Quality Assurance Unit

Tanta University

Faculty of Medicine

Department of Chest

Course Specifications

Master Degree of Chest

1st semester

2021-2022

Master Degree of Chest Course Specifications

University: Tanta **Faculty: Medicine** **Department: Chest**

A- Administrative Information

1. **Course title: M Sc. Chest Diseases 1st semester**
2. **Department offering the program: Chest Department**
3. **Department responsible for the course: Human Anatomy and embryology, Histology, Physiology, Biochemistry and Public health, prevention and social medicine.**
4. **Course code: CHEST 8001, 8002,8004.**
5. **Level: First Part: 9 credit-hours. (15 weeks)**
6. **No. of Credit / taught hours:**

The course	Obligatory hours	Practical hours	Scientific activity	Elective courses hours
Credit hours	4 hours	3 hours	1 hour	1 hours
Taught hours	60 hours	90 hours	60 hours	15 hours

The course is distributed as the following:

Department	The course	Obligatory hours	Practical hours
Anatomy and embryology (CHEST 8001)	Credit hours	2/3 hour	1/3 hour
	Taught hours	10 hours	10 hours
Histology (CHEST 8001)	Credit hours	2/3 hour	1/3 hour
	Taught hours	10 hours	10 hours
Physiology (CHEST 8002)	Credit hours	2/3 hour	1/3 hour
	Taught hours	10 hours	10 hours
Biochemistry	Credit hours	2/3 hour	1/3 hour

(CHEST 8002)	**Taught hours**	**10 hours**	**10 hours**
Public Health (CHEST 8004)	**Credit hours**	**1 1/3 hours**	**2/3 hour**
	Taught hours	**20 hours**	**20 hours**

7-Authorization date of course specification: 21-8-2019

B- Professional Information

1 – Overall Course aims

Purpose of the Anatomy curriculum:

- **To provide a core body of scientific knowledge concerning the normal structure of the human body at the level of the anatomical regions and organs relevant to anatomical topics.**
- **To correlate anatomical facts with their clinical applications**

Purpose of the Histology curriculum:

- **To provide candidate with knowledge concerning the detailed histological structure and ultrastructure of all cellular components, different tissues and systems of human body in addition to its correlation to biological activities.**
- **To provide candidate with knowledge concerning the detailed histological structure with more details for the respiratory system.**
- **To provide candidate with knowledge concerning cytogenetics and its role in the diagnosis of different genetic diseases..**

Purpose of the Physiology curriculum:

- **Our course aim to offer basis in physiology for the specialty of Respiratory Medicine and should have the knowledge, skills, attitudes and competencies to practice as an independent specialist in chest Medicine**

Purpose of the Biochemistry curriculum:

To provide the candidate with professional knowledge, for analyzing routine diagnostic laboratory services in Medical and Clinical Biochemistry and perform medical research.

Purpose of the Public Health, prevention and social medicine curriculum:

This part of Master in chest diseases aims to provide post graduate students who intend to pursue careers in chest diseases practice, management and/or research at

local, national and/or international levels with knowledge and skills base in the field of public health and tuberculosis in relation to chest diseases.

2 – Intended learning outcomes (ILOs):

Intended learning outcomes (ILOs) for Anatomy and Embryology:

a. Knowledge and understanding:

By the end of the course candidate should be able to:

a1 Describe the relevant airways and pulmonary vascular structures and their relation to each other in order to help the candidate while performing invasive bronchoscopy or non invasive imaging by all imaging techniques (e.g. CT, MSCT pulmonary angiography and MRI)

a2 . Describe the knowledge derived from the appropriate basic sciences which are relevant to Chest Diseases

Intended learning outcomes (ILOs) for Histology:

a. Knowledge and understanding:

By the end of the course the candidate will be able to:

a1 Describe the detailed structure and functions of the cytoplasmic and nuclear components with correlation to biological cellular activities.

a2 – Describe the detailed histological structure of different tissues and systems of human body.

a3 - Describe cytogenetics and its role in the diagnosis of different genetic diseases.

b. b. Intellectual skills:

By the end of the course the candidate will be able to:

b1- Select appropriate histological structures to reveal specific components of cells and tissues.

b2- Predict the cellular or tissue components in different tissues.

b.3 -Relate the composition of each tissue type to its specific functions.

c. Professional and practical skills :

By the end of the course the candidate will be able to:

C1- diagnose different normal tissue structures.

C.2- Write a professional descriptive report related to structure.

c.3- use cytogenetics in the diagnosis of different genetic diseases.

d. General and transferable skills:

By the end of the course the candidate will be able to:

d1- work in a teamwork and cooperate with other colleges

Intended learning outcomes (ILOs) for Physiology:

c. knowledge and understanding:

At the end of the course graduate should be able to

a.1. **Recognize basic theory and principle of Physiology that help them to understand human disease regarding etiology, diagnosis and control.**

a.2. **Identify basic clinical physiology in relation to respiratory medicine cardiovascular and autonomic nervous system.**

a.3. **Recognize the various causes and pathogenesis of diseases in respiratory medicine.**

a.4. **Identify knowledge of basic defect in physiological control mechanisms that result in disease state.**

d. Intellectual skills:

At the end of the course graduate should be able to

b.1.**Interpret results of physiologic tests such as pulmonary function tests, arterial blood gases and electrolyte analysis.**

b.2.**Use the results of all tests ordered to modify the problem list and the differential diagnosis accordingly.**

d. General transferable skills:

At the end of the course graduate should be able to

d.1. **Communicate effectively with his colleagues and scientific institutes.**

d.2. **Use the basic computer skills which serve his career development**

d.3. **Apply self evaluation and specify his medical educational needs.**

d.4. **Use different learning resources to get knowledge and information.**

d.5. **Manage time and practice team working through collaboration with other specialties**

d.6. **Apply continuous medical education**

Intended learning outcomes (ILOs) for Biochemistry:

a-knowledge and understanding:

By the end of the course the candidate will be able to:

a1- Define the basic theories and principles of basic science that help him to understand cardiovascular diseases; regarding diagnosis, management and prevention.

b. Intellectual skills:

By the end of the course the candidate will be able to:

b1-Analyze, and evaluate medical information and relate it to medical problem solving in cardiology.

b2-Discuss Biochemical paper on evidence based manner

c. Professional and practical skills :

By the end of the course the candidate will be able to:

C1-Interpret biochemical investigations and understand the biochemical basis of diseases

C2-Ask for the suitable laboratory diagnostic tests

d. General and transferable skills:.

By the end of the course the candidate will be able to:

d1-Perform continuous medical education

Intended learning outcomes (ILOs) for Public Health, prevention and social medicine:

a- Knowledge and Understanding:

By the end of the course, the student should be able to:

a1 – Recognize knowledge and principles of medical Public Health as related to the area of chest diseases.

a.2- Recognize program of tuberculosis control in Egypt.

a.3- Identify the relation between occupational medicine and chest diseases.

b-Intellectual Skills

By the end of the course, the student should be able to:

b.1-Analyse role of preventive aspects of health care system in tuberculosis and chest diseases.

b.2- analyze epidemiologic features of common respiratory problems.

b.3- Integrate the relation between industry and chest diseases.

b.4- Interpret methods of prevention of occupational exposure to respiratory hazards.

c- Professional and Practical Skills

By the end of the course, the student should be able to:

c.1-Design preventive measures for workers.

c.2- Interpret tuberculin testing.

c.3-Conduct health education session and communicate efficiently with workers .

c.4- Calculate vital indices and identify health problems related to industrial health.

d- General and Transferable Skills

By the end of the course, the student should be able to:

ed.1-Able to take leadership in motivating the community served.

d2- communicate effectively through oral presentations, data processing, analysis and presentations, written reports and scientific publications;

d3- use Information and Communications Technology;

d.4- Recognize principles of evidence based learning in problem solving and decision making.

d.5-Able to collaborate and behave ethically with colleagues in a team work during class discussion, as well as solving problems

d.6- use language and other communication skills appropriate to the patient culture.

3-Course contents

Course contents of Anatomy and Embryology:

Topics	No. of hours	
	Lecture	Practical
CHEST WALL:	1	1

Topics	No. of hours	
	Lecture	Practical
- Skeleton , joints, muscles,vessels,nerves,and movements. - Surface anatomy of the wall, and all structures in the thorax.		
-Diphragm and respiratory muscles and movements.- Anatomical basis of intercostals nerve block and aspiration of the chest.	1	1
<u>MEDIASTINUM:</u> - Division, sternal angle and arrangement of its structures.	1	1
-oesophagus ,anatomy,applied,development and Anomalies	1	1
- Blood vessels,lymph vessels, regional lymph nodes,and lymph drainageof the thoracic structures	1	1
- Pleura and lungs:anatomy ,development and Anomalies	1	1
- Respiratory passages: anatomy and development of nose,paranasalsinuses,pharynx,	1	1
larynx, trachea ,bronchi,bronchopulmonary segments and structures of a single segment For all vasculature ,innervation and lymph Drainage	1	1

Topics	No. of hours	
	Lecture	Practical
- Pericardium,heart and great vessels.	1	1
- Cross sections of the thorax. -Anatomy of the sensory pathway from the thorax(anatomy of chest pain).	1	1
	10	10

Course contents of Histology:

Topics	No. of hours	
	Lecture h.	practical
1-Introduction	1	---
2-Cytology and cytogenetics	2	2
3-Epithelium	1	1
4- Blood and Haemopoeisis	1	1
5- Muscle tissue	1	1
6- Cardio vascular system	1	1
7- Lymphatic system	1	2
8- Respiratory system	1	1
9- Endocrine system	1	1

Course contents of Physiology:

General topics

1- Haemostasis and blood coagulation, anticoagulant, Hemorrhagic disorders.

2- Erythropoiesis and anemia.

3- ABO system &Rh factor, blood transfusion and incompatible blood transfusion .

4- Hypoxia and cynosis.

5- Pulmonary function testes.

6- Homoeostasis.

7- Regulation of gastrointestinal secretion.

8- Normal and abnormal motility of gastrointestinal tract.

9- Water balance, Blood volume, factors affecting and its regulation.

10- Regulation of food intake and obesity.

11- Endocrine functions of suprarenal cortex and its disorders.

12- Thyroid functions and its disorders.

13- Cellular mechanism of actions of hormones.

14- Pain sensation &pain analgesia system.

15- Glucose homeostasis and disturbances.

16- Arterial blood pressure, types and pathophsiological basis of hypertension

17- Heart rate and its regulation.

18- Acid base balance and its functions tests.

19- Ca++ homoeostasis.

20- Mechanisms of transcellular and transcapillary exchange.

21- Control diameters of arterioles.

22- Heamorrage& shock.

23- Coding of sensory information.

24- Functions of the thalamus and thalamic syndrome.

25- Mode of action of autonomic nervous system.

26- Chemical transmitter of autonomic nervous system

Related specialty systems:

1. **Cardiovascular system.**
2. **Respiratory system.**
3. **Blood.**

Related specialty topics:

- **Physical properties of the lungs**
- **Mechanics of breathing**
- **Transport of respiratory gases**
- **Regulation of respiration & types of breathing**
- **Pulmonary circulation and pulmonary hypertension**
- **Ventilation / perfusion ration**
- **Hypoxia and cyanosis**
- **Acid – base balance**
- **Water and electrolyte Regulation**
- **Blood elements (RBCs, WBCs and platelets)**
- **Capillary circulation, body fluid formation and edema**
- **Glucose homeostasis**

Course contents of Biochemistry:

- **General properties of Enzymes**
- **Catalysis, Coenzymes, Enzymes Specify, Enzymes Classification & Nomenclature, Quantitative Measurement of Enzyme Activity, Isolation of Enzymes, Intracellular Distribution of Enzymes, Isoenzymes, Enzymes in Clinical Diagnosis**
- **Carbohydrate Metabolism: Intermediary Metabolism of Carbohydrate, Glycolysis, Oxidation of Pyruvate to Acetyl-CoA, Glycogen Formation & Degradation, Glycogenesis, Glycogenolysis, The Hexose Monophosphate Shunt or Pentose Phosphate Pathway, Gluconeogensis, Metabolism of Hexoses, Minor Pathways of Glucose Metabolism, The Uronic Acid Pathway, Metabolism of Fructose, Metabolism of Galactose.**
- **Lipid Metabolism: Oxidation of Fatty Acids, biosynthesis of Saturated Fatty Acids, Metabolism of Unsaturated Fatty Acids, Metabolism of Acyglycerols, Metabolism of Sphingolipids, Phospholipids &Sphingolipids in Disease (Lipidoses).**
- **Role of Tissues: Metabolism of the Plasma Lipoproteins, Role of the Liver in Lipid Metabolism. Cholesterol Metabolism. Regulation of Carbohydrate & lipid Metabolism**

Regulation of Ketogenesis, Interconversion of Major Foodsuffs. Te Economics of Carbohydrate & Lipid Metabolism in the Whole Body

- **Function of carbonic anhydrase**
- **Hormones**
- **Mineral metabolism**
- **Vitamins (daily requirement and deficiency).**
- **Free radicals and anti-oxidants**
- **Food chemistry**

Course contents of Public Health, prevention and social medicine:

Topic	Hours for lectures	Hours for Practical
Epidemiology: - **General epidemiology of communicable diseases.** - **Epidemiology of tuberculosis.** - **Prevention and control of respiratory diseases esp. tuberculosis.**	**10**	**13**
Occupational health, Communication and health behavior:	**5**	**7**
Demography and vital statistics related to chest diseases	**5**	**-**
Total	**20**	**20**

Scientific activity

1credit hour =Total 60 hours.

a- Seminars and bedside teaching.

b- Workshops, Congresses, Thesis discussion and Chest conferences (Those which have credit hours will be accepted as it is).

4-Teaching and learning methods: hybride

The following methods of teaching and learning will be used:

1) Apprenticeship learning (experiential learning):

- **Observation**
- **Assisting**
- **Participation**
- **Supervised Performance**
- **Independent Performance**

2) Formal Teaching:

- **Illustrated lectures: online**
- **Practical sections: attendance**
- **Seminars scheduled and previously announced to facilitate selection identification of their topics**
- **Case presentation**
- **Assignments to be prepared by the graduate in one of the special topic taught.**
- **Tutorial is scheduled and previously announced special topics from the curriculum are discussed in the tutorial.**
- **Clinical ward rounds**
- **Crash courses**
- **Workshops**

3) Self study

- **Library**
- **Textbook**
- **Journals**
- **Internet**

4) Meetings and Conferences

5) Supervised Research

5-Student Assessment: may be electronic but inside the faculity, face to face

The general rules and regulations of assessment approved by Tanta University.

<u>The end semester exam:</u>

In addition to the successful completion of the training program, all candidates must successfully pass the end semester exam in the form of …….

6-List of references

List of references of Anatomy and Embryology:

6.1 Course notes

Hand outs of lectures (either soft or hard copies)

6.2 Text book

Human anatomy series produced by the staff members of the anatomy department.

6.3 Recommended books

- **Gray's Anatomy**
- **Last's Anatomy**
- **Cunningham's manual of practical anatomy**
- **Atlas of anatomy (Nutter, Grant….etc)**
- **Fundemental anatomy (Hartwing , Walter Carl 2008)**

6.4 Periodicals and web sites

www.innerbody.com

www.instantanatomy.net

List of references of Histology:

6.1 Course notes

6.2 Text books

Junqueira, L. C. and Carneiro, J. (2005): Basic Histology, 11th edition. McGraw-Hill. Medical publishing division.

Fawcett, D. W. (1994): Bloom and Fawcett: A Textbook of Histology, 12th edition. Chapman &Hall, NewYork, London.

Fawcett, D. W. and Jensh, P. R. (2002): Bloom and Fawcett. Concise histology. 2nd edition. Arnold-Hodder headline group.

Cormack, D. H. (2001): Essential Histology. 2nd edition. Lippincott Williams & Wilkins.

Culling, C. F. A.; Allison, R. T. and Barr, W. T. (1985): cellular pathology techniques. 4th edition, Butterworth, London, Boston, Toronto.

-Practical Books

Bancroft, J. D. and Cook, H. T. (1994): Manual of histological techniques and their diagnostic applications. Churchill Livingstone, Edinburgh, London, New York, Tokyo.

6.3 Recommended books

Eroschenko, P. V. (2005): Difiore's atlas of histology with functional correlations.10th edition. Lippincott Company.

Gartner, P. L. and Hiatt, L. J. (2001): Color textbook of histology. 2nd edition. W.B. Saunders Company.

Cormack, D. H. (1997): Essential Histology. J.B. Lippincott Co., Philadelphia.

Cormack, D. H. (1987): Ham's Histology, 9th edition. J.B. Lippincott Co., Philadelphia.

6.4 Periodicals and web sites

- **Egyptian Journal of Histology (http://www.ejhistology.eg.net)**
- **WWW.wikipedia.org/wiki/Histology**
- **www.histology-world.com**

List of references of Physiology:

6.1Essential books (Textbooks):

- **Guyton &Hall textbook of Human Physiology and Mechanisms of Disease.**
- **Gannon (review of medical physiology).**
- **Vander's human physiology.**

6.2Recommended books:

- **Applied physiology in intensive care by M.R. Pinsky (Editor), J. Mancebo (Editor), L. Brochard (Editor), Gran Hedenstierna 2009.**
- **An introduction to human disease: pathology & pathophysiology correlations by Leonard Crowley. Hardcover August 2009.**
- **Critical pathways in cardiovascular medicine: Second Edition Lippincott Williams & Wilkins.**
- **Applied physiology: A manual showing functions of the various organs in disease by Frederich Augustus Rhodes.**

6.3Periodicals, Web:

- **www.tebawy.5u.com.**
- **http://bcs.whfreeman.com.**

- http://www.bpcc.edu/sciencealliedhealth/humanphysiologylinks.html
- http://bio–alive.com/animations/physiology.htm.
- Human physiology from cell to system By: Lauralee Sherwood.

List of references of Biochemistry:

Text books

- Harper's Illustrated Biochemistry 28 edition Lange. Mcgraw Hill Boston 2010
- Lippincott ' S Illustrated review of Biochemistry fourth edition 2008
- Lehningerer' Principle of Biochemistry fifth edition edition 2010
- Thomas M. Devlin Textbook of Biochemistry with Clinical Correlations Publisher: ECFC580B2John Wiley and Sons Ltd Edition: 6th Revised edition 2008
- William J. Marshall : Clinical Chemistry: With Access 4th edition 2008

Web sites

- www.tanta.edu.eg/faculties/medicine/departments/Bioch
- www.nlm.ncbi.gov
- www. Medical biochemistry l.org
- http://www.textbooks.com/Catalog/PD8/ biochemistry

List of references of Public Health, Prevention and social medicine:

6.1 Course notes

Handout of the department

6.2 Text book

-Public Health & Preventive Medicine: Maxcy – Rosenau- Last.

6.3 Recommended books

- Communicable Disease Epidemiology and Control: Roger Webber, London School of Hygiene and Tropical Medicine
- Essentials of Public Health: L. J. Donaldson, R. J. Donaldson

6.4 Periodicals and web sites : EMHJ at www.WHO.int

7-Other resources/ facilities required for teaching and learning to achieve the above ILOs

Anatomy:

Internal TV circuit for displaying anatomy video films and CD movies

Library (delivering text books and computers for achieving anatomy web sites)

Histology:

1-Faculty Lecture halls

2- equipped labs with microscopes.

3-Faculty library can be used for projects and textbooks

Physiology:

All facilities required for teaching are available.

Biochemistry:

The department has different types of scientific activity includes

- **weekly seminars to discuss new trend and techniques**
- **journal Club to discuss the new scientific paper in the field of Medical Biochemistry and Molecular Biology**
- **Free Internet access for international data bases is available for all students through the faculty postgraduate library**
- **The essential text books for this course are available either in department or faculty library**

Public Health, Prevention and social medicine:

- **The general library of the faculty.**
- **Library of the department.**

8-we certify that all of the information required to deliver this course is contained in the above specifications and will be implemented

We verify that the above Course and the analysis of students and external evaluator opinions are accurate.

Course coordinator and head of department
name……..signature……Date…….

Head of quality assurance unit:
name……..signature……Date…….