Other	· **Library: available reference textbooks and internet access Egyptian knowledge bank**

Name and Signature
Course Coordinator
Dr. Ali Bahairy

Name and Signature
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