

1. Course Name:	
Biochemistry1	
2. Course Code:	
3. Semester / Year:	
First term for second year students	
4. Description Preparation Date:	
2025 /1/6	
5. Available Attendance Forms:	
Personal attendance	
6. Number of Credit Hours (Total) / Number of Units (Total):	
30 Hours theoretical +60 hours practical / 4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Eyad Ali Othman Email: dr.ieadothman@gmail.com Eyad-othman@alayer.edu.iq	
8. Course Objectives	
Course Objectives	- General goal: To give an idea and basic information in clinical chemistry and develop skills The student's skill in pathological analyses. - Specific objective: For the student to be able to perform clinical examinations and be knowledgeable Preparing different solutions.
9. Teaching and Learning Strategies	
Strategy	- Enhance students' understanding of the basics of life chemistry and its applications. - Developing students' critical and analytical thinking. - Preparing students to link theoretical and practical concepts and use them in daily life and professional disciplines.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Syllabus of The Theoretical Course					
1	2	-The student acquires useful information about the metabolism process in the body	Introduction of biochemistry, Metabolism (Anabolism & Catabolism), Production of Energy	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports. 4- Mid-term exam 5- Final exam
2	2	-The student acquires information about the metabolic process in the body during illness or during stress and its deviations compared to the healthy state	Biochemistry and metabolism in illness and recovery. Obesity. Stress. Exercises	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
3	2	-The student acquires information about the metabolic process in the body during illness or during stress and its deviations compared to the healthy state	Biochemistry and metabolism in illness and recovery. Obesity. Stress. Exercises	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
4	2	-The student acquires information about the importance of food	Biochemistry nutrition. dietary. Its direct effect		1-Multiple choice questions.

		compounds in the body and their impact on maintaining public health and preventing nutritional diseases.	with maintain health and preventive 4, 5 medicine.		2- Oral exam and direct questions in class. 3- Laboratory work reports.
5	2	-The student acquires information about the importance of food compounds in the body and their impact on maintaining public health and preventing nutritional diseases.	Biochemistry nutrition. dietary. Its direct effect with maintain health and preventive 4, 5 medicine.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
6	2	-The student acquires information about the importance of biochemistry and its interconnection with all sciences.	Biochemistry has A Biochemical Basis in all diseases and sciences	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
7	2	-The student acquires information about the importance of biochemistry and its interconnection with all sciences.	Biochemistry has A Biochemical Basis in all diseases and sciences	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
8	2	The student gains information about the importance of pH stability in the body	Biochemistry at Water PH , acid base balance	1-The teacher prepares lectures about the lecture in paper and electronic	1-Multiple choice questions. 2- Oral exam and direct

				form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	questions in class. 3- Laboratory work reports.
9	2	The student gains information about the importance of electrolytes in the body and their role.	Biochemistry and electrolytes	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
10	2	The student gains information about the importance of carbohydrate metabolism in the body.	Metabolism of Carbohydrate: 1)MonoSaccharides, Disaccharides and polysaccharides 2)pentose phosphate pathway 3)Glucosamine lycans. 4)proteoglycans and glycoproteins	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
11	2	The student gains information about the importance of carbohydrate metabolism in the body.	Metabolism of Carbohydrate: 1)MonoSaccharides, Disaccharides and polysaccharides 2)pentose phosphate pathway 3)Glucosamine lycans. 4)proteoglycans and glycoproteins	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.

12	2	The student gains information about the importance of ATP resulting from carbohydrate metabolism and its role in the body.	ATP Synthesis The Role of ATP in Carbohydrate reactions	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
13	2	The student acquires information about the definition of fats, their types, and their metabolism	Lipids. * Biosynthesis, oxidation and Types of Lipids. Metabolism of glycerol	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
14	2	The student acquires information about the definition of fats, their types, and their metabolism	Lipids. * Biosynthesis, oxidation and Types of Lipids. Metabolism of glycerol	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
15	2	The student acquires information about the definition of fats, their types, and their metabolism	Lipids. * Biosynthesis, oxidation and Types of Lipids. Metabolism of glycerol	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.

				basic vocabulary of the subject.	
Syllabus of The Practical Course					
1	4	The student learns how to collect and preserve test Specimen	Specimen Collection [blood, urine, CSF].	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
2	4	The student learns how to collect and preserve test Specimen	Specimen Collection [blood, urine, CSF].	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
3	4	The student learns how to transport and handle test samples	Specimen Transport and Specimen Processing.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
4	4	The student learns how to transport and handle test samples	Specimen Transport and Specimen Processing.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students.	1-Multiple choice questions. 2- Oral exam and direct

				2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	questions in class. 3- Laboratory work reports.
5	4	The student learns how to collect test samples	Blood collection techniques, Anticoagulant, Separation of Serum.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
6	4	The student learns the operating principles of some analytical devices used in the laboratory	Principles Of Instrumentation [photometer, Colorimetry and SpectrophotometryComponents]	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
7	4	The student learns how to detect carbohydrates	Carbohydrates tests	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	Multiple choice questions.

8	4	The student learns how to detect carbohydrates by reaction reactions	Molish test, Iodine test, Benedict's test and Barfoed test.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	Oral exam and direct questions in class.
9	4	The student learns some of the distinct reactions of carbohydrates	Seliwanoff's test, Osazone test, Athrone test and Dinitrosalicylic acid Method.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	Laboratory work reports.
10	4	The student learns some of the distinct reactions of carbohydrates	Roe's method, Fehling's test, Somogyi-Nelson method and Mucic acid test.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	Multiple choice questions.
11	4	The student learns some of the distinctive interactions of types of amino acids	Amino acids tests	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory

				3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	work reports.
12	4	The student learns some of the distinctive interactions of types of amino acids	Ninhydrin Test, Isatin Test and Xanthoprotic test.	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
13	4	The student learns some of the distinctive interactions of types of amino acids	Pauly's diazo test, Sakaguchi Test, Millon's Test	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
14	4	The student learns some of the distinctive interactions of types of amino acids	Pauly's diazo test, Sakaguchi Test, Millon's Test	1-The teacher prepares lectures about the lecture in paper and electronic form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	1-Multiple choice questions. 2- Oral exam and direct questions in class. 3- Laboratory work reports.
15	4	The student learns some of the distinctive	Ehrlich Test, Nitroprusside Test, Sullivan and McCarthy's Test	1-The teacher prepares lectures about the lecture in paper and electronic	1-Multiple choice questions.

		interactions of types of amino acids		form and presents them to the students. 2- The teacher delivers lectures in detail. 3- The teacher requests reports and homework assignments on the basic vocabulary of the subject.	2- Oral exam and direct questions in class. 3- Laboratory work reports.
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11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1- Clinical Biochemistry Lecture notes .Geoffrey Beckett. Ninth Edition. A John Wiley & Sons, Ltd., Publication 2-Text book of Biochemistry for medical students Prasad R Manjeshwar. Revised Furth Edition 2016 3- Harper's Illustrated. Biochemistry. LANGE medical book Twenty-sixth edition. Robert K. Murray, Daryl K. Granner. Peter A. Mayes, Victor W. Rod well, PhD 4-Lippincott's. Illustrated Reviews: Biochemistry. Fifth Edition
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

1. Course Name:					
General Human Histology					
2. Course Code:					
3. Semester / Year:					
First Semester/ Second Year					
4. Description Preparation Date:					
5 / 1/ 2025					
5. Available Attendance Forms:					
Practical + Theory					
6. Number of Credit Hours (Total) /					
60 Hours Number of Units (Total): 4 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Lec. Ali Abdul Hussein Khalaf					
Email: alialhussein222@gmail.com					
8. Course Objectives					
Course Objectives			- Introducing the student to all types of basic tissues and the cells that compose them in the human body. - Classifying cells by studying the shape of the cells that form the tissues and the basic function of these cells, which form the various tissues and organs of the human body. - Enabling the student to examine thin slices of tissue under a light microscope.		
9. Teaching and Learning Strategies					
Strategy		- Enabling the student to prepare tissue slides in the laboratory - The student acquires the necessary skills in how to use the light microscope to view tissue slices and study tissue structure - Holding discussion dialogues with students - Giving traditional lectures through data show.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Syllabus of The Theoretical Course					

1	2 Hours	Enabling the student to know the basic tissues in the body and how to classify them	Introduction and overview of methods used in histology, Classification of Histology, Tissue preparation	Lectures and presentations	Rapid daily, monthly and quarterly tests
2	2 Hours	Knowing the structure of cells and their types	Overview of Cell structure & types	Lectures and presentations	Rapid daily, monthly and quarterly tests
3	2 Hours	Knowing concepts and classifications of primary tissues	Tissues: Concept and classifications of primary tissues	Lectures and presentations	Rapid daily, monthly and quarterly tests
4	2 Hours	Knowing the epithelial tissues, their types and composition	Epithelial tissue: Simple Ep. T. , Compound Ep. T.	Lectures and presentations	Rapid daily, monthly and quarterly tests
5	2 Hours	Knowing glandular tissues, their types and composition	The glandular Tissues (The Glands)	Lectures and presentations	Rapid daily, monthly and quarterly tests
6	2 Hours	Knowing connective or supporting tissues, their types and composition	Connective and Supportive Tissue: Embryonic and adult C.T.	Lectures and presentations	Rapid daily, monthly and quarterly tests
7	2 Hours	knowing connective Tissue proper	Connective Tissue proper (General C.T.)	Lectures and presentations	Rapid daily, monthly and quarterly tests
8	2 Hours	Learn about cartilage growth and cartilage repair.	Cartilage, Histogenesis, Growth and repair of cartilage	Lectures and presentations	Rapid daily, monthly and quarterly tests
9	2 Hours	Knowing the bones and how bone is formed	Bone & Histogenesis of Bone	Lectures and presentations	Rapid daily, monthly and quarterly tests
10	2 Hours	Identify blood tissue and composition	The Blood	Lectures and presentations	Rapid daily, monthly and quarterly tests
11	2 Hours	Identify the blood forming organ and blood cell formation	The hemopoietin organ (bone marrow), Formation of blood cells.	Lectures and presentations	Rapid daily, monthly and quarterly tests
12	2 Hours	Knowing the Muscular tissues, their types and composition	Muscular tissue	Lectures and presentations	Rapid daily, monthly and quarterly tests
13	2 Hours	Knowing the nervous system, its types	Nervous tissue: Overview of nervous system (CNS & PNS)	Lectures and presentations	Rapid daily, monthly and quarterly tests
14	2 Hours	Identifying neurons, their types and classification	Nervous system: the Nerve cells (neurons) and their classification	Lectures and presentations	Rapid daily, monthly and quarterly tests

15	2 Hours	Know the support cells in the nervous system	Supporting cells of nervous system	Lectures and presentations	Rapid daily, monthly and quarterly tests
Syllabus of The Practical Course					
1	2 Hours	Enabling the student to use the microscope correctly and identify the parts of the microscope	Microscope: study the microscope parts of types and lines, how can be used	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
2	2 Hours	Teaching the student the steps for preparing histological slides	Preparation of slides, methods and materials used	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
3	2 Hours	Viewing a slide of epithelial tissue under the microscope	Epithelial tissue	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
4	2 Hours	Viewing a slide of epithelial tissue under the microscope	Epithelial tissue	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
5	2 Hours	Viewing a slide of glandular tissue under the microscope	The Glands	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
6	2 Hours	Viewing a slide of glandular tissue under the microscope	The Glands	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
7	2 Hours	Viewing a slide of connective tissue under the microscope	Connective tissue	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
8	2 Hours	Viewing a slide of connective tissue under the microscope	Connective tissue	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
9	2 Hours	Viewing a slide of cartilage under the microscope	Cartilage	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
10	2 Hours	Viewing a slide of bone tissue under the microscope	Bone, bone marrow	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
11	2 Hours	Viewing a slide of bone tissue under the microscope	Bone, bone marrow	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
12	2 Hours	Viewing a slide of bone tissue under the microscope	Bone, bone marrow	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
13	2 Hours	Viewing a slide of muscle tissue under the microscope	Muscular tissue	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
14	2 Hours	Viewing a slide of nerve tissue under the microscope	Nervous tissue	Practical experiences and presentations	Rapid daily, monthly and quarterly tests
15	2 Hours	Viewing a slide of brain and spinal	Brain, spinal cords, mening	Practical experiences and	Rapid daily, monthly and quarterly tests

		cord tissue under the microscope		presentations	
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			James S. Lowe, Peter G. Anderson - Stevens & Lowe's Human Histology-Mosby (2015)		
Main references (sources)					
Recommended books and references (scientific journals, reports...)			Victor p. Eroschenko, difiore's atlas of histology with functional correlations eleventh edition.		
Electronic References, Websites			https://www.ncbi.nlm.nih.gov/books/NBK557663/ https://www.cancer.gov/publications/dictionaries/cancer-terms/def/histology		

1. Course Name:	
Human Physiology (1)	
2. Course Code:	
Physiology - 2025	
3. Semester / Year:	
First Semester / 2024-2025	
4. Description Preparation Date:	
25 /1/11 /15	
5. Available Attendance Forms:	
Live lectures (in-person) + Al Ain University platform + (google classroom) + educational technology	
6. Number of Credit Hours (Total) / Number of Units (Total):	
30 Hours theoretical +60 hours practical / 4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Salim A.S. Al Mosawi Email: salim.abdullah@alayer.edu.iq	
8. Course Objectives	
Course Objectives	• Identify the functions of the different body systems. • Describe the mechanism of action of the different body systems and the sequence of physiological events associated with them. • Estimate the normal values of vital activities in relation to different biological conditions. • Distinguish between the normal and abnormal functions of the different body systems. • Explain the amount of change in the normal functions of the different body systems and their pathological conditions. • Expand knowledge through periodicals, medical books and the Internet. • Apply the basic scientific building blocks acquired to conduct scientific research and medical studies. • Identify the functions of the different body systems. • Describe the mechanism of action of the different body systems and the sequence of physiological events associated with them.
9. Teaching and Learning Strategies	
Strategy	• In-person teaching (lecture). • Small scientific circles discussions • Scientific activities, meals and assignments Al Ain University platform • Blended learning and e-learning (google Classroom). • Interactive lecture using PowerPoint • Daily and monthly tests and quiz

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Syllabus of The Theoretical Course					
1	2	Definition of Human Physiology	General Introduction to Physiology Cell Physiology: General Functions, Cell Membrane Transport	Lecture & PowerPoint	Quiz
2	2	Knowledge of the branches of physiology and the basic sciences associated with it	General Idea about Body fluids: Types, Composition, and Functions. Unit of Measurement, Conversion and Conversion factor.	Lecture	Extracurricular activity
3	2	Expand students' awareness of blood and its components	Blood: Composition, Specific Functions of each Compartment. Plasma and Serum Differences and Separation.	Lecture & Blended learning	Electronic test
4	2	Developing students' abilities to understand the concept of hemoglobin and methods of measuring it	RBCs: Definition, Structure, and Normal Value; Hb Definition, Structure, and Normal Value; Blood Groups.	Lecture & PowerPoint	Quiz
5	2	Identify the formation of red blood cells, their function and death	Erythropoiesis, Homeostasis, Death and Disposal.	Lecture Film Video	Mobile Test
6	2	Learn about the types of blood cells and their functions	White Blood Cells: Classification, Specific Function, Normal Value.	Lecture	Discussion Selectivity
7	2	Providing students with information about the function of platelets.	Platelet: Definition, Function, Normal Value, Thrombopoiesis and Hemostasis.	Lecture	Lecture + electronic test
8	2	Developing scientific thinking skills and performance experiences for measuring pressure	Heart Physiology: Conductive System, Cardiac Output (Mechanics and Control), and Factor Affecting.	Lecture	semester test
9	2	Identify the path of blood in the	Vascular (Blood Vessels) Physiology: Mechanics	Lecture + Data show	Interactive electronic test

		systemic circulation	and Control; Blood Pressure; and Factor Affecting.		
10	2	Identify the lymphatic system, its function and components - Training on the use of measuring devices	Vascular (Blood Vessels) Physiology: Mechanics and Control; Blood Pressure; and Factor Affecting.	Lecture Blended learning	Write a summary of the most important ideas
11	2	Identify the lymphatic system, its function and components - Training on the use of measuring devices	Lymphatic Physiology: Organs: Composition, Function of Each part. Lymph: Structure, Hemodynamic and Factor Affecting their Movement.	Lecture Film Video	Oral questions
12	2	- Gaining information about the functions of the respiratory system organs.	Respiratory Physiology: Parts and Specific Functions; Ventilation: Mechanics and Control.	Lecture	Discussion and dialogue
13	2	- Knowing the mechanism of gas transfer from the respiratory system organs and blood.	External Respiration, Gas Blood Transport, Internal Respiration: Mechanics, Control and Factor affecting.	Lecture Film video	Quiz الالكتروني
14	2	- Identify the normal size of the lung and its main function.	Lung Volumes: Normal Values and Factor Affecting; Conscious and Unconscious Control of Respiration. Role of Pons and Medulla in Respiratory Transient.	Lecture	Multiple Choice Exam MCQ Paper
15	2	- Gaining information for the chemical balance of the body's organs	Acid-Base Balance: Definition, Buffer Systems, and Role of Body Systems In the Regulation.	Lecture	Discussion and dialogue
Syllabus of The Practical Course					
1	2	Conduct a practical experience in person	Introduction: Characteristics of good technician. How To avoid contamination of Specimen and Technician.	General guidelines and instructions	Distribution and division of groups
2	2	Video presentation of the preparation steps	Specimen: Type, Collection, and Preparation.	- Knowing how to prepare samples and reports	Prepare a report

			Specimen identification Lab Reports: Types and righting		
3	2	Conduct a practical experience in person	Basic steps for drawing a blood specimen by venipuncture. Complications of venipuncture. Blood collection by skin punctures (Capillary Blood). Types of Syringes used in blood collection. Patient care after blood collection.	- Gaining information on the steps of withdrawing blood using scientific methods.	Practical test for blood drawing
4	2	Conduct a practical experience in person	Repeat: Blood drawing.	- Developing blood drawing skills	Practical test for blood drawing
5	2	Conduct a practical experience in person	Blood sample Hemolysis: Reasons and how to avoid. Blood Coagulants: Types and uses. (EDTA, Citrate, Oxalate, Heparin, sodium fluoride).	- Knowing the causes of blood hemolysis. - Knowing the chemical compounds that prevent blood clotting.	Direct performance evaluation of each group
6	2	Video presentation of the causes of blood sample rejection. - Conducting a practical experiment	Specimen rejection: Reason and How to avoid. Type of anticoagulant used and their effect on Blood Cell Morphology.	- Identify the causes of sample rejection. - Know the types of substances that cause blood clotting.	Evaluating student performance with a short test
7	2	Conduct a practical experiment for each student in the group.	Blood separation to Cells plasma& serum. Transport, and storage blood sample	Learn the steps to separate blood into its components	Evaluate the results of the reports for each group.
8	2	Conduct a practical experiment for each student in the group.	Blood Smear: Preparation and Importance.	- Knowing how to prepare blood serum and its importance	Evaluating student performance with a short test
9	2	Conduct a practical experiment for each student in the group.	PCV	- Knowledge of using compressed cell volume measuring tools	Evaluating student performance with a short test
10	2	Conduct a practical experiment for each student in the group.	Complete Blood Counts: RE Manual and Electronic Method.	- Training on the steps of counting red blood cells manually	Evaluating student performance with a short test
11	2	Conduct a practical experiment for	Complete Blood Counts: WBCs. Manual and Electron Method.	-Training on the steps of counting	Evaluating student performance

		each student in the group.		white blood cells manually	with a short test
12	2	Conduct a practical experiment for each student in the group.	Repeat: Blood Cells Count	- Training on white and red blood cell count	performance with a short test
13	2	Conduct a practical experiment for each student in the group.	Determination of Hemoglobin: Cyanmethemoglobin Method	- Gaining information for using spectrophotometers to detect hemoglobin.	performance with a short test
14	2	Conduct a practical experiment for each student in the group.	Determination of Hemoglobin: Electronic Method	- Training on using and reading the results of the color spectrum device.	performance with a short test
15	2	Conduct a practical experiment for each student in the group.	Repeat	Repeat	Oral exam

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Alkinany, Azza Sajid(2016) :. Introduction to Human Physiology, Dar Wael for Publishing m Amman.
Main references (sources)	Cindy L. Stanfield: Principles of Human Physiology, 6th edition, Tortora, Gerard J.; Derrickson, Bryan H.: Principles of Anatomy and Physiology, Control Systems of the Human Body Vol. 3, 10th Edition
Recommended books and references (scientific journals, reports...)	Martin Caon (2020): Examination Questions and Answers in Basic Anatomy and Physiology, School of Health Sciences Flinders University Bedford Park , South Australia , Australia
Electronic References, Websites	Physiology Lecture Slides San Diego Miramar College. https://www.youtube.com/watch?v=dlHrbHN7udg . UO physiology lecture to explore mechanics of walking Oregon News.

1. Course Name:	
Medical Bacteriology 1	
2. Course Code:	
3. Semester / Year:	
First Semester/ second year	
4. Description Preparation Date:	
10-01-2025	
5. Available Attendance Forms:	
Attendance in classroom	
6. Number of Credit Hours (Total) / Number of Units (Total):	
30 Hours theoretical +60 hours practical / 4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Abbass Houssein Haydar Email: abbass.haydar@alayen.edu.iq	
8. Course Objectives	
Course Objectives	By the end of this course, students will be able to: 1- Acquire knowledge about general structure and characteristics of bacteria 2- Identify pathogenic microorganisms, understand their diagnostic methods, the diseases they cause, and strategies for their control. 3- Recognize Gram positive pathogenic bacteria that affect various body systems, study their epidemiology and symptoms, and understand methods for controlling each disease.
9. Teaching and Learning Strategies	
Strategy	1- Interactive lectures supplemented by multimedia presentations, case studies, and real-life examples are used to illustrate key concepts and principles. 2- In addition to lectures, students engage in laboratory sessions where they gain hands-on experience in culturing, identifying, and analyzing bacterial specimens commonly encountered in clinical settings. These practical sessions are designed to reinforce theoretical knowledge and

	develop essential laboratory skills crucial for diagnosing infectious diseases.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Syllabus of The Theoretical Course					
1	2	Learn about the differences between eukaryotic and prokaryotic cells	Introduction and classification of bacteria	Interactive lectures supplemented by multimedia presentations	Oral evaluation
2	2	Learn about the main component and structure of the bacteria (flagella, pili, cell wall, ribosome, chromosome....)	Structure and function of bacterial components		Quiz
3	2	Acquiring information about the effect of physicochemical factors on bacterial growth (pH, temperature, presence of O ₂ , nutrients availability...). also, having knowledge about the different phases of bacterial growth curve.	Growth and death of bacteria		Oral evaluation
4	2	Having knowledge about the different culture medium types and their utilization	Culturing of bacteria and media types		Quiz
5	2	Developing knowledge about the presence of many biochemical pathway that can	Bacterial Physiology (Bacterial metabolism and Nutrient cycles)		Oral evaluation

		be used by bacteria to produce energy			
6	2	Learning about the difference between eukaryotic and prokaryotic chromosomes and genetic materials. Also, Acquiring information about the importance of plasmids for the bacteria.	Bacterial genetics		Quiz
7	2	Developing knowledge about virulence factors implicated in the pathogenesis of bacteria (toxins, iron acquisition, spreading inside the host...) Learn about good bacteria and their anatomical localization in/ on the body. Also, learning about the importance of these microflora for the human body.	Microbial virulence factors and microflora		Oral evaluation
8	2	Acquiring information about the different classes of antibiotics and about their mode of actions against the bacterial cells	Chemotherapy and antibiotic resistance		Quiz
9	2	Acquiring information about the principle of vaccination and about the method of preparation for each type of vaccines.	Vaccination		Oral evaluation

10-11	4	Learn about the pathophysiology and diagnosis procedure of Staphylococcus, Streptococcus and enterococcus.	Gram positive cocci: Staphylococcus, Streptococcus and enterococcus.		Quiz
12-13	4	Learn about the pathophysiology and diagnosis procedure of spore forming bacilli (Clostridium and Bacillus)	Gram positive spore forming bacilli (Clostridium and Bacillus)		Quiz
14-15	4	Learn about the pathophysiology and diagnosis procedure of Listeria and corynebacterium	Gram positive non spore forming bacilli (Listeria and Corynebacterium)		Quiz
Syllabus of The Practical Course					
1	2	-Understand lab safety protocols and the importance of biosafety levels. -Demonstrate familiarity with laboratory equipment and their uses. -Recognize the ethical considerations in microbiological work. -Understand the importance of accurate documentation and maintaining lab records.	Orientation microbiology lab	Provide pre-lab lectures	
2	2	-Explain the principles of sterilization and disinfection methods. -Differentiate between physical	Sterilization and disinfection	Provide pre-lab lectures and perform live demonstrations	Oral evaluation

		and chemical sterilization techniques. -Demonstrate proper use of autoclaves, UV light, and chemical disinfectants. -Evaluate the effectiveness of various sterilization methods.			
3	2	-Identify parts of a light microscope and explain their functions. -Understand the concepts of magnification, resolution, and focusing techniques. -Prepare and observe specimens under different magnifications.	The microscope	Provide pre-lab lectures and perform live demonstrations	Practical evaluation (asking students to prepare and observe slide)
4	2	-Explain the composition and purpose of different types of microbiological media. -Demonstrate proper preparation and sterilization of solid and liquid media. -Understand the role of selective, differential, and enrichment media in microbial growth.	Media preparation	Provide pre-lab lectures and perform live demonstrations	Practical evaluation (asking students to prepare growth media)
5	2	-Understand the principles of aseptic techniques and their importance in	Aseptic technique and culturing microbes. (Mixed culture)	Provide pre-lab lectures and perform live	

		avoiding contamination. -Demonstrate proper handling of sterile tools and media. -Perform inoculation techniques using solid and liquid media.		demonstrations	
6	2	-Describe the purpose of streak plate techniques in isolating pure cultures. -Demonstrate the proper method of streaking to separate microbial strains. -Recognize the importance of flame sterilization during streaking. -Analyze plates for single colonies and contamination.	Preparing streak plates to generate single colonies of strains from a mixed culture	Provide pre-lab lectures and perform live demonstrations	Practical evaluation (asking students to prepare streak plates)
7	2	- Understand the concept of microbial growth requirements (e.g., nutrients, pH, temperature). -Compare the growth of microorganisms on different media. -Interpret growth patterns to differentiate between selective and differential media effects.	Growth on different media		
8	2	-Describe the principles of Gram staining and its	Study colonial morphology and staining (Gram and	Provide pre-lab lectures and perform live	Practical evaluation (asking students to

		importance in microbiology. -Perform Gram staining and interpret results. -Differentiate between Gram-positive and Gram-negative bacteria.	other staining techniques)	demonstrations	identify the different shape of bacterial colonies and to do Gram staining)
9	2	-Explain the concept of viable counts and its importance in quantifying microbial populations. -Perform serial dilution and plate count techniques. -Calculate colony-forming units (CFU) accurately. -Recognize sources of error in viable count experiments and how to minimize them.	Viable counts	Provide pre-lab lectures and perform live demonstrations	Quiz
10	2	-Understand the phases of bacterial growth (lag, log, stationary, death). -Perform a growth curve experiment using a spectrophotometer or viable counts. -Analyze data to determine the generation time and growth rate.	Growth curve from liquid medium	Provide pre-lab lectures and perform live demonstrations	Oral evaluation
11	2	-Understand the principles of antibiotic action and resistance mechanisms. -Perform disk diffusion (Kirby-Bauer) assay.	Microbial sensitivity antibiotic	Provide pre-lab lectures and perform live demonstrations	Oral evaluation

		-Interpret zones of inhibition and categorize microorganisms as sensitive, intermediate, or resistant. -Discuss factors affecting antibiotic efficacy.			
12	2	-Recognize key morphological and biochemical features of Staphylococcus and Streptococcus species. -Perform Gram staining and catalase tests to differentiate between the two genera. -Conduct additional biochemical tests (e.g., coagulase for Staphylococcus; hemolysis patterns for Streptococcus).	Initial identification of Staphylococcus and Streptococcus	Provide pre-lab lectures and perform live demonstrations	Oral evaluation
13	2	-Identify the morphological characteristics of Listeria and Corynebacterium. -Perform Gram staining and observe cellular arrangements. -Conduct motility tests for Listeria and biochemical tests (e.g., CAMP test). -Differentiate between these genera based on cultural, biochemical, and	Initial identification of Listeria and Corynebacterium	Provide pre-lab lectures and perform live demonstrations	Oral evaluation

		morphological traits.			
14					
15					
11. Course Evaluation					
The student grades are distributed from 100 points to the full course and the student examines two university examinations. The midterm exam is for 40 points and divided according to the following: - 5 points of class participation and attendance - 15 points Written Practical Examination - 20 points Theoretical Examination The Final is for 60 points and divided according to the following: - 25 points for practical exam - 35 points for theoretical exam					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			Jawetz, Melnick, & Adelberg's Medical Microbiology, Twenty-Fifth Edition		
Recommended books and references (scientific journals, reports...)			Global Publishing Houses: Springer, Elsevier, pubmed		
Electronic References, Websites			microbenotes.com microbeonline.com		

Course Description Form

1. Course Name: Molecular Biology	
2. Course Code:	
3. Semester / Year: 1 st semester /2024 -2025	
4. Description Preparation Date: 10/2024	
5. Available Attendance Forms: Morning/evening	
6. Number of Credit Hours (Total) / Number of Units (Total) 5 unit	
7. Course administrator's name (mention all, if more than one name)	
Dr. Salam Hussein Ewaid <u>salam.hussein@alayen.edu.iq</u>	
8. Course Objectives	
Course Objectives	• A knowledge: • A1 The student will learn about the composition and function of genetic material. • A2 The student will learn about the principles and foundations of genetic expression. • A3 The student will learn about the basic foundations for the growth and reproduction of every living organism. • B– Skills: • B1 Isolating the genetic material DNA from primitive organisms. • B2 Isolating the genetic material DNA from eukaryotic organisms. • B3 Performing electrophoresis of molecules (DNA and protein). - C Ethics: • C 1: Trying to differentiate between scientific studies and social factors

	• C 2: Respecting religious traditions and social norms in biological studies • C3: Working as a team
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9. Teaching and Learning Strategies

Strategy	Lectures and practical lessons – outcome-based learning – learning project-based learning – group work-based learning – problem-based learning – community-based learning – self-learning.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2T + 4 P	The student will learn about the structure and function of genetic material.	Introduction to Molecular Biology applications in Medical Laboratory Techniques specialization	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
2 -4	2T + 4 P	The student learns the principles and foundations of gene expression.	Structure of Deoxyribonucleic acid (DNA) 1- Primary structure 2- Secondary structure 1- Tertiary structure and chromosome packing in human cells Structure of Ribonucleic acid (RNA)	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
5	2T + 4 P	The student will learn the principles and foundations of gene expression.	DNA replication and replication Models	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
6	2T + 4 P	The student will learn the principles and foundations of gene expression.	DNA Transcription and post transcriptional modification processes	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
7	2T + 4 P	The student will learn the principles and foundations of gene expression.	Translation and post translational modifications and protein synthesis	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions

8	2T + 4 P	To identify types of mutations and DNA repair mechanisms.	DNA damage, types and repair systems and mechanisms	- Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
9	2T + 4 P	Study the effect of mutations on chromosome changes	DNA mutations, chromosomal aberrations and causes of gene mutations	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
12-10	2T + 4 P	To learn about programmed cell death and its relationship to cancer.	Programmed cell death, telomere and telomerase association with carcinogenesis	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
13	2T + 4P	To learn about programmed cell death and its relationship to cancer.	Programmed cell death, telomere and telomerase association with carcinogenesis	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
14-15	2T + 4 P	Learn about DNA synthesis technology and its various applications.	Introduction to Recombinant DNA technology 1- Restriction enzymes 2- Cloning vectors 3- Applications in Molecular cloning	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Molecular Biology of the Cell. 4th edition, Alberts B, Johnson A, Lewis J, et al. New York: Garland Science; 2002. 2- Practical Handbook Of Biochemistry And Molecular Biology/ Gerald D Fasman
Main references (sources)	Molecular Biology Techniques: A Classroom Laboratory Manua
Recommended books and references (scientific journals, reports...)	1-NCBI 2- PubMed You tube
Electronic References, Websites	1-Molecular Biology of the Cell. 4th edition, Alberts B, Johnson A, Lewis J, et al. New York: Garland Science; 2002. 2- Practical Handbook Of Biochemistry And Molecular Biology/ Gerald D Fasman

Course Description Form

1. Course Name: Medical					
Parasitology 1					
2. Course Code:					
3. Semester / Year:					
1 st semester /Second year					
4. Description Preparation Date:					
1/2025					
5. Available Attendance Forms:					
Morning/evening					
6. Number of Credit Hours (Total)					
30 Hours theoretical +60 hours practical / 4 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Hussain Ali kareem					
Email: ha682997@gmail.Com					
8. Course Objectives					
Course Objectives			• A knowledge: •- It is to provide an idea and basic informat about parasites and the diseases they cause and develop the student's ability and skill understanding their pathological analyses. 2- The student learns the skill, how and wh parasites are located - 3- The student learns the skill of conduct pathological examinations and different method diagnosis. - Evaluation methods 1- Conducting daily qu exams Quizzes 2- Conducting monthly exams 3- Conducting semester and final exams norms in biological studies • C3: Working as a team		
9. Teaching and Learning Strategies					
Strategy		Lectures and practical lessons - outcome-based learning - learning project-based learning - group work-based learning - problem-based learning - community-based learning - self-learning.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2T + 4 P	The student will learn about Parasites; Host; Zoonosis; Host-parasite Relationships; Life Cycle	General Introduction: Introduction; Parasites; Host; Zoonosis; Host-parasite Relationships; Life Cycle	Lectures and practical lessons -Discussion	Theory exams - practical -

			of Parasites; Sources of		
		of Parasites; Sources of Infection; Modes of Infection; Pathogenesis; Immunity in Parasitic Infection; Laboratory Diagnosis	Infection; Modes of Infection; Pathogenesis; Immunity in Parasitic Infection; Laboratory Diagnosis	Brainstorming	Discussions
2	2T + 4 P	The student learns the Protozoa General Features ; Structure ; Reproduction ; Life Cycle ; Classification of Protozoa ; Phylum Sarcomastigophora; Phylum Apicomplexa; Phylum Ciliophora; Phylum Microspora	Protozoa General Features ; Structure ; Reproduction ; Life Cycle ; Classification of Protozoa ; Phylum Sarcomastigophora; Phylum Apicomplexa; Phylum Ciliophora; Phylum Microspora	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
3	2T + 4 P	The student will learn the Sacodina, (Amoebae) Entamoeba histolytica; History and Distribution; Morphology; Life Cycle; Pathogenesis and Clinical Features; Extraintestinal Amoebiasis; Laboratory Diagnosis; Immunity; Treatment;.	Sacodina, (Amoebae) Entamoeba histolytica; History and Distribution; Morphology; Life Cycle; Pathogenesis and Clinical Features; Extraintestinal Amoebiasis; Laboratory Diagnosis; Immunity; Treatment;	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
5+4	2T + 4 P	The student will learn the Entamoeba Coli , Entamoeba Gingivalis; Endolimax nana 24;; Pathogenic Free-Living Amoebae; naegleria Fowleri; History and Distribution 26; Morphology; Life Cycle; Pathogenicity and Clinical Features; Laboratory Diagnosis; Treatment	Entamoeba Coli , Entamoeba Gingivalis; Endolimax nana 24;; Pathogenic Free-Living Amoebae; naegleria Fowleri; History and Distribution 26; Morphology; Life Cycle; Pathogenicity and Clinical Features; Laboratory Diagnosis; Treatment	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
6	2T + 4 P	The student will learn Intestinal, Oral, and Genital Flagellates Giardia Lamblia; History	Intestinal, Oral, and Genital Flagellates Giardia Lamblia; History and Distribution; Habitat;	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions

		and Distribution; Habitat; Morphology; Life Cycle; Pathogenicity and Clinical Features; Laboratory Diagnosis; Treatment	Morphology; Life Cycle; Pathogenicity and Clinical Features; Laboratory Diagnosis; Treatment		
7	2T + 4 P	To identify types of Genus Trichomonas. T. vaginalis/ urogenital flagellate. T. hominis T. tenax Biology , medical importance and Lab. Diagnosis of each species.	Genus Trichomonas. T. vaginalis/ urogenital flagellate. T. hominis T. tenax Biology , medical importance and Lab. Diagnosis of each species.	- Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
8	2T + 4 P	Study the effect of Heamo- flagellates(blood& tissue flagellates),general characters. Developmental stages in the vertebrate & invertebrate hosts. Genus leishmania ,species of leishmania, biology, vector, medical importance of eachspecies, types of leishmaiasis , life cycle ,Lab. Diagnosis, including immunological tests.	Heamo- flagellates(blood& tissue flagellates),general characters. Developmental stages in the vertebrate & invertebrate hosts. Genus leishmania ,species of leishmania, biology, vector, medical importance of eachspecies, types of leishmaiasis , life cycle ,Lab. Diagnosis, including immunological tests.	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
9	2T + 4 P	To learn about Genus Trypanosoma, species of trypanosome, biology , vector, medical importance of each species, forms of parasite, life cycle,Lab. Diagnosis.	Genus Trypanosoma, species of trypanosome, biology , vector, medical importance of each species, forms of parasite, life cycle,Lab. Diagnosis.	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions

10	2T + 4P	To learn about Ciliophora: Blantidiumcoli ,Biology , medical importance, Lab. Diagnosis. Apicomplex: General charcter.Genus Toxoplasma.,T.gondii ,Biology, medical Importance,acquired and congenital toxoplasosis. Life cycle, role of domesticate animals in the transmission of the disease. Lab. Diagnosis.	Ciliophora: Blantidiumcoli ,Biology , medical importance, Lab. Diagnosis. Apicomplex: General charcter.Genus Toxoplasma.,T.gondii ,Biology, medical Importance,acquired and congenital toxoplasosis. Life cycle, role of domesticate animals in the transmission of the disease. Lab. Diagnosis.	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
11	2T + 4P	To learn about Genus plasmodium. Introduction to malarial parasites, malarial paroxysm, general life cycle of the plasmodium	Genus plasmodium. Introduction to malarial parasites, malarial paroxysm, general life cycle of the plasmodium , species	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions

		species of plasmodium.	of plasmodium.		
12	2T + 4P	To learn about P.falciparum, P. vivax, P ovale, P. malarae Disease, pathology, medical importance, distribution, main differences during life cycle.	P.falciparum, P. vivax, P ovale, P. malarae Disease, pathology, medical importance, distribution, main differences during life cycle.	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
13	2T + 4P	To learn about General discussion on malarial parasites ,epidemiology, methods of diagnosis. Time to take clinical samples. Blood films.	General discussion on malarial parasites ,epidemiology, methods of diagnosis. Time to take clinical samples. Blood films.	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions
14	2T + 4P	To learn about Isopora, pathology, medical importance,Lab.Dianosis. Sarcocystis species: pathology , medical importance,Lab diagnosis.	Isopora, pathology, medical importance,Lab.Dianosis. Sarcocystis species: pathology , medical importance,Lab diagnosis.	Lectures and practical lessons -Discussion Brainstorming	Theory exams - practical - Discussions

15	2T + 4P	To learn about Cryptosporidiadse Genus cryptosporidium, species belong the genus, biology, pathology, epidemiology, Lab. diagnosis.	Cryptosporidiadse Genus cryptosporidium, species belong the genus, biology, pathology, epidemiology, Lab. diagnosis.	Lectures and practical lessons - Discussion Brainstorming	Theory exams - practical - Discussions
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.....etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			1. Essentials of Medical Parasitology 2. Principle of Medical Physiology 3. Pinker book 2018		
Main references (sources)			Medical Parasitology: A Self-instructional T		
Recommended books and references (scientific journals, reports...)			1- NCBI 2- PubMed 3- You tube		
Electronic References, Websites			Mehlhorn, Heinz, ed. "Encyclopedic reference parasitology: Biology, structure, function." (2001).		