Academic Program Description Form

University Name: .....Al-Nahrain University.....

Faculty/Institute: .....Pharmacy.....

Scientific Department: .....Clinical Laboratory Science.....

Final Certificate Name: .....Bachelor .....

Academic System: ... Courses .....

Description Preparation Date: 2023-2024

File Completion Date: 2024/04/24

Signature:

Head of Department Name: Ass. Lec. Shaymaa H. Hammode

Date: 24/04/2024

Signature:

Scientific Associate Name: Dr. Rafal Shakeeb

Date: 24/04/2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department: Dr. Noor Adil Abood

Date: 24/04/2024

Signature:

كلية الصيدلة
جامعة النهرين
مكتب العميد
COLLEGE OF PHARMACY
AL-NAHRAIN UNIVERSITY

Approval of the Dean

Prof. Dr. Haydar B. Saleh

Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

1. Program Vision

Program vision is written here as stated in the university's catalogue and website.

2. Program Mission

Program mission is written here as stated in the university's catalogue and website.

3. Program Objectives

General statements describing what the program or institution intends to achieve.

4. Program Accreditation

Does the program have program accreditation? And from which agency?

5. Other external influences

Is there a sponsor for the program?

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	23	54		Basic
College Requirements	1 (Baath Party crimes)	2		Basic
Department Requirements				
Summer Training	NO			
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			Theory	Lab.
First stage/ First semester		Human biology	2	2
First stage/ First semester		Mathematic and Biostatistics	3	
First stage/ First semester		Computer science		2
First stage/ First semester		English Language	1	
First stage/ First semester		Human Right & Democracy	2	
First stage/ Second semester		Medical physics	2	2
First stage/ Second semester		Histology	2	2
First stage/ Second semester		Human Anatomy	1	2
First stage/ Second semester		Computer Science		2
First stage/ Second semester		New Headway Plus	1	
First stage/ First semester		Medical Microbiology I	3	2
Second stage/ First semester		Computer Science		2
Second stage/ First semester		Baath Party crimes	2	
second stage / Second semester		Medical Microbiology II	3	2
Second stage/ Second semester		Computer Science		2
Second stage/ Second semester		Democracy	1	
Second stage/ Second semester		Arabic Language	2	
Third stage/ First semester		Biochemistry I	3	2
Third stage/ First semester		Pathophysiology	3	2
Third stage/ Second semester		Biochemistry II	3	2
Fourth stage/ First semester		Public Health	2	
Fourth stage/ Second semester		New Headway Plus	2	
Fifth stage/ First semester		Clinical chemistry	3	2
Fifth stage/ Second semester		Clinical Laboratory Training	4	

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes 1 **(A 1 - A 2)** -**Human Biology:** The study of the composition of the human body, types of cell structures, types of tissues, bones, skeleton, joints and muscles as well as nutrition. - **Human anatomy:** The study of the digestive system, circulatory system, lymphatic system, respiratory system, urinary system, reproductive system, endocrine system, nervous system, skin -**Histology:** It is concerned with the study of the tissue structure of the human body and aims primarily to give the student a basis for advanced study in the field of health care, physiology. -**English Language:** Providing students with comprehensive knowledge of the English language, literature, linguistics and translation. -**Human Rights and Democracy:** Increasing the student's knowledge of the theoretical aspect and historical development of the subject Human Rights and Democracy -**Computer Science:** Introduction to the basic concept of computer science and information technology. -**Mathematics and Statistics:** Knowledge about the basic concept of mathematics and applications of biostatistics in the medical field. -**Medical Physics:** Introducing the basic concept of medical physics and its applications in the medical and pharmaceutical field. -**Medical Microbiology:** Medical bacteriology is concerned with knowing the different types of bacteria, the shape and name of all microorganisms, parts of the microscope and how it can be used to diagnose different types of bacteria, and classifying bacteria according to their livelihood, for example, into aerobic and non-aerobic and according to their bacillary shape. And spherical, as well as according to its interaction with the dye, such as gram-negative and gram-positive, how to grow bacteria in the media, and how to sterilize and laboratory diagnosis. -**Crimes of the defunct Baath Party:** Defining the nature of the political system that the Baath Party worked to form and analyzing documents related to Baath crimes -**Democracy:** protecting public freedoms of all kinds and human rights, achieving equality among all citizens when achieving their interests, and taking their opinions into account without biasing anyone. -**Arabic language:** developing the student's linguistic vocabulary by providing him with new vocabulary and expressions and providing the student with many words, complex sentences, and methods.	Learning Outcomes Statement 1 **(A 3 - A 4)** -**Human Biology:** The student will be able to describe the composition of the human body, body structure and function, human genetics and chromosome division. - **Human Anatomy:** Understanding and clarifying the study of the various organs in the chest and abdominal cavities. - **Histology**: The student is familiar with the histological description of the human body. -**English language:** Developing students' linguistic and communication skills through the latest technical means. -**Human Rights and Democracy:** Enabling students to understand the importance of education and its role in spreading the culture of human rights and democracy in building a civilized society. -**Computer Science:** It gives students the ability to deal with the concept of computer science, and emphasizes the knowledge, skills, and ability to apply software work professionally in the medical field. -**Mathematics and Statistics:** Emphasizes the knowledge and skills required to efficiently perform the duties and responsibilities of a pharmacist in the field of biostatistics. -**Medical Physics:** Introducing the basic concept of medical physics and its applications in the medical and pharmaceutical field. - **Medical Microbiology:** understanding the topics of bacterial, viral, and parasitic diseases, as well as introducing the most important immunological concepts, such as understanding the mechanism of action of the immune system and the most important diseases resulting from excessive or decreased immune response. - **Crimes of the defunct Baath Party:** Study of the social and psychological effects that resulted from genocides and human rights violations -**Democracy:** Clarifying the application of the democratic system helps exclude dictatorial regimes in societies -**Arabic language:** It gives the student the ability to love reading and reading books It develops their linguistic wealth and increases their culture -**Biochemistry:** Following developments in techniques used in clinical chemistry as well as in molecular diagnosis, understanding the basis of biochemistry, detecting many biomolecules using different biochemical methods, knowledge of the fields of laboratory analysis provides students with the knowledge, skills and efforts required to work in diagnosing diseases through... Laboratory tests.

-**Biochemistry:** Explains the specificity of enzymes, the chemistry involved in enzyme work, and how the process of glucose metabolism occurs, which ultimately leads to the generation of large amounts of energy. It is interested in studying bioenergy, the role of ATP, the importance of carbohydrates and their metabolism, and the importance of Fats and their metabolism, amino acids, proteins and their metabolism, and plasma proteins. And the diversity of the work of the endocrine system and hormones, nucleotide metabolism, DNA structure, and the process of transcription and translation. - **Pathophysiology**: Describes the basic concepts of diseases at the cellular level related to infection, the body's defense mechanism from diseases, mutations, and cellular reproduction. It presents an outline of the basic pathological factors that affect the disease process. It describes the effect of abnormal functions on the organs associated with the disease process of the target body systems. It describes the clinical manifestations associated with diseased organs. - **Public Health:** This program allows students to understand the principles of public health and the art of preventing disease, promoting health, and prolonging life, through an organized community effort. - **Clinical chemistry:** studies the required laboratory tests and interprets the results, disorders of cellular carbohydrate metabolism, disorders of plasma fats and lipoproteins, liver function tests, disorders of kidney function, and plasma enzymes in diagnosis. Hypothalamus and pituitary gland. Adrenal . Reproductive system. Pregnancy and infertility. Thyroid function tests. Plasma proteins. - **Clinical laboratory training:** aims to learn how to conduct different types of analyses, discuss the results, and write clinical reports according to data obtained from the evaluation. Training includes hematology, parasitology, bacteriology, biochemistry, quality control, immunology, serology, virology, general urine examination, sterilization, and blood sampling.	-**Pathophysiology:** Understanding the principle of living cell therapy that has the ability to repair damaged pathways, renew the immune system, and restore health to many living with chronic disease and damaged tissues by diagnosing diseases by detecting causative factors. -**Public Health:** This program allows students to understand the principles of public health and the art of preventing disease, promoting health, and prolonging life, through an organized community effort. - **Clinical Chemistry:** Following developments in techniques used in clinical chemistry as well as in molecular diagnosis and detection of many biomolecules using different biochemical methods and then applying them to clinical cases in the interest of improving outcomes and experiences for patients. - **Clinical laboratory training:** knowledge in the fields of laboratory analysis It provides students with the knowledge, skills, and efforts required to work in diagnosing diseases through laboratory tests in the hospital.
Skills	
Learning Outcomes 2 **(B 1)** -The concept of studying and describing the composition of the human body cellular, histologically and anatomically. -Basic mathematics concept and application of biostatistics in the medical field. -The concept of basic medical physics and its applications in the field of pharmacy. -The concept of programming and computers and its applications in the field of information technology.	Learning Outcomes Statement 2 **(B 2)** -The skill of describing the composition of the human body. -Skill in conducting biostatistics applications in the medical field. -Skill in applications of medical physics in the field of pharmacy. -Skill in computer applications in the medical field. -The skill of acquiring English for communication. -The skill of correct use in gaining freedom to express one's opinion.

-The concept of the English language and internal and external linguistic communication. -The concept of democracy, freedoms and expression of opinion. -The concept of medical microbiology and drug treatments to treat bacterial, viral and parasitic diseases, as well as introducing the most important immunological concepts, such as understanding the mechanism of action of the immune system and the most important diseases resulting from excessive or decreased immune response. -The concept of developing the student's linguistic vocabulary in the Arabic language. -Knowledge of the nature of biochemistry within the body including basic substances such as carbohydrates, fats, amino acids and protein. Study and detect these substances in terms of their increase and decrease in sick people. -The concept of pathology and the principle of treating a living cell that has the ability to repair damaged pathways, rejuvenate the immune system, and restore health to many living with chronic disease and damaged tissue. -The concept of public health and the efforts required to work in diagnosing diseases through awareness, laboratory tests, and the hospital to conduct special care. -The concept of developments in the techniques used in clinical chemistry and knowledge in the fields of laboratory analysis and diagnosis of diseases by detecting the factors that cause them.	-The skill of using appropriate antibiotics to treat bacteria, viruses, or parasites according to the laboratory result report. -The skill of the student acquiring a culture of love for reading and accompanying books. -Skill in detecting many biomolecules using different biochemical methods. -The skill of living cell therapy has the ability to repair damaged pathways, rejuvenate the immune system, and restore health to many living with chronic disease and damaged tissue. -Awareness, laboratory and hospital testing skills to conduct special care for patients. -The skill of acquiring knowledge in the fields of clinical techniques and laboratory analyzes to diagnose diseases.
Learning Outcomes 3 **(B 3)** Listening skill - practical skill - research skill	Learning Outcomes Statement 3 **(B 4)** The skill of working in a private pharmacy - the skill of working in a hospital - the skill of decision-making - the skill of leadership
Ethics	
Learning Outcomes 4 **(C 1)** Enabling students with management, organization, and communication skills for the purpose of accessing advanced technology in all areas of clinical science.	Learning Outcomes Statement 4 **(C 2)** Make students able to use critical thinking, translation, explanation and evaluation in problem-solving methods.
Learning Outcomes 5 **(C 3)** Students have the opportunity and encouragement to undertake professionally relevant qualifications.	Learning Outcomes Statement 5 **(C 4)** Students are able to reflect on their own professional development.

9. Teaching and Learning Strategies

1- Lectures (questions and discussion)
2- Laboratory skills
3- White board
4- Interactive electronic board
5- Seminars
6- Homework
7- Unknown experiments
8- Case study

10. Evaluation methods

• Theoretical exam
• Practical exam
• Classroom activities
• Homework
• Oral discussions
• Reports
• Auditing skills
• Personality reflection

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable) Scientific activities of the branch 2023-2024	Number of the teaching staff	
	General	Special		Staff 20	Lecturer 2
1- أ.م.د. شيماء حسين حمودي	Biotechnology	Biotechnology	1- Workshop (Principles and basics of the Excel program and the examination committee's Excel sheet) 2- Workshop (mechanism of work of the examination committee)	Staff	

2-أ.م.د. رفل شكيب عبد الوهاب	Biotechnology	Biotechnology			Staff	
3-أ.د. نادرة سلمان محمد	Biology	Microbiology			Staff	
4-أ.د. فريال هاشم رضا	Clinical Biochemistry	Clinical Biochemistry			Staff	
5-أ.م.د. امال اسماعيل ابراهيم	Clinical Biochemistry	Clinical Biochemistry			Staff	
6-م.د. حوراء هاشم اسماعيل	Physics	Physics			Staff	
7-م.د. نور عادل عبود	Microbiology	Microbiology	Workshop (Application of Nanotechnology in medical field)		Staff	
8-م.د. زهراء عبد الحسين خزعل	Arabic Language	Language	Workshop (Linguistic Correction of "Arabic Words Commonly Misused")		Staff	
9-م.د. حوراء حسين كاظم	Physics	Physics			Staff	
10-م.د. رسل عدنان حيدر	Physics	Physics			Staff	
11-أ. علا عبد الغفور محمد صالح	English Language	English Language and literature			Staff	
12-أ.م. زينه سيف الدين محمد	Biotechnology	Biotechnology			Staff	
13-م.م رغد كاظم عبيد	Microbiology	Microbiology			Staff	
14-م.م رفل نزار طه	Microbiology	Microbiology			Staff	
15-م.م روان حازم عبد الحسين	Histology and Embryos	Histology and Embryos			Staff	
16-م.م فرح انور سعيد	Applied Mathematics	Applied Mathematics	1- Workshop (Principles and basics of the Excel program and the examination committee's Excel sheet) 2- Workshop (Skills for dealing with Excel professionally) 3- Training course (Statistical analysis of		Staff	

			data using the SPSS program)			
17-م.م غفران محمد مجيد	Chemistry	Chemistry			Staff	
18-م.م ونام فاضل حسين	Chemistry	Chemistry			Staff	
19-م.م حيدر عامر عبدالله	Public Law	Public Law			Staff	
20-م.د. قيس عامر عبد الامير	Pathology	Hematology			Total placement (year)	
- م.د. باسم محمد جواد	Pathology	Pathology				Lecturer
-ا.د. حيدر عبد الرسول	Anatomy	Anatomy				Lecturer

Professional Development

Mentoring new faculty members

1- The branch head follows up on new teachers by entering the classroom during the lecture
2- Guidance in developing teaching skills
3- Encouraging the development of research skills
4- Encouraging the development of leadership skills
5- Guidance in developing practical skills
6- Encouraging decision-making skill

Professional development of faculty members

- Developing the performance and skills of teaching staff in accordance with the latest developments in teaching in the clinical laboratory fields to ensure that the branch continues on the correct scientific path.
- Raising the scientific level of scientific research and participating in scientific conferences and seminars.
- Encouraging the scientific and cultural activity of the teaching staff in the branch.

12. Acceptance Criterion

(Central admission to the Ministry of Higher Education and Scientific Research / Iraq / according to the student's grades)

13. **The most important sources of information about the program**

14. Program Development Plan
Syllabus development plan by adding or updating a Syllabus

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First year/ First semester		Human biology	Basic	√	√	√	√	√	√	√	√	√	√	X	X
		Computer science	Basic	√	√	√	√	√	√	√	X	√	X	X	X
		Mathematic &biostatistics	Basic	√	√	√	√	√	√	√	X	√	√	X	X
		English Language	Basic	√	√	√	√	√	√	√	X	X	√	X	X
		Human Rights and Democracy	Basic	√	√	√	√	√	√	√	X	X	√	X	X
First year / Second semester		Human Anatomy	Basic	√	√	√	√	√	√	√	√	√	√	X	X
		Computer science	Basic	√	√	√	√	√	√	√	X	√	X	X	X
		Medical physics	Basic	√	√	√	√	√	√	√	X	√	√	X	X
		Histology	Basic	√	√	√	√	√	√	√	√	√	√	X	X
		New Headway Plus	Basic	√	√	√	√	√	√	√	X	X	√	X	X
Second year/ First semester		Medical Microbiology I	Basic	√	√	√	√	√	√	√	√	√	√	X	X
		Computer science	Basic	√	√	√	√	√	√	√	X	√	X	X	X
		Baath Party crimes	Basic	√	√	√	√	√	√	√	X	X	√	X	X

Second year/ Second semester		**Medical Microbiology II**	**Basic**	√	√	√	√	√	√	√	√	√	√	X	X
		Computer science	**Basic**	√	√	√	√	√	√	√	X	√	X	X	X
		Democracy	**Basic**	√	√	√	√	√	√	√	X	X	√	X	X
		Arabic Language	**Basic**	√	√	√	√	√	√	√	X	X	√	X	X
Third year/ First semester		**Biochemistry I**	**Basic**	√	√	√	√	√	√	√	√	√	√	X	X
		Pathophysiology	**Basic**	√	√	√	√	√	√	√	√	√	√	X	X
Third year/ Second semester		**Biochemistry II**	**Basic**	√	√	√	√	√	√	√	√	√	√	X	X
Fourth year/ First semester		**Public Health**	**Basic**	√	√	√	√	√	√	√	√	√	√	X	X
Fourth year/ Second semester		**New Headway Plus**	**Basic**	√	√	√	√	√	√	√	X	X	√	X	X
Fifth year/ First semester		**Clinical Chemistry**	**Basic**	√	√	√	√	√	√	√	√	√	√	X	X
Fifth year/ Second semester		**Clinical Laboratory training**	**Basic**	√	√	√	√	√	√	√	√	√	√	X	X

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Course Description Form

1. Course Name: Human Biology

2. Course Code:

3. Semester / Year: First Semester/First Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: First Year

6. Number of Credit Hours (2 theory 2 Lab.) / Number of Units (3)

7. Course administrator's name (mention all, if more than one name)

Name: ا.د. نادرة سلمان محمد **(Theory)** **Email :** nadira@nahrainuniv.edu.iq

Name: ا.م.د. رفل شكيب عبد الوهاب **(Theory)** **Email:** dr.rafal.shakeeb@nahrainuniv.edu.iq

Name: ا.م. زينه سيف الدين محمد **(Lab.)** **Email :** zeina.saif@nahrainuniv.edu.iq

8. Course Objectives

- To study the composition of human body, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as nutrition.
- Human biology also explains in details different body systems.
- At the end of the course, the student should be able to describe the composition of human body, body systems function, Immunity, Blood and Disease.
- Human genetics such as the Mendelian inheritance, division of chromosomes, and terms such as allele, locus, homo and heterozygous.

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills: Presentation of sample slides for examination and diagnosis under an optical microscope 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 2 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	4	Introduction and basic principles of human biology	Introduction and basic principles of human biology -Cell: Structure, properties and classification	1- Lectures (questions and discussion) 2- Interactive electronic board	Theory Exam Lab. Exam Quiz Class effectiveness
2	4	Tissues	Tissues: Structures; properties; classification and function Epithelium and Connective Tissues	=	=
3	4	Nutrition	Nutrition	=	=
4	4	Digestive System	Digestive System (Mouth, Esophagus, Stomach)	=	=
5	4	Digestive System	Digest System (intestine)	=	=
6	4	Circulatory System	Circulatory System; Blood	=	=
7			Mid-Term Exam		
8	4	Inflammation	Inflammation	=	=
9	4	Immunity	Immunity and the blood Immunity to disease	=	=
10	4	Excretory System	Excretory System	=	=
11	4	Chromosomes	Human Chromosomes -Chromosomes Variations	=	=
12	4	Genetics	Human genetics Semi–Lethal genes	=	=
13	4	Reproduction system	Reproduction system, male and female	=	=
14	4	Skin	Skin	=	=
15	4	Respiration	Respiration system	=	=
			Final Exam		

11. Course Evaluation

Annual pursuit degree 40%, theoretical exam 20% + practical exam 20%
*(20% mid-course exam + daily exams)
The final exam degree is 60% theoretical only
Final degree 100%

12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	Reference book: Johnks and Lnglis (eds.), Text Book of Human Biology, 3rd Ed.
Main references (sources)	Reference book: Johnks and Lnglis (eds.), Text Book of Human Biology, 3rd Ed.
Recommended books and references (scientific journals, reports…)	Reference book: Johnks and Lnglis (eds.), Text Book of Human Biology, 3rd Ed. -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: Mathematics and Biostatistics

2. Course Code:

3. Semester / Year: First Semester/First Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: First Year

6. Number of Credit Hours (3 theory) / Number of Units (3)

7. Course administrator's name (mention all, if more than one name)

Name: م.د. حوراء حسين كاظم **Email :** hawra.husain@nahrainuniv.edu.iq

Name: م.م فرح انور سعيد **Email:** farah.anwar@nahrainuniv.edu.iq

8. Course Objectives

- To provide students with the ability to deal with the concepts of Mathematics and Statistics, emphasize the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist.
- The course deals with the concepts of basic Mathematics and the application of Biostatistics in medical field.
- Upon the completion of the course, students will be able to understand the applications of statistics in medical field.

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Whiteboard 3- Interactive electronic whiteboard 4- Seminars (questions and discussion) 5- Homework

10. Course Structure **(Hours : theory 3)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	3	Mathematics	Mathematics: General concepts; coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs	1- Lectures (questions and discussion) 2- Interactive electronic board	Theory Exam Quiz Class effectiveness
2	3	slope and equation for lines	Displacement function; slope and equation for lines	=	=
3	3	Limits and continuity	Limits and continuity: Limits; theorem of limits; limit involving infinity; continuity; continuity conditions	=	=
4	3	Derivatives	Derivatives: Line tangent and derivatives; differentiation rules; Derivative of trigonometric function; practice exercises	=	=
5	3	Integration	Integration: Indefinite integrals; rules for indefinite integrals; integration formulas for basic trigonometric function	=	=
6	3	Integration	Definite integrals; properties of definite integrals; practice exercises	=	=
7	3	Biostatistics	Biostatistics: General concepts of statistics; statistical methods; statistical theory ; applied statistics; statistical operations	=	=
8			Mid-Term Exam		
9	3	Probability concepts	Probability concepts: Properties of probability; Set theory and set notation (basic notation); counting techniques permutations and combinations;		
10	3	Probability concepts	calculating the probability of an events; probability distribution of discrete variable; binomial distribution, Poisson distribution; continues probability	=	=
11	3	Central tendency	The concept of central tendency: the sample mean and the population mean. SMA	=	=

12	3	Deviation and variation	Deviation and variation: Deviation; dispersion and variability; standard deviation and variance; coefficient of variations; standard error; correlation analysis; (regression model and sample regression equation); application of statistic in medical field; review questions and exercises	=	=
13	3	Statistics tests	T-test, Z-test, Chi-test and Anova	=	=
14	3	Application of statistics	Application of statistics in the medical field. Review questions and exercises	=	=
			Final Exam		

11. Course Evaluation

Annual pursuit degree 30%, theoretical exam
*(30% mid-course exam + daily exams)
The final exam degree is 70% theoretical
Final degree 100%

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry. 2. Daniel WW (ED.), Foundation for Analysis in the Health Science, 4th ed.
Main references (sources)	1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry. 2. Daniel WW (ED.), Foundation for Analysis in the Health Science, 4th ed.
Recommended books and references (scientific journals, reports…)	1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry. 2. Daniel WW (ED.), Foundation for Analysis in the Health Science, 4th ed.
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: English Language

2. Course Code:

3. Semester / Year: First Semester/First Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: First Year

6. Number of Credit Hours (1 theory) / Number of Units (1)

7. Course administrator's name (mention all, if more than one name)

Name : أ. علا عبد الغفور محمد صالح **: Email** dr.olaa.abdulghafoor@nahrainuniv.edu.iq

8. Course Objectives

- Developing students' linguistic and communication skills through the latest technical means
- Providing students with comprehensive knowledge of English language, literature, linguistics and translation
- Encouraging dialogue, understanding and communication between cultures internally and externally for the purpose of providing distinguished graduates to serve society

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Whiteboard 3- Interactive electronic whiteboard 4- Seminars (questions and discussion) 5- Homework

10. Course Structure **(Hours : theory 1)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	1	Family and friends students book	Family and friends students book	1- Lectures (questions and discussion) 2- Interactive electronic board	Theory Exam Quiz Class effectiveness
2	1	Family and friends work book	Family and friends work book	=	=
3	1	The way live students book	The way live students book	=	=
4	1	The way live work book	The way live work book	=	=
5	1	Every day students book	Every day students book	=	=
6	1	Every day work book	Every day work book	=	=
7	1	Review	Review	=	=
8			Mid-Term Exam		
9	1	My favorites students book	My favorites students book	=	=
10	1	My favorites work book	My favorites work book	=	=
11	1	Where I live students book	Where I live students book	=	=
12	1	Where I live work book	Where I live work book	=	=
			Final Exam		

11.Course Evaluation	
Annual pursuit degree 30%, theoretical exam The final exam degree is 70% theoretical Final degree 100%	*(30% mid-course exam + daily exams)

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Beginner students book, work book Headway plus John and Liz Soars
Main references (sources)	Beginner students book, work book Headway plus John and Liz Soars
Recommended books and references (scientific journals, reports…)	Beginner students book, work book Headway plus John and Liz Soars
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: Human Anatomy
2. Course Code:
3. Semester / Year: Second Semester/First Year
4. Description Preparation Date: 2024
5. Available Attendance Forms: First Year
6. Number of Credit Hours (1 theory 2 Lab.) / Number of Units (2)
7. Course administrator's name (mention all, if more than one name)
Name: ا.د. حيدر عبد الرسول (Theory and Lab.) haiderabid@nahrainuniv.edu.iq **: Email**
8. Course Objectives
▶ To study the histological and anatomical structure of human body. ▶ It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness. ▶ At the end of the course, the student should be familiar with gross anatomical and the histological description of human body.
9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 1 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	3	Respiratory system	Respiratory system: lung, conducting portion (nose, nasopharynx, trachea, bronchus, bronchioles)	1- Lectures (questions and discussion) 2- Interactive electronic board	Theory Exam Lab. Exam Quiz Class effectiveness
2	3	Urinary system	Urinary system: Structure of the kidney and nephron. Histology of the Nephron, Structure of the ureter, bladder & urethra	=	=
3	3	Circulatory system	Circulatory system: Structure of the cardiovascular system (Heart, Arteries, veins and capillaries) Structure of the lymphatic system.	=	=
4	3	Lymphoid tissue	Lymphoid tissue: Structure of the thymus gland, spleen, lymph nodes lymphoid nodule (MALT) and tonsils	=	=
5	3	Digestive system	Digestive system: General structure of the digestive tract (GIT); oral cavity, mouth, esophagus, stomach; small intestine, large intestine, rectum, anus. Glands associated with the digestive tract (salivary gland, pancreas, liver and gall bladder.	=	=
6			Mid-Term Exam		
7	3	Male reproductive system	Male reproductive system: General structure of the testes. Excretory genital ducts; accessory genital glands; seminal vesicles, prostate, Cowper's glands	=	=
8	3	Female reproductive system	Female reproductive system: General structure of the ovary, oviduct, uterus and vagina	=	=
9	3	Endocrine system	Endocrine system: General structure of the pituitary gland. General structure of the adrenal, thyroid, parathyroid, islet of Langerhans and pineal glands	=	=
10	3	Nervous system	Nervous system: Central nervous system (CNS); Peripheral nervous system	=	=
11	3	The skin	The skin: Structure of thick skin	=	=

			and thin skin.		
12	3	Bone Tissues	Bone Tissues: histology of osseous tissue, tissues and organs of the skeletal system	=	=
13	3	Muscle Tissue	Muscle Tissue: classification of muscle tissue, structure and functions of muscle tissue, associated structures.	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 40%, theoretical exam 20% + practical exam 20%
*(20% mid-course exam + daily exams)
The final exam degree is 60% theoretical only
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books any)	Anatomy and Physiology: Student Study Guide. 4th. Ed By Seeley, Stephens & Tale.
Main references (sources)	Anatomy and Physiology: Student Study Guide. 4th. Ed By Seeley, Stephens & Tale.
Recommended books and references (scientific journals, reports…)	Anatomy and Physiology: Student Study Guide. 4th. Ed By Seeley, Stephens & Tale. -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: Histology

2. Course Code:

3. Semester / Year: Second Semester/First Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: First Year

6. Number of Credit Hours (2 theory 2 Lab.) / Number of Units (3)

7. Course administrator's name (mention all, if more than one name)

Name: م.د. قيس عامر عبد الامير (Theory and Lab.)
Email: qaisaloqaily@nahrainuniv.edu.iq

8. Course Objectives

- To study the histological and anatomical structure of human body.
- It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness.
- At the end of the course, the student should be familiar with gross anatomical and the histological description of human body.

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills: Presentation of sample slides for examination and diagnosis under an optical microscope 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 2 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	4	Respiratory system	Respiratory system: lung, conducting portion (nose, nasopharynx, Trachea, bronchus, bronchioles)	1- Lectures (questions and discussion) 2- Interactive electronic board	Theory Exam Lab. Exam Quiz Class effectiveness
2	4	Urinary system	Urinary system: Structure of the kidney and nephron. Histology of the nephron, Structure of the ureter, bladder & urethra	=	=
3	4	Circulatory system	Circulatory system: Structure of the cardiovascular system (Heart, arteries, veins and capillaries). Structure of the lymphatic system	=	=
4	4	Lymphoid tissue	Lymphoid tissue: Structure of the thymus gland, spleen, lymph nodes lymphoid nodule (MALT) and tonsils	=	=
5			Mid-Term Exam		
6	4	Male reproductive system	Male reproductive system: General structure of the testes. Excretory genital ducts; accessory genital glands seminal vesicles, prostate, Cowper's glands	=	=
7	4	Female reproductive system	Female reproductive system: General structure of the ovary, oviduct, Uterus and vagina	=	=
8	4	Endocrine system	Endocrine system: General structure of the pituitary gland. General structure of the adrenal, thyroid, parathyroid, islet of Langerhans and pineal glands	=	=
9	4	Nervous system	Nervous system: Central nervous system (CNS); Peripheral nervous system	=	=

10	4	The skin	The skin: Structure of thick skin and thin skin	=	=
11	4	Bone Tissues	Bone Tissues: histology of osseous tissue, tissues and organs of the Skeletal system.	=	=
12	4	Muscle Tissue	Muscle Tissue: classification of muscle tissue, structure and functions of muscle tissue, associated structures.	=	=
13	4	Digestive system	Digestive system: General structure of the digestive tract (GIT); oral cavity, mouth, esophagus, stomach; small intestine, large intestine, Rectum, anus. Glands associated with the digestive tract (salivary gland, pancreas, liver and gall bladder	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 40%, theoretical exam 20% + practical exam 20%
*(20% mid-course exam + daily exams)
The final exam degree is 60% theoretical only
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books any)	Anatomy and Physiology: Student Study Guide. 4th. Ed By Seeley, Stephens & Tale.
Main references (sources)	Anatomy and Physiology: Student Study Guide. 4th. Ed By Seeley, Stephens & Tale.
Recommended books and references (scientific journals, reports…)	Anatomy and Physiology: Student Study Guide. 4th. Ed By Seeley, Stephens & Tale. -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: Medical Physics

2. Course Code:

3. Semester / Year: Second Semester/First Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: First Year

6. Number of Credit Hours (2 theory 2 Lab.) / Number of Units (3)

7. Course administrator's name (mention all, if more than one name)

Name: م.د. رسل عدنان حيدر **(Theory and Lab.)** **:Email** dr.rusul.adnan@nahrainuniv.edu.iq

Name: م.د. حوراء حسين كاظم **(Theory and Lab.)** **:Email** hawra.husain@nahrainuniv.edu.iq

8. Course Objectives

- To provide students with the ability to deal with the concepts of physics, emphasize the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and its application to medical field.
- Upon the completion of the course, the students will be able to understand the physical terminology and abbreviations used to describe the lecture, and their application to medical field.

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 2 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	4	General concepts	physics method and standards	1- Lectures (questions and discussion) 2- Interactive electronic board 3- Class effectiveness	Theory Exam Lab. Exam Quiz Experiments Lab
2	4	Pressure	Pressure: pressure scales, types of pressure in the human body, blood pressure	1- Lectures (questions and discussion) 2- Interactive electronic board 3- Class effectiveness	Theory Exam Lab. Exam Quiz Experiments Lab
3	4	Equation of state	Ideal gas and real gas; General law of gases. Balance and types of balance. Compressibility factor, volume expansion coefficient	=	=
4	4	Heat	Heat capacity and specific heat, the relation between internal energy with heat capacity, definitions of thermo dynamical process.	=	=
5	4	Thermodynamic	Thermodynamic: common terms of thermodynamics, the laws of thermodynamics	=	=
6	4	Temperature and heat	Temperature and heat: scales of temperature, types of thermometers, methods of heat transfer, heat gain and loss in human body, heat therapy	=	=
7	4	Energy	Energy, work and power of the body, conservation of energy, energy change in the body	=	=
8			Mid-Term Exam		
9	4	Blood flow	Blood flow: poiseuille's law, ohm's law applied to blood flow, the continuity equation and Bernoulli's principles, Types of blood flow, pascal's law	=	=

10	4	Surface tension	Surface tension: measurement of surface tension, factors effecting surface tension, Ostwald's viscometer.	=	=
11	4	Waves	Waves: sound in medicine, general properties of sound, and the stethoscope, Ultrasound in medicine: generation of ultrasound waves, application of ultrasound	=	=
12	4	Electromagnetic waves	Electromagnetic waves: radio wave, microwave, infra-red, visible light (application in medicine), ultraviolet, x-ray, gamma ray	=	=
13	4	Radiation	Radiation therapy, CT scan, MRI scan, PET scan, SPECT scan	=	=
14	4	Laser: laser types in medical field	laser interaction with tissue, medical applications and understanding of physical security and safety	=	=
15	4	Physical optics	Physical optics, the optical fiber, image formation	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 40%, theoretical exam 20% + practical exam 20%
*(20% mid-course exam + daily exams+ reports)
The final exam degree is 60% theoretical only
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	Physics for Biology and Medical Students, 2nd ed.
Main references (sources)	Introduction to medical physics "for pharmacy students & Medical group by Dr. Abdulhadi Abdullah 2020.
Recommended books and references (scientific journals, reports…)	Medical physics, J. cameron 1978. -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: New Headway Plus

2. Course Code:

3. Semester / Year: Second Semester/First Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: First Year

6. Number of Credit Hours (1 theory) / Number of Units (1)

7. Course administrator's name (mention all, if more than one name)

Name : أ. علا عبد الغفور محمد صالح **: Email** dr.olaa.abdulghafoor@nahrainuniv.edu.iq

8. Course Objectives

- Developing students' linguistic and communication skills through the latest technical means
- Providing students with comprehensive knowledge of English language, literature, linguistics and translation
- Encouraging dialogue, understanding and communication between cultures internally and externally for the purpose of providing distinguished graduates to serve society

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Whiteboard 3- Interactive electronic whiteboard 4- Seminars (questions and discussion) 5- Homework

10. Course Structure **(Hours : theory 1)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	1	Time Past Student's Book	Time Past Student's Book	1- Lectures (questions and discussion) 2- Interactive electronic board	Theory Exam Quiz Class effectiveness
2	1	Time Past Workbook	Time Past Workbook	=	=
3	1	We had a great time! Student's Book	We had a great time! Student's Book	=	=
4	1	We had a great time! Workbook	We had a great time! Workbook	=	=
5	1	I can do that! Student's Book	I can do that! Student's Book	=	=
6	1	I can do that! Workbook	I can do that! Workbook	=	=
7	1	Please and thank you. Student's Book	Please and thank you. Student's Book	=	=
8			Mid-Term Exam		
9	1	Please and thank you. Workbook	Please and thank you. Workbook	=	=
10	1	Here and now. Student's Book	Here and now. Student's Book	=	=
11	1	Here and now. Workbook	Here and now. Workbook	=	=
12	1	It's time to go! Student's Book	It's time to go! Student's Book	=	=
13	1	It's time to go! Workbook	It's time to go! Workbook	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 30%, theoretical exam *(30% mid-course exam + daily exams)
The final exam degree is 70% theoretical
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Beginner students book, work book Headway plus by John a Liz Soars
Main references (sources) and Recommended books	Beginner students book, work book Headway plus by John a Liz Soars
References (scientific journals, reports…)	Beginner students book, work book Headway plus by John a Liz Soars
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: Medical Microbiology I

2. Course Code:

3. Semester / Year: First Semester/Second Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: Second Year

6. Number of Credit Hours (3 theory 2 Lab.) / Number of Units (4)

7. Course administrator's name (mention all, if more than one name)

Name: أ.م.د. شيماء حسين حمودي	**(Theory)**	**الآيميل :**	shaymaah.alrajhi@nahrainuniv.edu.iq
Name: م.د. قيس مجيد عيسى	**(Theory)**	**الآيميل :**	dr.qais.majeed@nahrainuniv.edu.iq
Name: م.د. نور عادل عبود	**(Theory)**	**الآيميل :**	noor.adil@nahrainuniv.edu.iq
Name: م.م رغد كاظم عبيد	**(Lab.)**	**الآيميل:**	raghad.kadim@nahrainuniv.edu.iq
Name: م.م رفل نزار طه	**(Lab.)**	**الآيميل:**	rafal.nazar@nahrainuniv.edu.iq

8. Course Objectives

- To provide students with basic understanding of morphology, anatomy physiology and genetics of bacteria
- The methods of handling, visualizing
- Characterizing and identifying of bacterial diseases

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 3 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	5	Introduction Microbiology	Importance of microbiology, History of microbiology	1- Lectures (questions and discussion) 2- Interactive electronic board 3- Class effectiveness	Theory Exam Lab. Exam Quiz Class effectiveness
2	5	Anatomy of bacteria	Anatomy of bacteria: Surface appendage, Capsule, Cell wall of G + ve & G – ve bacteria Cytoplasmic membrane	=	=
3	5	Bacterial physiology	-Bacterial physiology: Physical and chemical growth determinate - Sporulation and germination	=	=
4	5	Genetics	Genetics: Definition, genetic, element, mutation (spontaneous, gene transfer, transformation, conjugation, and gene transduction)	=	=
5	5	Genetics	Recombinant DNA biotechnology	=	=
6	5	Sterilization	-Sterilization (chemical + physical Methods).	=	=
7	5	Chemotherapy	Types of Chemotherapy	=	=
8			Mid-Term Exam		
9	5	Properties of Bacteria	Morphology of Bacteria, Staining and Classification	=	=
10	5	Staphylococci species	-Staphylococci species	=	=
11		Aerobic Spore-forming	bacteria Bacillus species	=	=
12	5	Selective Bacteria	- *Clostridium perfringens* - *Corynebacterium diphtheria*	=	=
13	5	Selective Bacteria	- *Propionibacterium acnes, Listeria* - *Mycobacterium tuberculosis; M. leprae*	=	=
14	5		*Chlamyadiae; Actinomycetes* Identification & classification of G -ve	=	=

			bacteria		
15	5	Enterobacteriaceae	*Shigella spp; Salmonella spp; Proteus spp , Pseudomonas spp*	=	=
16	5	Enterobacteriaceae	-Vibrio *Cholerae*; *Brucella spp; Haemophilus spp;*	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 40%, theoretical exam 20% + practical exam 20%
*(20% mid-course exam + daily exams)
The final exam degree is 60% theoretical only
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	Medical Microbiology, seventeenth edition E. Jawetz, J. L. Melnick, E.A. Adel 1987 & 2. Principles of Microbiology by Roland M
Main references (sources)	Medical Microbiology, seventeenth edition E. Jawet J. L. Melnick, E.A. Adel 1987 & 2. Principles of Microbiology by Roland M
Recommended books and references (scientific journals, reports…)	Medical Microbiology, seventeenth edition E. Jawet J. L. Melnick, E.A. Adel 1987 & 2. Principles of Microbiology by Roland M -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific Movies

Course Description Form

1. Course Name: Medical Microbiology II

2. Course Code:

3. Semester / Year: Second Semester/Second Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: Second Year

6. Number of Credit Hours (3 theory 2 Lab.) / Number of Units (4)

7. Course administrator's name (mention all, if more than one name)

Name: أ.د. نادرة سلمان محمد	**(Theory)**	**الآيميل :**	dr.nadira@nahrainuniv.edu.iq
Name: م.د. نور عادل عبود	**(Theory)**	**الآيميل :**	noor.adil@nahrainuniv.edu.iq
Name: م.م رغد كاظم عبيد	**(Lab.)**	**الآيميل :**	raghad.kadim@nahrainuniv.edu.iq
Name: م.م رفل نزار طه	**(Lab.)**	**الآيميل :**	rafal.nazar@nahrainuniv.edu.iq

8. Course Objectives

- To provide students with knowledge about pathogenesis, morphology
- Laboratory diagnosis, identification, pathology, clinical features of medically important parasites
- Viral diseases and the basic concepts of immunity procedures against these diseases

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 3 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	5	-Introduction of Parasitology& classification - Introduction to immunology	- To understand the general concepts of Parasitology& determine the main characterization for parasite classification - To learn immunity and the major parts of the immune system	1- Lectures (questions and discussion) 2- Interactive electronic board 3- Class effectiveness	Theory Exam Lab. Exam Quiz Class effectiveness
2	5	-Protozoa pathogenic & commensal Amoeba - Innate and adaptive immune response	- To compare between *E.coli*, *E.histolytica* - To realize the body defense lines and biological barriers to infections	=	=
3	5	-Intestinal & reproductive flagellates - Antigens	- Giardia, Balantidium ,Trichomonas - To describe the term antigen, classification of antigens, antigen determinant (epitope), and its forms	=	=
4	5	- *Haemoflagellates: Leshmania spp.; Trypanosome spp. Coccidia* - Antibodies	- Haemoflagellates Toxoplasmodium - To explain the structure, functions and biological properties of individual antibody classes	=	=
5	5	-Helminthes: Classification, platyhelminthus Trematodes Flukes: Hepatic flukes, Blood flukes (*Schistosoma spp*). - Major histocompatibility complex (MHC)	-To realize the general characterization and classification of helminthes, the main classes, pathogenicity ,life cycle ,transmission ,diagnosis, and trearment - To describe the classification, structure, and function of MHC groups I, II, and III, and understand the gene structure of MHC	=	=
6	5	-Cestodes Tap worms: *Taenia spp.*, *Echinococcus* (Hydatid cyst).Nematods: *Ascaris*, *Entrobius*	- To realize pathogenicity ,life cycle ,transmission ,diagnosis, and treatment -To explain the types and function of	=	=

		-Cytokines	immunoregulatory cytokines		
7			Mid-Term Exam		
8	5	- Virology: Introduction, and general characters - Complement	- To realize the general concepts of Virology - To describe the classical, lectin, and alternative complement activation pathway	=	=
9	5	- Reproduction and isolation methods for viruses -Hypersensitivity	- To understand the mechanisms of viral Replication - To define the term immunologic hypersensitivity, to name the classification of immunologic hypersensitivity, and to describe their main characteristics	=	=
10	5	-Anti-viral therapy and gene interaction -Tumor immunology	- To realize types of antiviral compounds - To describe tumor antigens, their subtypes, properties, and methods for demonstrating tumor antigens and human tumor antigens	=	=
11	5	-Classification of viruses -Autoimmune diseases and tolerance	- To realize viral characterization used for classification - To describe autoimmune diseases and their classification, genetic factors of autoimmunity, the influence of gender, age, infections, and immunologic disorders on the occurrence of autoimmunity	=	=
12	5	- DNA viruses	-To understand the pathogenicity, diagnosis, transmission, and treatment of Herpes, adeno, pox, papoviride	=	=
13	5	-RNA viruses	- To understand the pathogenicity, diagnosis , transmission, and treatment myxoviridae, Rhabdo, picorna, and Reoviridae	=	=

14	5	-Chemotherapy for viruses	The concept of chemotherapy for viruses	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 40%, theoretical exam 20% + practical exam 20%
*(20% mid-course exam + daily exams)
The final exam degree is 60% theoretical only
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	Medical Microbiology. Jawetz, Melinck &Adebnrgs. 24th edition. a LANGE medical book.
Main references (sources)	Animal Agents and Vectors of Human Disease. 5th.Ed. P.C. Beaver. Immunology 7th.Ed. Kuby.
Recommended books and references (scientific journals, reports…)	Animal Agents and Vectors of Human Disease. 5th.Ed. P.C. Beaver. Immunology 7th.Ed. Kuby. -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific Movies

Course Description Form

1. Course Name: Biochemistry I

2. Course Code:

3. Semester / Year: First Semester/Third Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: Third Year

6. Number of Credit Hours (3 theory 2 Lab.) / Number of Units (4)

7. Course administrator's name (mention all, if more than one name)

Name: أ.د. فريال هاشم رضا **(Theory)** **:Email** dr.feryal.hashim@nahrainuniv.edu.iq

Name: أ.م.د. امال اسماعيل ابراهيم **(Theory and Lab.) : Email** dr.ammal.obaidi@nahrainuniv.edu.iq

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Name: م.م وئام فاضل **(Lab.) :Email** dr.weaam.fadhil@nahrainuniv.edu.iq

8. Course Objectives

- Learn the concept of biochemical materials (protein, peptide, amino acid)
- Learn the concept of carbohydrate, lipid, neucleic acid and DNA .
- Learn the concept of enzymes and enzyme kinetics.
- Learn the concept of hormone and signal transduction
- Learn the concept of vitamins.
- Learn the concept of intracellular and extracellular membranes

9. Teaching and Learning Strategies

Strategy	A. Teacher- center approach : 1. Direct instruction (lecture style):explain knowledge or skill by transferring information. 2. Demonstration: show knowledge and activity by power point, video,, 3. Debriefing by conversational method 4. Facilitator (active learning): promote self-learning,extended thinking. B. Student-center approach :involve inquiry based learning and cooperative learning. 1. Delegator (group style):develop knowledge and skill through experience ,lab.activity, peer feedback activity, research activity C. Assessment methods: Formative assessment, summative assessment, Quizzes,exam.

10. Course Structure **(Hours : theory 3 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	5	Introduction	Structures of A.A (table of standard A.A abbreviation and side chain); Classification, properties, isomerism.	-Power Point Presentation,-Tutorials (Pen and White-board), Problem Solving, Practicalities	-Formative assessment, -summative assessment, -Quizzes, - Exam
2	5	Amino acids	: Chemical reactions, Zwitter ions, titration curve calculating Iso electric point values. Examples and questions. Non standards A.A: Structures, existence and clinical value.	=	=
3	5	Peptides	Peptide bond,resonance forms, isomers, physical properties and chemical reactions. Essential poly peptides in human body, structures, roles and clinical values.	=	=
4	5	Proteins	Structure andconformations of proteins, Primary structure, Secondary structure (**a** helix, **p** sheet), tertiary structure, quaternary structure. Classification, synthesis , cellular functions (Enzymes, cell signaling, & ligand transport, structural proteins),protein in nutrition		
5	5	Denaturation of proteins and protein sequencing	: Determining A.A composition, N- terminal A.A analysis, C- terminal A.A analysis, Edman degradation, prediction protein sequence from DNA/ RNA sequences. Methods of protein study: Protein purification, cellular localization, proteomics and bioinformatics, structure	=	=

			predication and simulation.		
6	5	Carbohydrates	: Chemistry and classification, biomedical importance, classification of CHO, Stereochemistry of monosaccharides, CHO; Physiologically important mono-saccharides, glycosides, disaccharides , polysaccharides.	=	=
7		Lipids	Introduction, classification of lipids, fatty acids (F.A), nomenclature of F.A, saturated F.A, unsaturated F.A, physical and physiological properties of F.A , Phospholipids, lipid peroxidation and antioxidants, separation and identification of lipids, amphipathic lipids.	=	=
8,9	5		Midterm exam	=	=
10	5	Enzymes	Structures and mechanism, nomenclature, classification, mechanisms of catalysis, thermodynamics, specificity, lock and key model, induced fit model, transition state stabilization, dynamics and function, allosteric modulation. Biological function, cofactors, coenzymes.	=	=
11	5	Enzyme-Kinetics	: General principles, factors effecting enzyme rates (substrate conc., pH, temperature, etc), single-substrate reaction (Michaelis-Menten kinetics), kinetic constants. Enzyme inhibition	=	=
12	5	Nucleic Acid	: Chemical structure, nucleic acid components, nucleic acid bases, nucleotides and deoxynucleotides (Properties, base pairing, sense and antisense, super-	=	=

			coiling, alternative structures, quadruple structures. Genes and genomes, transcription and translation, replication.		
13	5	Biochemistry of the endocrine system	Classification of hormones, biomedical importance, the target cell concept and hormone receptors, biochemistry of hormone signal transduction.	=	=
14	5	Vitamins and Minerals	Water soluble vitamins, lipid soluble vitamins	=	=
15	5	Biochemistry of extracellular and intra-cellular communication	Plasma membrane structure and function; Biomedical importance, membrane proteins associated with lipid bilayer, membranes protein composition, dynamic structures of membranes, a symmetric structures of membranes.	=	=
			Final Exam		

11.Course Evaluation

Theory		Practical		Total
Quizzes	5 %	Quizzes and Reports	10 %	
Mid term Exam	15 %	Final Exam	10 %	
Total	20 %	Total	20 %	40%
Final Exam	60 %			100 %

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	-Harper's Illustrated Biochemistry
Main references (sources)	-Medical biochemistry by Kaplan
Recommended books and references (scientific journals, reports…)	-Biochemistry (Lippincott illustrated Reviews) -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific Movies

Course Description Form

1. Course Name: Pathophysiology

2. Course Code:

3. Semester / Year: First Semester/Third Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: Third Year

6. Number of Credit Hours (3 theory 2 Lab.) / Number of Units (4)

7. Course administrator's name (mention all, if more than one name)

Name: م.د. باسم محمد جواد (Theory and Lab.) Email:

Name: م.م روان حازم (Lab.) Email: rawan.hazim@nahrainuniv.edu.iq

8. Course Objectives

- 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 associated with the disease process of targeted body systems
- Describe clinical manifestations associated with the diseased organ

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills Presentation of sample slides for examination and diagnosis under an optical microscope 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 3 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	5	Introduction	Introduction of Pathophysiology	1- Lectures (questions and discussion) 2- Interactive electronic board 3- Class effectiveness	Theory Exam Lab. Exam Quiz Class effectiveness
2	5	Cell injury and tissue response	Degeneration; Inflammation; Atrophy; Hypertrophy; Metaplasia; Calcification; Inflammation ; Repair and Necrosis	=	=
3	5	Disorders of electrolytes and water and acid–base balances	Disorders of electrolytes and water and acid–base balances	=	=
4	5	Disorders of cardiovascular system	Congestion; Coagulation . Embolism and infarction. shock; Cardiovascular disease, heart attacks, and rheumatic heart disease. heart failure; Acute pulmonary edema	=	=
5	5	Disorders of cardiovascular system	Hypertension . Secondary hypertension. Malignant hypertension. Reduction of Blood pressure . Aneurysms versus varicose veins	=	=
6	5	Disorders of respiratory system	Lung infections. tuberculosis; Distress syndrome. Bronchial asthma. Emphysema and bronchitis. cystic fibrosis; Pulmonary embolism. Pulmonary hypertension.	=	=
7			Mid-Term Exam		
8	5	Disorders of the renal system	nephrotic syndrome; Glomerulonephritis. Diabetic glomeruli. Glomerular disease, high blood pressure. For pyelonephritis...acute kidney failure; Chronic kidney failure	=	=
9	5	Disorders of GI and	Stomach ulcers, Ellison's	=	=

		hepatobiliary systems	disease, and Crohn's disease Diarrhea; Celiac disease. Hepatitis; Primary biliary cirrhosis; Liver failure. Cholelithiasis		
10	5	Disorders of thyroid function	Increase and decrease of thyroid hormone, Crave's disease	=	=
11	5	Disorders of adrenal function	Kashnak fell ill. Adrenal insufficiency. Adrenal gland dysplasia	=	=
12	5	Metabolic syndrome	Diabetes mellitus and metabolic syndrome; Dyslipoproteinemia	=	=
13	5	Neoplasia	Neoplasia	=	=
14	5	Metabolic and rheumatic disorders of skeletal system	Metabolic and rheumatic disorders of skeletal system	=	=
15	5	Alteration in immune response	Alteration in immune response	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 40%, theoretical exam 20% + practical exam 20%
*(20% mid-course exam + daily exams)
The final exam degree is 60% theoretical only
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books any)	Essentials in Pathophysiology by: Carol Matts Porth, Latest Edition.
Main references (sources)	Essentials in Pathophysiology by: Carol Mattson Porth, Latest Edition.
Recommended books and references (scientific journals, reports…)	Essentials in Pathophysiology by: Carol Mattson Porth, Latest Edition. -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific Movies

Course Description Form

1. Course Name: Biochemistry II

2. Course Code:

3. Semester / Year: Second Semester/Third Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: Third Year

6. Number of Credit Hours (3 theory 2 Lab.) / Number of Units (4)

7. Course administrator's name (mention all, if more than one name)

Name: أ.د. فريال هاشم رضا **(Theory)** **:Email** dr.feryal.hashim@nahrainuniv.edu.iq

Name: أ.م.د. امال اسماعيل ابراهيم **(Theory and Lab.) : Email** dr.ammal.obaidi@nahrainuniv.edu.iq

Name: م.م غفران محمد **(Lab.) : Email** dr.ghufran.mohammed@nahrainuniv.edu.iq

Name: م.م وئام فاضل **(Lab.) :Email** dr.weaam.fadhil@nahrainuniv.edu.iq

8. Course Objectives

- Understand the idea of Bioenergetics: The Role of ATP, The Respiratory Chain and Oxidative Phosphorylation
- Understand the idea of carbohydrates biosynthesis and metabolism
- Understand the idea of lipid biosynthesis and metabolism .
- Understand the idea of protein biosynthesis and metabolism .
- Understand the idea of Porphyrins and Bile pigments.

9. Teaching and Learning Strategies

Strategy	A. Teacher- center approach: 1. Direct instruction (lecture style):explain knowledge or skill by transferring information. 2. Demonstration: show knowledge and activity by power point, video ,, 3. Debriefing by conversational method 4. Facilitator (active learning): promote self-learning,extended thinking. B. Student-center approach :involve inquiry based learning and cooperative learning. 1. Delegator (group style):develop knowledge and skill through experience ,lab.activity, peer feedback activity, research activity C. Assessment methods: Formative assessment, summative assessment, Quizzes,exam.

10. Course Structure **(Hours : theory 3 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	5	Bioenergetics: The Role of ATP	Biomedical importance, Free energy, Coupling of endergonic and exergonic reactions, The role of ATP, Adenylyle kinase interconvertes adenine nucleotides	-Power Point Presentation, -Tutorials (Pen and White-board), - Problem Solving, - Practicalities	-Formative assessment, -summative assessment, -Quizzes, -Exam
2	5	The Respiratory Chain and Oxidative Phosphorylation	Respiratory Chain Complexes, The Chemiosmotic Theory, ATP Synthase, Amount of energy produced via oxidative phosphorylation vs. substrate level phosphorylation, Inhibitors of The Respiratory Chain, Respiratory Chain Control and the Action of Uncouplers, Transfer of reducing equivalents through the inner mitochondrial membrane.	=	=
3	5	Overview of Metabolism and the Provision of Metabolic Fuels	Introduction, Levels of organization of metabolic pathways, Regulation of the Flux of Metabolites through Metabolic Pathways, Clinical Aspects.	=	=
4	5	The Citric Acid Cycle	Reactions of the Citric Acid Cycle, Energetics of the Citric Acid Cycle, Roles of the B vitamins in the Citric Acid Cycle, Anaplerotic reactions, Regulation of the TCA.	=	=
5	5	-Glycolysis and the Oxidation of Pyruvate -Metabolism of Glycogen	Reactions of the Glycolysis, The Fates of Pyruvate, Glycolysis and Pyruvate dehydrogenase Regulation, Clinical Aspects. Biomedical importance, Glycogenesis, Glycogenolysis, The regulation of glycogenesis	=	=

			and glycogenolysis		
6	5	-Gluconeogenesis and the Control of Blood Glucose - The Pentose Phosphate Pathway and Other Pathways of Hexose Metabolism	Biomedical importance, Gluconeogenesis reactions, Regulation of gluconeogenesis, Cori cycle.Biomedical importance, PPP reactions, Uronic acid pathway, Fructose metabolism, Galactose metabolism,	=	=
7	5	Biosynthesis of Fatty Acids and Eicosanoids	Biomedical importance, Lipogenesis reactions The source of acetyl-coA and NADPH, Elongation of fatty acids, Regulation of lipogenesis, Biosynthesis of unsaturated fatty acids	=	=
8,9			Midterm Exam		
10	5	Oxidation of Fatty Acids: Ketogenesi	Biomedical importance, Carnitine cycle,Reactions of fatty acid oxidation, Energy production from fatty acid oxidation, Oxidation of unsaturated fatty acids,Ketogenesis ,The regulation of ketogenesis	=	=
11	5	Metabolism of Acylglycerols and Sphingo lipids	Biomedical importance ,Biosynthesis of acylglycerols, Biosynthesis of alkylglycerols, Degradation of acylglycerols, Biosynthesis of sphingolipigs, Biosynthesis of glycolipids	=	=
12	5	-Lipid Transport and Storage -Overview of Proteins and Amino Acids Metaolism	Biomedical importance, Structure of lipoproteins ,Metabolism of lipoproteins.Storage and hydrolysis of triacylglycerol.Amino acids pool and its sources,Pathways of proteins degradation ,Rate of protein degradation.	=	=
13	5	-Biosynthesis of the Nutritionally Nonessential Amino Acids -Catabolism of Proteins and of Amino Acid	Tansamination,Assimilation of free ammonia, Modification of the carbon skeletons of existing amino acids synthesis of hydroxyproline,	=	=

		Nitrogen	hydroxylysine, and selenocysteine. Introduction,Deamination,Urea cycle reactions, regulation, and disposal of urea,Metabolic Disorders of Urea Cycle.		
14	5	Catabolism of the Carbon Skeletons of Amino Acids	Specific keto acid products of deaminated amino acids ,One-carbon units metabolism Metabolic diseases of dmino acids catabolism , Conversion of Amino Acids to Specialized Products.	=	=
15	5	Porphyrins and Bile pigments	. Introduction,Biosynthesis of Heme: reactions, regulation, and disordes Catabolism of Heme	=	=
			Final Exam		

11.Course Evaluation

Theory		Practical		Total
Quizzes	5 %	Quizzes and Reports	10 %	
Mid term Exam	15 %	Final Exam	10 %	
Total	20 %	Total	20 %	40%
Final Exam	60 %			100 %

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	-Harper's Illustrated Biochemistry
Main references (sources)	-Medical biochemistry by Kaplan
Recommended books and references (scientific journals, reports…)	-Biochemistry (Lippincott illustrated Reviews) -Manual for Practical Lab. Adopted by the Department
Electronic References, Websites	Scientific Movies

Course Description Form

1. Course Name: Public Health
2. Course Code:
3. Semester / Year: First Semester/Fourth Year
4. Description Preparation Date: 2024
5. Available Attendance Forms: Fourth Year
6. Number of Credit Hours (2 theory) / Number of Units (2)
7. Course administrator's name (mention all, if more than one name)
Name: أ.م.د. شيماء حسين حمودي **Email :** shaymaah.alrajhi@nahrainuniv.edu.iq **Name:** م.د. نور عادل عبود **Email:** noor.adil@nahrainuniv.edu.iq **Name:** م.د. صبا حميد (فرع الصيدلة السريرية) **Email:** dr.saba.hameed@nahrainuniv.edu.iq
8. Course Objectives
▶ To help students understand the principles of public health ▶ Preventing disease ▶ promoting health and prolonging life through organized efforts made by the society
9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Practical laboratory skills 3- Whiteboard 4- Interactive electronic whiteboard 5- Seminars (questions and discussion) 6- Homework

10. Course Structure **(Hours : theory 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	2	-Concepts and principles of public health and preventive medicine. -Public health and statistics	-Concepts and principles of public health and preventive medicine. -Public health and statistics	1- Lectures (questions and discussion) 2- Interactive electronic board 3- Class effectiveness	Theory Exam Lab. Exam Quiz Class effectiveness
2	2	-Epidemiology -Communicable diseases	-Epidemiology -Communicable diseases	=	=
3	2	-Infections through skin and mucous membranes. -Infections through the respiratory tract	-Infections through skin and mucous membranes. -Infections through the respiratory tract	=	=
4	2	Arthropod-borne infections	Arthropod-borne infections	=	=
5	2	Non-communicable disease: Health in transition	Non-communicable disease: Health in transition	=	=
6	2	-Nutritional disorders -Family health	-Nutritional disorders -Family health	=	=
7			Mid-Term Exam		
8	2	-Environmental health. -Innate and acquired Immunity; Immunization	-Environmental health. -Innate and acquired Immunity; Immunization	=	=
9	2	Introduction: historic background of pharmacy practice	Introduction: historic background of pharmacy practice	=	=
10	2	- Pharmacy practice and health care system I - Pharmacy practice and health care system II	- Pharmacy practice and health care system I - Pharmacy practice and health care system II	=	=
11	2	-Health promotion in community pharmacy -Introduction to pharmaceutical care	-Health promotion in community pharmacy -Introduction to pharmaceutical care	=	=
12	2	-Pharmaceutical care planning I -Pharmaceutical care planning II	-Pharmaceutical care planning I -Pharmaceutical care planning II	=	=

13	2	-Community pharmacy management -Hospital pharmacy service	-Community pharmacy management -Hospital pharmacy service	=	=
14	2	-Bio-safety in pharmacy practice I -Bio-safety in pharmacy practice II	-Bio-safety in pharmacy practice I -Bio-safety in pharmacy practice II	=	=
15	2	-Formulary management and regulatory affairs I -Formulary management and regulatory affairs II	-Formulary management and regulatory affairs I -Formulary management and regulatory affairs II	=	=
16	2	Rational use of drugs I and II	Rational use of drugs I and II	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 30%, theoretical exam
*(30% mid-course exam + daily exams)
The final exam degree is 70% theoretical only
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, Latest Edition.
Main references (sources)	Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, Latest Edition.
Recommended books and references (scientific journals, reports…)	Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, Latest Edition.
Electronic References, Websites	Scientific Movies

Course Description Form

1. Course Name: New Headway Plus

2. Course Code:

3. Semester / Year: Second Semester/Fourth Year

4. Description Preparation Date: 2024

5. Available Attendance Forms: Fourth Year

6. Number of Credit Hours (2 theory) / Number of Units (2)

7. Course administrator's name (mention all, if more than one name)

Name : أ. علا عبد الغفور محمد صالح **: Email** dr.olaa.abdulghafoor@nahrainuniv.edu.iq

8. Course Objectives

- Developing students' linguistic and communication skills through the latest technical means
- Providing students with comprehensive knowledge of English language, literature, linguistics and translation
- Encouraging dialogue, understanding and communication between cultures internally and externally for the purpose of providing distinguished graduates to serve society

9. Teaching and Learning Strategies

Strategy	1- Theoretical lectures 2- Whiteboard 3- Interactive electronic whiteboard 4- Seminars (questions and discussion) 5- Homework

10. Course Structure **(Hours : theory 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	2	No place like home students book	No place like home students book	1- Lectures (questions and discussion) 2- Interactive electronic board	Theory Exam Quiz Class effectiveness
2	2	No place like home workbook	No place like home workbook	=	=
3	2	Been there done that! students book	Been there done that! students book	=	=
4	2	Been there done that! Workbook	Been there done that! Workbook	=	=
5	2	What a story! students book	What a story! students book	=	=
6	2	Review	Review	=	=
7			Mid-Term Exam		
8	2	What a story! Workbook	What a story! Workbook	=	=
9	2	Nothing but the truth student book	Nothing but the truth student book	=	=
10	2	Nothing but the truth workbook	Nothing but the truth workbook	=	=
11	2	An eye to the future student book	An eye to the future student book	=	=
12	2	An eye to the future workbook	An eye to the future workbook	=	=
13	2	Review	Review	=	=
			Final Exam		

11.Course Evaluation

Annual pursuit degree 30%, theoretical exam *(30% mid-course exam + daily exams)
The final exam degree is 70% theoretical
Final degree 100%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Upper-intermediate students book, work book Headway Plus by Li and John Soars
Main references (sources)	Upper-intermediate students book, work book Headway Plus by Li and John Soars
Recommended books and references (scientific journals, reports…)	Upper-intermediate students book, work book Headway Plus by Li and John Soars
Electronic References, Websites	Scientific movies

Course Description Form

1. Course Name: Clinical Chemistry
2. Course Code:
3. Semester / Year: First Semester/Fifth Year
4. Description Preparation Date: 2024
5. Available Attendance Forms: Fifth Year
6. Number of Credit Hours (3 theory 2 Lab.) / Number of Units (4)
7. Course administrator's name (mention all, if more than one name)
Name: أ.د. فريال هاشم رضا **(Theory) Email:** dr.feryal.hashim@nahrainuniv.edu.iq
Name: أ.م.د. امال اسماعيل ابراهيم **(Theory and Lab.) Email:** dr.ammal.obaidi@nahrainuniv.edu.iq
Name: م.م غفران محمد **(Lab.) Email:** dr.ghufran.mohammed@nahrainuniv.edu.iq
Name: م.م وئام فاضل **(Lab.) Email:** dr.weaam.fadhil@nahrainuniv.edu.iq
8. Course Objectives
▶ Discern the concept of Carbohydrates metabolism disorders, lipid metabolism. calcium metabolism ▶ Discern the concept of Pituitary Gland Disorders, Thyroid gland Disorders, Adrenal gland disorders ▶ Discern the concept of Diagnostic enzymology , Liver Function Tests. ▶ Discern the concept of Kidney Function Tests, Acid- Base Disorders ▶ Discern the concept of Reproductive system disorders, biochemical assessment during pregnancy. ▶ Discern the concept of Drug interaction with laboratory Tests.
9. Teaching and Learning Strategies

Strategy	A. Teacher- center approach : 1. Direct instruction (lecture style):explain knowledge or skill by transferring informatio 2. Demonstration: show knowledge and activity by power point, video,, 3.Debriefing by conversational method 4.Facilitator (active learning): promote self-learning, extended thinking. B. Student-center approach :involve inquiry based learning and cooperative learning. 1.Delegator (group style):develop knowledge and skill through experience ,lab. activity, peer feedback activity, research activity C. Assessment methods: Formative assessment, summative assessment, Quizzes, exam.

10. Course Structure **(Hours : theory 3 + lab. 2)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	5	Disorders of Carbohydrates metabolism	, Hyperglycemia & Diabetes mellitus, Glycosylated Hemoglobin, Ketones, Ketones, Hypoglycemia.	-Power Point Presentation, -Tutorials (Pen and Whiteboard), -Problem Solving, -Practicalities	-Formative assessment, -summative assessment, -Quizzes, -Exam
2	5	Disorders of lipid metabolism.	Arteriosclerosis,Dyslipidemias, A-Hyperlipoproteinemias, Hypolipo-proteinemias	=	=
3	5	Disorders of calcium metabolism	Vitamin D, Parathyroid Hormones (PTH), Calcitonin Hormone, Hypercalcaemia, Hypocalcaemia, Metabolic Bone Diseases	=	=
4	5	Pituitary Gland Disorders	hypothalamic hormones, Anterior pituitary hormones, Growth hormone, Prolactin Hormone, hypopituitarism, Posterior Pituitary Horm,	=	=
5	5	Thyroid gland Disorders	Thyroid gland and hormones, ypothyroidism, Hyperthyroidism,	=	=
6	5	Adrenal gland disorders	Adrenal gland hormones, Hypercortisolism, Hyperaldosteronism, Androgen excess, Adrenal insufficiency, Adrenal medulla	=	=
7	5	Diagnostic enzymology	Enzymology, Creatine Kinase, Troponin, Lactate Dehydrogenase, Aspartate Aminotransferase, Alanine minotransferase, Alkaline Phosphatase, Acid Phosphatase, Gamma–Glutamyl transferase , Alpha-Amylase, Lipase, Plasma cholinesterase	=	=
8,9			Mid term exam		
10	5	Liver Function Tests.	Measurements of serum bilirubin, Jaundice, hyperbilirubinaemias, Liver	=	=

			enzymes, Hepatic Synthetic Function Tests, Metabolic Disordered in liver disease		
11	5	Kidney Function Tests.	Renal Function Tests, Renal tubular function tests, Protein uria, Glomerular Diseases, Urinary Tract Infection, Renal Calculi	=	=
12	5	Acid- Base Disorders	Types of buffer systems, Metabolic acidosis, Respiratory acidosis, Metabolic alkalosis, Respiratory alkalosis,	=	=
13	5	Reproductive system disorders	Male gonadal function , Disorders of male sex hormones, Female gonadal function, Ovarian dysfunction.	=	=
14	5	biochemical assessment during pregnancy.	Pregnancy and Antenatal Screening, Pre-natal diagnosis of fetal abnormalities , Complications in pregnancy	=	=
15	5	Drug interaction with laboratory Tests.	Mechanisms of Drug-Test Interference, Methodological interferences, Pharmacological interferences	=	=
			Final Exam		

11.Course Evaluation

Theory		Practical		Total
Quizzes	5 %	Quizzes and Reports	10 %	
Mid term Exam	15 %	Final Exam	10 %	
Total	20 %	Total	20 %	40%
Final Exam	60 %			100 %

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	-Clinical Chemistry & Metabolic Medicine, Crook
Main references (sources)	- Medical biochemistry by Kaplan
Recommended books and references (scientific journals, reports…)	- Clinical Chemistry Principles by Bishop,
Electronic References, Websites	- Practical Clinical biochemistry analysis
Electronic References, Websites	-Scientific Movies

Course Description Form

1. Course Name: Clinical Laboratory Science
2. Course Code:
3. Semester / Year: Second Semester/Fifth Year
4. Description Preparation Date: 2024
5. Available Attendance Forms: Fifth Year In Hospital Laboratories
6. Number of Credit Hours (4 Lab.) / Number of Units (2)
7. Course administrator's name (mention all, if more than one name)
Name: أ.د. فريال هاشم رضا **:Email** dr.feryal.hashim@nahrainuniv.edu.iq
Name: م.م غفران محمد **: Email** dr.ghufran.mohammed@nahrainuniv.edu.iq
Name: م.م ونام فاضل **:Email** dr.weaam.fadhil@nahrainuniv.edu.iq
8. Course Objectives
▶ To provide general information about the biochemical basis of diseases and the principles of laboratory diagnosis ▶ It supplies specific guidance on the clinical value of chemical investigations, indicating their range of application and limitations as well as relating results of laboratory tests ▶ process of clinical diagnosis and management as these might be applied to individual patients
9. Teaching and Learning Strategies

Strategy	A. Student-center approach: involve inquiry based learning and cooperative learning. 1. Delegator (group style):develop knowledge and skill through experience 2.Facilitator (active learning): promote self-learning, extended thinking lab. activity, peer feedback activity, research activity B.Assessment methods: Formative assessment, summative assessment, Quizzes,exam.

10. Course Structure **(Hours : lab. 4)**					
Week	Hours	Unit or subject name	**Required Learning Outcomes**	**Learning method**	**Evaluation method**
1	4	Instrumentation and Analytical Principles	Diagnostic test basics, collecting &transporting specimens, venipuncture, urine specimen, stool specimen.	1- Tour in Hospital Laboratories 2-LaboratoryDiagnosis 3- Lectures (questions and discussion)	Laboratory training exam in Hospital Quiz Class effectiveness
2	4	Immunological test	C-reactive protein test, Rheumatic factor test, Rosebengal test, Typhoid fever Test (Widal test), Pregnancy Test. Serological tests: VDRL, ASO- Titer, Hepatitis tests.	=	=
3	4	Carbohydrates	Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test.	=	=
4	4	Proteins and Non ProteinNitrogenous Compounds	Blood protein,Blood urea, Blood creatinine, Creatinine clearance, Uric acid.	=	=
5	4	Electrolytes	Calcium, Inorganic phosphate, Serum chloride	=	=
6,7	4	Enzymes And Liver Function Test	Alkaline phosphatase, Acid phosphatase, Alanine amiotransferase, Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase,bilirubin	=	=
8,9			Mid-Term Exam		
10	4	Lipid and lipoprotein	Cholesterol, Lipoproteins, triglycerides.	=	=
11,12	4	Hematological Analyses ,Complete Blood Count (CBC)	Hematological tests: RBC count, Hb, PCV, RBC indices, WBC count,Platelets count. Blood typing, Coombs test, Bleeding time, ESR.	=	=
13	4	Urine analysis	General urine examination, urine specimen collection.	=	=
14,15	4	Bacteriology	Microbiological tests: culture and sensitivity tests, Staining methods.Culture	=	=

			media, Enriched culture media for general use.Tests for identification of bacteria, Disk diffusion tests of sensitivity to antibiotics, Choice of drugs for disk test, bacterial disease and their laboratory diagnosis.		
			Final Exam		

11.Course Evaluation

Practical	
Mid term Exam	20 %
Total 40%	Quizzes 10% Reports /attendance 10%
Final Exam	60 %
Total	100%

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	Manual for Laboratory Training Adopted by the Department
Main references (sources)	Manual for Laboratory Training Adopted by the Department
Recommended books and references (scientific journals, reports…)	Manual for Laboratory Training Adopted by the Department
Electronic References, Websites	Tour in Hospital Laboratories, Scientific Experiments Training