LECTURE: 01

Title: INTRODUCTION TO THE COURSE

LEARNING OBJECTIVES:

- **To welcome the students to the diagnostic immunology course, and also to inform them that it is a pleasure to have them again for a period of time learning about diagnostic immunology, hopping they realize how important it is.**
- **To let the student know the names of the teaching staff members; doctors, lecturers, technicians, and etc…. (Better if all will be available).**
- **To exhibit to the students the course objectives.**
- **To inform the students about the applied teaching skills (lectures, tutorials, laboratories, etc…).**
- **To inform the students about the laboratory safety and precautions.**
- **To inform the students about the required main references "textbooks, notes, journals, websites, etc….. for helping them in their studies.**
- **To inform the students about the laboratory reports.**
- **To inform students about the attendance, types and numbers of examinations, grades distributions, and grade scale etc…..**
- **Answering students questions and to clarify if there is any thing unclear to them.**

A welcome letter to my students

Welcome my sons and daughters. I would like to congratulate you for your completion of all the second year requirements successfully. I am happy to see you again to complete our journeys deep inside the ocean of the science of human immunity. After we all have obtained the boxes of treasures from the ocean in our three months journey, studying and evaluating each piece of the jewelry, and its value (s). We will continue our trip, but this time to inspect the damaged pieces in order to find out the causative agent (s), and the different ways of laboratory evaluating protocols. It is also to study why these damaged happed while this treasure was protected inside a contact box. To find answers to are the damaging agents come from outside the box? Or are they come from inside the box? Or are all jewelry was faked, or only several pieces only were faked and the other were pure gold?, finally to enumerate and study the various features of damages and classify them, to know the different laboratory protocols of diagnosis "detections" and evaluations. The entire faculty members participate in teaching this course hope you enjoy being in this course, and they will practice their experiences in delivering this course with you in a proper way. All the faculty teaching members including my will feel happy to guide you to learn through the electronic e-mail, office hours, and the tutorial sessions.

Dr. Mustafa Hasan Linjawi
Course coordinator

COURSE NUMBER: **MLT 308**

COURSE MEETING TIMES:

Lecture hours: **1 hours/week for 15 weeks (Total 15 hours)**

Practical hours: **1 hours/week for 15 weeks (Total 15 hours)**

Tutorial hours: **1 hours/week for 15 weeks (Total 15 hours)**

LECTURES ONE/WEEK	*PRACTICALS* ONE/WEEK	*TUTORIALS* ONE/WEEK
Tue 08:00-09:00 AM	Wed 02:00–04:00 PM (Group A+B)	Sat 2-3 PM (Group: A) Sun 2-3 PM (Group: B)

COURSE MEETING PLACES:

Third year classroom
Applied Medical Sciences Building
First floor
Room number 1E.008 / R.No. 873

ADDRESS:

http://www.kau.edu.sa/Mlinjawi

DESCRIPTION OF THE COURSE: *(what, why, philosophy)*

This course will provide a concept with a wider scale of understanding of abnormal immunological behaviors, and gained laboratory skills in dealing with protocols that requires automations to the medical laboratory technology students. Such knowledge and skills are well chosen, designed and arranged within the course in such a way to be as a prerequisite for the understanding and application of advanced clinical diagnostic training in hospitals at the fourth year. This will

provide both the educational and health sector with a confident, will skilled medical laboratory technologist.

TEACHING METHODOLOGY:

Class time will consist of lecture by the instructor and note taking by the student. Use of various audio visual aids, transparencies, handouts, videotapes, discussions, tutorials, assignments as "study cases", body languages, communication skills, and demonstrations will be employed. Students are exposed to a group discussion strategy in order to create his/her confident. During these sessions students are encouraged to ask questions and make comments relating to lecture materials. Also various laboratory sessions will be employed to stress proper and safe laboratory techniques.

COURSE OBJECTIVES

GENERAL OBJECTIVES:

Upon completion of this course the student should be able to:

1. Realize the important values of studying and understanding the immunological mechanisms performed by the different collections of immunological elements in the recognition of the abnormalities in human body, which caused due to infections, autoimmune diseases, immunodeficiencies, and hypersensitivities, and the role of diagnostic immunology in identifying the abnormalities causative agents, treatment, and prognosis.
2. Discuss the different protective immunological mechanisms against infective agents such as; viral, bacterial, fungal, protozoa, and parasitic organisms, and list of some of the laboratory procedure which usually used in the immunology laboratory for the purpose of identification of these microbes and health prognosis.
3. Realize the importance of knowing the normal concentrations values of different immunological elements which help in laboratory diagnosis.
4. Discuss the tolerance mechanisms; central thymic, post-thymic tolerance to self antigens, B-cell deletion, B-cell anergy, and the artificial tolerance, and explain in what will happen if the immune tolerance breakdown? List of some laboratory tests which help in evaluating the element of the immune system.

5. Explain the general immunobiology of the immunological processes involved in tissue transplantation, and its application in the development of clinical transplantation include in the explanation the mechanisms of graft rejection, prevention of graft rejection, clinical experiences, the association of HLA type with diseases, and list of some laboratory procedures help for preventing graft rejections.
6. Discuss the different inappropriate over activated immunological mechanisms (hypersensitivity reactions) that can cause inflammatory reactions and tissue damage, including in the discussion the classification of the hypersensitivity reactions, explain each type with giving examples, and list of laboratory diagnosis.
7. Explain the basis of autoimmunity, which occur when the immune system fail to distinguish between self and non self determinants, and result in the different autoimmune disease, include in the explanation the spectrum of autoimmune diseases, genetic factors, pathogenesis and etiology, diagnostic and prognostic value of autoantibodies, and list some immunological laboratory tests used for detection of some autoimmune diseases.
8. Discuss the basic role of the immune system in the recognition of abnormal (malignant) cells in the human body (Tumour immunology), including in the discussion the tumour antigens; tumour-associated antigens, tumour specific antigen, carcinofetal antigens, spontaneous tumor antigen, tumour markers, the incidence of cancer, e.g., the etiologic, viral, environmental factors, stages of carcinogenesis, the role of oncogenes, viral oncogenes, and tumour-suppressing genes, oncofetal, ectopic, enzymes, prostate specific antigen, and prostate acid phosphatases, and hormones, and explain the immunological mechanisms in destroying and eliminating these abnormal cells.
9. Realize the diagnostic and prognostic values of autoantibodies, and tumour markers.
10. Explain the basics of the different important immunodeficiency diseases, which result from failure of normal function, of one or more elements of the normal immune system, include in the explanation primary immunodeficiency (T, B, and combined Band T cells immunodeficiencies) with examples, secondary immunodeficiencies with examples, defects in phagocytosis, defect in complement proteins, and list the most important immunological laboratory tests used for detection of the different types of immunodeficiency diseases.
11. Recognize the importance the laboratory medical ethics, and realize the importance of the good attitude, and keep promoting this character.
12. Like immunology.

LEARNING RESOURCES

TEXT BOOKS & OTHER MATERIALS:

1- IMMUNOLOGY
ROITT I, BROSTOFF J, MALE D
Mosby
6th edition (Latest edition) 2002 G

(This textbook is the highly recommended for this course)

2- IMMUNOLOGY & SEROLOGY IN LAOBRATORY MEDICINE
MARY LOUISE TURGEON
Mosby
2nd edition (Latest edition if available would be better) 1996 G

OTHER SUGGESTED TEXTBOOKS:

1. CLINICAL IMMUNOLOGY PRINCIPLES AND LABORATORY DIAGNOSIS
CATHERINE SHEEHAN
Lippincott
2nd edition (Latest edition if available would be better) 1997 G

3. INFECTION AND IMMUNITY
JOHN PLAYFAIR. GREGORY BANCROFT
OXFORD
2ND edition (Latest edition) 2004 G

WORLD WIDE WEB SITES:

http://www.med.sc.edu:85/book/immunolsta.htm
http://www.jdaross.cwc.net/
http://www. Medscape.com

LABORATORY MATERIALS:

During each laboratory sessions practical procedure sheet will be distributed to all students.

LABORATORY LOCATION:

The college building (Faculty of Applied Medical Sciences)
First floor
Teaching laboratory number 3. D.020. Room no. 950/D-6/W-2 (1D.020)

ABORATORY HOURS:

PRACTICALS ONCE/WEEK
Sat 2:00-4:00 PM (Group B)
Wed 2:00-4:00 PM (Group A)

LABORATORY SAFETY PRECAUTIONS:

1. Handle all glassware, equipment and specimens with care.
2. Label all reagents and specimens properly and legibly.
3. Be mindful of your fellow students. Coordinate with other students when sharing of equipment or reagents. Help your fellow students when appropriate.
4. Keep a clean working area. Books, clothes, etc., and paper should not clutter the area.
5. Keep cabinet doors and drawers closed. Keep chair/tables recessed under cabinets when not in use.
6. Follow the guidelines for waste disposal (some items are discarded in regular trash cans, other are not). Avoid excess biohazrdous waste supplies and equipment to the appropriate areas.
7. Do not leave until you have cleaned up your work area and returned supplies and equipment to the appropriate areas. Disinfect your work area before and after lab session.
8. Treat laboratory reports as confidential medical information, which is not to be shared with unauthorized persons.
9. There will be no smoking and no eating or drinking.
10. Use proper universal precautions and infection control
11. Ware proper personal protective equipments when dealing with hazardous substances.

REQUIRED PURCHASES:

1. Laboratory coats.

2. **Text book and instructor's lecture and practical notes.**
3. **Gloves.**
4. **Waterproof markers.**
5. **A file for laboratory assignments.**

COURSE REQUIRMENTS & GRADING

COURSE REQUIREMENTS:

In order for students to successfully complete MLT 308 the following requirements must be met:

1. **Students must attend lectures and practical sessions consistently.**
2. **Take and pass two written tests, final written and practical examinations.**

ATTENDANCE:

Learning in this class is an active, ongoing process. Information will be presented in class that can not be effectively communicated by reading another student's notes. Students need to experience each class him/her self. His /her performance in class depends on a great deal on his /her attendance. It is important that students are on time, have few or no absences, and remain in class the full period. Attendance is taken at the beginning of class.

Some times in class quizzes or other graded activities occur. These may be individual or in groups, as determined by the instructor. If students miss a class in which one of these takes place, he or she has a zero for that quiz / activity.

WITHDRAWALS:

If a student wishes to withdraw for the course, it is this or her responsibility to inform the instructor. Appropriate withdrawal procedures will be followed. When a student accumulates unofficial absences in excess or two lectures or two labs or more, the instructor may, but is not obligated to file a withdrawal.

IMPORTANT NOTE:

If a student must be absent on the day of a test, he/she must notify the instructor prior to test time in order to be allowed to take a make-up test. A grade or zero (0) will be assigned if the instructor is not notified. If the student exceeds the maximum absences of 10%, this will result in his / her being dropped form the course.

2-48

EVALUATION STRATEGIES/GRADING

CONTINUOUS ASSESSMENT (40%)	
Practical Reports	2.0 %
Student activities	0.5 %
Quizzes	1.0 %
Attendance	0.5 %
Test 1	18.0 %
Test 2	18.0 %
FINAL EXAMINATION (60%)	
Final Practical Exam	20%
Final Written Exam	40%

GRADING SCALE:

The following grade scale applies throughout the course:
Excellent (A+) = 95 - 100 %

Excellent	(A)	= 90 - 94	%
Very good	(B^+)	= 85 – 89	%
Very good	(B)	= 80 - 84	%
Good	(C^+)	= 75 - 79	%
Good	(C)	= 70 – 74	%
High -Pass	(D^+)	= 65 - 69	%
Pass	(D)	= 60 - 64	%
Fail	(F)	= less than 60	%

IP = IN-PROGRESS

IC = IN-COMPLETE

DN = DENILE

NP = NOGRADE- PASS

NF = NOGRADE – FAIL

W = WITHDREWN

DETAILED COURSE SCHEDULE

NO.WK	DATE	LECTURE TITLES	READING ASSIGNMENT
9	Tues: 22/11/2008 G) Wed: 23/11/2008 G	IMMUNOLOGICAL MECHANISM I N TISSUE DAMAGE TYPE-II HYPERSENSITIVITY	TEXTBOOK
10	Tues: 29/11/2008 G Wed: 30/11/2008 G	IMMUNOLOGICAL MECHANISM I N TISSUE DAMAGE TYPE-III HYPERSENSITIVITY	
11	Tues: 06/12/2008 G Wed: 07/12/2008 G	IMMUNOLOGICAL MECHANISM I N TISSUE DAMAGE TYPE-IV HYPERSENSITIVITY	
12	Tues: 13/12/2008 G Wed: 14/12/2008 G	AUTOIMMUNITY AND AUTOIMMUNE DISEASE	TEXTBOOK
	☻ ☺ SECOND TEST SUNDAY 16-11-1426 H (18-DEC-2005 G) ONE HOUR 01:00 – 02:00 PM		
13	Tues: 20/12/2008 G Wed: 21/12/2008 G	THE IMMUNOLOGICAL MECHANISMS TO TUMOUR IMMUNOLOGY	TEXTBOOK
14	Tues: 27/12/2008 G Wed: 28/12/2008 G	ASSESSMENT OF AUTOANTIBODY	TEXTBOOK
15	Tues: 03/01/2009 G Wed: 04/01/2009 G	IMMUNODEFICIENCY DISORDERS	
	HAJJ HOLIDAY (STATRS WED 14-01-2006 TO 18-01-2006 G)		
6	Tues: 18/10/2008 G)	IMMUNOLOGICAL TOLERANCE	TEXTBOOK
7	Tues: 25/10/2008 G	TRANSPLANTATION AND REJECTION	TEXTBOOK
	EID-HOLIDAY (STARTS WED 26-10-2005 TO WED 9-11-2009 G)		
8	Tues: 15/11/2008 (M) Wed: 16/11/2008 (F)	IMMUNOLOGICAL MECHANISM I N TISSUE DAMAGE TYPE-I HYPERSENSITIVITY	
	☻ ☺ FIRST TEST MONDAY 12-10-1426 H (11-Nov-2005 G) ONE HOUR 01:00 – 02:00 PM		

FINAL WRITTEN EXAMINATIONS
SATURDAY 21-01-2009 G

☻ ☺ **Dates for Tests.**

Dr. MUSTAFA HASAN LINJAWI
COURSE COORDINATOR

PRACTICAL SESSION SCHEDULE

NUMBER Of WEEKS	DATES	TITLES	REDING MATERIAL	ASSIGNMENT DUE DATE
1	WED: 14-09-2008 ♂	COURSE DESCRIPTION ANSWERING STUDENT'S QUESTINS	----------	----------
2	WED: 21-09-2008 ♂	DESCIPTION OF AxSYM MACHINE AND ITS PRINCIPLE	Text book	25-09-2005
3 + 4 + 5	WED: 28-09-2008 ♂	HEPATITIS A PROFILE DETECTION BY USING AXSYM	Text book	02-10-2005
	WED: 05-10-2008 ♂	HEPATIIS B PROFILE DETECTION BY USING AXSYM	Text book	09-10-2005
	WED: 12-10-2008 ♂	HEPATITIS C PROFILE DETECTION BY USING AXSYM	Text book	16-10-2005
6	WED: 19-10-2008 ♂	HIV & ANTIBDIES DETECTION BY USING AXSYM Western blot	Text book	23-10-2005 ♀
7	WED: 26-10-2008♂	TORCH DETECTION BY USING AXSYM	Text book	13-11-2005
26-10-2009 G UP TO 09-11-2005 G RAMADAN & EID HOLIDAY				
8	WED: 16-11-2008 ♂	DESCIPTION OF BEHRING BEP III MACHINE AND ITS PRINCIPLE	Text book	16-11-2005
9 + 10	WED: 16-11-2008 ♂	HEPATIIS B PROFILE DETECTION BY USING BEHRING	Text book	20-11-2005
	WED: 23-11-2008 ♂	TOXO G & ROBELLA DETECTION BY USING BEHRING RPR AND TPHA	Text book	27-11-2005
11	WED: 30-11-2008♂	FLURESCENT MICROSCOPE DESCRIPTION & PRINCIPLE	Text book	04-12-2005
12 + 13	WED: 07-12-2008♂	ANTI-NUCLEA ANTIBODIES (ANA) ANTI-DAN ANTIBODIES	Text book	11-12-2005
	WED: 14-12-2008 ♂	ANTICARDIOLIPIN ANTI-BODIES (ACA) ANTI-CYTOPLAM ANTI-BODIES (ANCA)	Text book	18-12-2005
14	WED: 21-12-2008♂	NEPHLOMETRY DESCRIPTION & PRINCIPLE CRP/ RF/ ASO	Text book	25-12-2005
15	WED: 28-12-2008 ♂	IMMUNOGLOBULIN/ COMPLEMENTS (C3, AND C4)	Text book	28-12-2005
04-01-2009 G UPTO 19-01-2009 G HAJJ HOLIDAY				
21-01-2009G FINAL WRITTEN EXAMINATIONS				

Dr. MUSTAFA HASAN LINJAWI

COURSE COORDINATOR