COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Program offering the course:	**Postgraduate Master Degree in Clinical Pathology-CPATH 530**
(2) Department offering the program	**Clinical Pathology Department**
(3) Department responsible for teaching the course	**Clinical Pathology Department**
(4) Part of the programme:	**Second part**
(5) Date of approval by the Department`s council	16/5/2016
(6) Date of last approval of programme specification by Faculty council	9/8/2016
(7) Course title:	**Clinical Microbiology and Immunology**
(8) Course code:	**CPATH 530CMI** **CPATH 530CMIP**
(9) Credit hours	**CPATH 530CMI (5)** **CPATH 530CMIP (4)**
(10) Total teaching hours:	**CPATH 530CMI (75)** **CPATH 530CMIP (120)**

(B) Professional information

(1) Course Aims:

The broad aims of the course are as follows: (either to be written in items or as a paragraph)

The overall aim of the course is to:

Provide the student with the technical knowledge, technical skills to perform laboratory tests in the field of clinical microbiology and immunology as well as interpretative skills of the clinical microbiology and immunology laboratory data and communication skills with the referring clinicians and other health care providers so that a clinically useful opinion can be derived from data.

(2) Intended Learning Outcomes (ILOs):

Intended learning outcomes (ILOs); Are four main categories: knowledge & understanding to be gained, intellectual qualities, professional/practical and transferable skills.

On successful completion of the course, the candidate will be able to:

A- Knowledge and Understanding

A1- Identify the different classes of microbes and the major characters of infections caused by each class
A2- Describe the principles, advantages and disadvantages of different methods used in diagnosis of infective syndromes.
A3- Outline the principles and uses of sterilization and disinfection procedures
A4- Describe the guidelines of controlling infections in hospitals including safety measures.
A5-Discuss the mechanisms of immune response
A6-Describe the structure of immunoglobulin, TCR and their diversity
A7-Outline the principles of autoimmunity and major autoimmune diseases
A8-List cytokines and chemokines
A9-Recognize the concepts of transplantation and tumor immunology and immune therapy

B- Intellectual skills

B1- Apply the appropriate microbiological method for diagnosis of each type of infection
B2- Interpret the results of different microbiological methods used in diagnosis of infections.
B3- Analyze the results of investigations made for hospital acquired infections.
B4- Employ the suitable antibiotic policy for each hospital.
B5- Demonstrate the role of MHC and NK cell in immune response
B6-Use complement protein measurements to assess inherited and acquired immune deficiency states
B7-Employ principles of molecular cell biology in immunology laboratory
B8-Use appropriate laboratory tests for assessment of immune competence
B9-Apply the immunology laboratory tests for diagnosis of immune-mediated rheumatic, GIT, hepatobiliary and endocrine diseases

C- Professional/practical skills

C1- Perform the different microbiological methods used in diagnosis of infections
C2- Be able to identify the different types of organisms
C3- Develop skills in operating the automated culture systems used for rapid microbiological diagnosis
C4- Evaluate the safety measures used in microbiological laboratory
C5-Assess neutrophil function
C6-Carry out immunoglobulin, complement proteins and cytokine assays
C7-Be able to detect different autoantibody markers
C8-Perform isolation of mononuclear cells using density gradient separation techniques
C9-Observe HLA typing by different methods

D- Communication & Transferable skills

D1- Develop presentation skills in microbiology through laboratory meeting, seminars and multidisciplinary conferences
D2- Develop process of critical thinking during epidemics.
D3- Work as a member of epidemiological team
D4- Develop skills of presenting the preliminary results of serious infections to the referring physician
D5-Use computer software in diagnostic immunology
D6-Search literature for recent advances in clinical immunology
D7-Work effectively as a member of rheumatology team
D8-Develop presentation skills in immunology through laboratory meeting, seminars and multidisciplinary conferences

(3)Course content

1- Clinical Microbiology

Subjects	Lectures	Clinical	Laboratory	Field	Total Teaching Hours
1- Introduction to clinical microbioly					
Cell structure, physiology, metabolism and genetics	**1**		**1**		**2**
Classification of microbes	**0.5**		**1**		**1.5**
Introduction to viral infections	**0.5**		**1**		**1.5**
Introduction to fungal infections	**0.5**		**1**		**1.5**
Bacterial flora	**0.5**		**1**		**1.5**
Performance improvement in the Microbiology laboratory	**1**		**1**		**2**
Health and safety in Microbiology laboratory	**1**		**1**		**2**
Antimicrobial drugs • ***Classification*** • ***Mechanism of action***	**1**		**2**		**3**
Molecular diagnosis	**2**		**3**		**5**
Immunodiagnosis of infective syndromes	**1**		**2**		**3**
Disinfection and sterilization	**1**		**1**		**2**
Automation : principles of instruments used in microbiology lab	**1.5**		**1**		**2.5**
2-Lab. Identification of significant isolates :-					
Staphylococci.streptococci, enterococci and other catalase positive Gram positive cocci	**1**		**2**		**3**
Neisseria , Moraxella, Haemophilus and other fastidious Gram negative bacteria	**1**		**2**		**3**
Enterobacteracae	**1**		**2**		**3**
Vibrio , aeromonas, campylobacter and non fermentive Gram negative bacilli	**1**		**2**		**3**
Anaerobes	**1**		**2**		**3**
Chlamydia & Rickettsia	**1**		**1**		**2**
Mycoplasma and ureaplasma	**1**		**1**		**2**

3- Lab. diagnosis of infectious diseases :					
Upper and lower respiratory tract infections	1.5		2		3.5
Skin and soft tissue infections	1		2		3
Anaerobic infections	1		2		3
GIT and food poisoning	1		2		3
Infection of central nervous system	1		2		3
Bacteraemia and septicaemia	1		2		3
Urinary tract infections	1		2		3
Genital infections and sexually transmitted diseases	1.5		2		3.5
• ***Infection in special population :*** ***- In transplant patients*** ***-In children*** ***-In HIV patients*** ***-Opportunistic infections***	1.5		2		3.5
Occular infections	1		2		3
Pyrexia of unknown origin	1		2		3
• ***Mycobacterial infection*** ***- Classification*** ***- Pathophysiology*** ***- Epidemiology*** ***- Multidrug resistance & its mechanism*** ***- Public health concern***	1.5		2		3.5
4-Clinical syndromes associated with viral infections	1		2		3
5- Fungal infections	2		3		5
Pathophysiology					
Transmission					
Clinical presentations					
Epidemiology					
Diagnosis (Superficial & deep) .					
Infection control					
Parasitic infections ***- Intestinal parasites*** ***- Tissue parasites*** ***- Blood parasites*** ***- Protozoa***	2		3		5

2- Clinical Immunology

Subjects	Lectur	Clinical	Laborator	Field	Total Teaching Hours
Introduction to Immune System	1		2		3
Immune response part I	1		2		3
Immune response part II	1		2		3
Innate Immunity Part I	1		2		3
Innate Immunity Part II	1		2		3
Antigen and Immunogene	1		2		3
T-lymphocytes & Tregs	1		2		3
B-lymphocytes	1		2		3
Immunoglobulin	1		2		3
Receptor Diversity	1		2		3
NK and KIR	1		2		3
Antigen-presenting cell , Ag processing and presentation	1		2		3
Complement system	1		2		3
Major histocompatibility complex	1		2		3
Histocompatibility testing	1		2		3
Cytokines	1		2		3
Chemokines	1		2		3
Tolerance & Autoimmunity	1.5		2		3.5
Evaluation of Immune-competence	2		2		4
Immunodeficiency syndromes Part I	1.5		2		3.5
Immunodeficiency syndromes Part II	1.5		2		3.5
Hypersensitivity	1.5		2		3.5
Immune-mediated Rheumatic diseases Part	1.5		2		3.5

Immune-mediated Rheumatic diseases Part II	1.5		2		3.5
Immune-mediated GIT& Hepatobiliary diseases	1.5		2		3.5
Immune-mediated Endocrine dis.	1.5		2		3.5
Tumor Immunology	1.5		2		3.5
Transplant Immunology Part I	1.5		2		3.5
Transplant Immunology Part II	1.5		2		3.5
Stem cell transplant	1		1		2
Immunologic therapy	1		1		2

(4) Teaching methods:

4.1: Lectures

4.2: Case study

4.3: Practical Lab.

4.4: Self-learning

4.5: Student teaching

(5) Assessment methods:

5.1: Written exam for assessment of knowledge & intellectual skills.

5.2: Oral exam for assessment of knowledge & intellectual skills.

5.3: Practical exam for assessment of practical and transferrable skills.

5.4: MCQ continuous assessment at the end of each semester

Percentage of each Assessment to the total mark:

Written exam:	40% (160 marks)
Practical exam:	25%(100 marks)
Oral exam:	25%(100 marks)
MCQ exam:	10%(40 marks)

(6)References of the course:

6.1: Hand books: Guide to Clinical Pathology

6.2: Text books: Microbiology in Clinical Practice

6.3: Journals: Journal of Clinical Microbiology

Course coordinator: Prof. Tarek Selim

Head of the department: Prof. Osama Elbaz