Kingdom of Saudi Arabia
Taibah University – Madinah
College of Applied Medical Sciences
Department of Clinical Laboratory Sciences

A- Course Title, Code, Academic Year:

Medical Immunology (MLT-423) 1437-1438H

B- Course Information:

Course Code	Course Title	Credit Units			Study Level	Pre-requisites
		Total	Theory	Practical		
MLT 423	Medical Immunology	3	2	1	7th	None

Course Coordinator	Extension	Email Address
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C- Course Description:

This course is designed to provide a basis of terminology relevant to the basic concepts of immunology. It commences with the important components (cell, tissues; antibodies; immunoglobulins) involved in host defense against infectious agents. Introductory lectures serve to describe and differentiate between natural defense (innate) mechanisms and adaptive immunity mediated by functional B and T lymphocytes and their products. Subsequently, cellular interactions, especially the differentiation of helper T cells subsets and the production of relevant cytokines will be described.

This will include the mechanisms of T cell activation and regulation. Finally, clinical immunology will be discussed: autoimmunity and autoimmune diseases; hypersensitivity reactions, including atopic disorders and asthma; mechanisms of transplant rejection; and immunodeficiency disorders. Vaccines will be discussed from their historical development to state of the art strategies being currently employed to create new vaccines or improve the ones currently existing. We will also focus on strategies used by pathogens to escape the host response.

C- Course Objectives:

1. To acquaint the students with the basic and clinical aspects of immunology including diagnostic technologies, laboratory management and research methodologies
2. To describe and differentiate between natural (innate) defense mechanisms and adaptive immunity
3. To highlight the mediators of humoral immunity (antibodies; immunoglobulins) and B cell development
4. To study the cellular interactions, especially the differentiation of helper T cells subsets and the production of relevant cytokines
5. To discuss about clinical immunology: autoimmunity and autoimmune diseases; hypersensitivity reactions, including atopic disorders and hypersensitivity; mechanisms of transplant rejection; immune response to microbes, tumors, and immunodeficiency disorders
6. To orient the students for laboratory based career paths such as biomedical and translational research
7. To explore the nature of antigen-antibody interactions through various serological tests
8. To conduct laboratory tests that help in diagnosis and detection of diseases
9. To acquire communication through the presentations in various aspects of clinical immunology

D- THEORY TOPICS:		
Week	Theory Topic	Hours
1	Introduction to Immunity	2
2	Innate Immunity	2
3	Innate Immune Function	2
4	Adaptive Immunity	2
5	Cellular Development of the Immune System	2
6	Activation of the Immune Response	2
7	Effector Functions of the Immune System	2
8	Regulation of Immune Response	2
9	Immunity and Health (case studies)	2
10	Hypersensitivity	2
11	Immunodeficiency	2
12	Autoimmunity	2
13	Transplantation	2
14	Cancer Immunity	2
15	Revision	2

E- PRACTICAL SESSIONS:		
Week	Practical Session	Hours
1	Introduction & orientation to the practical immunology / lab safety	2
2	Serological pipetting + The principles of dilutions / serial dilution	2
3	Direct agglutination tests	2
4	Indirect agglutination tests	2
5	Phagocytosis tests	2
6	Immunofluorescence & other serological tests	2
7	Precipitation reactions	2
8	Methods to assess complement activity	2
9	Immuno-electrophoresis & Immunoblotting	2
10	Laboratory diagnosis of hypersensitivity	2
11	Laboratory diagnosis of immunodeficiency	2
12	Laboratory diagnosis of autoimmune diseases	2

13	Methods used in transplantation	2
14	Cluster of differentiation & flowcytometry	2
15	Revision	2

F- ASSESSMENT TASKS:

#	Type of assessment task	Week	Total Grades
1	Assignment submission	Week 10	5%
2	Midterm examination (written)	Week 9	15%
3	Continuous assessment	Weeks 1-16	10%
4	Final practical exam	Week 17	30%
5	Final written examination	Week 18-19	40%

G- LEARNING RESOURCES:

1- Required textbook:

- Lecture Notes: Immunology, 7th Edition; Ian Todd, Gavin Spickett, Lucy Fairclough ©2015, Wiley-Blackwell

2- Essential references:

- Essentials of Clinical Immunology, 6th Edition; Helen Chapel, Mansel Haeney, Siraj Misbah, Neil Snowden ©2014, Wiley-Blackwell
- Microbiology and Immunology Online by Richard Hunt et al. - University of South Carolina, 2004

Notes:

- Assignments topics and requirements shall be announced by the end of Week-2, the deadline for submission is 12pm Thursday of Week-10 (each semester).
- Assignments and written assessment tasks must be verified against plagiarism, the maximum acceptable percentage is determined by the department (according to each level).
- Continuous assessment methods may include quizzes, internet searches, home-works, exercises, class activity, scratch cards, presentations, group work, etc.
- Practical exams may contain hands-on experiments, laboratory work, simulations, or demonstrations.
- Written exams will include multiple-choice questions (MCQ), short essay questions, and long essay questions.