

Academic Program Description Form

University Name: University of Al-Qadisiyah

Faculty Institute: faculty of pharmacy

Scientific Department: Clinical Laboratory Science Department

Academic or Professional Program Name: Bachelor degree

Final Certificate Name: Bachelor degree in Pharmacy

Academic System: courses

Description Preparation Date: 1/ 7/ 2026

File Completion Date: 1/ 7/ 2026

Signature:

Head of Department Name:

Dr. Hanaa Abdul Abass

Date:

Signature:

Scientific Associate Name:

Dr. Ahmed Mahmoud Sultan

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Lect. Alyaa Isam Mohammed

Date: 10 / 7/ 2026

Signature:

ASAAI
Alzaidy

Approval of the Dean

1. Program Vision

The College of Pharmacy is an educational institution that aims to graduate pharmaceutical cadres capable of providing the best pharmaceutical and medical services and compatible with scientific progress in the world

2. Program Mission

Providing graduates with balanced, thoughtful knowledge and teaching them to assume ethical responsibility in professions related to health care.

Adopting academic and professional programs capable of preparing competent pharmacists.

Providing information and technical skills to meet diverse needs in the public and private sectors

For the college to become an educational center based on research and focusing on cooperation between pharmaceutical sciences and the pharmaceutical industry.

Confirm your lifelong commitment to be able to compete in community service

Commitment to applying and following up on the implementation of quality standards..

3. Program Objectives

Providing distinguished education and professional development for students of the College of Pharmacy.

Enhancing intellectual curiosity and commitment to lifelong education.

Encouraging and developing appropriate pharmaceutical models for the various environments of the practice of this industry.

Strengthening the connection between the College of Pharmacy and the needs of the community.

Encouraging applied research and basic research.

Encouraging the development of scholars in order to maintain high-quality teaching and learning skills for students.

4. Program Accreditation

There is no program accreditation

5. Other external influences

No external sponsor (the college sponsored by the Iraqi Government)

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
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Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

* This can include notes whether the course is basic or optional.

7. Program Description				
year /level	course code	Course Name	Credit Hours	
			theoretical	practical
First		Physiology I	3	2
		Medical Physics	1	2
	127	Anatomy and Histology	3	2
	115	Math and statistic	2	-
		Arabic language	2	-
	129	Medical physics	1	2
		Human right	2	-
	114	Computer	1	2
second	212	Medical microbiology I	3	2
	227	Medical microbiology II	3	2
		Baath Regime Crimes in Iraq	1	-
		Arabic language	2	-
		Computer	1	2
		Physiology I	3	2

		Physiology II	3	2
Third	314	Biochemistry I	3	2
		Biochemistry II	3	2
	315	pathophysiology	3	2
		Pharmacology I	3	-
		Pharmacy Ethics	1	-
Fourth	415	General health	2	-
		Pharmacology II	3	2
		Pharmacology III	2	-
		General Toxicology	2	2
		Communication Skills	2	-
Fifth	514	Clinical chemistry	3	2
	515	Lab training	-	4
		Clinical Toxicology	2	2

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	1. Instruct students in the fundamental scientific principles related to their coursework 2. Cultivate students' ability to grasp the curriculum 3. Utilize illustrative methods to effectively convey information to student

	4. 4. Possess knowledge in the field of laboratory analysis
Skills	
Learning Outcomes 2	1. Enhance students' ability to utilize laboratory equipment 2. 2. Employ illustrative materials such as educational posters (posters) 3. 3. Conduct scientific experiments within laboratory settings 4. Emphasize the knowledge and skills required for pharmacists to competently fulfill their duties and responsibilities
Ethics	
1. Effectively convey chemical and biological concepts 2. Utilize scientific journals 3. Analysis 4. Evaluation	

9. Teaching and Learning Strategies
1. Foster the ability to learn in the field of pharmacy 2. Encourage teamwork 3. Prepare reports on course material

10. Evaluation methods
1. Utilize Socratic questioning techniques during discussions in various aspects of education 2. 2. Implement Socratic questioning in daily quizzes, midterms, and final exams

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Proff. /4					40	2

Assist proff/12						
Lecturer/ 6						
Assist lec. / 18						

Professional Development
Mentoring new faculty members
Guide the staff using modern teaching methods, incorporating modern resources, and employing diverse assessment techniques.
Professional development of faculty members
Utilize an annual plan that includes workshops and training courses in teaching methods and scientific research

12. Acceptance Criterion
Central Admission in the Ministry of Higher Education and Scientific Research / Iraq According to Student Grades

13. The most important sources of information about the program
Approved Teaching Methods and Curricula at the University

14. Program Development Plan
1) Develop the student's ability to discuss 2) Encourage students to pursue professionally relevant qualifications

15. Program Skills Outline

	Required program Learning outcomes
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[illegible]

[illegible]

1. Course title:	
Human Anatomy & Histology / Practical	
2. Course number:	
3. Level / semester	
Level: 1st class / 1st semester	
4. Date of the course description:	
2026	
5. Instruction Mode:	
In-person	
6. Credit hours:	
30 hours (1 Credit)	
7. Instructors:	
Name: Asst.Lect. rusul hamza kamil Email: rusul.hamza@qu.edu.iq	
8. Course objectives:	
Course Objectives:	1. Learning the names and functions of anatomical structures. 2. To acquire a basic background in histology and to understand the properties of cells and their interactions with one another as components of tissues and organs. 3. To be able to describe the normal structure and function of various cell types, tissues, and organs, and to differentiate their histological structures from each other through microscopic examination.
9. Teaching and learning strategies:	

Teaching strategy	Teaching strategy Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy - Study strategy - Conclusion strategy - Divergent practice strategy - Switching ideas strategy - Providing examples strategy
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10. COURSE STRUCTURE

WEEK	Hour.	TOPICS	LEARNING OUTCOMES	TEACHING METHODOLOGY	ASSESSMENT METHODOLOGY
1	8	- Anatomical models & terms. - Microscopic usage & cell identification	- Identify basic anatomical terminology and planes. - Recognize and properly use a compound microscope. - Identify basic cell structures on a microscope slide.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	-Written Examinations - Quizzes. -homework. -writing a clinical reports.
2	^	- Identification of various epithelial tissue slides. - Identification of various connective tissue slides (including cartilage and bone). - Identification of muscular tissue slides (skeletal, cardiac, smooth)	- Identify different types of epithelial tissues and their functions. - Identify various connective tissues, including cartilage and bone. - Differentiate between skeletal, cardiac, and smooth muscle tissues microscopically.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.
3	^	- Identification of major bones on skeletal models. - Microscopic identification of compact and spongy bone, and different types of cartilage.	- Identify the chambers of the heart and major blood vessels on models. - Distinguish between the histological structure of the heart wall, arteries, veins, and capillaries.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.

4	^	- Identification of heart chambers, major vessels on models/pro-sections. - Microscopic identification of heart wall, arteries, veins, and capillaries		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.
5	^	- Identification of lymphoid organs on models/pro-sections. - Microscopic identification of blood cells (various types of WBCs), and general structure of lymph nodes	- Identify the major lymphoid organs on models. - Identify various types of white blood cells and describe the general histology of a lymph node.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.
6	^	- Identification of upper digestive tract parts on models/pro-sections. - Microscopic identification of oral cavity, esophagus, and stomach)	- Identify the organs of the upper digestive tract on models. - Describe the histological features of the oral cavity, esophagus, and stomach.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations Quizzes. Homework. writing a clinical reports.
7	^	- Identification of lower digestive tract and accessory organs on models/pro-sections. - Microscopic identification of small intestine, large intestine, liver, and pancreas	- Identify the organs of the lower digestive tract and accessory organs on models. - Describe the histological features of the small intestine, large intestine, liver, and pancreas.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	Written Examinations Quizzes. homework writing a clinical reports.
8	^	- Identification of major brain regions and spinal cord on models. - Microscopic identification of nerve tissue (neurons, nerve fibers) and ganglia	- Identify the major regions of the brain and the spinal cord on models. - Identify neurons, nerve fibers, and ganglia microscopically.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.

9	^	- Identification of respiratory system components on models/pro-sections. - Microscopic identification of trachea, bronchus, bronchioles, and lung tissue (alveoli).	- Identify the components of the respiratory system on models. - Describe the histological structure of the trachea, bronchus, bronchioles, and lung alveoli.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.
10	^	- Identification of urinary system organs on models/pro-sections. - Microscopic identification of kidney (nephron components), ureter, and bladder	- Identify the organs of the urinary system on models. - Describe the histological features of the kidney (nephrons), ureter, and bladder.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.
11	^	- Microscopic identification of thick and thin skin, and accessory structures	- Differentiate between thick and thin skin microscopically. - Identify hair follicles, sebaceous glands, and sweat glands.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	Written Examinations - Quizzes. -homework. -writing a clinical reports.-
12	8	- Identification of endocrine glands on anatomical models	- Identify the major endocrine glands (pituitary, thyroid, adrenal, etc.) on anatomical models.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	Written Examinations - Quizzes. -homework. -writing a clinical reports.-
13	8	- Microscopic identification of selected endocrine glands.	- Describe the histological features of selected endocrine glands (e.g., pituitary, thyroid).	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	Written Examinations - Quizzes. -homework. -writing a clinical reports.-

14	8	- Identification of male reproductive organs on models/pro-sections. - Microscopic identification of testes and accessory glands	- Identify the organs of the male reproductive system on models. - Describe the histological structure of the testes and accessory glands.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	Written Examinations - Quizzes. -homework. -writing a clinical reports.-
15	8	- Identification of female reproductive organs on models/pro-sections. - Microscopic identification of ovary (including different follicle stages) and uterus.	- Identify the organs of the female reproductive system on models. - Describe the histological features of the ovary (including different follicle stages) and the uterus.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	Written Examinations - Quizzes. -homework. -writing a clinical reports.-

11. Testing and evaluation

20 grades practical lab. Assessment.

12. Required textbook(s) and materials.

Required Textbook	1. Atlas of Human Anatomy by Frank H. Netter 2. Basic Histology: text and Atlas, 11th ed. BY Luiz Carlos, Uchoa Junqueira 3. Wheaters functional histology: a text and colour atlas 6th ed. BY Yung, Barbara
Reference textbook	
Additional suggested resources	
E-reference materials	GOOGLE SCHOLAR

Course Description

1. Course Name	
Anatomy	
2. Course Code	
127	
3. Semester/Year	
1st Class, 1 st Semester	
4. Date this description was prepared	
2026	
5. Available attendance forms	
Physical Attendance	
6. Number of academic hours (total) / number of units (total)	
45 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Assist. Prof. Neeran F. Hassan Neeran.hassan@qu.edu.iq	
8. Course objectives	
Objectives of the study subject	By the end of this semester students are expected to be able to: 1. Study the anatomical positions of the various organs located within the thoracic and abdominal cavities, including the digestive system, cardiovascular system, lymphatic system, respiratory system, urinary system, reproductive system, endocrine system, nervous system, and the skin. 2. Identify the major types of body tissues, including epithelial, connective, muscular, nervous, adipose, cartilaginous, and blood tissues. Students should recognize the structure, location, nomenclature, distinguishing features, molecular composition, and provide a brief description of the function of each tissue type. 3. Define cartilage and bone tissues, describe their microscopic and cellular structure, explain the extracellular matrix, the process of ossification (bone formation), and the growth of bone tissue. Students should also describe the functions of bones, identify the bones of the axial skeleton (including the skull, vertebral column, and thoracic cage) and the appendicular skeleton (limbs),

	recognize the main anatomical landmarks of each bone, and distinguish between the different types of joints and their function
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of	Cell review	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 2	pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and	Introduction to general anatomy include: kinds of anatomy, Anatomical description, Anatomical terms ,Basic Structures	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	• 2		Skeleton bones and Joints	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical

	2	the ability to deduce the results and their effects from the test.			examinations, semi-semester and semester -Conduct laboratory experiments
4	2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	Epithelial tissue& circulatory system Location of vascular system (Heart, Arteries, Veins)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	2		Glandular Epithelium &Endocrine system: - location of the pituitary gland - location of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	Digestive system: - location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach) -Small intestine, Large intestine, Rectum &Anus.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	2	- Instilling moral values for proper dealing with patients Transferable general and	Digestive system:Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

8	2	qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers	Respiratory system: - Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles). - Respiratory portion (Lung)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	2	- Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills	Nervous system: Central & Peripheral nervous system by location	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	2	- Acquiring skill in dealing	Lymphoid tissue: location of the (Thymus gland, Spleen & Lymph nodes)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	2		Lymphoid nodule (MALT) & Tonsils.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

12	• 2		Nervous system: Central & Peripheral nervous system by location	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 2		Male reproductive system: -location of the testes. -Excretory genital ducts - Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands)	the blackboard PowerPoint slides E-Learning	assignments, , oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 2		Female reproductive system: -location of ovary, Oviduct, Uterus & Vagina.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 2		Urinary system: - location of the (kidney & nephron) - location of the (Ureter, Bladder & Urethra)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11.Course evaluation					

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams Editorial, reports, etc	
- Practical exam 20 - The midterm exam is 20 marks - The final exam 60 marks	
12. Learning and teaching resources	
Main references (sources)	Lipincott Williams & Wilkins (Latest Edition)
Recommended supporting books and references (scientific journals, reports)	Clinical Anatomy by Regions (Richard S. Snell 8th ed.2010).
references , websites	Simon McGurk Junqueira ,L (2005) Basic Histology Text and Atlas – 11th edition -Stevens A & Lowe, JS (1991). Histology. Gower Medical Publishing -Young, B & Heath, JW (2006). Wheater's Functional Histology a Text BOOK http://anatomyguide.com FDA

Course Description

The **Physiology I** course provides first-year pharmacy students with a concise introduction to the fundamental principles of human physiology. It is designed to equip students with essential knowledge of the physiological functions of the human body's organ systems and the concept of **homeostasis**, thereby establishing a strong scientific foundation for understanding the medical, pharmaceutical, and clinical sciences encountered in advanced stages of the pharmacy curriculum.

1. Educational Institution	University of Al-Qadisiyah
2. Course Title	Medical Physiology I (Physiology I)
3. Course Code	To be assigned.
4. Semester / Academic Year	Second Semester / First Year
5. Date of Preparing This Course Description	30 June 2026
6. Available Attendance Mode	Full-time, On-campus Attendance
7. Total Study Hours / Credit Units	45 hours (3 hours of theoretical lectures and 1 hour of practical laboratory work per week).
8. Course Coordinator / Course Instructor	Prof. Hanaa Abdul Abbas Abdul Ameer
9. Course Objectives	Upon successful completion of this course, students will be able to: 1. Acquire a solid understanding of the fundamental principles of physiology and the hierarchical organization of the human body. 2. Understand the concept of homeostasis and the physiological mechanisms responsible for maintaining internal stability. 3. Study the physiological structure of the cell, its functions, metabolic processes, cellular communication, and signaling mechanisms. 4. Understand the mechanisms involved in the transport of substances and molecules across cell membranes. 5. Study the organization of the nervous system, the mechanisms of nerve impulse transmission, and the basic principles of sensory physiology. 6. Relate fundamental physiological concepts to pharmaceutical applications, pharmacology, and subsequent medical and clinical sciences.
10. Course Learning Outcomes, Teaching, Learning, and Assessment Methods	
A. Knowledge and Understanding	Upon successful completion of this course, students will be able to: 1. Explain the organization of the human body and its different levels of biological organization.

	- Describe the mechanisms of homeostasis and the physiological systems responsible for maintaining internal stability. - Describe the structure of the cell and its physiological and metabolic functions. - Explain the mechanisms of substance transport, cellular signaling, and communication across cell membranes. - Explain the transmission of nerve impulses within the nervous system and describe the physiological principles of the sensory system.
B. Practical and Subject-Specific Skills	Upon successful completion of this course, students will be able to: - Perform basic laboratory experiments in medical physiology and accurately interpret the obtained results. - Conduct fundamental physiological measurements, including blood pressure measurement, pulse rate assessment, and neurological reflex examination. - Prepare scientific laboratory reports and analyze experimental data using logical and scientific approaches. - Apply basic mathematical and physiological calculations to medical and pharmaceutical applications.
C. Affective and Value Goals	Upon successful completion of this course, students will be able to: - Apply scientific and analytical thinking to solve physiological problems using a Problem-Based Learning (PBL) approach. - Demonstrate full commitment to laboratory safety regulations and the ethical standards of medical and pharmaceutical practice. - Effectively explain, analyze, evaluate, and communicate physiological concepts during seminars and classroom discussions. - Work collaboratively and responsibly as an effective member of a laboratory team.
11. Teaching and Learning Methods	- Interactive face-to-face lectures supported by modern teaching technologies, PowerPoint presentations, and educational videos. - Practical laboratory sessions involving hands-on experimental work. - Group discussions, classroom discussions, and student seminars. - Blended learning and Problem-Based Learning (PBL) approaches.

12. Assessment Methods	• Short quizzes, unannounced quizzes, classroom activities, and assignments. • Assessment of laboratory performance, practical reports, and periodic laboratory examinations. • Midterm and final written and oral examinations.
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13. Course Structure

I. Theory Syllabus

Assessment Methods	Teaching Methods	Unit / Topic	Intended Learning Outcomes	Hours	Week(s)
Written and oral examinations, short quizzes.	Interactive lectures using the whiteboard and PowerPoint presentations.	Introduction to Physiology: How is the Body Organized?	Understand the levels of organization of the human body.	5	1–2
Written and oral examinations, short quizzes.	Interactive lectures using the whiteboard and PowerPoint presentations.	Homeostasis: Framework for Human Physiology	Explain the mechanisms of physiological regulation and homeostasis.	5	3–4
Written and oral examinations, short quizzes.	Interactive lectures using the whiteboard and PowerPoint presentations.	Cellular Structure, Proteins and Metabolic Pathways	Describe cellular structure, proteins, and metabolic pathways.	7	5–7
Written and oral examinations, short quizzes.	Interactive lectures using the whiteboard and PowerPoint presentations.	Movement of Molecules across Cell Membranes	Explain the movement of molecules across the cell membrane.	7	8–10
Written and oral examinations, short quizzes.	Interactive lectures using the whiteboard and PowerPoint presentations.	Cell Signaling in Physiology	Understand the mechanisms of cell signaling and cellular communication.	6	11–12
Midterm and final examinations, assignments.	Interactive lectures using the whiteboard and PowerPoint presentations.	Neuronal Signaling and the Structure of the Nervous System	Explain neuronal signaling and the structure of the nervous system.	9	13–15
Final examination, assignments, and seminars.	Interactive lectures using the whiteboard and PowerPoint presentations.	Sensory Physiology	Describe the physiology of the sensory system and its applications.	6	16

II. Practical Syllabus

Assessment Methods	Teaching Methods	Practical Experiment / Topic	Intended Laboratory Learning Outcomes	Hours	Week
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Daily quiz and assessment of practical performance.	Practical training and explanation of laboratory safety regulations.	Laboratory Safety Rules	Become familiar with laboratory safety regulations and quality management procedures.	2	1
Laboratory reports and daily examination.	Practical laboratory sessions and microscopic demonstrations.	Microscope and Cell Observation	Develop skills in microscope use and cell observation.	2	2
Laboratory reports and daily examination.	Practical laboratory experiments.	Osmosis and Diffusion	Apply the principles of osmosis and diffusion experimentally.	2	3
Laboratory reports and daily examination.	Practical laboratory experiments.	Membrane Transport	Study membrane transport mechanisms.	2	4
Laboratory reports, oral and practical examinations.	Practical laboratory sessions using laboratory equipment.	Blood Cell Counting	Develop proficiency in blood cell counting techniques.	2	5
Laboratory reports and daily examination.	Practical laboratory experiments and group discussions.	Blood Grouping	Identify different blood groups.	2	6
Assessment of practical performance and laboratory reports.	Clinical practical training in the laboratory.	Measurement of Blood Pressure	Master arterial blood pressure measurement techniques.	2	7
Assessment of practical performance and laboratory reports.	Clinical practical training in the laboratory.	Pulse Rate Measurement	Develop skills in measuring pulse rate and assessing its physiological significance.	2	8
Laboratory reports and daily examination.	Practical laboratory and clinical exercises.	Reflex Examination	Examine and interpret neurological reflexes.	2	9
Laboratory reports and daily examination.	Practical laboratory experiments and demonstration sessions.	Introduction to Nerve Conduction	Understand the basic principles of nerve conduction experimentally.	2	10
Laboratory reports and daily examination.	Interactive laboratory experiments.	Sensory Physiology Tests	Perform basic sensory physiology examinations.	2	11
Evaluation of laboratory reports and oral assessment.	Discussion sessions and data analysis exercises.	Data Analysis and Interpretation	Analyze and interpret physiological	2	12

			experimental results.		
Assessment of classroom activities.	Team-based practical review sessions.	Practical Revision	Review all practical experiments comprehensively.	2	13
Practical laboratory examination.	Comprehensive practical examination.	Practical Examination	Evaluate students' practical laboratory competencies.	2	14
Final laboratory grade assessment.	Final written and practical laboratory examination.	Final Practical Assessment	Complete the final assessment of laboratory knowledge and skills.	2	15
Assessment Methods	Teaching Methods	Practical Experiment / Topic	Intended Laboratory Learning Outcomes	Hours	Week
Daily quiz and assessment of practical performance.	Practical training and explanation of laboratory safety regulations.	Laboratory Safety Rules	Become familiar with laboratory safety regulations and quality management procedures.	2	1
14. Infrastructure and References		• Required Textbook			
		Widmaier EP, Raff H, & Strang KT. Vander's Human Physiology: The Mechanisms of Body Function. Latest Edition. • Primary References Guyton and Hall Textbook of Medical Physiology. Ganong's Review of Medical Physiology. Recommended Textbooks and References Berne & Levy Physiology. Costanzo Physiology. • Electronic Resources Google Scholar PubMed ScienceDirect			

1. Course title:

Practical - Physiology I

2. Course number:	
3. Level / semester	
Level: 1st class / 2nd semester	
4. Date of the course description:	
9/3/2026	
5. Instruction Mode:	
In-person	
6. Credit hours:	
30 hours (1 Credit)	
7. Instructors:	
Name: Asst.Lect. rusul hamza kamil Email: rusul.hamza@qu.edu.iq	
8. Course objectives:	
Course Objectives:	1. Providing students with a practical understanding of fundamental physiological principles related to various body systems. 2. Enabling students to perform and interpret basic physiological measurements and experiments, such as blood pressure, body temperature, and blood analysis. 3. Developing skills in using laboratory equipment, analyzing results, and writing scientific reports..
9. Teaching and learning strategies:	

Teaching strategy	Teaching strategy Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy - Study strategy - Conclusion strategy - Divergent practice strategy - Switching ideas strategy - Providing examples strategy
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10. COURSE STRUCTURE

WEEK	Hour	TOPICS	LEARNING OUTCOMES	TEACHING METHODOLOGY	ASSESSMENT METHODOLOGY
1	8	Measurement of body temperature	- Measure body temperature accurately using a clinical thermometer.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	-Written Examinations - Quizzes. -homework. -writing a clinical reports.
2	8	Tutorial and review	- Review and reinforce concepts from previous practical sessions.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.,	-Written Examinations - Quizzes. -homework. -writing a clinical reports.

3	^	Measurement of blood pressure	- Measure arterial blood pressure using a sphygmomanometer.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations . - Quizzes. -homework. -writing a clinical reports.
		Tutorial and review	Review and reinforce concepts from previous practical sessions.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory, training,	-Written Examinations . - Quizzes. -homework. -writing a clinical reports.
5	^	Osmosis across plasma membrane	Demonstrate the process of osmosis using a model system (e.g., dialysis tubing).	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations . - Quizzes. -homework. -writing a clinical reports.
6	^	Tutorial and review	Review and reinforce concepts from previous practical sessions.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations . Quizzes. Homework. writing a clinical reports.

7	Λ	Blood Glucose (Oral Glucose Tolerance Test)	- Perform an oral glucose tolerance test (OGTT).	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	Written Examinations . Quizzes. homework writing a clinical reports.
8	Λ	Tutorial and review	Review and reinforce concepts from previous practical sessions.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations . - Quizzes. -homework. -writing a clinical reports.
9	Λ	General Physiology of Blood	- Understand the composition and functions of blood.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations . - Quizzes. -homework. -writing a clinical reports.
10	Λ	Tutorial and review	Review and reinforce concepts from previous practical sessions.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	-Written Examinations . - Quizzes. -homework. -writing a clinical reports.
11	Λ	Total WBC count	- Perform a total white blood cell (WBC) count using a hemocytometer.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training,	Written Examinations . - Quizzes. -homework. -writing a clinical reports.-
12	8	Tutorial and review	Review and reinforce concepts from previous practical sessions.	Lectures using multimedia elements like slides, diagrams, and videos.	Written Examinations . - Quizzes. -homework.

				Practical laboratory training.	-writing a clinical reports.-
13	8	Differential WBC count	- Perform a differential WBC count by identifying different types of leukocytes on a blood smear.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	Written Examinations · - Quizzes. -homework. -writing a clinical reports.-
14	8	Tutorial and review	- Review and reinforce concepts from previous practical sessions.	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	Written Examinations · - Quizzes. -homework. -writing a clinical reports.-
15	8	Examination of vision	- Perform basic vision tests (e.g., visual acuity, color vision).	Lectures using multimedia elements like slides, diagrams, and videos. Practical laboratory training.	Written Examinations · - Quizzes. -homework. -writing a clinical reports.-

11. Testing and evaluation

20 grades practical lab. Assessment.

12. Required textbook(s) and materials.

Required Textbook

- 1) Guyton and Hall: Textbook of Medical Physiology. 14ed, 2022.
- 2) A TEXTBOOK OF PRACTICAL PHYSIOLOGY: Jaypee Brothers Medical Publishers

Reference textbook	
Additional suggested resources	
<i>E-reference</i> materials	GOOGLE SCHOLAR

Course description :

1- Course title:	
Computer science	
2- Course number:	
3- semester / Level	
2 nd semester/ 1 st year	
4- The date this description was prepared:	
12/4/2026	
5- Instruction Mode:	
In-person	
6- Credit hours:	
30 hours , 2 hrs./week	
7- Instructors:	
Name: Asst.Lect. Rawad Fadhil Abed Email: rawad.abed@qu.edu.iq	
8- Objectives of the course	
Course Objectives:	Teaching the student to become familiar with the basic rules for dealing with and managing a computer to help him complete projects, print matters, prepare statistics, graphs, print texts and process them powerfully, and he will be able to create networks, etc., and the skills of using the Word program and the speed of printing.
9- Teaching and learning strategies:	

Teaching strategy	The theoretical and explanation method is by displaying the material on the display screen in the form of diagrams and pictures in order to attract the student's attention and help him not feel bored. The practical method is to apply what was presented on the calculator and conduct daily and monthly exams.
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10- Course structure:

Computer Science, first year/second semester

The Week	Hour.	Topics	Learning outcomes	Teaching method	Assessment methodology
1.	2	Introduction to Microsoft PowerPoint	Microsoft word	Display screen + calculator application	Daily tests
2.	2	user interface	Microsoft word	Display screen + calculator application	Daily tests
3.	2	Program interface components	Microsoft word	Display screen + calculator application	Daily tests
4.	2	file tab	Microsoft word	Display screen + calculator application	Daily tests
5.	2	home tab	Microsoft word	Display screen + calculator application	Daily tests
6.	2	insert tab	Microsoft word	Display screen + calculator application	Daily tests
7.	2	Transitions tab	Microsoft word	Display screen + calculator application	Daily tests
8.	2	Animation tab	Microsoft word	Display screen + calculator application	Daily tests
9.	2	Design and view tab	Microsoft word	Display screen + calculator application	Daily tests
10.	2	Slide setup	Microsoft word	Display screen + calculator application	Daily tests
11.	2	custom animation	Microsoft word	Display screen + calculator application	Daily tests
12.	2	File storage formats	Microsoft word	Display screen + calculator	Daily tests

				application	
13.	2	Prepare a multi-slide project	Microsoft word	Display screen + calculator application	Daily tests
14.	2	Prepare an interactive show	Microsoft word	Display screen + calculator application	Daily tests
15.	2	Preparing a photo album	Microsoft word	Display screen + calculator application	Daily tests

11- Testing and evaluation

- Distribution of the score from 100 according to the tasks assigned to the student, such as preparation today And daily, oral, monthly, written exams, reports, etc.

- Daily exams 10 marks - Daily preparation and class activities 5 marks - Mid-semester exam Mine is 25 degrees

- Final exam: 60 marks

1 2 - Learning and teaching resources

Computer basics and office applications - Ministry of Higher Education and Scientific Research - Department of Research and Development	Required prescribed books
Yusr Al-Mustafa Science Series “Computer Basics, Internet Office, 2020, Dr. Ziyad Muhammad Abboud, Dar Al-Doctor for Publishing and Distribution, Baghdad 2020	Main references (sources)
<u>1. Introduction to Mathematical Language Processing: Informal Proofs, Word Problems, and Supporting Tasks</u> <u>2. Segmentation and Feature Extraction in Medical Imaging: A Systematic Review</u> 3. Diagnosis of skin cancer using machine learning techniques	Recommended books and references (scientific journals, reports ...)
Word 2010 Digital Classroom Book https://www.agitraining.com/books/microsoft-officebooks/word-2010-digital-classroom-book	Electronic references, Internet sites...

1- Course title:	
Mathematics and Statistics	
2- Course number:	
3- semester / Level	
1 st semester/ 1 st year	
4- The date this description was prepared:	
2026	
5- Instruction Mode:	
Attendance	
6- Credit hours:	
45 hours , 3 hrs./week	
7- Instructors:	
Name: Asst.prof. Naser Mohsin Juber	
Email: naser.alziyad@qu.edu.iq	
8- Objectives of the course	
Course Objectives:	Gives students the ability to deal with the concept of maths and statistics. The knowledge and skills required to efficiently perform the duties and responsibilities of a pharmacist. The concept of basic mathematics and the application of biostatistics in the medical field.
9- Teaching and learning strategies:	

Teaching strategy	- Brainstorming strategy -teamwork strategy -discussion strategy - The strategy of Case Study of the strategy of inductive teaching -the strategy of conceptual maps
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10- Course structure:

Computer Science, first year/second semester

The Week	Hour.	Topics	Learning outcomes	Teaching method	Assessment methodology
16.	3	General principles of mathematics the plan includes forms. Inequality. Absolute values. Complications	Knowledge output - the student should be able to know the basic concept of mathematics and statistics	Display screen + calculator application	Daily tests
17.	3	Functions and fees. Mutually inclined functions and equations of lines		Display screen + calculator application	Daily tests
18.	3	Determinant and integral theorems of the determinant and conditions of integration		Display screen + calculator application	Daily tests
19.	3	Deviation is the shadow of the line and derivatives. Discrimination rules		Display screen + calculator application	Daily tests
20.	3	Integration: the integration is indefinite. The rules of indefinite integrals. Integration formulas for the basic trigonometric function		Display screen + calculator application	Daily tests
21.	3	Properties of specific integrals. Exercise practice		Display screen + calculator application	Daily tests

22.	3	Biostatistics: general concepts Statistics; statistical methods probability concepts: probability characteristics		Display screen + calculator application	Daily tests
23.	3	Biostatistics: general concepts Statistics; statistical methods probability concepts: probability characteristics		Display screen + calculator application	Daily tests
24.	3	Probability distribution of the discrete variable. Binomial distribution, Poisson distribution		Display screen + calculator application	Daily tests
25.	3	Continue probability distribution and Normal Distribution, Review questions and exercises		Display screen + calculator application	Daily tests
26.	3	The concept of centrism: sample mean and population mean. Average		Display screen + calculator application	Daily tests
27.	3	Deviations and divergences: deviation. Dispersion and contrast. Standard deviation and variance		Display screen + calculator application	Daily tests
28.	3	Coefficient of differences. The standard error. Correlation analysis. (Regression model and regression equation model	Knowledge output - the student should be able to know the basic concept of mathematics and statistics	Display screen + calculator application	Daily tests
29.	3	Test T-test, Z-test, Kai and Anova	Knowledge output - the student should be able to	Display screen + calculator application	Daily tests

			know the basic concept of mathematics and statistics		
30.	3	Application of Statistics in the medical field. Review questions and exercises	Knowledge output - the student should be able to know the basic concept of mathematics and statistics	Display screen + calculator application	Daily tests

11- Testing and evaluation

- Distribution of the score from 100 according to the tasks assigned to the student, such as preparation today And daily, oral, monthly, written exams, reports, etc.
- Daily exams 10 marks - Daily preparation and class activities 5 marks - Mid-semester exam Mine is 30 degrees
- Final exam: 70marks

12- Learning and teaching resources

A FOUNDATION FOR ANALYSIS in the Health Calculus and analytical geometry	Required prescribed books
Daniel WW, A foundation for analysis in the Health Finny RI, Thomas GB(eds) Calculus and analytical geometry	Main references (sources)
4. <u>Introduction to Mathematical Language Processing: Informal Proofs, Word Problems, and Supporting Tasks</u>	Recommended books and references (scientific journals, reports ...)
https://www.math-exercises.com/sets-and-types-of-numbers#google_vignette https://www.mathgoodies.com/lessons/sets/venn_diagrams	Electronic references, Internet sites...

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1. Course Name:	
Medical microbiology I	
2. Course Code:	
3. Semester / Year:	
semester	
4. Description Preparation Date:	
6/ 2026	
5. Available Attendance Forms:	
Attendance only	
6. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours weekly/ 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist prof. Dr. Ali Sabri Jabbar	
Name: Assist prof. Rawaq H Abdulnabi	
8. Course Objectives	
Course Objectives	Study of sterilization methods used and chemical disinfectants and their effect on bacterial growth, in addition to the use of antibiotics as a therapeutic method to control diseases and prevent their spread, and following the best methods to control sources of pathogenic pollution in those environments that humans use as sources of food and drink resulting from the presence of these bacteria. This is done after a complete knowledge of these pathogens from all physiological and biological aspects.
9. Teaching and Learning Strategies	
Strategy	1- Seminars 2- Technical lectures in labs 3- Actual training in hospitals 4- Theoretical lectures

10. Course Structure					
week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 ساعة	Acquisition of Student Information in the Field Microbiology to the Required Level	Importance of microbiology, History of microbiology	Using of board and PowerPoint and official references	Quiz Midterm exam Final exam
2	3 ساعة		Anatomy of bacteria: Surface appendage, Capsule. Cell wall of G+ve&G -ve bacteria; Cytoplasmic membrane.		
3	3 ساعة		Bacterial physiology: Physical and chemical growth determinate.		
			growth and growth curves, bacterial reproduction		
4	3 ساعة		Genetics: Definition, genetic, element, mutation (spontaneous, gene transfer, transformation, conjugation, and gene transduction).		
			Recombinant DNA biotechnology.		
5	3 ساعة		Sporulation and germination.		
6	3 ساعة		Sterilization chemical + (physical). Methods		
7	3 ساعة		antibiotics		

8	3 ساعة		Morphology of Bacteria. Staining and Classification.		
9	3 ساعة		Staphylococci species: <i>Streptococcus pyogenes</i> ; <i>Streptococcus</i> <i>Pneumoniae</i>		
10	3 ساعة		Aerobic Spore-forming bacteria Bacillus species (B. <i>anthracis</i> , <i>B. subtilis</i> , <i>B.</i> <i>cereus</i>). <i>Clostridium perfringens</i> ; <i>Clostridium tetani</i> ; <i>Clostridium botuliun</i>		
11	3 ساعة		<i>Corvnebacteriumd</i> <i>iphtheriaeium</i> <i>Propionibactercrows</i> , <i>Listeria</i>		
12	3 ساعة		<i>Mycobacterium</i> <i>tuberculosis</i> ; <i>M lepra</i> Chlamydiae; Actinomycetes		
13	3 ساعة		erobacteriaceae: <i>E. coil</i> ; <i>psiellasp.</i> ; <i>Cilrobacte</i> . <i>italia</i> , <i>Hafmia</i> , <i>Enterobacter</i>		
14	3 ساعة				
15	3 ساعة				

11. Course Evaluation

40 degree for mid term and 60 for final exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)	<i>Medical Microbiology, seventeenth edition E. Jawetz, J. L. Melnick, E.A. Adel (Latest edition) & 2. Principles of Microbiology by Roland M. (Latest edition,</i>
Recommended books and references (scientific journals, reports...)	Foundations in microbiology / Kathleen Park Talaro, Pasadena City College, Barry Chess, Pasadena City College. – Ninth edition.
Electronic References, Websites	

13. Course Name:	
Medical microbiology II	
14. Course Code:	
15. Semester / Year:	
semester	
16. Description Preparation Date:	
6/ 2026	
17. Available Attendance Forms:	
Attendance only	
18. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours weekly(15 weeks)/ 3 units	
19. Course administrator's name (mention all, if more than one name)	
Name: Assist prof. Dr. Amal H. Abed Name: Assist prof. Dr. Ali Sabri Jabbar Name: Assist prof. Dr. Rawaq H Abdulnabi	
20. Course Objectives	
Course Objectives	The goal is to study parasitic and viral transmission methods and to limit their spread. This can be done by studying the internal structure of parasites and viruses, the factors that affect their internal structure, the use of antibiotics to treat infections caused by parasites and viruses, the best methods to control sources of pollution in environments that humans use as sources of food and drink, and the biology and physiology of parasites and viruses from all aspects.
21. Teaching and Learning Strategies	
Strategy	1. Seminars 2. Technical lectures in labs 3. Actual training in hospitals 4. Theoretical lectures

22. Course Structure					
week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 ساعة	Acquisition of Student Information in the Field of Microbiology to the Required Level	Introduction and classification of the human parasites.	Using of board and PowerPoint and official references	Quiz Midterm exam Final exam
2	3 ساعة		Intestinal protozoa: <i>Entamoebahistolytica</i> .		
3	3 ساعة		Commensal amoeba; <i>Entamoeba coli</i> ; <i>Endolimax nana</i> ; <i>Iodamoeba buetschillii</i> .		
4	3 ساعة		Flagellate of digestive tract: <i>Giardia lamblia</i> ; <i>Chilomastixmesenili</i> .		
5	3 ساعة		Flagellate of genital organs: <i>Trichomonasvaginitis</i> ; Ciliate protozoa; <i>Balantidium coli</i> . Flagellate of blood and tissues:		

6	3 ساعة		<i>Leishmaniadonovani;</i> <i>Leishmania</i> <i>tropica.</i> <i>Trypanosoma</i> <i>gambiens; Trypanosome</i> <i>rhodesiense;</i> <i>Trypanosomacruzi</i>		
7	3 ساعة		Malarial parasite: Life cycle of Plasmodium		
8	3 ساعة		<i>Toxoplasma gondii;</i> Cestoidea; <i>Taeniasaginata;</i> <i>Taeniasolium..</i>		
9	3 ساعة		Trematoda: Life cycle of <i>Schistomaspecies;</i> <i>Schistomajaponicum;</i> <i>Schistomamansonii;</i> <i>Schistomahaematobium.</i>		
10	3 ساعة		Virology: Introduction, Comparison between viruses and bacteria and other microbes;.		
11	3 ساعة		Classification of viruses;		
12	3 ساعة		Replication; Chemotherapy		

13	3 ساعة		<i>herpes viridae</i> ; Orthomyxo viruses; Paramyxo viruses;		
14	3 ساعة		ro viruses; Hepato viruses: Oncogenic viruses		
15	3 ساعة				

23. Course Evaluation

40 degree for midterm and 60 for final exam

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<i>Medical Microbiology, seventeenth edition E. Jawetz, J. L. Melnick, E.A. Adel (Latest edition) & 2. Principles of Microbiology by Roland M. (Latest edition)</i>
Recommended books and references (scientific journals, reports...)	Foundations in microbiology / Kathleen Park Talaro, Pasadena City College, Barry Chess, Pasadena City College. – Ninth edition.
Electronic References, Websites	

1. Course title:

Medical microbiology I / II

2. Course number:

3. Level / semester

Level: 2th class

4. Date of the course description:	
Jul/2026	
5. Instruction Mode:	
In-person	
6. Credit hours:	
2 credits, 8 hrs./week	
7. Instructors:	
Name: Asst. Lec. Zahraa Ali Mohammed Email: zahraa.ali.mohammed@qu.edu.iq Asst.Lect. Hiba Hameed Zaidan Email: hiba.hameed.zidan@qu.edu.iq	
8. Course objectives:	
Course Objectives:	Identify the medically important microorganisms and their characteristics. Understand the mechanisms of microbial pathogenesis and virulence factors. Differentiate the routes of transmission of infectious diseases and the methods of their prevention and control. Recognize the fundamental principles for the diagnosis of microorganisms using microscopic, culture-based, and biochemical methods. Correlate microbiological knowledge with clinical and

	pharmaceutical applications.
9. Teaching and learning strategies:	
Teaching strategy	Interactive Lectures: Use presentation software (e.g., PowerPoint) to explain fundamental concepts. Encourage student participation through questions and interactive discussions during lectures.
Learning strategies	Practical Laboratory Learning: Provide hands-on laboratory sessions for examining microbial specimens and using the microscope. Train students to use microscopes to study different microorganisms and identify their characteristics. Collaborative Learning: Promote teamwork by dividing students into groups to analyze case studies or prepare presentations. Develop students' communication and teamwork skills. Multimedia-Based Learning:

	Integrate educational videos and illustrative images to explain complex laboratory procedures and microbiological concepts. Problem-Based Learning (PBL): Present real-life scenarios that require students to apply their knowledge of laboratory equipment and microbiological techniques to solve problems. Foster students' critical thinking and analytical skills. Self-Directed Learning: Encourage students to review course materials independently using available learning resources. Develop students' research and inquiry skills.
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10. COURSE STRUCTURE

WEEK	Hours	TOPICS	LEARNING OUTCOMES	TEACHING METHODOLOGY	ASSESSMENT METHODOLOGY
1	Λ	Biosafety: Lab safety rules for students	Introduction to Laboratory Safety Procedures	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
2	Λ	Laboratory Devices	Proper Use of Laboratory Equipment, with Emphasis on the Microscope	Lectures using multimedia elements like slides, diagrams, and videos Practical	-Written Examinations. - Quizzes. -homework. -writing a clinical

				laboratory training, case studies	reports.
3	Λ	Shapes of Bacteria	Identification of Bacterial Morphology and Characteristics Using the Microscope Identify the morphology and characteristics of bacteria using the microscope.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	- Written Examination s. - Quizzes. - homework. -writing a clinical reports.
4	8	Shapes of Bacteria	Methods for the Isolation and	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory, training, case studies	- Written Examination s. - Quizzes. - homework. -writing a clinical reports.
5	Λ	Identification method: Isolation in pure forms	Cultivation of Bacteria on Culture Media	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	- Written Examination s. - Quizzes. - homework. -writing a clinical reports.

6	Λ	Preparing a bacterial smear	Methods for the Isolation and Cultivation of Bacteria on Culture Media. Preparation of Bacterial Smears.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	- Written Examination s. Quizzes. Homework. writing a clinical reports.
7	Λ	Staining procedures: Wet, dry smear	Direct Microscopic Examination of	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	Written Examination s. Quizzes. homework writing a clinical reports.
8	8	Staining procedures: Wet, dry smear	Fresh Specimens for the Detection of Microorganisms or Parasites. Learn Gram	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	- Written Examination s. - Quizzes. -homework. -writing a clinical reports.
9	Λ	Staining reactions: Gram & Ziehl-Neelsen stain	Staining and Ziehl–Neelsen Staining for the Identification and Diagnosis of Bacterial Species.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case	- Written Examination s. - Quizzes. -homework. -writing a clinical reports.

			identify the Different Types of Culture Media and Their Applications in the Growth and Isolation of Bacteria.	studies.	
10	Λ	Culture media	Study the Characteristics of Bacterial Colonies, Including Size, Color, Shape, Margin, and Elevation.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	- Written Examination s. - Quizzes. - homework. -writing a clinical reports.
11	Λ	Metabolism: Oxygen requirement, need for CO ₂ , pigment production, hemolysis	Identify the Oxygen and Carbon Dioxide Requirements of Bacteria, Pigment Production, and Types of Hemolysis.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	Written Examination s. - Quizzes. - homework. -writing a clinical reports. -
12	8	Biochemical tests	Identify the Biochemical Tests Used for the Diagnosis of Bacteria.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	- Written Examination s. - Quizzes. - homework. -writing a clinical reports.
13	8	Biochemical tests		Lectures using multimedia elements like slides, diagrams, and	- Written Examination s. - Quizzes. - homework.

			Perform Selected Biochemical Tests and Interpret Their Results.	videos Practical laboratory training, case studies.	-writing a clinical reports.
14	Λ	Biochemical tests	Perform and Evaluate a Series of Biochemical Tests to Confirm Bacterial Identification.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
15	8	Biochemical tests		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.

11. Testing and evaluation

A total of 100 grades divided as following:

5 grades quizzes, 15 grades assignments and practical lab. Assessment.

20 grades mid-term exam.

60 grades final exam.

12. Required textbook(s) and materials.

Required Textbook	Cappuccino & Welsh
Reference textbook	Cappuccino, J. G., & Welsh, C. T. (2020). <i>Microbiology: A Laboratory Manual</i> (12th ed.). Pearson. Forbes, B. A., Sahm, D. F., & Weissfeld, A. S. (2016). <i>Bailey & Scott's Diagnostic Microbiology</i> (14th ed.). Elsevier.
Additional suggested resources	rtora, G. J., Funke, B. R., & Case, C. L. (2019). <i>Microbiology: An Introduction</i> (13th ed.). Pearson.
<i>E-reference</i> materials	Centers for Disease Control and Prevention (CDC) https://www.cdc.gov

13. Course title:
medical physiology I I
14. Course number:
15. Level / semester
Level: 1 st class / first and second semester
16. Date of the course description:
2026

17. Instruction Mode:	
In-person	
18. Credit hours:	
٣٦ hr	
19. Instructors:	
Name: Prof.Dr Hanaa Abdul Abbas Abdulameer Email: hanaa.abdulameer@qu.edu.iq	
20. Course objectives:	
Course Objectives:	1- Providing students with a sound scientific and practical background on many physiological principles of function. The basic nature related to the various cells, organs, and systems of the body and its relationship to the various Satisfaction and necessary treatments, which are necessary and fundamental to understanding the effect of various medicines on the effectiveness of It helps and enables students to understand the importance of physiology and practical experience. By directly carrying out many practical medical physiology experiments and obtaining practical results. Why and which ,It often translates what students have received in the theoretical part. 2- Enabling students to understand the basic principles of the physiological functions of various tissues and organs For humans, and how to evaluate these functions and link them to natural and abnormal conditions and the roles of balance Physical in integrating the physiological state of the body

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21. Teaching and learning strategies:

Teaching strategy	-Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Alpha maps strategy Himiya - Practical field training strategy - Self-learning strategy - E-learning strategy - Study strategy - Conclusion strategy - Divergent practice strategy - Switching strategy Ideas - strategy for providing examples
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22. COURSE STRUCTURE

WEEK	Hour.	TOPICS	LEARNING OUTCOMES	TEACHING METHODOLOGY	ASSESSMENT METHODOLOGY
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1	٣	Cell physiology ,	Cell physiology , passive transfusion ,Active transport diffusion,Osmosis, cell organelles function ,ECF,ICF	the blackboard PowerPoint slides E-Learning,	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
2	٣	Physiology of nerves and muscles	(excitation and conduction) Nerve fiber types and function ,cardiac ,Skeletal muscle and smooth: Refelex synaptic transmission cutaneous deep and visceral sensation	Lectures using multimedia elements like slides, diagrams, and videos	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
3	٣	Alert behavior, sleep and electrical activity of the brain ,control of posture and movement: higher function of the nervous system central regulation of visceral function : the autonomic nervous system .		Lectures using multimedia elements like slides, diagrams, and videos ,	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
4	٨	Respiratory Zone, Mechanics of respiration air volumes, respiratory muscles , compliance of the lung and chest wall ,surfactants ,differences in the lung ,Dead space and uneven ventilation Pulmonary circulation , pressure ,volume and flow gas of respiration		Lectures using multimedia elements like slides, diagrams, and videos ,	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.

5	۳	The lung and tissue ,Regulation of respiration: Neural control of breathing , Respiratory centers ,Regulation of respiratory activity : Chemical factors non chemical factors Respiratory adjustment in health and disease: Effect of exercise ,hypoxia, Emphysema,Asthma		Lectures using multimedia elements like slides, diagrams, and videos ,	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
6	۳	Renal physiology : Introduction innervations of the renal vessel, renal clearance, renal blood flow, glomerular filtration rate : Measurment , factors affecting GFR, Filtration fraction ,reabsorption of Na-Cl and Glucose.Tubuloglomerular feed back and tubules		Lectures using multimedia elements like slides, diagrams, and videos ,	-Written Examinations. Quizzes. Homework. writing a clinical reports.
7	۳	Acidosis , Micturation ,countercurrent mechanism,		Lectures using multimedia elements like slides, diagrams, and videos ,	Written Examinations. Quizzes. homework writing a clinical reports.
8	۳	Role of urea,water excretion .		Lectures using multimedia elements like slides, diagrams, and videos ,	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
9	۳	Endocrine physiology Pitutray gland Hypothalamus thyriod gland para thyroid gland Pineal gland Adrenal glands Ovaries and testes		Lectures using multimedia elements like slides, diagrams, and videos ,	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.

		Pancreas Disease related with endocrine disturbances 1.			
10	٣	GIT , stomach and intestinal movements ,functions , Sensation , related with nervous system , digestion , Acid –base balance, metabolic rate ,abnormal condition		Lectures using multimedia elements like slides, diagrams, and videos ,	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
١١	٣	Female reproductive system , Anatomy and function , pregnancy ,labor ,nerve control hormonal control, menstrual cycle , abnormal condition ,Blood , types of anemia ,blood		the blackboard PowerPoint slides E-Learning	Assignments
١٢	٣	Male reproductive system ,Anatomy and function, nerve and hormonal control, coagulation, factors effect on it, bleeding		the blackboard PowerPoint slides E-Learning	QUIZE

23. Testing and evaluation

A total of 100 grades divided as following:

20 grades practical lab. Assessment.

20 grades mid-term exam(physiology).

60 grades final exam.

24. Required textbook(s) and materials.

Required Textbook

1) Guyton and Hall: Textbook of Medical Physiology. 14ed, 2022.

	2) A TEXTBOOK OF PRACTICAL PHYSIOLOGY: Jaypee Brothers Medical Publishers
Reference textbook	1) Guyton and Hall: Textbook of Medical Physiology. 14ed, 2022. 2) A TEXTBOOK OF PRACTICAL PHYSIOLOGY: Jaypee Brothers Medical Publishers
Additional suggested resources	Ganong text book of physiology last edition
E-reference materials	GOOGLE SCHOLAR

Course description:

1- Course title:
Physiology (Practical) for 2 nd stage
2- Course number:

3- semester / Level	
1 st semester/ 2026	
4- The date this description was prepared:	
5- Instruction Mode:	
In-person	
6- Credit hours:	
30 hours , 8 hrs./week	
7- Instructors:	
Name: Asst.Lect. Zainab Jawad Majeed Email: zainab.jawad@qu.edu.iq	
8- Objectives of the course	
Course Objectives:	1- To provide students with the fundamental theoretical knowledge and practical skills in Physiology by introducing them to the physiological functions of various cells, tissues, and organs, and relating these functions to both normal and pathological conditions, thereby enhancing their understanding of the effects of drugs and therapeutic interventions on body functions. 2-To enable students to perform practical experiments in medical physiology, use laboratory equipment correctly, analyze and interpret experimental results, and relate them to theoretical concepts, thereby strengthening their understanding of physiological functions and the mechanisms involved in maintaining homeostasis.
9- Teaching and Learning Strategies:	

Teaching strategy	-Practical laboratory training to develop students' hands-on and technical skills. -Scientific discussions to enhance understanding and active participation. -Collaborative learning (group work) to foster teamwork and communication skills. -Case-based learning to relate theoretical concepts to physiological conditions. -The use of examples to clarify scientific concepts. -E-learning to support and enhance the educational process. -Self-directed learning through scientific resources and references. Practical exercises to develop laboratory competencies and technical skills. -Brainstorming and critical thinking to analyze and interpret experimental results. -Concept mapping to organize information and establish relationships among concepts. -Continuous review and revision to reinforce understanding and knowledge retention.

10- Course structure:

Physiology (Practical) – Second Year, First Semester

The Week	Hour.	Topics	Learning outcomes	Teaching method	Assessment methodology
1	8	Introduction to Medical Physiology: Basic principles of medical physiology, introduction to the body's major organ systems, laboratory equipment, and their proper use.	Understand the basic principles of medical physiology. - Become familiar with laboratory instruments and equipment. - Develop scientific report writing skills	Lecture, practical demonstration, and laboratory experiments.	In-class activities, quizzes.
2	8	Measurement of Arterial Blood	Understand the	Practical experiment and	Quizzes, practical

		Pressure using a Sphygmomanometer and comparison with an electronic blood pressure monitor.	mechanisms regulating blood pressure. - Develop the skill of measuring blood pressure and interpreting the results.	discussion of results.	skills assessment.
3	8	Blood Typing and Blood Transfusion	Identify blood groups and understand the principles of blood transfusion compatibility.	Lecture and laboratory experiment.	Quizzes, practical assessment.
4	8	Packed Cell Volume (PCV)	Calculate the Packed Cell Volume (PCV) and explain its clinical significance.	Interactive explanation and practical training.	Practical examination
5	8	Determination of Hemoglobin Concentration	Measure hemoglobin concentration and understand its relationship to blood function.	Interactive explanation and practical training.	Daily quizzes, practical assessment.
6	8	(Blood Indices)	The student will identify the red blood cell indices. The student will calculate and analyze the basic blood indices. . The student will relate blood indices results to the diagnosis of	Interactive explanation and practical training	Daily quizzes, practical assessment.

			some blood disorders.		
7	8	Bleeding Time and Clotting Time	Explain the mechanisms of blood coagulation and measure bleeding and clotting times.	Lecture, interactive explanation, and laboratory training.	Quizzes, practical assessment.
8	8	Blood Pressure	Measure blood pressure accurately and understand the factors affecting it.	Lecture and practical measurement training.	Quizzes, practical assessment.
9	8	Effect of Exercise on Blood Pressure	Explain changes in blood pressure during and after physical exercise.	Practical experiment and analysis of results.	Quizzes, laboratory report
10	8	Electrocardiogram (ECG)	Identify the waves of a normal electrocardiogram and interpret normal ECG recordings.	Lecture and practical training.	Quizzes, practical assessment.
11	8	Lung Function Tests	Understand respiratory system function and assess lung performance. - Develop practical skills in performing and interpreting lung function tests.	Lecture and practical laboratory training.	Daily quizzes, laboratory reports.

12	8	Local regulatory mechanisms: Hypertension; Heart	To identify the local regulatory mechanisms that contribute to the regulation of organ functions and maintenance of homeostasis, particularly the regulation of blood flow.	Interactive lecture and scientific discussion	Daily quizzes, reports
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11- Testing and evaluation

- Distribution of the score from 100 according to the tasks assigned to the student, such as preparation today And daily, oral, monthly, written exams, reports, etc.

- Daily exams 5 marks - Daily preparation and class activities 5 marks - Mid-semester exam is 20 marks

- Final exam: 60 marks

1 2 - Learning and teaching resources

1) Guyton and Hall: Textbook of Medical Physiology. 14ed, 2022. A TEXTBOOK OF PRACTICAL 2) PHYSIOLOGY: Jaypee Brothers Medical Publishers	Required prescribed books
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Course Objectives:

- Teaching the student to deal with the computer correctly and introducing him to the development of computer networks, its types and stages of development, and the fundamental role that computer networks have played in the development of methods and means of communication between computer users in particular and smart device users in general, as well as introducing the benefits of using the Internet and the Internet of Things and what the Internet has added to our lives. It generally overlaps in most aspects of life by facilitating access to vast and other information, as well as introducing the dangers of incorrect use of

	the Internet, in addition to teaching students the dangers of computer viruses and ways to prevent them, as well as computer crimes.
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9- Teaching and learning strategies:

Teaching strategy	Applying scientific subjects directly with theoretical explanation on the display screen, urging students to share their information on the topics, teaching them the best ways to use research and creating electronic accounts on various search engines such as Google, Microsoft, and others, and teaching them the correct ways to use e-mail in academic correspondence.
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10- Course structure:

Computer Science, Second year/second semester

The Week	Hour.	Topics	Learning outcomes	Teaching method	Assessment methodology
12	2	Definition of computer networks and their components	Computer Networks	Main display screen + computers	Daily tests
13	2	Benefits of computer networks and their types	Computer Networks	Main display screen + computers	Daily tests
14	2	Methods of connecting computer networks	Computer Networks	Main display screen + computers	Daily tests
15	2	Data transfer protocols	Computer Networks	Main display screen + computers	Daily tests
16	2	What are computer viruses + the virus features	Computer viruses	Main display screen + computers	Daily tests
17	2	Symptoms of infection + methods of prevention	Computer viruses	Main display screen + computers	Daily tests

18	2	Types of computer viruses	Computer viruses	Main display screen + computers	Daily tests
19	2	Types of anti-virus software + review	Computer viruses	Main display screen + computers	Daily tests
20	2	The Internet and its stages of development	The Internet	Main display screen + computers	Daily tests
21	2	Services provided by the Internet	The Internet	Main display screen + computers	Daily tests
22	2	Browsers and search engines	The Internet	Main display screen + computers	Daily tests
23	2	File Transfer Protocols + Email Service	The Internet	Main display screen + computers	Daily tests
24	2	The role of computers in crime + an overview of computer crimes in the world	Computer crimes	Main display screen + computers	Daily tests
25	2	Computer criminal activities sections	Computer crimes	Main display screen + computers	Daily tests
26	2	Prevention and caution against electronic crimes	Computer crimes	Main display screen + computers	Daily tests

11- Testing and evaluation

- Distribution of the score from 100 according to the tasks assigned to the student, such as preparation today And daily, oral, monthly, written exams, reports, etc.
- Daily exams 5 marks - Daily preparation and class activities 5 marks - Mid-semester exam is 30 marks
- Final exam: 60 marks

1 2 - Learning and teaching resources

Computer basics and office applications - Ministry of Higher Education and Scientific Research - Department of Research and Development	Required prescribed books
Yusr Al-Mustafa Science Series "Computer Basics, Internet Office, 2020, Dr. Ziyad Muhammad Abboud, Dar Al-Doctor for Publishing and Distribution, Baghdad 2020	Main references (sources)
Coursera ,Udemy and Cisco Networking Academy	Electronic references, Internet sites...

25. Course Name:	
Biochemistry II\ theory	
26. Course Code:	
27. Semester / Year:	
Semester	
28. Description Preparation Date:	
2026	
29.Available Attendance Forms:	
Attendance only	
30.Number of Credit Hours (Total) / Number of Units (Total)	
3 hours weekly/ 3 units\ 15 weeks	
31. Course administrator's name (mention all, if more than one name)	
32. Course Objectives	
Course Objectives	A - Cognitive Objectives: A1 - Define how energy is produced in the body and the correlation of various biological processes with this objective. A2 - Enable students to better understand the functional aspects of body cells. A3 - Enhance students' ability to connect information by establishing links between food intake, cellular respiration, and energy production. A4 - Provide a comprehensive curriculum in strong foundational biochemistry and molecular biology. By the end of the semester, students should be able to understand all metabolic processes occurring in living cells. B - Skills Objectives Specific to the Course:

	B1 - Engage in research activities in the field of specialization, such as student graduate projects, and link them to pharmaceutical specialization. B2 - Organize seminars, workshops, and courses in the field of biochemistry, involving students in attendance to enhance their understanding of the basics of this science. B3 - Prepare reports by students in the specialization to measure the extent of their understanding
33. Teaching and Learning Strategies	
Teaching Strategies	Teaching concepts interactively through the use of practical experiments and various activities. Using multiple educational media such as illustrations, videos, and simulations. Encouraging interaction and discussion in the classroom among students to exchange ideas and knowledge. Implementing cooperative learning strategies such as group work and collaborative projects. Utilizing diagnostic assessment techniques to understand students' needs and help them improve their performance. Organizing diverse instructional sessions including guided lectures, hands-on activities, and group discussions. Adopting self-directed learning methods to encourage students to explore topics more deeply outside the classroom.
Learning Strategies	Active Learning and Interaction: Using methods to encourage students to participate actively in academic processes, such as group study, problem-solving, and discussions. Utilizing Technology: Employing modern educational media such as educational videos, interactive software, and computer simulations to better illustrate life chemistry concepts. Practical Experiments: Organizing practical laboratory experiments to help students understand life chemical phenomena and apply theoretical concepts in reality. Cooperative Learning: Encouraging teamwork and problem-solving through collaboration with peers, helping them enhance interaction and exchange ideas. Diagnostic Assessment: Employing diagnostic assessment techniques to understand student level of understanding and identify their strengths and weaknesses, enabling teachers to guide students more effectively. Self-directed Learning: Encouraging students to use multiple learning resources such as e-books, scientific articles, and scientific journals to deepen their understanding of the topics.

Clinical Case Application: Using clinical case studies related to life chemistry in the pharm context to clarify the practical applications of theoretical concepts.

34. Course Structure

Week	Hours	Unit Name/Topic	Teaching Method	Evaluation method	
١	2	Bioenergetics.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
٢	2	Biologic oxidation.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
٣	2	The respiratory chain and oxidative phosphorylation.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
٤	1	Over view metabolism.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
	2	Citric acid Cycle.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
٥	2	Glycolysis.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
	2	Metabolism glycogen.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
٦	3	Gluconeogenesis.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
	3	Pentose phosph pathway and other pathways of hex metabolism.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	

٧	3	Biosynthesis of fatty acids.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
	2	Oxidation of fatty acids.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
٨	2	Metabolism of acylglycerol and sphingolipids.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
٩	2	Lipid transport and storage.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
١٠	2	Cholesterol synthesis, transport, and excretion.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
١١	3	Biosynthesis of Nutritionally Nonessential Amino Acids.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
١٢	3	Catabolism of Proteins & of Amino Acids and Nitrogen	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
١٣	3	Catabolism of Carbon Skeletons of Amino Acids.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
١٤	3	Conversion of Amino Acids to Specialized Products.	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	
١٥	3	Porphyryns & Pigments	Using the whiteboard, slide presentation, and scientific references	Written exams and daily quizzes	

35. Course Evaluation

For the theoretical part 20 marks covering theoretical aspects of organic and inorganic chemistry, as well as molecular, physical, and analytical chemistry. The course also includes practical part, making the final mark is 40

Quiz : 2 marks

Participation in class and class activities: 1 mark

Mid exam : 17 marks

Final exam : 60 mark

Required textbooks (curricular books, if any)	Harper's Illustrated Biochemistry, Latest edition.
Main references (sources)	Murray, R.K., Granner, D.K., Mayes, P.A. and Rodwell, V.W., 2014. <i>Harper's illustrated biochemistry</i>. Mcgraw-hill. Vasudevan, D.M., Sreekumari, S. and Vaidyanathan, K., 2013. <i>Textbook of biochemistry for medical students</i>. JP Medical Ltd. MORELAND, B., 1988. Lippincott's Illustrated Reviews: Biochemistry.
Recommended books and references (scientific journals, reports...)	Lehninger Principles of Biochemistry, 4th Edition
Electronic References, Websites	GOOGLE SCHOLAR

Course Description

1. Course Name	
Pathophysiology	
2. Course Code	
315	
3. Semester/Year	
3rd Class, 1st Semester	
4. Date this description was prepared	
2026	
5. Available attendance forms	
Theory and practical	
Number of academic hours (total) / number of units (total)	
45 hours Theory (3hrs/wk) - and 30 hrs practical (2hrs/wk)	
7. Name of course coordinator(s):	
Name: A s s i s t . Prof. Neeran F. Hassan Neeran.hassan@qu.edu.iq Name: Lecturer. Dr. Mohammed Abdulredha	
8. Course objectives	
Objectives of the study subject	Describe the basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation. Outline basic pathological factors that influence the disease process. Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems. .(Describe clinical manifestations associated with the diseased organ(s)
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	1	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	Introduction.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	6	- Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development).	Cell injury and tissue response; Degeneration; Necrosis; Atrophy; Hypertrophy; Metaplasia and Calcification; Inflammation and Repair.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	4	- Performing practical experiments	Disorders of electrolytes and water and acid–base balances: Hyper And Hyponatremia; Hyper and Hypokalemia; Syndrome of inappropriate secretion of ADH; Diabetes insipidus; Metabolic acidosis and alkalosis; Respiratory	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

		- Acquiring skill in using computers	acidosis and alkalosis		
4	5	- Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	Disorders of cardiovascular system: Hyperemia; Congestion and edema; Thrombosis; embolism and infarction; Shock; Coronary heart disease and MI; Rheumatic heart disease; Heart failure; Acute pulmonary edema; Essential hypertension; Secondary hypertension; Malignant hypertension; Hypotension; Aneurysm versus varicose veins;	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	3		Disorders of respiratory system: Pneumonias; Tuberculosis; Respiratory distress syndrome; Bronchial asthma; Emphysema and bronchiectasis; Cystic fibrosis; Pulmonary embolism; Pulmonary hypertension.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	4		Disorders of the renal system: Nephrotic syndrome; Glomerulonephritis; Diabetic glomerulosclerosis; Hypertensive glomerular disease; Pyelonephritis; Drug related nephropathies; Acute renal failure; Chronic renal failure	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	4		Disorders of GI and hepatobiliary systems: Peptic ulcer and Zollinger –Ellison syndrome; Irritable bowel syndrome; Crohn's disease; Diarrhea; Celiac disease; Viral hepatitis; Primary biliary cirrhosis; Liver	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

			failure; Cholelithiasis		experiments
8	2		Disorders of thyroid function: Hypothyroidism. Hyperthyroidism. Graves's disease. Thyrotoxicosis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	2		Disorders of adrenal function: Cushing syndrome. Adrenal cortical Insufficiency (primary and secondary). Congenital adrenal hyperplasia. Pheochromocytoma.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	3		Diabetes mellitus and metabolic syndrome	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	2		Dyslipoproteinemia.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	4		Neoplasia	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

					-Conduct laboratory experiments
13	2		Metabolic & rheumatic disorders of skeletal system: -Osteoporosis, osteomalacia & rickets, rheumatoid arthritis, systemic lupus erythematosus, ankylosing spondylitis, gout, osteoarthritis syndrome.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	3		Alterations in the immune response (pathophysiology of immunopathology): - Hypersensitivity disorders. -.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	2		Transplantation immunopathology. - Immunodeficiency disorders	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks
Required any

an introduction to clinical medicine 7ed. Cary D. Hammer, editor
Stephen J. Mc Phee editor

Main references (sources)	- Essentials in Pathophysiology by: Carol Mattson Porth 2nd Ed.and pathophysiology of disease :
Recommended supporting books and references scientific journals, reports))	https://www.us.elsevierhealth.com/nursing/pathophysiology
references , websites	https://bookauthority.org/books/best-pathophysiology-books

36. Course Name:					
Toxicology					
37. Course Code:					
38. Semester / Year:					
Second semester/ 4 th year					
39. Description Preparation Date:					
2026					
40. Available Attendance Forms:					
Attendance only					
41. Number of Credit Hours (Total) / Number of Units (Total)					
30 hours					
42. Course administrator's name (mention all, if more than one name)					
Name: ass. prof Asaad Hassan Sakr					
Name: Ph. Ahmed Malik					
43. Course Objectives					
Course Objectives		1- The primary goal of Toxicology is to provide basic information and general principles that It is based on the optimal use of medications in treating patients. 2- Introducing pharmacy students to the general pharmacology of the central nervous system and different drug groups A medicine used in the treatment of diseases of the central nervous system. That changes his job. 3- The student learns about the different medications used in the treatment of heart diseases. And blood vessels and blood disorders. 4- In addition, the course will cover medications that affect Digestive system and respiratory system			
44. Teaching and Learning Strategies					
Strategy		It specializes in the study of chemicals on the bodies of living organisms, especially their effect on human body, and the study of the side effects of chemicals on living organisms, the symptoms caused by these substances, the symptoms and methods of treating them, and how to detect these substances.			
45. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Outputs	Introduction, general	Using of board and PowerPoint	Quiz

		Knowledge	consideration, host factor	and official references	Midterm exam Final exam
2	2				
3	2	The student should be able to know the reasons Symptoms and diagnosis Various diseases	Carcinogenesis and sleeping medications. • Display for some devices . Laboratory		
4	2		Mutagenesis		
5	2	Determine the appropriate medication For each disease case, know everything related to the effects of therapeutic and culprit medication and contraindications for use How to treat the patient And educate him about his health.	Target organs and systemic toxicology, respiratory, liver, kidney, skin, nervous system, cardiovascular, system blood Toxic substances		
6	2				

7			Invironmental toxocology		
8	2		Toxic substance		
9	2				
46. Course Evaluation					
40 degree for mid term and 60 for final exam					
Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			<i>Casarett and Doulls</i> - <i>toxicology</i>		

Recommended books and references (scientific journals, reports...)	British National Formulary
Electronic References, Websites	GOOGLE SCHOLAR, FDA

47. Course Name:	
Clinical toxicology	
48. Course Code:	
49. Semester / Year:	
Forth stage / second semester	
50. Description Preparation Date:	
2026	
51. Available Attendance Forms:	
Attendance only	
52. Number of Credit Hours (Total) / Number of Units (Total)	
8 hours weekly	
53. Course administrator's name (mention all, if more than one name)	
Name: Asst .prof .frah razzaq Email frah razzaq. @qu.edu.iq	
54. Course Objectives	
Course Objectives	. 1 - Studying the different types of toxin and how to deal with them in the toxicology 2- Study of various toxin (causes, symptoms, diagnosis, and treatment) 3- Study the communication skills necessary for the work of a toxicologist 4- Studying the ethics of the toxicologist profession -° Study methods for calculating concentrations of dangerous toxin in the blood and how to deal with them
55. Teaching and Learning Strategies	

Strategy	By providing theoretical, practical and applied lectures and assigning small groups to create educational scenarios Simulates the work of a toxicologist in toxin
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56. Course Structure

week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	ساعة 2	The student knows the introduction to clinical toxicology and community pharmacy	General toxicology	Using of board and PowerPoint and official references	Quiz
2	ساعة 2		Nicotine toxicity		Midterm exam
3	ساعة 2		Organophosphate toxicity		Final exam
4	ساعة 2		Lead toxicity		

5	٢ ساعة				
6	٢ ساعة		Co toxicity		
			Cadmium toxicity		
7	٢ ساعة				
			Mercury toxicity		
٨	٢ ساعة				
			Arsenic toxicity		
٩	٢ ساعة				

1٠	ساعة2				
١١	ساعة٢				
١٢	ساعة2		Uranium toxycity		
١٣	ساعة٢		Pesticide		
1٤	٢ ساعة		PCR test		
1٥	ساعة2		Bacterial toxicity		
			Fungus toxicity		
			Virus toxicity		

			Food additive		
57. Course Evaluation					
5 degree for report , student attendance and 15 for final exam					
1. Learning and Teaching Resources Oral hygiene,					
2. mouth ulcer					
Required textbooks (curricular books, if any)			A TEXTBOOK OF MODERN TOXICOLOGY THIRD EDITION Ernest Hodgson 1. <i>Toxicology?". Computational Toxicology. Methods in Molecular Biology..</i> DOI:10.1007/978-1-62703-050-2 1. ISBN:978-1-62703-049-6 . PMID:23007423 . 2. Hartung T (2009). <i>"A toxicology for the 21st century--mapping the road ahead"</i> . <i>Toxicological Sciences.</i> — 1^ : 1 . 2^ DOI:10.1093/toxsci/kfp059 . PMC:2675641 . PMID:19357069 . 3. Berg N, De Wever B, Fuchs H. W., Gaca M, Krul C, Roggen E. L. (2011). <i>"Toxicology in the 21st century--working our way towards a visionary reality"</i> . <i>Toxicology in Vitro.</i> 2^ . ^1. DOI:10.1016/j.tiv.2011.02.008 . PMID:21338664 . • Amdur MO, Doull J, Klaassen, CD. 1993. Cassarett and Doull's Toxicology: The Basic Science of Poisons. New York: McGraw-Hill, Inc. • Gilbert SG. <i>A Small Dose of Toxicology – The Health Effects of Common Chemicals</i> . CRC Press, Boca Raton, February 2004, p 266. – see web site http://www.asmalldoseof.org/		
Main references (sources)			- (John Wiley and Sons. 1^ . ISBN:0-470-46206-X. - Levey M, Martin (1966). <i>Medieval Arabic Toxicology: The Book on Poisons of ibn Wahshiyya and its Relation to Early Native American and Greek Texts</i> . - "Biography of Mathieu Joseph Bonaventure Orfila (1787–1853)". U.S. National Library of Medicine.. - Ottoboni M, Alice (1991). <i>The dose makes the poison : a plain-language guide to toxicology</i> (Y .nd). New York, N.Y: Van Nostrand Reinhold. ISBN:0-442-00660-8. - Committee on Risk Assessment of Hazardous Air Pollutants, Commission on Life Sciences, National Research Council (1994).		

	Science and judgement in risk assessment. The National Academic Press.. ISBN:978-0-309-07490-2.
Recommended books and references (scientific journals, reports...)	British National Formulary
Electronic References, Websites	FDA

58. Course Name:	
Clinical Pharmacy	
59. Course Code:	
60. Semester / Year:	
Semester	
61. Description Preparation Date:	
2026	
62. Available Attendance Forms:	
Attendance only	
63. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours weekly/ 3 units	
64. Course administrator's name (mention all, if more than one name)	
Name: Ph. Sajjad Allewi Name: Ph. Eman Shaker Abaar Email: pheman98@qu.edu.iq	
65. Course Objectives	
Course Objectives	1 - Studying the different types of minor illnesses and how to deal with them in the pharmacy 2- Study of various diseases (causes, symptoms, diagnosis, and treatment) 3- Study the communication skills necessary for the work of a pharmacist 4- Studying the ethics of the pharmacy profession Study methods for calculating concentrations of dangerous drugs in the blood and how to deal with them
66. Teaching and Learning Strategies	
Strategy	By providing theoretical, practical and applied lectures and assigning small groups to create educational scenarios Simulates the work of a pharmacist in pharmacies

67. Course Structure					
week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 ساعة	The student knows introduction to clinical pharmacy community pharmacy	Introduction to community and clinical pharmacy	Using of board and PowerPoint and office references	Quiz Midterm exam Final exam
2	2 ساعة		Clinical pharmacy practice in neonates ,pediatrics and geriatrics		
3	2 ساعة		Respiratory problems:Cough, Common cold,allergic rhinitis Otitis media,laryngitis Pharyngitis.		
4	2 ساعة		G.I.T Proplem: Diarrhea, Consitpation, Heart burn and indigestion,IBS and Hemorrhoid		
5	2 ساعة		Pediatric care practice:Oral thrush ,pinworms and head lice		
6	4 ساعة		Skin conditions: Acne, Scabies,		

			Psoriasis, Hair loss, Fungal infection, Eczema and Dermatitis , Dandruff, Cold sore, Corns and Callus		
7	2 ساعة		CNS related problems: Headache, Insomnia, ,Motion sickness Nausea and vomiting		
8	2 ساعة		Women's health care: Cystitis and vaginal thrush, primary dysmenorrhea and Premenstrual Syndrome		
9	2 ساعة		Eye problems, ENT problem		
10	1 ساعة		Oral hygiene, mouth ulcer		
11	2 ساعة		Obesity and		

12	1 ساعة		body weight control		
13	2 ساعة		<i>Pain and musculoskeletal Disorders.</i>		
14	٢ ساعة		Nicotine replacement therapy		
15	١ ساعة		Dietary supplements		
			Medication adherence and errors		

68. Course Evaluation

40 degree for mid term and 60 for final exam

3. Learning and Teaching Resources Oral hygiene,
4. mouth ulcer

Required textbooks (curricular books, if any)

Principles of clinical pharmacology
(academic press)

Pharmacotherapy casebook: a patient
focused approach (Mcgraw Hill)

Pharmacotherapy (a pathophysiologic
approach)

	Paul Rutter:community pharma (diagnosis and treatment)
Main references (sources)	Case files pharmacology 2014 (Mcgraw Hill) • MCQ in pharmacology (CBS) Clinical pharmacy and therapeutics (Rager Walker) 2011
Recommended books and references (scientific journals, reports...)	Journal of Clinical pharmacy and therapeutics International journal of clinical pharmacy
Electronic References, Websites	GOOGLE SCHOLAR

69. Course Name:	
Pharmacology II	
70. Course Code:	
71. Semester / Year:	
First semester/ 4 th year	
72. Description Preparation Date:	
2026	
73. Available Attendance Forms:	
Attendance only	
74. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours weekly/ 5 units	
75. Course administrator's name (mention all, if more than one name)	
Name: ass.prof. hussam hamza sahib Email. hussam.alfatlawi@qu.edu.iq	
Name: ass.prof. Hussein ali sahib	
76. Course Objectives	
Course Objectives	5- The primary goal of pharmacology is to provide basic information and general principles that It is based on the optimal use of medications in treating patients. 6- Introducing pharmacy students to the general pharmacology of the central nervous system and different drug groups A medicine used in the treatment of diseases of the central nervous system. That changes his job. 7- The student learns about the different medications used in the treatment of heart diseases. And blood vessels and blood disorders. 8- In addition, the course will cover medications that affect Digestive system and respiratory system
77. Teaching and Learning Strategies	
Strategy	Brainstorming strategy Team work strategy Discussion strategy Case study strategy Inductive teach strategy Concept maps strategy Practical field training strategy Self-learning strategy E-learn strategy Memory strategy Conclusion strategy Spaced practice strategy Strategy for switch between ideas Strategy for presenting examples
78. Course Structure	

week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3 ساعة	Outputs Knowledge	Introduction to device pharmacology Central nervous system stimulants. Central Introduction to pharmacology	Using of board and PowerPoint official references	Quiz Midterm exam Final exam
2	2 ساعة	The student should be able to know the reasons			
3	3 ساعة	Symptoms and diagnosis Various diseases	The student should be able to know the reasons Symptoms and diagnosis Various diseases		
4	2 ساعة	Determine the appropriate medication	Anxiolytic and sleeping medications. • Display for some devices . Laboratory		
5	3 ساعة	For each disease can know everything related to the effect of therapeutic and culprit medications and contraindications for use How to treat the patient And educate him about his health.	• General and local anesthesia.		
6	2 ساعة	Study of calculation methods Concentrations of dangerous drugs in the blood and how deal with them	• Antipsychotic medications (antipsychotics) •		

7	3 ساعة	With her - Acquiring skills How to work and meet Seminars and lectures	The beginning of the drug's effect and its duration Effective • Painkillers and antibiotics		
8	2 ساعة	The type of drug education skill for patients and dealing with Patients How to dispense the medication in Pharmacies for cases Simple extraction s	Opiates •		
9	3 ساعة		The beginning of work and the duration of treatment.		
10	3 ساعة	The information required from approved sources.	Barbiturates • Treating degenerative diseases Nervousness • • Antiepileptic drugs. • Antihypertensive medications. The effect of		
11	3 ساعة	- Outputs Emotionalism and value	parasympathetic stimulators on Glandular secretions		
12	3 ساعة	Thinking skills through translation and analysis	• Diuretics • (HF). Treating heart failure Evaluation of non-steroidal anti-inflammatory drugs (NSAIDs)		
13	3 ساعة	Evaluate and extract			

14	٣ ساعة	Ideas to implant moral values for proper dealing with Patients			
15	٣ ساعة	- Transferable general and rehabilitative skills (Other skills.) related to employability and development (.Personal)			

79. Course Evaluation

40 degree for mid term and 60 for final exam

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lipincott Illustrated Reviews Pharmacology 7rd Edition ٢٠١٩,
Main references (sources)	- Goodman & Gilman's The Pharmacological Basis of Therapeutics 1٢th edition ٢٠١٨. - Katzung & Trevor's Pharmacology Examination and Board Review 1٢th Edition ٢٠١٩ (٢٠١٩ Rang & Dale's Pharmacology 9th Edition)
Recommended books and references (scientific journals, reports...)	British National Formulary
Electronic References, Websites	GOOGLE SCHOLAR, FDA

25. Course title:
Therapeutic drug monitoring (TDM)
26. Course number:
27. Level / semester
Level: 5 th class / 2 st semester
28. Date of the course description:
2026
29. Available attendance forms
Attendance only
30. Credit hours:
3 hrs/week , 3*15=45 hr.
31. Instructors:
Name: Ph. Waleed khalid Ph. Zainab Hilal
32. Course objectives:

Course Objectives:	Therapeutic drug monitoring (TDM) involves the measurement and interpretation of drug concentrations in order to individualise therapy. 1.enable the student to Identify the categories of therapeutic drugs that are frequently monitored in clinical settings. 2. Discuss criteria for reporting TDM results, including documentation of drug administration information, when appropriate, and critical result reporting. 3. prepare the student for the application and incorporation of therapeutic drug monitoring and clinical pharmacokinetics into the patient care process. 4. introduce the pharmacy student to a variety of medications that require monitoring for maximal therapeutic benefits while minimizing potential adverse events. Students will apply foundational knowledge of pharmacokinetics acquired in coarse , Principles of Pharmacokinetics and Biopharmaceutics, with normal laboratory values to make clinically appropriate recommendations for therapeutic drug dosing and monitoring.
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33. Teaching and learning strategies:

Teaching strategy	- Discussion & Debate. - Student Presentations. - Active Learning. - Experiential Learning. - Case-based learning. - Reactive learning. - Integrative learning.
Learning strategies	- Cognitive Strategies (Rehearing, Organization, and Elaboration) . - Meta-Cognitive Strategies (Comprehension monitoring and Self-evaluation).

34. COURSE STRUCTURE

WEEK	Hours	TOPICS	LEARNING OUTCOMES	TEACHING METHODOLOGY	ASSESSMENT METHODOLOGY
1	۲	Principles of basic clinical pharmacokinetic parameters..	knowledge -Identify categories of drugs that are frequently monitored in clinical settings. - Describe the different stages of drug disposition over time and list factors that can influence drug distribution. - Describe the drug's half-life and how this relates to peak and trough concentrations in the serum. -introduce the pharmacy student to a variety of medications that require monitoring for maximal therapeutic benefits while minimizing potential adverse events. Students will apply foundational knowledge in coarser, with normal laboratory values to make clinically appropriate recommendation for therapeutic drug dosing and	Lectures using multimedia elements like slides, diagrams, case studies	-Written Examinations. - Quizzes. -homework.
2	۲	Initiating treatment based on individualization approach..		Lectures using multimedia elements like slides, diagrams, case studies	-Written Examinations. - Quizzes. -homework.
3	۲	Volume of distribution and target concentration of drug in the plasma.		Lectures using multimedia elements like slides, diagrams, case studies	-Written Examinations. - Quizzes. -homework.
4	۲	Continuing treatment: maintenance dose and clearance, factors affecting clearance.		Lectures using multimedia elements like slides, diagrams, case studies	-Written Examinations. - Quizzes. -homework.
5	۲	Bioavailability and oral maintenance dosage regimen.		Lectures using multimedia elements like slides, diagrams, case studies	-Written Examinations. - Quizzes. -homework.

			monitoring.		
6	۳	Stopping treatment: Elimination rate constant and plasma concentration-time profile, elimination half-life.	Attitudes: - Attention to Detail and Accuracy. - Scientific Curiosity and Lifelong Learning. - Problem-Solving and Critical Thinking. - Teamwork and Collaboration. - Empathy and Patient Care. - Professionalism and Ethical Conduct	Lectures using multimedia elements like slides, diagrams, case studies	-Written Examinations. Quizzes. Homework.
7	۳	Variability in drug dosage requirements: effects of age, body weight.sex, renal function, liver function, genetic factors and drug interactions.		Lectures using multimedia elements like slides, diagrams, case studies	Written Examinations. Quizzes. homework
8	۲	Therapeutic drug monitoring: Principles of TDM, timing of sample collection , aminophyllin , digoxin, gentamicin , phenytoin. lidocaine .		Lectures using multimedia elements like slides, diagrams, case studies.	-Written Examinations. - Quizzes. -homework.
9	۳	Monitoring of anti-infective agents, immunosuppressants, anti-epileptic drugs, drugs used in psychiatry, anti-cancer drugs.		Lectures using multimedia elements like slides, diagrams, case studies.	-Written Examinations. - Quizzes. -homework.
10	۳	Dosage regimen design: Intravenous bolus administration, intravenous infusion.		Lectures using multimedia elements like slides, diagrams, case studies.	-Written Examinations. - Quizzes. -homework.

Professional Attributes:

- Develop strong communication and collaboration skills between students groups.

11	۲	Multiple dosage regimens (Repetitive dosing).	- Maintain professionalism and ethical conduct - Possess a strong work ethic and dedication to patient care.	Lectures using multimedia elements like slides, diagrams, case studies.	Written Examinations. - Quizzes. -homework.
12	۱	Determination of route of administration.		Lectures using multimedia elements like slides, diagrams, case studies.	-Written Examinations. - Quizzes. -homework.
13	۲	Dosing of drugs in infants and children, elderly and obese patient.		Lectures using multimedia elements like slides, diagrams, case studies.	-Written Examinations. - Quizzes. -homework.
14	۱	Effect of food on drug disposition.		Lectures using multimedia elements like slides, diagrams, case studies.	-Written Examinations. - Quizzes. -homework.
				Lectures using multimedia elements like slides, diagrams, case studies.	-Written Examinations. - Quizzes. -homework.

35. Testing and evaluation

A total of 100 grades divided as following:

20 grades assignments ,quizzes and practical lab. Assessment.

20 grades mid-term exam.

60 grades final exam.

36. Required textbook(s) and materials.

Required Textbook	Applied Clinical Pharmacokinetics
Reference textbook	Bauer LA (Ed.), Applied Clinical Pharmacokinetics . McGraw Hill, New York, Latest edition. & Applied Biopharmaceutics and pharmacokinetic ,Author: Leon shargel; Latest edition.
Additional suggested resources	Luthwood, R., Fleming, V. H., Huckaby, G., & Spruill, W. J. Concepts in clinical pharmacokinetics . ASHP, the American Society of Health-Systems Pharmacists, Inc.
E-reference materials	GOOGLE SCHOLAR

37. Course title:
Clinical laboratory training
38. Course number:
39. Level / semester
Level: 5 th class / 1 st semester
40. Date of the course description:
٢٠٢٦/ ٦
41. Instruction Mode:
In-person
42. Credit hours:
2 credits, 4 hrs./week
43. Instructors:
Name: Asst.Lect. Nahid Sabah aldein Email: nahid.Sabahaldin@qu.edu.iq
44. Course objectives:

Course Objectives:	Understand the role of medical laboratory science in the healthcare system. the fundamental principles of human anatomy, physiology, and biochemistry. Apply laboratory techniques in areas like microbiology, immunology, hematology, clinical biochemistry, and blood banking. Analyze and interpret laboratory test results. Ensure quality control and safety procedures in the laboratory setting. Develop effective communication and collaboration skills for working within a healthcare team. writing lab. test orders, and lab. test reports.
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45. Teaching and learning strategies:
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Teaching strategy	- Discussion & Debate. - Student Presentations. - Active Learning. - Experiential Learning. - Case-based learning. - Reactive learning. - Integrative learning.
Learning strategies	- Cognitive Strategies (Rehearing, Organization, and Elaboration) . - Meta-Cognitive Strategies (Comprehension monitoring and Self-evaluation).

46. COURSE STRUCTURE

WEEK	Hours.	TOPICS	LEARNING OUTCOMES	TEACHING METHODOLOGY	ASSESSMENT METHODOLOGY
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1	4	Diagnostic test basics, collecting & transporting specimens. venipuncture, urine specimen. stool specimen.	knowledge - Grasp the correlation between laboratory test results and disease states. - Interpret and analyze clinical data effectively. - Reading test orders and writing clinical reports based on lab. data. Technical Skills: - Perform laboratory procedures with accuracy, precision, and proficiency. - Operate and troubleshoot laboratory equipment effectively.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
2	4	Clinical Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
3	4	Blood urea, Blood creatinine. Creatinine clearance, Uric acid.		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
4	4	Cholesterol, Lipoproteins, triglycerides.		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory, training, case studies	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.

5	4	Blood proteins, Bilirubin.	- Maintain a sterile and safe laboratory environment. - Demonstrate proper handling and disposal of biohazardous materials.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
6	4	Calcium, Inorganic phosphate, Serum chloride	Attitudes: - Attention to Detail and Accuracy. - Scientific Curiosity and Lifelong Learning.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	-Written Examinations. - Quizzes. - Homework. - writing a clinical reports.
7	4	Alkaline phosphatase, Acid phosphatase, Alanine aminotransferase,	- Problem-Solving and Critical Thinking. - Teamwork and Collaboration. - Empathy and Patient Care. - Professionalism and Ethical Conduct	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies	- Written Examinations. - Quizzes. - homework - writing a clinical reports.
8	4	Aspartate aminotransferase. Lactate dehydrogenase, Creatine phosphokinase.		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.

9	4	C-reactive protein test. Rheumatic factor test, Rose Bengal test. Typhoid fever test (Widal test). Pregnancy Test.	Professional Attributes: - Develop strong communication and collaboration skills between students groups. - Maintain professionalism and ethical conduct in all laboratory practices. - Demonstrate a commitment to lifelong learning and continuing education in the field of medical laboratory science. - Possess a strong work ethic and dedication to patient care.	Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
10	4	General urine examination, urine specimen collection.		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
11	4	Hematological tests: RBC count, Hb. PCV, RBC indices, \VBC count, Platelets count.		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	Written Examinations. - Quizzes. -homework. -writing a clinical reports.-
12	4	Blood typing, Coombs test, Bleeding. time, ESR.		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
13	4	Culture media, Enriched culture media for general use		Lectures using multimedia elements like slides, diagrams, and videos	-Written Examinations. - Quizzes.

				Practical laboratory training, case studies.	-homework. -writing a clinical reports.
14	4	Microbiological tests: culture and sensitivity tests, Staining methods		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.
15	4	Bacterial identification tests, antibiotics sensitivity tests, the disc diffusion test.		Lectures using multimedia elements like slides, diagrams, and videos Practical laboratory training, case studies.	-Written Examinations. - Quizzes. -homework. -writing a clinical reports.

47. Testing and evaluation

A total of 100 grades divided as following:

5 grades quizzes, 15 grades assignments and practical lab. Assessment.

20 grades mid-term exam.

60 grades final exam.

48. Required textbook(s) and materials.

Required Textbook	Manual for Laboratory Training Adopted by the Department
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Reference textbook	Bishop, M. L., Fody, E. P., & Schoeff, L. E. (2013). Clinical chemistry: principles, techniques, and correlations. 7th ed. Philadelphia, Wolters Kluwer Health/Hippincott Williams & Wilkins.
Additional suggested resources	Bi Bishop, M. L., Fody, E. P., & Schoeff, L. E. (2013). Clinical chemistry: principles, techniques, and correlations. 7th ed. Philadelphia, Wolters Kluwer Health/Hippincott Williams & Wilkins.
E-reference materials	GOOGLE SCHOLAR National Center for Biotechnology Information NCBI