# KOMAR UNIVERSITY OF SCIENCE AND TECHNOLOGY

| Immunology Lab Syllabus | | | |
|---|---|---|---|
| **Course Title** | **Immunology Lab** | | |
| **Course Code** | **MLS3225L** | **No. of Credits** | **2** |
| **Department** | **Medical Laboratory Science (MLS)** | **College** | **Science** |
| **Pre-requisites Course Code** | **Principles of Hematology & Lab - MLS2410C** | **Co-requisites Course Code** | **MLS3225-Theory** |
| **Course Coordinator(s)** | **Dr Salih Ahmed Hama** | | |
| **Email** | **salih.hama@komar.edu.iq** | **IP No.** | **116** |
| **Other Course Teacher(s)/Tutor(s)** | **Alan Ahmed [ alan.ahmed@komar.edu.iq ]** | | |
| **Learning Hours** | **Monday: 10:00 – 13:00 S1 Biology Lab**<br>**Thursday: 14:00 – 17:00 S2 Biology Lab** | | |
| **Contact Hours** | **To be arranged by email [234]** | | |
| **Course Type** | **Departmental course** | | |
| **Offer in Academic Year** | **Spring 2016** | | |

## COURSE DESCRIPTION

This course covers the basic practical aspects of immunity, antigens, antibodies, various serological reactions, techniques and their applications in laboratory diagnosis of human diseases.

Throughout the course, students learn to do different immunologic tests in a scientific manner. Moreover, the course focuses on enabling the students to correlate laboratory results with the patient's probable condition.

# KOMAR UNIVERSITY OF SCIENCE AND TECHNOLOGY
## (KUST)

## COURSE LEARNING OUTCOMES (NAACLS)

After participating in the course, students would be able to:

1. Apply methods of safety in the modern serological laboratories by putting away all reagents/supplies, washing laboratory glassware/slides, disinfecting work area upon completion of duties, and putting full biohazard bags in designated area. (A, D)
2. Read and correctly follow the instructions in reagent package leaflets, as needed, to obtain valid results. (B).
3. Apply and perform different immunological and serological tests according to the standard instructions. (B)
4. Correlate test results with patient condition(s). (E, F)
5. Evaluate laboratory test outcomes and determine the validity of the test results obtained. (D)
6. Communicate professionally with physicians, patients and staffs; considering the importance of patients' confidentiality. (B, C, F)

## GUIDELINES ON GRADING POLICY

| *Points* | *Percentage Scores* | *Grade* |
|---|---|---|
| *A* | *95–100* | *4.0* |
| *A-* | *90-94* | *3.7* |
| *B+* | *87–89* | *3.3* |
| *B* | *83-86* | *3.0* |
| *B-* | *80-82* | *2.7* |
| *C+* | *75–79* | *2.3* |
| *C* | *70-74* | *2.0* |
| *C-* | *65-69* | *1.7* |
| *D+* | *60–64* | *1.3* |
| *D* | *55-59* | *1.0* |
| *D-* | *50-54* | *0.7* |
| *F* | *0–49* | *0* |
| *I* | *Incomplete Course Work* | |
| *W* | *Official Withdrawal* | |

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## (KUST)

## COURSE TEACHING AND LEARNING ACTIVITIES

**Course Teaching and Learning Activities: (short description)**

This course is carried out once a week. Allocated duration is 3 hours to be spent in Lab. Within the first 10-15 minutes, students might take a quiz. Reports will be submitted by the students, then the instructor will explain the idea, principle, and procedure of the experiment which can last for about an hour.

Instruction of the course will include:

- Utilization of power point presentation
- Board space usage when more explanation is required
- Laboratory exercises; using available Lab equipment, tools and facility

There will be in Lab group presentation, where students are requested to present a relevant interesting topic of their choice to the audience.

## COURSE ASSESSMENT Tools

| Assessment Method | Assessment Weight |
|---|---|
| Quizzes | 10% |
| Presentation | 10% |
| Homework | 5% |
| In-Class Activities | 10% |
| Midterm Exam | 20% |
| Reports | 15% |
| Final Exam | 30% |
| **Total** | **100%** |

**Grading: Passing Grade: 65%**

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## (KUST)

**ESSENTIAL READINGS: (Journals, textbooks, website addresses etc.)**

**Textbooks:**

**Laboratory Manual of Immunology,** Salih Ahmed & Alan Ahmed**,** 2016.

**References:**

Frank C. Hay & Olwyn M.R. Westwood, **Practical Immunology**, 4th edition, 2002

Peter J. Delves**,** *et al*., **Roitt's Essential immunology**, 12th edition, 2011

Louise Hawley, *et al*., **Microbiology and Immunology,** 6th edition 2014

Engelkirk, P. G. & Duben-Engelkirk J., **Burton's Microbiology for the Health Sciences**, 9th edition, 2011

**COURSE POLICY** ***(including plagiarism, academic honesty, attendance etc)***

**Attendance:**

- Students are expected to attend all Labs, tests, quizzes, and practical exercises.
- Student must arrange with the faculty to make-up the missed lab, if he/she has an official leave.
- Students are subject to the regulation and policies mentioned in the **KUST Student Handbook.**
- KUST guidelines for lateness are as follows: Three occasions of lateness count as one absence. (You can be considered late after the first 5 minutes of the Lab).

**GUIDELINES FOR SUCCESS**

1. Read the experiments in your manual before you attend the lab and don't depend on your mate to explain the experiment steps for you.
2. Do the task at home before you attend the lab (show your work to your instructor) that will help you not to spend a lot of time during the lab.
3. Students will work as a group of 2 which will help them to distribute the tasks equally.
4. Pay a full attention in the lab when your instructor explains the exercise.
5. Ask questions when something is not clear.
6. Follow up the results of your exercise and collect the data on time, this will help you write and submit your report in a proper way.
7. Attend every lab, discussion, and lab actively.
8. Spend at least 2-3 hours each day for studying and doing homework.

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## (KUST)

### Course Schedule

| W | Due Date | Chapter/ Section | Assignments | | CLOs |
|---|---|---|---|---|---|
| 1 | 29/2 & 3/3 | Intro. to Immunology; Serial Dilution | | | 1, 6 |
| 2 | 7/3 & 10/3 | Total & Differential WBC Counts | | | 1, 2, 4, 5 |
| 3 | 14/3 & 17/3 | Phagocytosis | **Report 1 - W2** | | 1, 2, 4, 5 |
| 4 | 28/3 & 31/3 | Antibacterial Activity of serum | **Report 2 - W3** | | 1, 2, 3, 4, 5 |
| 5 | 4/4 & 7/4 | Blood Group | **Report 3- W4** | | 1, 2, 3, 5, 6 |
| 6 | 11/4 & 14/4 | ASO & RF tests | **Report 4- W5** | | 1, 2, 3, 4, 5, 6 |
| 7 | 18/4 & 21/4 | CRP test | **Report 5- W6** | **Presentation 1** | 6 |
| | | **Midterm Exam** | | | 1, 2, 3, 4, 5, 6 |
| 8 | 2/5 & 5/5 | Rose Bengal & Typhoid tests | **Report 6- W7** | | 1, 2, 3, 4, 5, 6 |
| 9 | 9/5 & 12/5 | Anti-human Antibody | **Report 7- W8** | | 1, 2, 3, 4, 5, 6 |
| 10 | 16/5 & 19/5 | Comb's test (Direct and indirect test) | **Report 8- W9** | | 1, 2, 3, 4, 5, 6 |
| 11 | 23/5 & 26/5 | Pregnancy test (Urine and serum) | **Report 9- W10** | | 1, 2, 3, 4, 5, 6 |
| 12 | 30/5 & 2/6 | Precipitin Test | **Report 10-W11** | **Presentation 2** | 6 |
| 13 | 6/6 & 9/6 | ELISA | | | 1, 2, 3, 4, 5, 6 |
| 14 | 13/6 & 16/6 | ELISA | **Report 11- W13** | | 1, 2, 3, 4, 5, 6 |
| 15 | 20/6 & 23/6 | Revision week | | | |
| 16 | | **Final Exam** | | | 1, 2, 3, 4, 5, 6 |