



## **Clinical Immunology Course Specification**

### **Master Degree in Clinical and Chemical pathology**

**Program on which the course is given:** Master in Clinical and Chemical Pathology

**Department offering the program:** Clinical and Chemical Pathology Department

**Department offering the course:** Clinical and Chemical Pathology Department

**Course code:** CCP 822 CI

**Element of the program (Compulsory/Elective):** Compulsory course

**Academic year:** 2015-2016

**Date of approval:** July 2015

**Credit points:** 3 for theoretical and 10 for practical

**Course duration:** 17 weeks

**Teaching hours:** Theoretical 84% and Practical 16%

**Program Coordinators:**

- Prof. Dr. Nancy El Guindy
- Prof. Dr. Engy El Khateeb

## **I. AIM OF COURSE**

The aim of the course is to develop a good postgraduate clinical pathologist:

- capable of dealing with patients, communicating with colleagues and coworkers in team work,
- provided with advanced understanding and applied knowledge in the theory and practice of clinical immunology;
- equipped with a critical understanding of how immunological investigations are employed to develop a clinical diagnosis;
- provided with the necessary transferable and research skills to promote lifelong learning and career development.

## **II. INTENDED LEARNING OUTCOMES**



**A. Knowledge and Understanding:**

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

1. Identify mechanisms of different immune-mediated diseases
2. Define Cancer immunology
3. Identify different types of immunodeficiencies.
4. Describe the molecular defects of the immunodeficiency diseases
5. Describe how an inappropriate immune response can cause disease.
  
6. Recognize the common diseases of different types of hypersensitivity
7. State different sources of stem cells.
  
8. Define gammopathies
9. Recognize the role of immune system in combating bacterial and parasitic diseases
  
10. Identify the importance of Immune regulation.
  
11. Recognize mode of action of immunosuppressive agents.

**B. Intellectual Skills:**

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

1. Plan an appropriate investigation scheme for patients with autoimmune manifestations.
2. Plan an appropriate investigation scheme to differentiate between primary and secondary immunodeficiency.
3. Differentiate between the acute and persistent hepatitis virus infections .
4. Illustrate the immunopathogenesis of diseases caused by different types of hypersensitivity reactions.
5. Analyze the results of different antibody detecting techniques.
6. Distinguish between causative factors of autoimmune mediated disease & diseases due to other causes .
7. Schedule different applications of different automated analyzers.
8. Produce accurate reports with clear conclusions



**C. Professional and Practical Skills:**

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

1. Perform diagnostic laboratory tests related to medical virology and immunological diseases.
2. Interpret different diagnostic laboratory tests in medical virology and immunology.
3. Perform biomedical laboratory techniques in accordance with health and safety guidelines.
4. Perform quality control and assurance procedures

**D. General and Transferable Skills:**

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

1. Effectively utilize the library to access and search for information
2. Develop effective teaching skills by teaching junior colleagues and students as well as through conference and seminar presentations.
3. Work in a team in the immunology laboratory.
4. Utilize problem solving skills in practical situations.
5. Participate in research activities.

### **III. COURSE CONTENT**

**i. Compulsory Course Clinical Immunology**

- ii. Main topics: Students will receive presentations or group discussions about recent advances in the following subjects:**



## **Hypersensitivity**

Immediate hypersensitivity (Type I)

-Allergic diseases: Atopy and Asthma

-Anaphylaxis

-Antibody mediated hypersensitivity (type II)

-Immunological diseases due to Ab-mediated tissue damage (AIHA,ITP, Pemphigus, Myasthenia gravis, Grave's disease,Goodpasture Syndrome)

– Immune Complex mediated hypersensitivity (type III; Arthus reaction, Serum sickness)

– IC mediated immunological diseases: IC glomerulonephritis, polyarteritis nodosa, SLE)

– cell- mediated hypersensitivity (type IV)

– cell- mediated immunological diseases (Type I DM, RA, Tissue damage in TB, MS, Poison Ivy )

– Allergy desensitization

## **Immunodeficiency**

-Immunodef. : Introduction & classification/ PID due to defects in stem cells

– primary immune deficiency due to defects in the T cells

– primary immune deficiency due to defects in the B cells & Igs

– primary immune deficiency due to defects in the accessory cells (Neutrophils & phagocytic cells) & complement

– Sources of 2ry immune deficiency & AIDS

## **Tolerance and autoimmunity**

Theories of tolerance & autoimmunity

– autoimmune diseases: SLE

– Collagen Diseases: RA, JRA

– Other Collagen diseases: Scleroderma, sjogren



- Immune mediated GIT diseases
- Immune mediated renal diseases
- Immune mediated vasculitis
- Antiphospholipid syndrome
- Autoimmune liver diseases

### **Virology and Vaccination**

CMV vs EBV

- Viral hepatitis: HAV, HBV
- Viral hepatitis: HCV
- Immunization

### **Tumors**

Gammopathy

- Tumour immunology

### **Transplantation**

Transplantation: solid organ transplantation

Histocompatibility testing

Hematopoeitic stem cell transplantation



<b>Immunotherapy</b>
Immunosuppressive therapy/ anti-inflammatory drugs Immune therapy

<b>Molecular biology</b>
– Molecular Biology -Applied Molecular Biology

**iii. Course contents:** Distribution of course contents

<b>Subject</b>	<b>Lectures (hrs)</b>	<b>Case discussion (hrs)</b>	<b>Tutorial (hr)</b>	<b>Practical (hrs)</b>	<b>Total (hrs)</b>	<b>% of Total</b>
A. Hypersensitivity	10			1	11	22%
B. Immunodeficiency	5	1		1	6	12.5%
C. Tolerance and Autoimmunity	9	2		2	13	26.5%
D. Virology and Vaccination	4	1		4	9	18%
E. Tumors	2	1		1	4	8%
F. Transplantation	3				3	6%
G. Immunotherapy	2				2	3.5%
H. Molecular Biology	2				2	3.5%
<b>Total</b>	<b>37</b>	<b>5</b>		<b>9</b>	<b>51</b>	<b>100%</b>



## IV. TEACHING METHODS

**The course will be managed through the following teaching methods:**

1. Lectures with interactive discussions in lecture halls aided by Audio-visual aids (data-show, slide projection).
2. Tutorials
3. Slides / data show
4. Discussion
5. Presentations: Independent assignments:
6. Practical sessions

### Lecture Tutorial and Lab Timetable

Item	Time schedule
1- Lectures	<u>2</u> times/week; 2 hour each for 9.25 weeks
2- case discussion	<u>2</u> hours /week for 2.5 weeks
3- Practical	<u>1</u> hour / week for 9 weeks



## V. LIST OF REFERENCES

### Basic materials:

- Course notes

### Essential books (text books):

- Peakman Basic and Clinical Immunology Paperback ISBN :9780443100826; eBook ISBN: 9780702062667
- Chapel Essentials of Clinical Immunology ISBN: 0632049723,9780632049721

## VI. TEACHING AND LEARNING FACILITIES

- Lecture hall: available, provided with a white board
- Audio-visual aids (data-show, slide projection): available
- Post graduate laboratory Small group classes
- Post graduate library of the faculty of medicine Cairo University

## VII. ASSESSMENT

### **Assessment criteria:**

The prerequisite for sitting to the final exam is 75% attendance of the lectures and fulfilling all the credit points specified for the scientific activities, the training program and the elective course which should be registered in the log book.

### **Assessment tools:**



# Cairo University - Faculty of Medicine

Clinical and Chemical pathology Department

First Part Master Compulsory – Basic Immunology [CCP 822 CI]



- Continuous assessment is carried throughout the course and registered in the logbook
- Final summative examination will be carried at the end of the course.

**Assessment schedule:** The final exam is held twice per year in May and November.

## Examination description:

- Written exam: Duration: 1.5 hours exam with type of questions: Long essay, short essay & MCQ.
- Practical: Clinical Immunology: spotting exam on slides, data show and reports  
*Case problem solving including doing the needed lab. tests*
- Oral: Number of examiners: 2

## Weighing of assessment:

Exams	Marks	Intended Learning Outcomes
Written	80	To assess ILOs: a (1-11)- e(3-7)
Oral	35	To assess ILOs: a (1-11) – b(2)- e(3-7)
Practical	35	To assess ILOs: b (1-2)
<b>Total</b>	<b>150</b>	

## Head of Department

*Prof. Dr. Fatma El Mougny*