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| **Quality Assurance Unit** | **Tanta University**  **Faculty of Medicine** |

08

**Fall**

**Medicine and Surgery Bachelor Program – Credit Point**

**MSBP -CP**

**Course Specifications**

**[Respiratory system]**

**Semester 5**

**2023 -2024**

**Code: RESP 3102**

**1- Administrative Information**

1. **Program title: Bachelor of Medicine and Surgery with Accredited Points (M.B. B. Ch (Credit point)**
2. **Course title: Respiratory system**
3. **Course code: RESP 3102**
4. **Course coordinator: Dr. Basma Helal**
5. **Department(s) offering the course: Anatomy, Histology, Physiology, Biochemistry, Microbiology, Pathology, Pharmacology, Pediatrics, Radiology, Chest and Tropical departments**
6. **Academic year: 2023/2024**
7. **Level: Level one – Semester five**
8. **Date of approval by:**

* **The Board of Program:**
* **The Internal Quality Assurance & Accreditation Center:**
* **Council of the Faculty of Medicine, Tanta University:**

1. **No. of hours:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. **Credit points** | **%** | **Online lectures** | **Practical/clinical** | **Media** | **PBL** | **Continuous assessment** | **seminar** | **Assig.** | **Exam** | **Taught hrs.** |
| **5** | **Contact hrs 50%** |  | **30** | **15** | **4** |  | **10** | **2** | **3** | **64** |
| **online hrs (50%** | **30** **online on Microsoft team** |  |  | **10** | **10** | **11** |  |  | **61** |

**2- Professional Information**

**Academic standards adopted in this course is designed according to NARS 2017**

**3-Course Description**

**This field of study prepares students for the branch of medicine that provides medical information about the respiratory system and its diseases**

**4– Overall Course Aim/Objectives**

**Aim:**

* **Help students acquire basic knowledge of normal and abnormal about respiratory system**
* **Help students acquire an appropriate background covering the common and important respiratory system diseases.**
* **Enable the development and application of appropriate professional attitudes, communication and problem-solving skills. 5 –tended learning outcomes (ILOs)**

**5 - Intended learning outcomes (ILOs)**

***By the end of the course, the graduate should be able to:***

**Competency Area I: The graduate as a health care provider**

**1.1. Take and record a structured, patient centered history.**

1.1.1. Recognize the principles of clinical chest Examination.

1.1.2. Apply and document a complete or focused medical history in the outpatient, inpatient or emergency settings.

**1.4. Perform appropriately timed full physical examination of patients appropriate to the age, gender and clinical presentation of the patient while being culturally sensitive.**

1.4.1. Distinguishing the etiology, clinical symptoms, signs, investigations, prognosis, complications and management of different types of lung infections

1.4.2. Identify clinical features of supportive and non-supportive lung diseases.

1.4.3. Design management plan for patients with different types of pneumonia.

1.4.4. Design a differential diagnosis plan for patients with obstructive air way disease with reference to different phenotypes of COPD and bronchial asthma.

1.4.5. Discuss etiology, pathogenesis, clinical categories, investigations and treatment guidelines of tuberculosis.

**1.6. Select the appropriate investigations and interpret their results taking into consideration cost/ effectiveness factors.**

1.6.1. Discuss the most diagnostic and specific investigations in different chest diseases.

**1.8. Apply knowledge of the clinical and biomedical sciences relevant to the clinical problem at hand.**

1.8.1. Construct patient’s symptoms and physical signs in terms of anatomic, functional, pathologic and diagnostic significances.

**1.9. Retrieve, analyze, and evaluate relevant and current data from literature, using information technologies and library resources, in order to help solve a clinical problem based on evidence (EBM).**

1.9.1. Identify the proper chest imaging modalities.

1.9.2. Know the basics of different chest imaging modalities.

1.9.3. Identify the normal chest imaging findings.

1.9.4. Properly describe the common pathological chest appearances (e.g. infection, tumors and trauma) in both X-ray and CT studies.

1.9.5. Link the relevant clinical data to the imaging findings

**1.10. Integrate the results of history, physical and laboratory test findings into a meaningful diagnostic formulation.**

1.10.1. Analyze complaint of the patient and interpret the present, past and family history into provisional diagnosis.

1.10.2. Integrate items of chest symptoms and signs with pathological changes in the lung and airways into reasonable final diagnosis.

1.10.3. Recognize the correct methods of examination and their significance in approach to the disease.

**Competency Area II: The graduate as a health promoter**

**2.1. Identify the basic determinants of health and principles of health improvement.**

2.1.1. Define necessary information about the basic principles of health promotion, prevention and control of diseases.

**2.2. Recognize the economic, psychological, social, and cultural factors that interfere with wellbeing.**

2.2.1. Recognize the nature of disability, its impact on the community and the principles of management including: rehabilitation, institutional and community care

**2.4. Identify the major health risks in his/her community, including demographic, occupational and environmental risks; endemic diseases, and prevalent chronic diseases.**

2.4.1. Identify the Egyptian national health care system including principle, organization and different approaches to health care services and their role in improving medical practice.

2.4.2. Describe the role of smoking cessation and pollution avoidance as preventive measures for COPD and bronchial asthma.

**2.6. Recognize the epidemiology of common diseases within his/her community, and apply the systematic approaches useful in reducing the incidence and prevalence of those diseases.**

2.6.1. Identify the principles of clinical epidemiology, demography and biological variability of different contagious respiratory diseases.

**2.7. Provide care for specific groups including pregnant women, newborns and infants, adolescents and the elderly.**

2.7.1. Recognize the clinical features of neonatal respiratory distress syndrome with reference to its prevention and proper management.

**2.9. Adopt suitable measures for infection control**

2.9.1. List different scientific pillars of infection control for prevention of infectious chest diseases.

**Competency Area III: The graduate as a professional**

**3.1. Exhibit appropriate professional behaviors and relationships in all aspects of practice, demonstrating honesty, integrity, commitment, compassion, and respect.**

3.1.1. Adopt an empathic and holistic approach to the patients and their problems and provide care to patients who are unable to pay.

3.1.2. Respect patient's rights involving them or their caretakers in management decision.

3.1.4. Apply ethical principles for privacy of the patients

3.1.3. Communicate clearly, sensitively and effectively with patients and their relatives and also, colleagues (from a variety of health and social care professions).

**Competency Area IV: The graduate as a scholar and scientist**

**4.1. Describe the normal structure of the body and its major organ systems and explain their functions.**

4.1.1. Describe the anatomy of the respiratory muscles including the diaphragm and clarify the anatomy of the tracheobronchial tree.

4.1.2. Recognize the anatomy of the pleura and the lung regarding anatomical features, surface anatomy, blood supply, innervation & lymph drainage.

4.1.3. Discuss the development of the respiratory tract including trachea, bronchi, lung and their congenital anomalies.

4.1.4. Identify the structural characteristics of the respiratory tissue and enumerate the types of lining cells in different parts of the respiratory systems.

4.1.5. Distinguish different respiratory functions regarding the structural organization of the respiratory system.

**4.2 Explain the molecular, biochemical, and cellular mechanisms that are important in maintaining the body’s homeostasis.**

4.2.1. Explain peripheral and central mechanisms of respiration and work of breathing.

4.2.2. Demonstrate chemical and nervous regulatory mechanisms in normal respiration.

4.2.3. Differentiate between respiratory functions of the blood regarding O2 and Co2 carriage.

4.2.4. Identify metabolic functions of respiratory system and its role in acid base balance.

4.2.5. Describe the normal structure and function of lung surfactant and its role in homeostasis

4.2.6. Understand the biochemical basis of some respiratory diseases.

**4.5. Identify various causes (genetic, developmental, metabolic, toxic, microbiologic, autoimmune, neoplastic, degenerative, and traumatic) of illness/disease and explain the ways in which they operate on the body (pathogenesis).**

4.5.1. Recognize the etiology, pathogenesis, and complications of various lung infections caused by different microorganisms (bacterial, viral, fungal).

4.5.2. Distinguish between different cause’s obstructive air way diseases, COPD and bronchial asthma.

4.5.3. Identify the natural history of common illnesses with understanding of the importance of risk factors, surveillance and screening for early detection and prevention of common disease.

4.5.4. Understand mechanism of theophylline toxicity.

**4.7. Describe drug actions: therapeutics and pharmacokinetics; side effects and interactions, including multiple treatments, long term conditions and non-prescribed medication; and effects on the population.**

4.7.1. Recognize pharmacological principles for treatment of pneumonia, bronchial asthma & COPD.

4.7.2. Discuss pharmacological aspects of some important anti-asthmatic and anti-tuberculous drugs.

4.7.3. Identify treatment lines of theophylline toxicity.

**4.8. Demonstrate basic sciences specific practical skills and procedures relevant to future practice, recognizing their scientific basis, and interpret common diagnostic modalities, including: imaging, electrocardiograms, laboratory assays, pathologic studies, and functional assessment tests.**

4.8.1. Efficiently differentiate between different parts of normal respiratory tissue in histological slides, using the microscope.

4.8.2. Illustrate the gross morphology and microscopic pathological features for lung infections, tumors, obstructive and restrictive lung diseases.

4.8.3. Demonstrate the morphology, microbiological cultural characters and biochemical reactions of pneumococci and mycobacteria.

4.8.4. Interpret some clinical parameters such as pulmonary functions tests for diagnosis of obstructive and restrictive lung diseases.

4.8.5. Understand the principle of pulse oximetry with its uses and advantages.

4.8.6. Identify the principles of invasive and non-invasive intervention and global management of acute illnesses; including common medical and surgical emergencies with pre- and post-operative care

**Competency Area V: The graduate as a member of the health team and the health care system.**

**5.9. Use health informatics to improve the quality of patient care.**

**Competency Area VI: The graduate as a lifelong learner and researcher.**

**6.3. Identify opportunities and use various resources for learning.**

6.6.3. Adopt the principles of lifelong learning.

**6.6. Effectively manage learning time and resources and set priorities.**

6.6.1. Consider the resources of biomedical information including the available electronic facilities and communication technology to update his/her knowledge, improve his/her medical practice and to manage and manipulate information effectively.

**6 – Course/ Course Contents**

**6.1. Topics to be covered**

| **Week** | **Topics** | **Depart.** | **No. of Hours/ week** | | | **ILOS Covered**  **(NARS 2017)** |
| --- | --- | --- | --- | --- | --- | --- |
| **Lect.** | **Lab.** | **Media** |
|  | **Functions, Dead space, Intra-pleural & Intra-pulmonary pressures.** | **Physiology** | ✓ |  |  | **4.1, 4.2, 6.3** |
| **Lung volumes & capacities.** | **Physiology** |  | ✓ |  | **4.1, 4.8, 6.3, 6.6** |
| **Development and Congenital anomalies of the respiratory tract.** | **Anatomy** | ✓ | ✓ |  | **4.1, 6.3** |
| **Anatomy of respiratory muscles.** | **Anatomy** | ✓ |  |  | **4.1, 6.3** |
| **Landmarks & lines of orientation of thoracic wall & intercostal space** | **Anatomy** |  |  | ✓ | **4.1, 6.3** |
|  | **Anatomy of diaphragm** | **Anatomy** | ✓ |  |  | **4.1, 6.3** |
| **Anatomy of Trachea & Bronchial tree.** | **Anatomy** | ✓ | ✓ |  | **3.1**, **4.1, 6.3** |
| **Structure of Conducting portion.** | **Histology** | ✓ | ✓ |  | **3.1**, **4.1, 4.8** |
|  | **Peripheral Mechanism of respiration, Work of breathing, Lung Surfactant.** | **Physiology** | ✓ |  |  | **4.1,** **4.2, 6.3** |
| **Anatomy of Bronchopulmonary segments, pleura & lung** | **Anatomy** | ✓ | ✓ |  | **3.1**, **4.1,** 6.3 |
| **Structure of Respiratory portion.** | **Histology** | ✓ | ✓ |  | **3.1**, **4.1, 4.8** |
| **Lung Surfactant** | **Biochemistry** |  |  | ✓ | **4.2,** **4.5** |
|  | **Central mechanism of respiration.** | **Physiology** | ✓ |  |  | **4.1, 4.2, 6.3** |
| **Regulation of Respiration.** | **Physiology** | ✓ |  |  | **4.1, 4.2,6.3** |
| **Chronic Obstructive Pulmonary Disease.** | **Chest** | ✓ |  |  | **1.4, 1.6, 1.8, 1.10, 2.1, 2.2, 2.4, 4.5** |
|  | **O2 carriage by the blood.** | **Physiology** | ✓ |  |  | **4.1, 4.2** |
| **CO2 carriage by the blood.** | **Physiology** | ✓ |  |  | **4.1, 4.2** |
| **Dead space, lung compliance & pulmonary ventilation.** | **Physiology** |  | ✓ |  | **4.1, 4.2, 4.8** |
| **Timed VC, MBC, BR, VP ratio & Diffusion capacity.** | **Physiology** |  | ✓ |  | **4.1, 4.2, 4.8** |
| **Mechanism of gas exchange** | **Physiology** |  |  | ✓ | **4.1, 4.2, 6.6** |
| **Metabolic functions of lung & Respiratory Regulation of Acid-Base Balance.** | **Biochemistry** | ✓ |  |  | **4.2,** **4.5** |
|  | **Clinical aspects of bronchial asthma.** | **Chest** | ✓ |  |  | **1.4, 1.6, 1.8,** **1.10**, **2.1, 4.5** |
| **History taking.** | **Chest** |  | ✓ |  | **1.1, 2.1, 3.1** |
| **General examination.** | **Chest** |  | ✓ |  | **1.4, 1.10, 3.1** |
| **Pathology of COPD & bronchial asthma.** | **Pathology** | ✓ |  | ✓ | **1.10, 4.5** |
| **Biochemistry of Leukotriene and Histamine.** | **Biochemistry** | ✓ |  |  | **1.10, 4.2,** **4.5** |
|  | **Biochemical basis of bronchial asthma.** | **Biochemistry** | ✓ |  |  | **1.10, 4.2,** **4.5** |
| **Pharmacotherapy of bronchial asthma and COPD.** | **Pharmacology** | ✓ |  |  | **4.7.** |
| **Cough therapy & Gas therapy.** | **Pharmacology** | ✓ |  |  | **4.7.** |
| **Aerosol delivery of drugs.** | **Pharmacology** |  |  | ✓ | **4.7.** |
| **Local Examination 1** | **Chest** |  | ✓ |  | **1.4,** **1.10, 3.1** |
| **Local Examination 2** | **Chest** |  | ✓ |  | **1.4,** **1.10, 3.1** |
|  | **Theophylline Toxicity.** | **Toxicology** | ✓ |  |  | **4.6, 4.7.** |
| **Clinical Aspects of Neonatal Respiratory Distress Syndrome (RDS).** | **Pediatric** | ✓ |  |  | **1.4, 1.6, 1.8,** **1.10, 2.1, 4.5** |
| **Pathology of restrictive lung diseases, pneumoconiosis & atelectasis.** | **Pathology** | ✓ |  |  | **1.10, 4.5** |
| **PH meter.** | **Biochemistry** |  | ✓ |  | **3.1, 4.8** |
| **Pulse oximetry.** | **Biochemistry** |  |  | ✓ | **1.10, 4.8** |
|  | **Clinical aspects of bacterial pneumonia.** | **Chest** | ✓ |  |  | **1.4, 1.6, 1.8,** **1.10**, **2.12.2, 2.4**, **4.5** |
| **Introduction of LRTIs-Bordetella pertussis & typical pneumonia (klebsiella pneumoniae)** | **Microbiology** | ✓ |  |  | **1.10, 4.5** |
| **Pneumococci and atypical bacterial pneumonia** | **Microbiology** | ✓ |  |  | **1.10, 4.5** |
|  | **Chlamydia& Legionella** | **Microbiology** | ✓ |  |  |  |
| **Clinical aspects of viral pneumonia** | **Chest** | ✓ |  |  | **1.4, 1.6, 1.8,** **1.10**, **2.12.2, 2.4, 2.6, 2.9, 4.5** |
| **Viral & fungal pneumonia.** | **Microbiology** | ✓ |  |  | **1.10, 4.5** |
| **Streptococcus pneumoniea** | **Microbiology** |  | ✓ |  | **3.1, 4.8** |
| **Corona viruses.** | **Microbiology** |  | ✓ |  | **3.1, 4.8** |
|  | **Viral Infections I** | **Tropical** | ✓ |  |  | **1.4, 1.6, 1.8, 1.10**, **2.12.2, 2.4, 2.6, 2.9, 4.5** |
| **Viral Infections II** | **Tropical** | ✓ |  |  | **1.4, 1.6, 1.8,** **1.10**, **2.12.2, 2.4, 2.6, 2.9, 4.5** |
| **Suppurative Lung Syndrome.** | **Chest** | ✓ |  |  | **1.4, 1.6, 1.8,** **1.10**, **2.12.2, 2.4**, **2.6, 2.9, 4.5** |
| **Pharmacotherapy of pneumonia 1** | **Pharmacology** |  | ✓ |  | **4.7.** |
| **Pharmacotherapy of pneumonia 2** | **Pharmacology** |  | ✓ |  | **4.7.** |
| **Pathogenesis of various pulmonary infections** | **Pathology** |  |  | ✓ | **1.10, 4.5** |
|  | **Pathology of Pulmonary infections, bronchiectasis.** | **Pathology** | ✓ |  |  | **1.10, 4.5** |
| **Methods of Imaging of the Chest.** | **Radiology** | ✓ |  |  | **1.9** |
| **Examples of Chest Pathology.** | **Radiology** | ✓ |  |  | **1.9** |
| **Obstructive pulmonary diseases & lung infections** | **Pathology** |  | ✓ |  | **3.1, 4.8** |
|  | **Pulmonary Tuberculosis.** | **Chest** | ✓ |  |  | **1.4, 1.6, 1.8,** **1.10**, **2.1 2.2, 2.4, 2.6, 2.9, 4.5** |
| **Mycobacteria.** | **Microbiology** | ✓ |  |  | **1.10, 4.5** |
| **Sputum analysis.** | **Microbiology** |  |  | ✓ | **1.10, 4.5, 6.6** |
| **Pharmacotherapy of tuberculosis.** | **Pharmacology** | ✓ |  |  | **4.7.** |
|  | **Pathology of lung tumors.** | **Pathology** | ✓ |  |  | **1.10, 4.5** |
| **Lung tumors** | **Pathology** |  | ✓ |  | **1.10, 4.5, 4.8** |
| **T.B.** | **Microbiology** |  | ✓ |  | **3.1, 4.8** |
| **T.B.** | **Microbiology** |  |  | ✓ |  |

**7 – No. of hours:**

**Based on Hybrid Education.**

| Item | Time schedule | Teaching hours/week |
| --- | --- | --- |
| Lectures | **1 times /week** | 2h (Online) |
| Practical  classes | **1 times /week** | 2h (Online & Attendance) |
| Multi-media | **1 times /week** | 1h |
| Small groups (PBL) | **-------** | 14h/semester |
| Seminar | **3h /week for 7 weeks** | 21h |
| Total |  | |

**8 - Student evaluation**

**8-1 COURSE POLICIES**

**8.1.1. Attendance:**

Attendance is mandatory to all sessions. Due to the course emphasis in developing skills and not only knowledge, the students’ participation in all course activities is critical. Students who expect to be late for a mandatory class, lab, or small group session for any reason must contact the course director before the start of class. Unexcused absences demonstrate unprofessional behavior by the student.

**8-1-2 Remediation of Unsatisfactory Performance in Course**

A student who performs below the satisfactory level will be notified to Course Director for the purpose of developing a formal remediation plan which will established by the course director and the student.

**8-1-3 Missing tests**

Students with sufficient reason for missing a test will have no grade for the missed test and their mean grade for tests will be based only on those that they completed.

Students missing a test without sufficient reason will have a zero as grade for the missed tests, which will be incorporated to obtain the mean grade for their tests and the final grade for the course.

**8-2 Course assessment:**

**Formative and summative assessment: they include:**

1. Assignments, Quizzes, logbook.

2. Written exams: MCQs, ultra-short essay and case studies (problem solving).

3. Practical skills assessment: Objective Structured Practical Exam (OSPE).

**8-3 course assessment schedule and grading:**

Grades are obtained based on the following complementary assessments:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Assessment Method** | **Date** | **Description** | **Marks** | **% of Total** |
| **1.Continuous assessments** | **Through semester** | * **Quizzes** * **(Online exam)** * **Log book** * **Assignments** * **(Online)** * **Portfolio** | **30** | **30%** |
| **2. Mid-term written exam** | **Midterm** | **Ultra-short**  **(Attendance exam)** | **10** | **10%** |
| **3- Final written exam** | **End semester** | **MCQ**  **(Aattendance exam)** | **30** | **30%** |
| **4- Practical exam** | **End semester** | **OSPE**  **(Attendance exam)** | **30** | **30%** |
| **Total** |  |  | **100** | **100%** |

**9. Facilities required**

* **Lecture rooms**
* **Round rooms**
* **Accessibility to hospital wards and clinics**
* **Audio-visual teaching equipment’s (Computer, Projector, Video …etc)**
* **Video tapes, scientific pictures archives.**

**10 - List of references**

**Course Notes (By Staff Members): available for students in departments.**

**Learning Resources**

**1. Required Text(s)**

* Clinical Anatomy for Medical Students, (Richard S. Snell)
* Guyton, AC and Hall, JE. Textbook of Medical Physiology
* Ganong, WF. Review of Medical Physiology
* Manson’s Tropical Diseases, Gordon Cook and Alimuddin Zumla
* Langman's Medical Embryology (T.W. Sadler)
* Clinical Chemistry, W J. Marshall, Mosby, London. Last Edition.
* Microbiology and Infection. Master Medicine Series
* Robbins Basic Pathology, By: Kumar, Abbas, Fausto, Michel. Chapter 13: The lung, pages 479- 540.
* [Lippincott illustrated reviews, Pharmacology, 7th edition.](http://www.amazon.com/Katzung-Trevors-Pharmacology-Examination-Review/dp/0071488693/ref=sr_1_2?ie=UTF8&s=books&qid=1243752019&sr=1-2)
* [Goodman & Gilman': The pharmacological basis of therapeutics,12th edition.](http://www.amazon.com/Katzung-Trevors-Pharmacology-Examination-Review/dp/0071488693/ref=sr_1_2?ie=UTF8&s=books&qid=1243752019&sr=1-2)
* Diagnostic imaging, Peter Arstrong
* Chest ray made easy, Jontahon Corne

**2. Electronic Materials and Web Sites**

* [www.studentconsult.com](http://www.studentconsult.com/)
* [www.Robbinspathology.com](http://www.robbinspathology.com/)
* [www.Library.med.utah.edu/WebPath.com](http://www.library.med.utah.edu/WebPath.com)
* [www.CDC.com](http://www.cdc.com/)
* [www.emedicine.com](http://www.emedicine.com/)
* [www.Wikipedia.com](http://www.wikipedia.com/)
* [www.chest-x-ray.com](http://www.chest-x-ray.com/)
* [www.learningradiology.com](http://www.learningradiology.com/)
* www.pharmacologyonline.com

***Course coordinator: DR. Basma Helal.***