COURSE SPECIFICATION

Faculty of Medicine– Mansoura University

(A) Administrative information

(1) Program offering the course:	**Postgraduate Doctor Degree in Clinical Pathology-CPATH 630**
(2) Department offering the program:	**Clinical Pathology Department**
(3) Department responsible for teaching the course:	**Clinical Pathology Department**
(4) Part of the program:	**Second part**
(5) Date of approval by the Department`s council	**16-5-2016**
(6) Date of last approval of program specification by Faculty council	9/8/2016
(7) Course title:	**Clinical Microbiology and Immunology**
(8) Course code:	**CPATH 630CMI** **CPATH 630CMIP**
(9) Credit hours	**CPATH 630CMI (8)** **CPATH 630CMIP (4)**
(10) Total teaching hours:	**CPATH 630CMI (120)** **CPATH 630CMIP (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 fields of clinical microbiology and clinical immunology as well as interpretative skills of the clinical microbiology and clinical immunology laboratory data and communication skills with the referring clinicians and other health care providers so that a clinically useful opinion can be

(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- Discuss the different mechanisms of antimicrobial resistance.
A4- Outline the principles and uses of sterilization and disinfection procedures
A5- Classify the biohazardous agents and its level of biosafety.
A6- List the different applications of nanotechnology in clinical microbiology.
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
A10 - Describe immune mediated reproductive, hematological, vascular and neurologial diseases

B- Intellectual skills

B1- Apply the appropriate microbiological methods 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- Use the suitable probiotics for treating different infections.
B6- Demonstrate the role of MHC and NK cell in immune response
B7-Use complement protein measurements to assess inherited and acquired immune deficiency states
B8-Apply the immunology laboratory tests for diagnosis of immune-mediated rheumatic, GIT, hepatobiliary and endocrine diseases
B9- Apply principles of immune modulating and gene therapy in clinical practice

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- Be able to design a microbiology laboratory according to biosafety guidelines.
C5- Examine water and air for pollution.
C6- Apply the standard precautions of infection control in hospital.
C7-Assess neutrophil function
C8-Carry out immunoglobulin, complement proteins and cytokine assays
C9-Be able to detect different autoantibody markers
C10-Perform isolation of mononuclear cells using density gradient separation techniques
C11-Observe HLA typing by different methods
C12-Work well with medical technologists in continuing education settings and in the day to day laboratory environment
C13-Demonstrate the ability to write an informative laboratory report including a precise diagnosis, differential diagnosis, and recommended follow up or additional studies as appropriate

D- Communication & Transferable skills

D1- Communicate ideas and arguments effectively,
D2- Manage time and resources and set priorities.
D3- Apply the principles of scientific research.
D4- Use simple statistical methods to analyze data.
D5 - Develop experience in the use of Web-based genomic databases

(3) Course content:

1- Clinical Microbiology

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

diseases :					
Upper and lowe1.5r respiratory tract infections1.5	1.5		1.5		3
Skin and sof1.5t tissue infections	1.5		1.5		3
Anaerobic infections	1.5		1.5		3
GIT and food poisoning	1.5		1.5		3
Infection of central nervous system	1.5		1.5		3
Bacteraemia and septicaemia	1.5		1.5		3
Urinary tract infections	1.5		1.5		3
Genital infections and sexually transmitted diseases	1.5		1.5		3
• Infection in special population : ***- In transplant patients*** ***- In children*** ***- In HIV patients*** ***- Opportunistic infection***	1.5		1.5		3
Occular infections	1.5		1.5		3
Pyrexia of unknown origin	1.5		1.5		3
• Mycobacterial infection ***- Classification*** ***- Pathophysiology*** ***- Epidemiology*** ***- Multidrug resistance & its mechanism*** ***- Public health concern***	1.5		1.5		3
4-Clinical syndromes associated with viral infections	1.5		1.5		3
5- Fungal infections ***- Pathophysiology*** ***- Transmission*** ***- Clinical presentations*** ***- Epidemiology*** ***- Diagnosis (Superficial & deep) .***	1.5		1.5		3
Infection control	1.5		1.5		3
Parasitic infections ***- Intestinal parasi3tes*** ***- Tissue parasite3s*** ***- Blood parasite3s***	1.5		1.5		3

- Protozoa					
**** Biofilm***	1.5		1.5		3
**** Host – parasite interrelationship***	1.5		1.5		3
**** Antimicrobial drug resistance &mobile genetic elements***	1.5		1.5		3
**** Probiotics***	1.5		1.5		3
**** Bioterrorism***	1.5		1.5		3
**** Biohazard and Biosafety***	1.5		1.5		3
Air and water pollution ***- Testing of quality*** ***- related Biohazards***	1.5		1.5		3
**** Nanotechnology in clinical microbiology***	1.5		1.5		3
**** Emerging pathogens***	1.5		1.5		3
**** Infection control guidelines***	1.5		1.5		3
**** Public health principles and interrelation between diagnostic lab. and public health agencies***	1.5		1.5		3
**** Chronic fatigue syndrome (Microbiological causes)***	1.5		1.5		3

2- Clinical Immunology

Subjects	Lectures	Clinical	Laboratory	Field	Total Teaching Hours
Introduction to Immune System	1		1		2
Immune response part I	1		1		2
Immune response part II	1		1		2
Innate Immunity Part I	1		1		2
Innate Immunity Part II1	1		1		2
Antigen and Immunogen	1		1		2
T-lymphocytes & Tregs1	1		1		2
B-lymphocytes1	1		1		2
Immunoglobuli1n	1		1		2
Receptor Divers1ity	1.5		1.5		3
NK and KIR1	1.5		1.5		3
Antigen-presenting cell , Ag processing and presentation	1.5		1.5		3
Complement system	1.5		1.5		3
Major histocompatibility complex	1.5		1.5		3
Histocompatibility testing	1.5		1.5		3
Cytokines	1.5		1.5		3
Chemokines	1.5		1.5		3
Tolerance & Autoimmunity	1.5		1.5		3
Evaluation of Immune-competence	1.5		1.5		3
Immunodeficiency syndromes Part I	1.5		1.5		3
Immunodeficiency syndromes Part II	1.5		1.5		3
Hypersensitivity Part I	1.5		1.5		3
Hypersensitivity Part II	1.5		1.5		3
Immune-mediated Rheumatic diseases Part I	1.5		1.5		3
Immune-mediated Rheumatic diseases Part II	1.5		1.5		3
Immune-mediated GIT& Hepatobiliary diseases	1.5		1.5		3

Immune-mediated Endocrine dis.	1.5		1.5		3
Tumor Immunology	1.5		1.5		3
Transplant Immunology Part I	1.5		1.5		3
Transplant Immunology Part II	1.5		1.5		3
Stem cell transplant	1.5		1.5		3
Immunologic therapy	1.5		1.5		3
Reproduction and immune system	1.5		1.5		3
Immune-mediated hematologic diseases	1.5		1.5		3
Inflammation	1.5		1.5		3
Mucosal Immunity	1.5		1.5		3
Immune-mediated vascular disease	1.5		1.5		3
Immune-mediated neurologic disease	1.5		1.5		3
Immune modulating therapy	1.5		1.5		3
Gene therapy	1.5		1.5		3
Cell cycle kinetics	1.5		1.5		3
Introduction to molecular biology	1.5		1.5		3
Molecular biology in immunology	1.5		1.5		3

(4) Teaching methods:

4.1: Lectures

4.2: Case study

4.3: Practical Lab

4.4: Self learning

5.4: Student teaching

(5) Assessment methods:

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

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

5.3: Practical exam for assessment of practical skills.

5.4: MCQ continuous assessment at the end of each semester.

Percentage of each Assessment to the total mark:

Written exam: 26.66% (80 marks)

Practical exam: 33.33% (100 marks)

Oral exam 33 . 33% (100 marks)

MCQ exam: 6.66% (20 marks)

(6) References of the course:

6.1: Hand books: Guide to Clinical Pathology

6.2: Text books: Microbiology in Clinical Practice

Basic and Clinical Immunology .

6.3: Journals: Journal of Clinical Microbiology

Egyptian Journal of Immunology

Course coordinator: Prof. / Tarek Selim

Head of the department: Prof. / Osama Elbaz

Date: