KOMAR UNIVERSITY OF SCIENCE AND TECHNOLOGY
(KUST)

Human Physiology Syllabus			
Course Title	**Human Physiology and Lab**		
Course Code	**MLS 2415C**	**No. of Credits**	**4**
Department	**Medical Laboratory Science**	**College**	**Science**
Pre-requisites Course Code	**Human Biology BIO2311**	**Co-requisites Course Code**	**-**
Course Coordinator(s)	**Heshu Sulaiman Rahman**		
Email	**Heshu.sulaiman@komar.edu.iq**	**IP No.**	**-**
Other Course Teacher(s)/Tutor(s)	**None**		
Learning Hours	**Monday (16:00- 17:30), Hall 111** **Tuesday (13:00- 16:00), ……..Lab?** **Thursday (17:00- 18:30), Hall 112**		
Contact Hours	**Monday (13:00-16:00)** **Thursday (13:00-17:00)**		
Course Type	**Departmental course**		
Offer in Academic Year	**Spring 2016**		

COURSE DESCRIPTION

The human physiology course is designed to study anatomical details of each body system and more thoroughly in the laboratory than it is presented in lecture. The content in the course examines each of the body systems, and how they function together to maintain proper body functioning (Homeostasis). Each class period is structured to begin with a short introduction to the exercise that highlights the activities of the day, what materials are available for use and any changes in protocols. Labs excises are designed in way to reinforce the concepts of the theoretical lectures and together give a comprehensive knowledge to students about all issues related to physiology. This course provides solid background needed for future courses in the field of physiology within the MLS curriculum such as hematology, clinical biochemistry, and immunology.

COURSE OBJECTIVES

The principal objectives of the practical portion of this course are to:
- Provide an active learning environment to teach the basic principles of human physiology.
-Teach students the principles of experimental documentation.
- Provide students with a hands-on opportunity to use commonly used physiological monitoring equipment.
- Promote and encourage team work and collaboration among students in the lab.

COURSE LEARNING OUTCOMES

After participating in the course, students would be able to:
1- Practice safe procedures within a laboratory.
2- Understand and demonstrate anatomical position of body systems.
3- Differentiate between different types of tissues and describe their functions.
4- Identify anatomical structures of human body systems.
5- Understand pulmonary function testing and basic spirometry.
6- Effectively interpret the diagnostic laboratory tests.
7- Identify and utilize appropriate reference resources to clarify and expand knowledge of physiology and pathophysiology.

GUIDELINES ON GRADING POLICY

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

COURSE TEACHING AND LEARNING ACTIVITIES

This course is scheduled for **3 hours theory + 3 hours lab** per week. The theory part exactly followed by the given syllabus. After participating in this section, students would be able to understand and answer questions related to physiological world including cellular components and function, various body organ and system functions, blood and lymph physiology, with endocrine physiology. The laboratory activities will be given on the dates indicated in the lab schedule. The lab activities will be based upon lab material studied, i.e. lab exercises, review sheets, microscope slides, dissection material and interactive lecture. Moreover, students will practice the methods of conducting experiments related to physiological laboratories with a proper usage of laboratory equipment and supplies. Interpret the results of the experiments and evaluate their accuracy.

COURSE CONTENT

Course topics include:
1. Introduction to the science of physiology.
2. Cellular physiology.

3. The physiology of the blood.
4. The physiology of digestive system.
5. The physiology of respiratory system.
6. The physiology of urinary system.
7. The physiology of reproductive system.
8. The physiology of cardiovascular system.
9. The physiology of neuromuscular system.
10. The physiology of nervous system.
11. The physiology of endocrine system.
12. The physiology of lymphatic system.
13. Twelve exercises covering different topics of physiology laboratory.

COURSE REQUIREMENTS

1. Hard copies of theoretical lectures and laboratory manual.
2. Making notes about what will be discussed in the class/lab.
3. Reading the indicated chapters of the designated textbook for this course.
4. Wearing lab coats and following all laboratory safety rules and guidelines while working in the lab.

COURSE TEACHING AND LEARNING ACTIVITIES

The theoretical part of this course is scheduled for 3 hours/week in two equal split over two different days.
The lab components will be taught one time per week where students can spend up to 3 hours in lab. Reports will be collected and a quiz will be done within the first 10-15 minutes of the lab session then the instructor will spend about an hour to explain the idea, principle, and procedure of the experiment.
A complete semester is composed of 15 instructional weeks (excluding one week of Mid-term exams) followed by a final exam period. Instructional methods will include:
-Lectures and lab manual.
-Class/lab discussions and presentations.
-Written activities.
-Power Point presentations, animations, and Videos.
- Online learning materials and tools.

COURSE ASSESSMENT TOOLS

Assessment Tools	Description	Weight
Quizzes (5)	Students will take 7 quizzes over the course and the highest 5 quiz marks will be counted toward the final grade.	**10%**
Class activities	Student's attendance and participation during the lecture including lecture presentation, asking/answering question, etc will be considered and awarded throughout the course.	**5%**
Mid-term Exam	There will be no classes during this week. Students will take a central Mid-term exam organized and supervised by the exam committee. The exam may include definitions, filling blanks, multiple-choices, true/false, short answers, enumerations, illustrations, etc.	**20%**
Tests (2)	During the course schedule, students will take 2 tests, one before and one after the Mid-term exam. The test may include definitions, filling blanks, multiple-choices, true/false, short answers, illustrations, etc.	**10%**
Laboratory work	Laboratory topics and experiments are coordinated in a way to complete each other and to reinforce the concepts introduced in	**25%**

	lecture portion. Topics, assessment tolls, and other information related to the lab are presented at the end of this document.	
Final Exam	The exam will be close book and no materials are allowed, except those permitted by the exam committee. All materials taught during the course are required for the final exam.	**30%**
Total		**100%**

Grading: Passing Grade: 65%

ESSENTIAL READINGS: (JOURNALS, TEXT BOOKS, WEBSITE ADDRESSES, etc.....)

Textbooks:

Name of the Textbook: **Human physiology: from cells to systems, 8th edition**
Authors: Sherwood, Lauralee.
Publisher: Yolanda Cossio
ISBN: 9781111577438
Year: 2010.

References:

1. Title: **Guyton and Hall textbook of medical physiology.**
Authors: Hall, John E.
Edition: 13th
ISBN: 978-1416045748
Year: 2010.

2. Title: Ganong's review of medical physiology.

Authors: Ganong, W. F., & Barrett, K. E.
Edition: 24th
ISBN: 978-0071780032
Year: 2005

3. Title: **Human Physiology Lab Manual.**
Authors: Stuart Fox
Edition: 9th
ISBN: 978-0077427320
Year: 2013

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

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

Any kind of dishonesty and/or plagiarism is not acceptable and will be dealt with according to the KUST's Academic Policy.

Attendance:

-Students registered for this course are expected to attend all lectures and quizzes, and practical exercises.

- There is no make-up work for students who miss classes without official permission.

- Students are subject to the regulation and policies mentioned in the KUST Student Handbook available on:

-Students must take the practical in the lab section for which they are registered.

-Most labs will begin with quiz, and all quizzes will cover the information on the previous week's handout.

-Spelling counts on all quiz and practical.

-The lowest quiz score will be dropped from the final grade.

-It is imperative that student read the assignments before coming to the lab.

-There is no make-up work for students who miss classes without official permission.

-Students who have official permission must arrange with the instructor to make-up the missed class/lab/test.

-KUST guidelines for lateness are as follows: Three occasions of lateness count as one absence. You can be considered late after 5 minutes of the lecture time. More than 5 minutes lateness can be considered as absent but you may still be allowed to sit in the class.

GUIDELINES FOR SUCCESS

1. Work both independently and in groups of your peers, who can help you understand the course material**.**
2. Attend every lecture, discussion, and lab.
3. Make every effort to interact with your class partner(s).
4. Try to stay active throughout the class period.
5. Don't hesitate to ask questions in class.
6. Put your fair share of efforts in preparing the term projects and the term paper.
7. Be cooperative at all times.
8. Spend at least 2-3 hours each day for studying and doing homework.

CELL PHONES

All cell phones and beepers are expected to be switched to vibrating mode if available and turned off completely if this feature is not an option. Disruption of class due to beepers or a cell phone will not be tolerated and the student may be asked to leave the class. All other electronic equipment that the faculty member deems not essential to the provision of academic learning is prohibited from being used in class.

REVISION TO THE SYLLABUS

This syllabus is subject to slight changes. It is the duty of the instructor to inform the students about the changes in a timely fashion after approval of Quality Assurance Office (QAO).

Course calendar: Please check the academic calendar for spring 2016 on OSAR's website https://docs.google.com/a/komar.edu.iq/viewer?a=v&pid=sites&srcid=a29tYXIuZWR1LmlxfG9zYXJ8Z3g6MTA1MmU2Mjk0NDM0ZTc0ZQ

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Human Physiology- Theory Schedule

Week	Lec	Chapter/ Section	Topics	Activities	Related CLOs
1	1	1	Introduction to physiology (definition, historical view, classification, categories).		2,3,4
	2	2	Cellular physiology (Hemostasis, cell morphology, contents, functions, organelles, layers).		2,3,4
2	3	3	Blood physiology-1 (blood cells, types, functions, specifications).	Quiz 1 (Lec 1, 2)	2,3,4
	4	3	Blood physiology-2 (specific terms, abnormalities).		2,3,4
3	5	4	Digestive system physiology -1 (upper parts, phases, organs, functions).	Quiz 2 (Lec 3, 4)	2,3,4
	6	4	Digestive system physiology -2 (lower parts, organs, functions).		2,3,4
4			**Test I: Lecs 1-6**	**No class**	
	7	4	Digestive system physiology -3 (accessory organs: liver, pancrease, salivary glands).		2,3,4
5	8	5	Respiratory system physiology-1 (zones, upper organs, functions).		2,3,4,5
	9	5	Respiratory system physiology-2 (stages, levels, cellular respiration, acid base balance).		2,3,4,5
6	10	6	Urinary system physiology-1 (organs and their fuctions).	Quiz 3 (Lec 8, 9)	2,3,4
	11	6	Urinary system physiology-2 (urine formation and glomerular filtration, relating hormones).		2,3,4
7	12		Revision	Quiz 4 (Lec 10, 11)	
	13		Revision		
8			**Midterm Exam: Lectures 1-13**	**No class**	
	14	7	Reproductive system physiology-1 (male genital organs and their specific functions).		2,3,4
9	15	7	Reproductive system physiology-2 (female genital organs and their specific functions).		2,3,4
	16	8	Cardiovascular system physiology-1 (organs and their specific functions).	Quiz 5 (Lec 14, 15)	2,3,4
10	17	8	Cardiovascular system physiology-2 (cardiac cycle, heart sounds, stroke volume and cardiac output).		2,3,4
			Test II: Lecs 14-17	**No class**	
11	18	9	Skeleto-muscular system physiology-1 (definition, types and classifications of bone and muscle).		2,3,4
	19	9	Skeleto-muscular system physiology-2 (Specific functions and components of bone and muscles).		2,3,4
12	20	10	Nervous system physiology-1 (general functions, types and classifications of neuron).	Quiz 6 (Lec 18, 19)	2,3,4
	21	10	Nervous system physiology-2 (anatomical division, central and peripheral nerve specific functions).		2,3,4
13	22	11	Endocrine system physiology-1 (general functions, organs, mechanisms of hormone action).	Quiz 7 (Lec 20, 21)	2,3,4

	23	**11**	Endocrine system physiology-2 (receptors, chemical classification of hormones, disorders).		2,3,4
14	**24**	**12**	Lymphatic system physiology-1 (organs and their specific functions).	Quiz 8 (Lec 22, 23)	2,3,4
	25	**12**	Lymphatic system physiology-2 (lymph nodes, locations and their roles in the body).		2,3,4
15	**26**		Revision		
	27		Revision		
Final Exam: All lectures					

Lab Assessment Tools

Assessment Tool	**Description**	**Weight**
Quizzes (5)	Students will take more than 5 quizzes but the highest 5 quiz's grades will be counted toward their final lab grade.	**5%**
Lab reports (10)	Students will submit a report for each lab or two related labs as indicated in the schedule. All the reports will be counted toward the final lab grade.	**10%**
Technical work	Students will be evaluated based on their technical performance in the lab. Several points will be considered including application of safety rules and guidelines, work quality, team work and attitude, following up the results, tidiness, etc.	**3%**
Final test	One test will be conducted at the end of the semester. The test may include microscope slide preparation/identification, multiple-choice questions, labeling of figures, short answers, problem solving etc	**7%**
Total		**25 %**

Human Physiology- Lab Schedule

Week	**Topics**	**Activities**	**Related CLOs**
1	Introduction to the physiology lab (Rules for laboratory experiments, laboratory Safety Signs/Labels and laboratory reports).	No lab work	1,6,7
2	Sample collection and preservation		1,6,7
3	Osmosis Across Plasma Membrane	Lab report 1 + Quiz Lec 2	1,6,7
4	Bleeding time and clotting time	Lab report 2 + Quiz Lec 3	1,6,7
5	Blood Pressure	Lab report 3 + Quiz Lec 4	1,6,7,5
6	Cardiovascular effects of exercise	Lab report 4 + Quiz Lec 5	1,6,7
7	Electrocardiogram and heart sounds	Lab report 5	1,6,7,5
	Midterm Exam	No lab	
8	Clinical examination of vision		1,6,7
9	Pancreas function and insulin shock	Lab report 6 + Quiz Lec 8	1,6,7

10	Body fluids	Lab report 7 + Quiz Lec 9	1,6,7
11	Urinalysis (Physical characteristics)	Lab report 8 + Quiz Lec 10	1,6,7
12	Urinalysis (chemical characteristics)	Lab report 9 + Quiz Lec 11	1,6,7
13	Revision	Lab report 10	1,6,7
14	**Test: All exercises**		