

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Mustansiriya University/ College of Basic Education/ Sciences**



Academic Program and Course Description Guide

2025

Academic Program Description

University Name: Mustansiriya University
Faculty/Institute: College of Basic Education
Scientific Department: Sciences
Academic or Professional Program Name:
Final Certificate Name: Bachelor of Education
Academic System: Courses Semester
Description Preparation Date: 15- 4-2025
File Completion Date: 10 - 5- 2025

Signature: 
Head of Department Name:
Prof. Mohammed Khalil Ibrahim

Date: 22 -6-2025



Signature: 
Scientific Associate Name:
Prof. assi. Ahmad Baqer Hussien

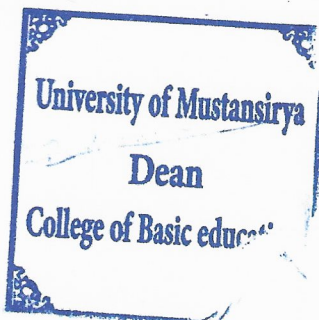
Date: 22 -6- 2025

The file is checked by:

Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department
Prof.Dr. Salam Hussien

Date: 22 /6/ 2025

Signature:



Approval of the Dean

Prof.Dr. Qusay Abdul Abbas Hassan AL- Abyad

1. Program Vision

Working with an educational system that is capable of preparing a qualified and specialized teaching staff for the basic stage in the fields of pure science knowledge in accordance with international quality standards that meet the current and future needs of society. The Science Department always seeks to achieve leadership in the field of education, scientific research and community service and to graduate a capable scientific staff with a high degree of knowledge.

2. Program Mission

Preparing scientifically and professionally specialized cadres in the field of natural sciences by providing a distinguished educational program that is consistent with its outcomes, conforms to quality standards, fulfills the requirements of the labor market, implements scientific research activities and techniques, employs its results to serve the community, and creates a scientific, educational, and cultural climate to prepare students who can be committed educators equipped with satisfactory academic and applied qualifications. Community need.

3. Program Objectives

- 1-Preparing students qualified to teach science (Biology - Chemistry - Physics) in primary and middle schools by using The latest teaching strategies and methods.
- 2- Keeping abreast of recent scientific developments in science (biology - chemistry - physics) and working to employ them.
- 3- Harmonization between theoretical trends and practical reality in the field.
- 4- Providing students with the skills of dealing with modern devices and technologies related to biology, chemistry and physics, and working to employ them.
- 5- Enabling students to get acquainted with the tools of scientific research and to work on employing them in the academic and practical fields.
- 6- Introducing the student to educational, psychological and cultural sciences and arming them with them in order to achieve excellence and scientific and professional development

They have .

7- Preparing and qualifying students to pursue higher studies by developing intellectual scientific and research skills

They have .

8- Enabling students to identify strategies and methods of teaching sciences (biology chemistry - physics).

9-Activation electronic teaching in sciences of the sciences

10-Out put of programs in methods of teaching , learning and evaluation.

11-Obtaining academic accreditation.

4. Program Accreditation

Academic program description of Iraqi educational college

5. Other external influences

Central Acceptation

6. Program Structure

Program Structure	Number of Courses	Credit unites	Percentage	Reviews*
Institution Requirements	24	60		
College Requirements	25	71		
Department Requirements	63	171		
Summer Training	–	–		
Other	2	15		

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical

Courses in the Department of Science – Biology 2023-2024

Year/Level	Course Code	Course Name	Credit Hours	
1 st /1 st biology			theoretical	Practical
Specialty	SCBB05GB111	General Biology	3	2
	SCBB05GC112	General Chemistry	3	2
	SCBB05L113	Logic(Mathematics)	2	0
Educational requirements	SCBB05GP114	Growth of psychology	3	0
Cultural requirements	SCBB05HR115	Human Rights	1	0
Total			14	4

Year/Level	Course Code	Course Name	Credit Hours	
1 st /2 nd biology			theoretical	Practical
Specialty	SCBB05GP121	General Physics	3	2
	SCBB05HB122	Human Biology	2	2
	SCBB05SSL123	Security and Safety of laboratory	2	0
Educational requirements	SCBB05OBE124	Origen of Basic Education and it Principles	3	0
Cultural requirements	SCBB05EL125	English Language	2	0
	SCBB05CO126	Computer	1	2
	SCBB05AL127	Arabic Language	0	
	SCBB05IE128	Islamic Education	2	0
Total			17	6

Year/Level	Course Code	Course Name	Credit Hours	
2 nd /3 rd biology			Theoretical	Practical
Specialty	SCBB05CL211	Cytology	2	2
	SCBB05VI212	Virology	2	0
	SCB04MB213	Microbiology	3	2
Educational requirements	SCBB05PH214	Counseling and Psychological Health	3	0
Cultural requirements	SCBB05AL215	Arabic Language	2	0
	SCBB05EL216	English language	2	0
	SCBB05CO217	The Computer	1	2
	SCBB05CO218	Crimes of bath party in Iraq	2	0
Total			17	6

Year/Level	Course Code	Course Name	Credit Hours	
2 nd /4 th biology			Theoretical	Practical
Specialty	SCBB05HE221	Histology and Embryology	2	2
	SCBB05IV222	Invertebrates	2	2
	SCBB05BC223	Bi Chemistry	2	0
	SCBB05PP224	Plant physiology	2	2
Educational requirements	SCBB05ES225	Education Statics	3	0
	SCBB05PE226	Psychological education	2	0
Cultural requirements	SCBB05D227	Democracy	1	0
Total			14	6

Year/Level	Course Code	Course Name	Credit Hours	
3 rd /5 th biology			Theoretical	practical
Specialty	SCBB05PP311	Animal Physiology	2	2
	SCBB05P312	Parasitology	2	2
	SCBB05PP313	Plant And Animal production	3	2
Educational requirements	SCBB05GMT314	General Methods of Teaching	3	0
	SCBB05EC315	Educational of Curriculum research	3	0
Cultural requirements	---	----		
Total			13	6

Year/Level	Course Code	Course Name	Credit Hours	
3 rd / 6 th biology			Theoretical	Practical
Specialty	SCBB05I 321	Immunology	2	2
	SCBB05E322	Entomology	2	2
	SCBB05PT323	Plant taxonomy	2	0
Educational requirements	SCBB05ME324	Measurement& Evaluation	2	0
	SCBB05MST325	Methods of science teaching	2	0
	SCBB05CSB326	Curriculum and school books	2	0
Cultural requirements	SCBB05EH327	Environment and Health	2	0
	SCBB05Sd 328	Sustainable development	2	0
Total			16	4

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
4 th /7 th biology				
Specialty	SCBB05SV411	Serums& Vaccines	2	0
	SCBBO5GEN412	Genetics	2	2
	SCBB05PE413	Physiological Endocrine	2	0
	SCBB05FI414	Algae and Fungi	2	2
Educational requirements	SCBB05PE415	Practical Education	0	4
	SCBB05EM416	Educational Administration &Supervision	2	0
	SCBB05AL417	Arabic Literature	3	0
	SCBB05PE417	Professional Ethics	2	0
Total			14	8

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
4 th /8 th biology				
Specialty	-----	-----	0	0
Educational requirements	SCCB05TP421	Teaching Practice	0	12
	SCCB05GR422	Graduation Research	0	3
Cultural requirements	-----	-----	0	0
Total			0	15

Chemistry Branch Courses 2024–2023

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1st /1st Chemistry Specialty				
	SCCB05GB111	General Biology	3	2
	SCCB05GC112	General Chemistry	3	2
	SCCB05LM113	Logic(Mathematics)	2	0
Educational requirements	SCCB05GP114	Growth of psychology	3	0
Cultural requirements	SCCB05HR115	Human Rights	1	0
Total			13	4

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
1st /2nd Chemistry				
Specialty				
	SCCB05GP121	General Physics	3	2
	SCCB05HB122	Human Biology	2	2
	SCCB05SSL123	Security and Safety of laboratory	2	0
Educational requirements	SCCB05OBE124	Origen of Basic Education and it Principles	3	0
Cultural requirements	SCCB05EL125	English Language	2	0
	SCCB05AL126	Arabic Language	2	0
	SCCB05CO127	Computer	2	2
	SCCB05IE128	Islamic Education	2	0
Total			17	6

Year/Level	Course Code	Course Name	Credit Hours	
2 nd /3 rd chemistry			Theoretical	Practical
Specialty	SCCB05IC211	Inorganic Chemistry	2	2
	SCCB05AC212	Analytical volumetric Chemistry	2	2
	SCCB05PC213	Physical Chemistry	2	2
Educational requirements	SCCB05CPH214	Counseling and Psychological Health	3	0
Cultural requirements	SCCB05AL215	Arabic Language	2	0
	SCCB05CO216	The Computer	1	2
	SCCB05EL217	English language	2	0
	SCCB05BB217	Crime of bath party in Iraq	2	0
Total			16	8

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
3 rd /5 th chemistry				
Specialty	SCCB05CC311	Coordination Chemistry	2	2
	SCCB05OC312	Organic Chemistry	2	2
	SCCB05IC313	Industrial Chemistry	2	2
Educational requirements	SCCB05GMT314	General Methods OF Teaching	3	0
	SCCB05EC315	Educational Of Curriculum research	2	0
Cultural requirements	SCCB05AL316	Arabic Language	3	0
Total			14	6

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
2 nd / 4 th chemistry				
	SCCB05AWC221	Analytical Weight Chemistry	2	2
Specialty	SCCB05OC222	organic Chemistry	2	2
	SCCB05CE223	Chemical elementary(similar)	2	2
	SCCB05ES224	Educational Statics	3	0
Educational requirements	SCCB05DI225	Differentiation & Integration	2	0
	SCCB05EP226	Educational Psychology	2	0
Cultural requirements	SCCB05D227	Democracy	1	0
Total			14	6

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
3 rd /6 th chemistry				
Specialty	SCCB05OP321	Oil and Petrochemicals	2	2
	SCCB05BC322	Bio Chemistry	2	2
	SCCB05OSC323	Soil Chemistry	2	2
Educational requirements	SCCB05ME324	Measurement Evaluation	2	0
	SCCB05CSB325	Curriculum and school books	2	0
	SCCB05MSTS326	Methods Of Science Teaching	2	0
Cultural requirements	SCCB05EH327	Environmental and Health	2	0
	SCCB05EH328	Sustainable development	2	0
Total			16	6

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
4 th /7 th chemistry				
Specialty	SCCB05IA411	Instrumental analysis	2	1
	SCCB05CB412	Clinical Biochemistry	2	0
	SCCB05SOI413	Organic Identical	2	2
	SCCB05CN414	Chemical of Natural Products	2	0
Educational requirements	SCCB05PE415	Practical Education	0	4
	SCCB05EA416	Educational Administration & Supervision	2	0
Cultural requirements	SCCB05AL417	Arabic literature		
	SCCB05PE418	Professional Ethics		
Total			14	7

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
4 th /8 th chemistry				
Specialty	-----	-----	0	0
Educational requirements	SCCB05TP421	Teaching Practice	0	12
	SCCB05GR422	Graduation Research	0	3
Cultural requirements	-----	-----	0	0
Total			0	15

Physical branch courses

2023-2024

Year/Level	Course Code	Course Name	Credit Hours	
1 st /1 st physics			Theoretical	Practical
Specialty	SCPB05GB111	General Biology	3	2
	SCPB05GC112	General Chemistry	3	2
	SCPB05LM113	Logic(Mathematics)	2	0
Educational requirements	SCPB05GP114	Growth of psychology	3	0
Cultural requirements	SCPB05HR115	Human Rights	1	0
Total			13	4

Year/Level	Course Code	Course Name	Credit Hours	
1 st /2 nd physics			Theoretical	Practical
Specialty	SCPB05GP121	General Physics	3	2
	SCPB05HB122	Human Biology	2	2
	SCPB05SSL123	Security and Safety of laboratory	2	0
Educational requirements	SCPB05OBE124	Origen of Basic Education and it Principles	3	0
Cultural requirements	SCPB05EL125	English Language	2	0
	SCPB05AL126	Arabic Language	2	0
	SCPB05CO127	Computer	2	2
	SCPB05IE128	Islamic Education	2	0
Total			17	6

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
2nd/ 3rd physics				
Specialty	SCPB05CM211	Classical Mechanic	2	2
	SCPB05WMS212	Wave motion & Sound	2	2
	SCPB05EMS213	Elite materials	2	0
Educational requirements	SCPB05CPH214	Counseling and Psychological Health	3	0
Cultural requirements	SCPB05AL215	Arabic Language	2	0
	SCPB05CO216	The Computer	1	2
	SCPB05EL217	English language	2	0
	SCPB05BB218	Crimes of bath party in Iraq	2	0
Total			15	6

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
2 nd /4 th physics				
Specialty	SCPB05OP221	Optics Physics	2	2
	SCPB05TD222	Thermodynamic	2	2
	SCPB05EM223	Electricity and Magnetism	3	2
	SCPB05DI224	Differentiation & Integration	2	0
Educational requirements	SCPB05ES225	Educational Statics	3	0
	SCPB05EP226	Educational Psychology	2	0
Cultural requirements	SCPB05D227	Democracy	1	0
Total			15	4

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
3 rd /5 th physics				
Specialty	SCPB05E311	Modern Physics	3	2
	SCPB05QM 312	Quantum Mechanics	2	0
	SCPB05A 313	Astronomy	2	0
Educational requirements	SCPB05GMT314	General Methods of Teaching	3	0
	SCPB05ME315	Educational of Curriculum research	3	0
Cultural requirements		Arabic Language	2	0
Total			15	2

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
3 rd /6 th physics				
Specialty	SCPB04E321	Electronics	2	2
	SCPB04SSP322	Solid State Physics	3	0
	SCPB04RA323	Radio Activity	2	2
Educational requirements	SCPB04ME324	Measurement & Evaluation	2	0
	SCPB04CSB325	Curriculum and School Books	2	0
	SCPB04MST326	Methods of Science Teaching	2	0
Cultural requirements	SCPB04EH327	Environment and Health	2	0
	SCPB04SD327	Sustainable development	2	0
Total			17	4

Year/Level	Course Code	Course Name	Credit Hours	Practical
			Theoretical	Practical
4 th /7 th physics				
Specialty	SCPB04L411	Laser	2	1
	SCPB04E412	Electromagnetic	2	0
	SCPB04NPT413	Nuclear Physics	2	0
	SCPB04PP414	Physical plasma		
Educational requirements	SCPB04PG415	Practical Education	0	4
	SCPB04EA416	Educational Administration Supervision	3	0
	SCPB04PES417	Professional Ethics	3	0
Cultural requirements	SCPB04ALS418	Arabic Literature	2	0
Total			15	2

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
4 th /8 th physics				
Specialty			0	0
Educational requirements	SCPB04TP421	Teaching Practice	0	12
	SCPB04GR422	Graduation Research	0	3
Cultural requirements			0	0
Total			0	15

8. Expected learning outcomes of the program

Knowledge

- 1- Enable students to acquire, understand and learn about general zoology, botany and general entomology.
- 2- Enabling students to acquire, understand and learn about human biology, histology and parasitology.
- 3- Enabling students to acquire, understand and learn about inorganic chemistry, analytical chemistry and industrial chemistry.
- 4- Enabling students to acquire, understand and learn about industrial and life chemistry and food industries.
- 5- Enabling students to acquire, understand and learn about the general physics of heat and thermodynamics.
- 6- Enabling students to acquire, understand and learn about optical physics, atomic physics and solid physics.
- 7- Enabling students to acquire, understand and learn about general psychology and developmental psychology.
- 8- Enabling students to acquire and understand educational measurement, evaluation and statistics.
- 9- Enabling students to acquire, understand and know all the terms, concepts and symbols in the disciplines of biology, chemistry and physics.
- 10- Enabling students to acquire, understand and know all educational and psychological terms, concepts and symbols.
- 11- Enabling students to acquire, understand and know the strategies, methods and methods of teaching sciences (biology - chemistry - physics) .
- 12- Introducing students to the most important references for biology, chemistry and physics sources.
- 13- Enabling students to acquire and understand the basics, concepts, theories and types of psychological and educational counseling.

Skills

- 1- Enabling students to possess the skills of using modern equipment for biology, chemistry and physics.
- 2- Enable students to acquire scientific problem-solving skills in a scientific manner based on investigation and analysis
And conclusion in order to reach objective solutions to the problems at hand.
- 3- Teaching students self-learning skills to acquire new information, skills and knowledge.
- 4- Enabling students to acquire the skills of conducting laboratory experiments and reaching scientific results.
- 5- Enabling students to have the ability to draw electrical devices and circuits.

- 6- Providing students with knowledge that enables them to read and interpret biological and chemical terms, concepts and symbols and physical.
- 7- Enabling students to acquire the skills of preparing and building examination tests and ways to correct them.
- 8- Training students to have the ability to design and invent effective educational activities that encourage students to learn and participate in it.
- 9- Enabling students to acquire classroom management skills, classroom interaction, and the art of dealing with classroom problems in ways educational.
- 10 - Enabling students to acquire teaching skills in primary and middle schools.
- 11- Enabling students to learn the skills of dialogue, discussion, listening and accepting the opinions of others.
- 12- Enabling students to acquire skills of technics and stages of electronics education .

Ethics

- 1- Students' awareness of the scientific and practical content of the courses, their characteristics and importance.
- 2- Expressing the skillfully acquired scientific, practical and educational knowledge.
- 3 - Enable students to think and analyze the vocabulary of the studied scientific and educational courses.
- 4 - Achieving comprehensive development for students intellectually, psychologically and socially

9. Teaching and Learning Strategies

- 1- Using modern scientific resources and pioneering research in the field of specialization by the instructor to prepare lectures and encourage students to use them.
- 2- Taking advantage of modern teaching methods and employing them to provide students with scientific and practical experiences.
- 3- Using the methods of scientific presentations and films in the field of specialization.
- 4- Adopting methods of dialogue and scientific discussion in the classroom, asking thinking questions and giving homework.
- 5- Adopting modern technology (the Internet) in the field of preparing lectures and research.
- 6- Practical application in schools to gain experience in the field of specialization.

7- Field visits, workshops and scientific seminars.

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10. Evaluation methods

- 1- Quarterly, monthly and daily written theoretical exams, and setting questions with multiple scientific options.
- 2- Quarterly, monthly and daily practical exams.
- 3- Preparing research and designing practical thinking experiments.
- 4- Participation and interaction in the classroom.

11.		12. Faculty					
		Faculty Members					
Academic Rank		Specialization		Special Requirements /Skills (if applicable)		Number of the teaching staff	
		General	Special			Staff	Lecturer
The name of the teacher	academic title		specific specialty			√	
dr. Azhar Burhan Ismail	Professor	Physics	Teaching Methods of Physics			√	
dr. Ikhtham Nasif Jasim	Professor	Chemistry	Analytical Chemistry - Analytical Analysis			√	
dr. Batool Mohammad Jassim	Professor	Science	Methods of Teaching Science of Life			√	
dr. Raghad Akram Aziz	professor	food science	food science and biological technology - biological			√	

			technology				
dr. Kifah Mohsen Abdullah	Professor	Chemistry	Methods of Teaching Chemistry			√	
Dr. Muhannad Khairallah Muhammad	Professor	Physics	Radioactive and Industrial Pollution			√	
Amna Muhammad Ali	Professor	Plant Protection	Plant Diseases - Viruses			√	
Muhammad Khalil Ibrahim	Professor	Veterinary Medicine and Surgery	Methods of Teaching Life Sciences			√	
dr. Asmaa Ezzat Salim	Assistant Professor	Biology	Microbiology - Pathogenic Bacteria			√	
Dr. Ban Mohan Mohsen Al-Abbood	Assistant Professor	Biology	Zoology - Animal Physiology			√	
Dr. Thorayah Abdel Abbas Malik,	Assistant Professor	Plant Protection	Plant Protection - Insects			√	
Dr. Zahraa Ismail Abdel Kazem,	Assistant Professor	Chemistry	Biochemistry			√	
Dr. Zahraa Raouf Jawad	Assistant Professor	Chemistry	Methods of Teaching Chemistry			√	
Dr. Salma Lafta Arhaif	Assistant Professor	Science	Methods of Teaching biology			√	
Dr. Salah El-Din Mansour Bassim	Assistant Professor	Physics	Thin Wood Physics			√	
Dr. Ali Nizar Yassin	Assistant Professor	Biology	Zoology - Parasitology			√	
Dr. Fayhaa Abbood Mahdi Al-Nadawi	Assistant Professor	Plant Protection	Plant Protection – Entomology			√	
Dr. Laila Alak Wali	Assistant Professor	Physics	Nanotechnology and Electro-Optics			√	
D. Majed Hassan Qarboun Merih	Assistant Professor	Chemistry	Biochemistry-Clinical Chemistry			√	
D. Mustafa Hossam Saeed	Assistant Professor	Physics	Solid Materials			√	
Dr. Makarem Adel Khalil	Assistant Professor	Biology	Microbiology - Immunology			√	

Dr. Manal Hamza Mejbai	Assistant Professor	Biology	Botany - Plant Physiology			√	
Dr. Muhanad Mahdi Abd	Assistant Professor	Physics	Nanotechnology			√	
Dr. Widad Hanno Abbas	Assistant Professor	Physics	Solid State Physics			√	
Anam Salem Abdullah	Assistant Professor	Chemistry	Biochemistry			√	
Inas Jabar Hassan	Assistant Professor	Chemistry	Bio Chemistry			√	
Khaleda Jalil Ibrahim	Assistant Professor	Biology	Microbiology - Pathogenic Bacteria			√	
Rahim Jafar Aziz	Assistant Professor	Biology	Physical Chemistry			√	
Zainab Ghalib Hossein	Assistant Professor	Chemistry	Biochemistry			√	
Sama Ibrahim Abdallah	Assistant Professor	Chemistry	Methods of Teaching biology			√	
Shahba Hamid Majeed	Assistant Professor	Biology	Microbiology- Disease Bacteria			√	
dr. Esrra Mehdi Saleh	Instructor /lecturer	Sciences	Animal Science- Environmental Biotechnology			√	
Dr. Kholoud Karim Hassan	Instructor/ lecturer	Biology	Microbiology - immunity			√	
Dr. Rabie Abdel Ali Jabr	Instructor/ lecturer	physics	solid materials			√	
Dr. Safaa Abdel Saleh	Instructor/ lecturer	physics	solid materials			√	
Dr. Abdel Hakim Abdel Rahman Karim	Instructor/ lecturer	Biology	Zoology - Animal Physiology			√	
Dr. Yusra Abdel Ghafour Muhammad	Instructor/ lecturer	Chemistry	Organic Chemistry			√	
Ahmed Ali Abdel Sada	Instructor/ lecturer	Physics	Theoretical Physics			√	
Anwar Abdullah Khalaf Abdullah	Instructor/ lecturer	Sciences	Methods of Teaching biology			√	
Dina Jalal Al-Din	Instructor/	Physics	Theoretical Physics			√	

Fakhr Al-Din	lecturer						
Raghad Mahmoud Marri	Instructor/ lecturer	Sciences	Botany - Phosphorus is a plant			√	
Malak Mahlan Ammar	Instructor/ lecturer	Food sciences and bio techniques	biotechnology			√	
Ahmed Hassan Marjan	assistant lecturer	science-biology	methods of teaching science			√	
Esraa Radwan Ali Abdul-Jabbar	assistant lecturer	science-biology	microbiology - pathogenic bacteria			√	
Esraa Salim Abdel-Zahra Alwan	assistant lecturer	Biology	Zoology - Animal Physiology			√	
Israa Mazhar Hassan Abbas	assistant lecturer	Physics	Nuclear			√	
Alaa Radi Mohsen Jiyad	Assistant lecturer	Bio techniques	Bio chemistry			√	
Basma Adel Qadir Ali	assistant lecturer	Sciences-Biology	Botany - Plant Physiology			√	
Russel Saad Sabah Saleh	assistant lecturer	chemistry	Inorganic chemistry			√	
Russel Salam Jabbar Abd Al-Musaad	assistant lecturer	Sciences -chemistry	Methods of teaching Sciences			√	
Russel Taha	assistant lecturer	Sciences -Biology				√	
Rana Khudair Khazal Nasser	assistant lecturer	Sciences - Physics	Methods of Teaching Physics			√	
Ronak Akram Ali	assistant lecturer	Physics	Nuclear			√	
Zainab Muhammad Khalil Ibrahim	assistant lecturer	Sciences -chemistry	Methods of teaching Sciences			√	
Samara Abbas Mazloun Rashm	assistant lecturer	Chemistry	Medical Physics			√	
Saba Daoud Salman	assistant lecturer	Biology	Zoology - Parasitology			√	
Safa Sami Hassan Falih	assistant lecturer	Physics	Nuclear Physics - Radiological Physics			√	

Azhra Faiq Hussein Ali	assistant lecturer	Sciences -Biology	Methods of Teaching biology			√	
Ali Arabi Abd Jabr	assistant lecturer	Applied Physics	Theoretical Physics			√	
Ali Fadel Ahmed Jassim	assistant lecturer	Biology	Microbiology - Pathological Bacteria			√	
Ali Muhammad Saleh Bozrk	assistant lecturer	Physics	Image Processing			√	
Ali Yahya Abboud Saleh	assistant lecturer	Science-Biology	Microbiology			√	
Alia Ziyad Hazem Muhammad	assistant lecturer	Physics	Plasma Physics			√	
Ghofran Abdel Hassan Al-Lami	assistant lecturer	Physics	Methods of Teaching Physics			√	
Catherine Kazem Shanshal Rahaif	assistant lecturer	Physics	Molecular Physics			√	
Kawthar Imad Mahdi Saleh	assistant lecturer	Applied Chemistry	Physical Chemistry			√	
Muhammad Abdel Qader Ibrahim Hailan	assistant lecturer	Physics	Nuclear			√	
Mortada Salam Nayef Muhammad	assistant lecturer	Physics	Nuclear			√	
Marwan Nouri Muhammad Lafta	assistant lecturer	Biology	Botany - Plant Anatomy			√	
Marwa Mahdi Ahmed Saleh	assistant lecturer	Biology	Methods of Teaching biologys			√	
Nermin Ali Jassim Ali	assistant lecturer	Physics	Laser Physics and Electro-Optics			√	
Nour Muhammad Abbood	assistant lecturer	Physics	Nuclear			√	
Heba Muhammad Abdel Wahed Hafez	assistant lecturer	Biology	Botany - Biotechnology			√	
Hoda Jabbar Hussein Raheel	assistant lecturer	Science - Physics	Methods of Teaching Physics			√	
Yasser Atta Baqir Hammoud	assistant lecturer	Physics	Physics Nuclear - Radiation			√	

Those assigned to the department from other departments							
Sabah Ismail Abdel Saleh	lecturer	Design - Fabrics	Design - Fabrics			√	
						√	

Professional Development

Mentoring new faculty members

- Symposium (Functional Work ethics) 26-9-2023
- Symposium(the role of the guidance teacher in eliminating academic behavioral problems in school). 18-10-2023
- Work shop (Academic profile for lecturers) 18-10-2023

Professional development of faculty members

- Symposium (Functional Work ethics) 26-9-2023.
- Symposium(the role of the guidance teacher in eliminating academic behavioral problems in school) 18-10-2023.
- Work shop (Academic profile for lecturers) 18-10-2023.
- Training (Professional printing with word) 3-12-2023.
- Symposium (Mechanism for revising and organizing research before submitting to the journal to increase the chances of acceptance 4-1-2024.
- Work shop (developing research cooperation through scientific research) 11-10-2023.
- Seminar (Research ethics and electronic independence) 4-3-2024.
- Work shop (using chat GPT in scientific and human research)22-10-2023 .
- Work shop (Iraqi standards for laboratory quality) 15-11-2023
- Work shop (Mechanism of communication with the journal of the college of Basic Education .
- Work shop(Mechanism of record to scientific activities) 12-3-2024.

13. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

- 1-Level of value in Central Acceptance at Morning study.
- 2-Competition between Advanced at evening study.

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14. The most important sources of information about the program
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A guide to describing the academic program for the course from the department of quality and academic description the supervisory research and scientific evolution body in the department of higher education and scientific research .
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15. Program Development Plan

No thing

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
1 st /1 st	SCBB04GB111	General Biology	Basic				√				√				√
	SCBB04GC112	General Chemistry	Basic				√				√				√
	SCBB04L113	Logic(Mathematics)	Basic				√				√				√
	SCBB04BP114	Basics of psychology	Basic				√				√				√
	SCBB04HR115	Human Rights	Basic				√				√				√
	SCBB04CO116	Computer	Basic				√				√				√
	SCBB04AL117	Arabic Language	Basic				√				√				√
1 st /2 nd	SCBB04GP121	General Physics	Basic				√				√				√
	SCBB04HB122	Human Biology	Basic				√				√				√
	SCBB04OBE123	Origen of Basic Education and it	Basic				√				√				√

		Principles													
	SCBB04EL124	English Language	Basic				√				√				√
	SCBB04IE125	Islamic Education	Basic				√				√				√
	SCBB04SSL126	Security and Safety of laboratory	Basic				√				√				√
2 nd /3 rd	SCBB04CL211	Cytology	Basic				√				√				√
	SCBB04VI212	Virology	Basic				√				√				√
	SCB04MB213	Microbiology	Basic				√				√				√
	SCBB04PH214	Counseling and Psychological Health	Basic				√				√				√
	SCBB04AL215	Arabic Language	Basic				√				√				√
	SCBB04EL216	English language	Basic				√				√				√
	SCBB04CO217	The Computer	Basic				√				√				√
	SCBB04CO218	Crimes of bath party in iraq	Basic				√				√				√

2nd/4th	SCBB04HE221	Histology and Embryology	Basic				√				√				√
	SCBB04IV222	Invertebrates	Basic				√				√				√
	SCBB04BC223	Bi Chemistry	Basic				√				√				√
	SCBB04PP224	Plant physiology	Basic				√				√				√
	SCBB04ES225	Education Statics	Basic				√				√				√
	SCBB04PE226	Psychological education	Basic				√				√				√
	SCBB04D227	Democracy	Basic				√				√				√
3rd/5th	SCBB04PP311	Animal Physiology	Basic				√				√				√
	SCBB04P312	Parasitology	Basic				√				√				√
	SCBB04PP313	Plant And Animal production	Basic				√				√				√
	SCBB04EC314	Educational of Curriculum research	Basic				√				√				√
	SCBB04GMT315	General Methods of Teaching	Basic				√				√				√

	SCBB04AL316	Arabic Language	Basic				√				√				√
3 rd /6 th	SCBB04I 321	Immunology	Basic				√				√				√
	SCBB04E322	Entomology	Basic				√				√				√
	SCBB04PT323	Plant taxonomy	Basic				√				√				√
	SCBB04ME324	Measurement & Evaluation	Basic				√				√				√
	SCBB04MST325	Methods of science teaching	Basic				√				√				√
	SCBB04CSB326	Curriculum and school books	Basic				√				√				√
	SCBB04EH327	Environmental health	Basic				√				√				√
	SCSD04SD328	Sustainable development	Basic				√				√				√
4 th /7 th	SCBB04SV411	Serums & Vaccines	Basic				√				√				√
	SCBBO4GEN412	Genetics	Basic				√				√				√
	SCBB04SM413	Science Teaching Methods	Basic				√				√				√

	SCBB04FI414	Food industries	Basic				√				√				√
	SCBB04PG415	Project of Graduation Research	Basic				√				√				√
	SCBB04C416	Curriculum	Basic				√				√				√
	SCBB04EMS417	Educational Administration & Supervision	Basic				√				√				√
4 th /8 th															
	SCBB04TP421	Teaching Practice	Basic				√				√				√
	SCBB04GR422	Graduation Research	Basic				√				√				√
Chemistry Branch Courses	SCCB04GB111	General Biology	Basic				√				√				√
1 st /1 st	SCCB04GC112	General Chemistry	Basic				√				√				√
	SCCB04LM113	Logic(Mathematics)	Basic				√				√				√
	SCCB04BP114	Basics of psychology	Basic				√				√				√

	SCCB04HR115	Human Rights	Basic				√				√				√
	SCCB04CO116	Computer					√				√				√
	SCCB04AL117	Arabic Language					√				√				√
1 st /2 nd	SCCB04GP121	General Physics					√				√				√
	SCCB04HB122	Human Biology					√				√				√
	SCCB04OBE123	Origen of Basic Education and it Principles					√				√				√
	SCCB04EL124	English Language					√				√				√
	SCCB04IE125	Islamic Education					√				√				√
	SCCB04SSL126	Security and Safety of laboratory					√				√				√
2 nd /3 rd	SCCB04IC211	Inorganic Chemistry					√				√				√
	SCCB04AC212	Analytical volumetric Chemistry					√				√				√

	SCCB04PC213	Physical Chemistry					√				√			√
	SCCB04CPH214	Counseling and Psychological Health					√				√			√
	SCCB04AL215	Arabic Language					√				√			√
	SCCB04CO216	The Computer					√				√			√
	SCCB04EL217	English language					√				√			√
	SCCBB04EL218	Crimes of bath party in raq					√				√			√
2 nd /4 th	SCCB04AWC221	Analytical Weight Chemistry					√				√			√
	SCCB04OC222	organic Chemistry					√				√			√
	SCCB04CE223	Chemical elementary (similar)					√				√			√
	SCCB04ES224	Educational Statics					√				√			√
	SCCB04DI225	Differentiation & Integration					√				√			√

	SCCB04EP226	Educational Psychology					√				√				√
	SCCB04D227	Democracy					√				√				√
3 rd /5 th	SCCB04CC311	Coordination Chemistry					√				√				√
	SCCB04OC312	Organic Chemistry					√				√				√
	SCCB04IC313	Industrial Chemistry					√				√				√
	SCCB04GMT314	General Methods OF Teaching					√				√				√
	SCCB04EC315	Educational Of Curriculum research					√				√				√
	SCCB04AL316	Arabic Language					√				√				√
3 rd /6 th	SCCB04OP321	Oil and Petrochemicals					√				√				√
	SCCB04BC322	Bio Chemistry					√				√				√
	SCCB04OSC323	Soil Chemistry					√				√				√
	SCCB04ME324	Measurement Evaluation					√				√				√

	SCCB04CSB325	Curriculum and school books					√				√				√
	SCCB04MSTS326	Methods Of Science Teaching					√				√				√
	SCCB04EH327	Environment and Health					√				√				√
	SCCB04SD328	Sustainable development					√				√				√
4 th /7 th	SCCB04IA411	Instrumental analysis					√				√				√
	SCCB04CB412	Clinical Biochemistry					√				√				√
	SCCB04STM413	Science Teaching Methods					√				√				√
	SCCB04FI414	Food industries					√				√				√
	SCCB04GR415	Project of Graduation Research					√				√				√
	SCCB04EC416	Educational Curriculum of Research					√				√				√
	SCCB04EMS417	Educational Administration					√				√				√

		& Supervision													
4th/8th	SCCB04TP421	Teaching Practice					√				√				√
	SCCB04GR422	Graduation Research					√				√				√
Physical branch courses															
1st/1st	SCPB04GB111	General Biology					√				√				√
	SCPB04GC112	General Chemistry					√				√				√
	SCPB04LM113	Logic(Mathem atics)					√				√				√
	SCPB04BP114	Basics of psychology					√				√				√
	SCPB04HR115	Human Rights					√				√				√
	SCPB04CO116	Computer					√				√				√
	SCPB04AL117	Arabic Language					√				√				√

1st/2nd	SCPB04GP121	General Physics					√				√				√
	SCPB04HB122	Human Biology					√				√				√
	SCPB04OBE123	Origen of Basic Education and it Principles					√				√				√
	SCPB04EL124	English Language					√				√				√
	SCPB04IE125	Islamic Education					√				√				√
	SCPB04SSL126	Security and Safety of laboratory					√				√				√
2nd/3th	SCPB04CM211	Classical Mechanic					√				√				√
	SCPB04WMS212	Wave motion & Sound					√				√				√
	SCPB04EMS213	Elite materials					√				√				√
	SCPB04CPH214	Counseling and Psychological Health					√				√				√
	SCPB04AL215	Arabic Language					√				√				√

	SCPB04CO216	The Computer					√				√				√
	SCPB04EL217	English language					√				√				√
	SCPB04BB218	Crimes of bath party in iraq					√				√				√
2 nd /4 th	SCPB04OP221	Optics Physics					√				√				√
	SCPB04TD222	Thermodynam ic					√				√				√
	SCPB04EM223	Electricity and Magnetism					√				√				√
	SCPB04DI224	Differentiation & Integration					√				√				√
	SCPB04ES225	Educational Statics					√				√				√
	SCPB04EP226	Educational Psychology					√				√				√
	SCPB04D227	Democracy					√				√				√
3 rd /5 th	SCPB04E311	Modern Physics					√				√				√
	SCPB04QM 312	Quantum Mechanics					√				√				√
	SCPB04A 313	Astronomy					√				√				√

	SCP B04GMT314	General Methods of Teaching					√				√				√
	SCP B04ME315	Educational of Curriculum research					√				√				√
	SCP B04AL316	Arabic Language					√				√				√
3 rd /6 th	SCP B04E321	Electronics					√				√				√
	SCP B04SSP322	Solid State Physics					√				√				√
	SCP B04RA323	Radio Activity					√				√				√
	SCP B04ME324	Measurement & Evaluation					√				√				√
	SCP B04CSB325	Curriculum and School Books					√				√				√
	SCP B04MST326	Methods of Science Teaching					√				√				√
	SCP B04EH327	Environment and Health					√				√				√
	SCP B04SD328	Sustainable development					√				√				√

4th7th	SCPB04L411	Laser					√				√				√
	SCPB04FD412	Food industries					√				√				√
	SCPB04E413	Electromagnetic					√				√				√
	SCPB04MST414	Methods of Science teaching					√				√				√
	SCPB04PG415	Project of Graduation Research					√				√				√
	SCPB04EC416	Educational Curriculum of research					√				√				√
	SCPB04EMS417	Educational Administration Supervision					√				√				√
4th/8th	SCPB04TP421	Teaching Practice					√				√				√
	SCPB04GR422	Graduation Research					√				√				√

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

Course Description Form

1. Course Name: General Biology	
2. Course Code: SCBB04GB111	
3. Semester / Year: First/first	
4. Description Preparation Date: 2023–2024	
5. Available Attendance Forms: yes	
6. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours/4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Ban Mohan Mohsen Email: banban.edbs@uomustansiriyah.edu.iq	
8. Course Objectives	
Course Objectives 1- The student learns the importance of zoology and its relationship to man and the rest of the creatures. 2- The student learns to know the methods of classification and scientific designation and benefit from it. 3- The student learns the characteristics that make the object within the animal kingdom and differs from the kingdom of the plant, algae and fungi. 4- The student knows the animal characteristics of the people and linking them with the organisms with which they live or around.	5- The student gets acquainted with the cell and the theories of the emergence of cell science and its components. 6- The student gets acquainted with the laws of heredity. 7- The student gets acquainted with the viruses and its composition and attributes. 8- The student gets acquainted with green plastids of all kinds, composition and function. 9- The student gets acquainted with the types of hormones (animal and plant) 10- The student gets acquainted with cellular breathing and enzymes. 11 -The student gets acquainted with the cell division and its types -
9. Teaching and Learning Strategies	
Strategy	General biology is concerned with the study of biology (animals, plants, etc.) and their environment and their relationship with other sciences such as histology, physiology, genetics, anatomy, and ecology, in addition to other biological sciences. Scientific classification of the five kingdoms, methods of classification, characteristics of the kingdom, study of the theory of evolution, origin of species, study of the characteristics of the five kingdoms (animals, plants, protozoans, fungi, bacteria), the cell and its theories, genetics, Mendel's laws, viruses, plastids, animal and plant hormones, and cell division.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	45			Theorati practical	Examination reportage

Week	Tuesday / Practical	Wednesday / Theoretical
First	Laboratory instructions and instructions, specifications of a good laboratory, safety and security	Vocabulary and books for the curriculum, exam dates, and the importance of science
Second	Getting to know laboratory tools and equipment	Definition of biology, its history, importance, and branches, the origin of life, the origin of the Earth, theories of the origin of life, religion, and the origin of life
third	Types of microscopes, especially the compound light microscope	Taxonomy: its definition, historical stages, fields, and systems, methods of classification, scientific classification, and scientific division: kingdom, phylum, class, order, and family And genus and species
fourth	Examination of a drop of pool water, tap water, and water from a bar to study the organisms that the student will see	Scientific nomenclature: a historical overview and binary scientific nomenclature, its rules, taxonomic ranks, and examples of names for scientific biology
fifth	Examination of animal tissues, whether oral or ready	Division of living organisms: systems for dividing organisms and the modern system for dividing organisms above the kingdom (archaea and bacteria) above the eukaryotic kingdom (protists - fungi - plants - animals)
sixteen	Examination of tissue sections Histological and bacterial preparation	The cell is the unit of structure and function: its definition - its types - its contents
seventh	Making slides of the epidermis of plant leaves and examining them	Genetic material: its organization, multiplication, reproduction, and genes
eighth	Examining different models of cell types (plant and animal)	Mendel's laws and mutations. Evolution: Definition of evolution, the mechanisms of evolution, and its evidence.
ninth	Cell contents (nucleus, nucleolus, cytoplasm, plastids if plant)	First month exam + (Hormones: their types and plant hormonal regulation..
tenth	Examination of blood strips to examine the nuclei of white blood cells	Immunology: its definition and history, immune organs in the body and types of

		immunity.
eleventh	Examination	Viruses, their definition, historical overview, naming, and hypotheses of their origin.
twelfth	Study of the stages of mitosis	Second month exam+ (Photosynthesis and cellular respiration)
thirteenth	Study of mitosis Reductionist	the cell cycle, mitosis and indirect division, and meiosis (meiosis)
	Final exam	

11. Course Evaluation

according to the tasks assigned to the student such as:
daily oral exam.
2 monthly written exams
2 reports

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Zoology book 2- Biology (biology four pa
Main references (sources)	Zoology book 2- Biology (biology four pa
Recommended books and references (scientific journals, reports...)	Zoology book 2- Biology (biology four pa
Electronic References, Websites	Most references from websites

Course Description Form

1. Course Name: Mathematics/mathematical logic
2. Course Code: 112
3. Semester / Year: First /first
4. Description Preparation Date: 25-7-2024
5. Available Attendance Forms: yes
6. Number of Credit Hours (Total) / Number of Units (Total)
2 unit 30 hours (theoretical 2* 15)

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

Name: Proff. Dr Muhannad Kh. Mohammed

Email: muhannad62@yahoo.com

8. Course Objectives

Course Objectives

The student should be able to understand the ordered steps that lead to correct results and understand the rules and language of mathematical logic

9. Teaching and Learning Strategies

Strategy

Studying mathematics requires a series of steps arranged one after the other in order to reach correct results. Among them, mathematics is considered a logical system, and writing mathematical expressions in symbolic form while establishing fixed, easy-to-use rules is what is called mathematical logic. Accordingly, mathematical logic is not a theory, but an agreed upon scientific language. Among mathematicians, scientists have established agreements that are understood by all the languages of the world in order to interpret the meaning of the mathematical sentences that we use.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15 weeks	30 hours		Studying mathematics requires a series of steps arranged one after the other in order to reach correct results. Among them, mathematics is considered a logical system, and writing mathematical expressions in symbolic form while establishing fixed, easy-to-use rules is what is called mathematical logic. Accordingly, mathematical logic is not a theory, but an agreed upon scientific language. Among mathematicians, scientists have established agreements that are understood by all the languages of the world in order to interpret the meaning of the mathematical sentences that we use.	Theoretical	By examination

11. Course Evaluation

Final exam	The degree of pursuit	Activity	Practical exam	Second exam	First exam	Exam grades
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	is annual					
60	40	10	0	15	15	100

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Mathematical logic
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Internet lecture resources

Course Description Form

13.	Course Name: Security and Safety of laboratory
14.	Course Code: SCBB04SSL126
15.	Semester / Year: second/first
16.	Description Preparation Date:
17.	Available Attendance Forms: yes
18.	Number of Credit Hours (Total) / Number of Units (Total) 2/2
19.	Course administrator's name (mention all, if more than one name) Name: BAN MOHAN MOHSEN Email: banban.edbs@uomustansiriyah.edu.iq
20.	Course Objectives
Course Objectives	➤ 1- Determine the relationship of the student and laboratory officials in preventing work hazards. ➤ 2- Mention the basic stages of hazards, such

	as fires, spills, and radiation. ➤ 3- Mention some of the methods used in treating spills. ➤ 4- Identify the dangerous and less dangerous biological components and how to deal with them . ➤ 5- Description of typical buildings for biology, chemistry and physics laboratories. ➤ 6- Definition of some terms related to laboratory safety and security. ➤ 7- Distinction between: biological and chemical spills and how to deal with them. ➤ 8- Description of radiation and its risks. ➤ 9- Sterilization and disinfection and the difference between them and methods Both of them.
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21. Teaching and Learning Strategies

Strategy	
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22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

Week	Tuesday, for example	Sunday, for example
First		Definitions and terminology
Second		Public safety procedures
third		Identifying biological hazards and how to get injured or exposed to them and treat it
fourth		Types of spills (biological - chemical)
fifth		Biological cabins
sixteen		Sterilization, disinfection, and radiation
seventh		First month exam

eighth		Sterilization methods
ninth		Disinfection methods
tenth		Waste sorting (and disposal methods)
eleventh		Second month exam
twelfth		Chemistry lab
thirteenth		Chemical spills
fourteenth		Methods of how to store chemicals
fifteen		
sixteenth		
seventeenth		
eighteenth		
nineteenth		
twentieth		
Twenty-one		
Twenty-two		
Twenty-third		
Twenty-four		
		final exam

23. Course Evaluation

100 degree distribution
2 written exams
reports

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	curricular books from higher ministry & health ministry
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Almost references from website

Course Description Form

25. Course Name:	
General chemistry	
26. Course Code:	
27. Semester / Year: first/first	
28. Description Preparation Date:	
29. Available Attendance Forms: yes	
30. Number of Credit Hours (Total) / Number of Units (Total)	
5/4	
31. Course administrator's name (mention all, if more than one name)	
Name: Enas Jabbar Hasan Email: enasjabbar2010@gmail.com	
32. Course Objectives	
Course Objectives	• – Principles of chemistry. • – Explains the concept of matter and describes theories of matter construction and the components of the atom (proton, neutron, electron). • – Enumerates the types of bonds (covalent, ionic, metallic, hydrogen, Van der Waals forces, dispersion forces) between atoms. • – Definition of chemical reactions, valence and oxidation numbers, and methods for calculating them for the element in the compound. • Explaining how to write and calculate the chemical formula (positional and molecular) and

	applied issues. • Definition of acid and base according to the theories of (Arrhenius, Bronsted, Lowry, Lewis) and salts and methods of classifying and preparing them. • Enumerate the types of solutions study the properties of each, and express the concentrations of the solutions. • Explain the basics of quantitative and qualitative chemical analysis
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33. Teaching and Learning Strategies

Strategy	<u>1- Policy for attending educational events:</u> <u>2-Late Attendance:</u> The policy is determined in cases of repeated lateness of a student to attend educational activities Not allowing a late student to enter without a legitimate excuse <u>3-Exam controls:</u> Determine the policies followed in cases of absence from the exam and describe the policy followed in cases of a student being late to the exam. A zero is given to the student in the case of unexcused absence, and in the case of an excuse or being late for an acceptable reason, an exam date is set for them <u>4-Duties and projects:</u> Determine the controls related to the deadlines for submitting assignments or projects and the consequences of delaying or not submitting them on time, if any. Not receiving weekly reports that are late for the practical aspect <u>5-Cheating:</u> The policy followed in cases of cheating in exams or in completing assignments by any fraudulent means. The student is considered to have failed that subject if cheating is proven <u>6-Plagiarism:</u> Definition of plagiarism, its cases, and procedures to be followed if it occurs. Disposition is carried out according to the controls imposed by the Deanship of the College <u>7-Other policies:</u> Any other policies related to course privacy, or according to university regulations. nothing
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34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
3	6	The student has	- Principles	Whiteboard,	Asking

		detailed information about the principles of chemistry and explains the concept of matter and its components.	of chemistry. - Explains the concept of matter and describes theories of matter construction and the components of the atom (proton, neutron, electron)	data show and posters	students about the information presented and taking a short exam on the subject
3	6	he student has detailed information about the types of bonds and chemical reactions	- Enumerate the types of bonds (covalent, ionic, metallic, hydrogen, Van der Waals forces, dispersion forces) between atoms. - Definition of chemical reactions, valence and oxidation numbers, and methods for calculating them for the element in the compound.	=	=
2	4	he student has detailed information on how to write and calculate the chemical formula	Explaining how to write and calculate the chemical formula	=	=

		(positional and molecular).	(positional and molecular) and applied issues.		
2	4	The student has detailed information about acid, base, and salt according to the theories of (Arrhenius, Bronsted, Lowry, and Lewis).	Definition of acid and base according to the theories of (Arrhenius, Bronsted, Lowry, Lewis) and salts and methods of classifying and preparing them.	=	=
2	4	The student has detailed information about the types of solutions and studies the properties of each of them	Enumerate the types of solutions, study the properties of each, and express the concentrations of the solutions.	=	=
2	4	The student has detailed information about the basics of quantitative and qualitative chemical analysis	Explain the basics of quantitative and qualitative chemical analysis	=	=

35. Course Evaluation

final exam	Semester pursuit score	Activity	Practical exam	Second exam	first exam	Exam grades
60	40	2	10	14	14	

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Al-Taie, Adel and Al-Hasnawi, Dayekh (2006)
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	General Chemistry, Dar Al-Masirah Publishing House, Amman, Jordan
Main references (sources)	Sayed Ahmed, Ahmed Fathi (2007) General Chemistry New Sham, Al-Hilal House and Library, Beirut.
Recommended books and references (scientific journals, reports...)	Michel J. Sinko and Robert A. Blanc (1981) Chemistry McGraw-Hill Publishing House, Arabic edition cooperation with Dar Al-Ahram Foundation
Electronic References, Websites	

Course Description Form

1. Course Name: General physics	
2. Course Code:	
3. Semester / Year: second/first	
4. Description Preparation Date:	
5. Available Attendance Forms: yes	
6. Number of Credit Hours (Total) / Number of Units (Total)	
5/4 75 hours (theoretical 3* 15 + practical 2* 15)	
7. Course administrator's name (mention all, if more than one name)	
Name: Proff. Dr Muhannad Kh. Mohammed Email: muhannad62@yahoo.com	
8. Course Objectives	
Course Objectives	After the end of the semester, the student should be able to understand vector and scalar quantities, add, subtract, and multiply vectors, analyze vectors, find the resultant and the equation and their direction. He will also be familiar with the concept of motion, whether linear or circular, understand the position of the body, displacement, distance, velocity, and launch, and become familiar with the equations of linear motion with uniform acceleration, as well as free fall. Movement in two dimensions, including projectiles. The student also learns about Newton's laws of motion, the

	concept of friction and its types, understands the physical concept of work and the units of work, power and energy, distinguishes between work done by a fixed or moving force, the relationship of work to energy, and the relationship of work, power and time.
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9. Teaching and Learning Strategies

Strategy	Students study the principles of general physics extensively, such as mechanical physics, where they learn about the basic and derivative units, the international system of units, and vector and numerical quantities. They also learn addition and subtraction of vectors, numerical and vector multiplication of vector physical quantities, finding the resultant and its direction, and the equation and direction of several forces acting at one point and in one plane. Then they learn about The dynamics of the physical point and the static and moving body, in which he learns translational and rotational movement And concepts in linear and circular motion, Newton's laws of motion, the movement of bodies in the Earth's gravitational field, the law of general gravitation, finding the Earth's mass and density, the motion of bodies, free fall, and projectiles, then friction, the coefficient of friction, and the inclined surface, momentum conservation of momentum, energy, and collision, then work, power, potential energy, and kinetic energy.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15 weeks	75 hours		Students study the principles of general physics extensively, such as mechanical physics, where they learn about the basic and derivative units, the international system of units, and vector and numerical quantities. They also learn addition and subtraction of vectors, numerical and vector multiplication of vector physical quantities, finding the resultant and its direction, and the equation and direction of several forces acting at one point and in one plane. Then they learn about The dynamics of the physical point and the static and moving body, in which he learns translational and rotational movement And concepts in linear and circular motion, Newton's laws of motion, the movement of bodies in the Earth's gravitational field, the law of general gravitation, finding the Earth's mass and density, the motion of bodies, free fall, and projectiles, then friction, the coefficient of friction, and the inclined surface, momentum conservation of momentum, energy, and collision, then work, power, potential energy, and kinetic energy.	Theoretical & practical	By examination

11. Course Evaluation						
Final exam	Annual pursuit degree	Activity	Practical exam	Second exam	First exam	Exam grades
60	40	10	10	10	10	100

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Physics for the first stage: Geologist Abdul Sattar Jawad General physics for non-physicists Abdel Salam Abdel Ami
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Internet lecture resources

37. Course Name: **Invertebrate**

38. Course Code:

39. Semester / Year: forth /second

40. Description Preparation Date:

41. Available Attendance Forms: yes

42. Number of Credit Hours (Total) / Number of Units (Total)

4 hours / 3 Units

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

Name: Assist. Prof. Dr. Ali Nazar Yaseen

Email: ms.bio2012@yahoo.com Alinnazar.edbs@uomustansiriyah.edu.iq

44. Course Objectives					
Course Objectives		- Students become familiar with various types and models of invertebrate animals, particularly those related to human health that cause many diseases. - Equipping students with classification skills and how to use keys for classifying invertebrate animals. - Equipping students with drawing skills (drawing stages and phases of life cycles and complete models of invertebrate animals). - Equipping students with the ability to diagnose stages and some phases of the life cycles that invertebrate animals undergo.			
45. Teaching and Learning Strategies					
Strategy		1- Use a wide range of visual aids such as pictures, charts, graphs, and illustrations 2- Include handouts and outlines for teaching various academic concepts; 3- Show pictures and explain			
46. Course Structure					
Weeks	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	45	1-Students become familiar with various types and models of invertebrate animals, particularly those related to human health that cause many diseases. □ Equipping students with classification skills and how to use keys for classifying invertebrate animals. □ Equipping students with drawing skills (drawing stages and phases of life cycles and complete models of invertebrate animals). □ Equipping students with ability to diagnose stages some phases of the life cycles invertebrate animals undergo	- General Introduction to Theoretical Invertebrate Biology - Study of Models from Primitive Animals - Phylum Porifera - Phylum Cnidaria - First Month Exam - Study of Models from the Phylum Platyhelminthes - Class Cestoda, Nematoda - Phylum Annelida - Phylum Annelida - Second Month Exam - Rotifers - Phylum Mollusca + Phylum Arthropoda - Phylum Arthropoda - Phylum Echinodermata - Phylum Echinodermata		
47. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation/ 20 , daily oral/ 20 , monthly or written exams/40 reports/ 20					
48. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					

54

Main references (sources)	1 -General Biology 2- Principles and Practice of Clinical Parasitology 3-Textbook of Medical Parasitology
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

49.Course Name:	
Histology and embryology	
50.Course Code:	
51.Semester / Year: forth /second	
- 2023/2024	
52.Description Preparation Date:	
53.Available Attendance Forms:yes	
54.Number of Credit Hours (Total) / Number of Units (Total)	
4 hours / 3 units	
55.Course administrator's name (mention all, if more than one name)	
Name: Assistant Professor Dr. Asmaa Ezzat Selim Email: asmaa.edbs@uomustansiriyah.edu.iq Name: Assistant Professor Khaleda Jalil Ibrahim Email: khalida.edbs@uomustansiriyah.edu.iq	
56.Course Objectives	
Course Objectives 	The student must be familiar with the vocabulary of the curriculum, including: 1. The student should be able to understand the importance of studying histology 2. That the student understands the relationship of histology to other sciences. 3. The student learns the theoretical foundations of light microscopic preparation and the modern techniques used globally in scientific research in histology. 4. That the student is able to know the general characteristics of the four primary tissues (epithelial, connective, muscular, and nervous).

	5. That the student understands the importance of studying embryology and its branches and the historical progression of the emergence and development of embryology 6. To learn the theories of embryonic formation 7. The student should be able to know the reproductive organs in humans 8. The student should be able to understand the stages of genetic development in humans 9. The student understands the effects of the environment on the formation and growth of the fetus and congenital malformations 10. The student should know the importance and applications of artificial insemination.
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57. Teaching and Learning Strategies

Strategy	- Conveying the material in a simplified and scientific way by supporting the explanation of the material with examples so that the student can understand the material through those examples. - That the student be able to study and solve his scientific problems by applying the scientific method while asking scientific questions related to the subject so that the students can participate in finding the optimal solution to those questions. - Writing scientific reports related to the topic
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58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	45	1. The student should be able to understand the importance of studying histology 2. That the student understands the relationship of histology to other sciences. 3. The student learns the theoretical foundations of light microscopic	- The student should be able to understand the importance of studying histology, the theoretical part - The theoretical foundations of microscopic preparation and the tools used for microscopic preparation - Study the four primary		

	preparation and the modern techniques used globally in scientific research in histology. 4. That the student is able to know the general characteristics of the four primary tissues (epithelial, connective, muscular, and nervous). 5. That the student understands the importance of studying embryology and its branches and the historical progression of the emergence and development of embryology 6. To learn the theories of embryonic formation 7. The student should be able to know the reproductive organs in humans 8. The student should be able to understand the stages of genetic development in humans 9. The student understands the effects of the environment on the formation and growth of the fetus and congenital malformations 10. The student should know the importance and	tissues in terms of their properties and types • Glandular epithelium • Connective tissues: their definition - their general characteristics - their classification according to their structure • Specialized connective tissues • Muscle tissue • Nervous tissue • The importance of embryology and its branches • Genetic theories • Human reproductive organs • Stages of ontogeny • Fertilization • Hemiplegia • Tweet • Blastula • Gastrula • Differentiation • Environmental influences on the formation and growth of the fetus • Congenital malformations • <i>artificial insemination.</i> • practical part • The theoretical foundations of microscopic preparation and the tools used for microscopic preparation • Study the four primary tissues in terms of their properties and types • Glandular epithelium • Connective tissues: their definition - their	
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		applications of artificial insemination.	general characteristics - their classification according to their structure • Specialized connective tissues • Muscle tissue • Nervous tissue • Human reproductive organs • Stages of ontogeny • Fertilization • Hemiplegia • Tweet • blastula • Gastrula • Differentiation • The fateful map • Vital dyes		
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59.Course Evaluation

The first month is 12.5 marks, the second month is 12.5 marks, extracurricular activity with daily exams is 5 marks (the final total is 30 marks for the theoretical part, 10 marks for the practical part). The final result as a final assignment for the subject is 40 marks.

60.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1. Ghali, Muhammad Abd al-Hadi: The Course in Histology (1991), fifth edition (translation), Iraq, Part 1, Dar Al-Hikma Press for Printing and Publishing, Mosul, written by: Lessen, Lyssen, and Babro. 2. Al-Mukhtar, Planets; Amal Al-Khatib; Abdul Hakim, the narrator. (1984) Principles of Practical Histology, First Edition 3. El-Tohamy, Mohamed Abdel Majeed (2000). Basics of embryology. Deanship of Library Affairs, King Saud University.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

61.Course Name:

Cytology-

62.Course Code:					
63.Semester / Year: third /second					
64.Description Preparation Date:					
65.Available Attendance Forms:yes					
66.Number of Credit Hours (Total) / Number of Units (Total)					
4 hours / 3 units					
67.Course administrator's name (mention all, if more than one name)					
Name: Assistant Professor Dr. Asmaa Ezzat Selim Email: asmaa.edbs@uomustansiriyah.edu.iq Name: Assistant Professor Khaleda Jalil Ibrahim Email: khalida.edbs@uomustansiriyah.edu.iq					
68.Course Objectives					
Course Objectives			The student must be familiar with the vocabulary of the curriculum, including: 1- Determine the relationship of cell science to other sciences. 2- Mention the basic stages of the development of cell science. 3- Mention some of the methods used in studying cells and their parts. 4- Identify the organic and inorganic components inside the cells. 5- Describe the structure of a typical cell 6- Defining the concept of prokaryotic cells and eukaryotic cells. 7- Distinguish between: bacterial cell, plant cell, and animal cell. 8- Ultra-microscopic description of the cell contents. 9- Determine the stages of cell division (mitotic division/meiosis). 10- Determine the stages of sperm formation and the stages of egg formation.		
69. Teaching and Learning Strategies					
Strategy		- Conveying the material in a simplified and scientific way by supporting the explanation of the material with examples so that the student can understand the material through those examples. - That the student be able to study and solve his scientific problems by applying the scientific method while asking scientific questions related to the subject so that the students can participate in finding the optimal solution to those questions.			
70. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	45	1-Determine the relationship of cell science to other sciences. 2- Mention the basic stages of the development of cell	- A historical overview of cell science and the relationship of cell science to other sciences - Some methods used in studying cells and their parts - Biosystem levels		

		science. 3- Mention some of the methods used in studying cells and their parts. 4- Identify the organic and inorganic components inside the cells. 5- Describe the structure of a typical cell 6- Defining the concept of prokaryotic cells and eukaryotic cells. 7- Distinguish between: bacterial cell, plant cell, and animal cell. 8- Ultra-microscopic description of the cell contents. 9- Determine the stages of cell division (mitotic division/meiosis). 10- Determine the stages of sperm formation and the stages of egg formation.	• Organic components inside cells • Inorganic components inside cells • Prokaryotic cells, eukaryotic cells. • Plasma membrane/endoplasmic reticulum • Mitochondria/Golgi apparatus • Lysosomes/nucleus/cell wall • Plastids/vacuoles. • Nucleus/chromosomes • Cell division (mitosis) • Cell division (meiosis). • Stages of sperm formation and stages of egg formation • (practical part) • Microscope and its types • How to use the tester • The concept of the archaeal and eukaryotic cell • The concept of the cell in its general form, characteristics, and relationship to heredity • The plant cell, its features and importance • The animal cell, its features and importance • Cell division of living organisms • Phases of cell division in cells • Characteristics of organisms used for inheritance in genetic experiments • • Cell components and their representation in living form	
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71.Course Evaluation

The first month is 12.5 marks, the second month is 12.5 marks, extracurricular activity with daily exams is 5 marks (the final total is 30 marks for the theoretical part, 10 marks for the practical part). The final result as a final assignment for the subject is 40 marks.

72.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	- Ghali, Muhammad Abd al-Hadi: Course in Histology (translation), Iraq, Part 1, Dar al-Hikma Press for Printing and Publishing, Mosul, 1991, written by: Lessen, Lyssen, and Babro. 2- Khanna, p. (2008) Cell & Molecular Biology.

	I.K.International Publishing House PVT.Ltd
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Immunology–	
2. Course Code:	
3. Semester / Year: sixth /third	
– 2023/2024	
4. Description Preparation Date:	
5. Available Attendance Forms: yes	
6. Number of Credit Hours (Total) / Number of Units (Total)	
4 hours / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant Professor :Shahbaa Hameed Majeed	
Email : Shahbaa.edbs@uomustansiriyah.edu.iq	
8. Course Objectives	
Course Objectives	1 – Definition of immunology. – Types of immunity –immune system A– Immune organs B– Cells... These include: T cells B cells

	Other cells –AntigensAg First semester exam – AntibodiesAb IgM IgG IgA The complement –The immune response includes: –A– Cellular immune response –B– Humoral immune response Some important immune diseases A– Inflammation B– Allergy C–Immune deficiency D– Member rejection. Second semester exam
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9. Teaching and Learning Strategies

Strategy	expected toYBe the student after completing The decision Academiche has the ability to: 1.RecognitionThe most important immune organs, how the body defends against pathogens, what are the immune defense mechanisms and means that the organism possesses, and what are the types of immunity present in the body. 2.Know the importance of immunology and its major roleIn t medical fields and knowing the types of immune diseases and how diagnose them.
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
9		1-Introduction to immunology and the main immune organs 2-Blood drawing, separation, and types of laboratory test tubes. 3-White blood cells and their types: granular and non-granular 4-Total white blood cell count. 5-Methods for detecting antigen-antigen interactions. 6-How to determine blood type laboratory. 7-Methods of detecting antibody and antigen reactions / ELISA test. 8-Immunofluorescence examination. Gel immunodiffusion reactions. 9-Studying the forms and functions of antibodies in the body.			
11. Course Evaluation					
The first month is 12.5 marks, the second month is 12.5 marks, extracurricular activity with daily exams is 5 marks (the final total is 30 marks for the theoretical part, 10 marks for the practical part). The final result as a final assignment for the subject is 40 marks.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)		Basic learning resources : 1-Basics of Immunology / Written by: Muhammad Abdel Aziz Sarhan			

	2-Al-Wajeez in Immunology / Written by: M. M. Alaa Muhammad Al-Bayati. 3-Immunology and Serology / Written by: Dr. Tariq Saleh Al-Zubaidi
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

13.	Course Name: Parasitology
14.	Course Code:
15.	Semester / Year: fifth/third
16.	Description Preparation Date:
17.	Available Attendance Forms: yes
18.	Number of Credit Hours (Total) / Number of Units (Total) 4 hours / 3 Units
19.	Course administrator's name (mention all, if more than one name) Name: Assist. Prof. Dr. Ali Nazar Yaseen Email: ms.bio2012@yahoo.com Alinnazar.edbs@uomustansiriyah.edu.iq
20.	Course Objectives
Course Objectives	- Students became familiar with various types and models of parasitic animals, especially those related to human health, which cause many diseases. - Students recognized the importance of personal hygiene and the cleanliness of food and drink, as they have a significant impact on the transmission of many parasitic animals. - Equipping students with drawing skills (illustrating infectious stages, life cycles, and complete models of parasites). - Providing students with the ability to diagnose stages and some phases of the life cycles of parasitic animals.
21.	Teaching and Learning Strategies
Strategies	4- Use a wide range of visual aids such as pictures, charts, graphs, and illustrations;

- 5- Include handouts and outlines for teaching various academic concepts;
6- Show pictures and explain

22. Course Structure

Weeks	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	45	1-Students became familiar with various types and models of parasitic animals, especially those related to human health, which cause many diseases . 2-Students recognized the importance of personal hygiene and the cleanliness of food and drink, as they have a significant impact on the transmission of many parasitic animals . 3-Equipping students with drawing skills (illustrating infectious stages, life cycles, and complete models of parasites . 4 -Providing students with the ability to diagnose stages and some phases of the life cycles of parasitic animals .	• Definition of parasitology, importance of parasitology, historical overview of parasitology, relationships among animals, characteristics of parasitism (the relationship between the parasite and the host), specialization of parasites, types of parasites, types of hosts, adaptations of parasites. • Parasitism in the animal kingdom, infectious stages, sources of infection, routes of infection, factors influencing spread and density of parasitic infections, stages of parasitism, laboratory diagnosis. • Phylum Protozoa, characteristics of protozoa, classification of protozoa, class Sarcomastigophora, Entamoeba histolytica, Entamoeba coli, Dwarf tapeworm (Hymenolepis nana), Entamoeba dispar, Entamoeba iodophila, free-living amoebae. • Class Flagellates, classification of flagellates, Giardia intestinalis, Trichomonas vaginalis, genus Trichomonas, Trichomonas hominis, Trichomonas vaginalis, Trichomonas bovis. • Blood and tissue flagellates, genus Leishmania, Leishmania tropica, Leishmania braziliensis, Leishmania donovani (visceral leishmaniasis), genus Trypanosoma (trypanosomiasis), African sleeping sickness, American sleeping sickness. • Class Apicomplexa,		

			Plasmodium species, Toxoplasma gondii, and the disease of cysticercosis. • Class Ciliophora, colonic ciliates. • Phylum Platyhelminthes (general characteristics), life cycle stages of digenetic trematodes, liver flukes, intestinal flukes, blood flukes, lung flukes. • Tapeworms, beef tapeworm, pork tapeworm, Echinococcus granulosus. • Phylum Nematoda, general characteristics, Trichinella spiralis, whipworm, Strongyloides stercoralis. • Hookworm, pinworm. • Roundworm, Filarial worm, worm. Arthropods (general characteristics), study of some examples of arthropods.		
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23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation/ 20 , daily oral/ 20 , monthly or written exams/40 reports/ 20

24. Learning and Teaching Resources

Required textbooks (curricular books any)	
Main references (sources)	1– Medical parasitology 2– Principles and Practice of Clinical Parasitology 3-Textbook of Medical Parasitology
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

13.	Course Name: (physiology)

14.	Course Code:SCBB04PP311				
15.	Semester / Year: fifth/third				
16.	Description Preparation Date: 2023-2024				
17.	Available Attendance Forms: YES				
18.	Number of Credit Hours (Total) / Number of Units (Total):4/3				
19.	Course administrator's name (mention all, if more than one name)				
	Name: BanMohan Mohsen Email: banban.edbs@uomustansiriyah.edu.iq				
20.	Course Objectives				
	Course Objectives 1- The student learns the importance of animal physiology. 2- The student learns the functions of the organs of different organisms. 3- He learns anatomy within the practical subject and examines the existing body systems of animal organisms.		4- The student learns the difference between living organisms and temperatures. 5 -The student also learns the difference in the body's various water and terrestrial activities		
21.	Teaching and Learning Strategies				
	Strategy	Mix teaching between theory and practical study with u different practis and exercises			
22.	Course Structure				
	Week	Hours	Required Learning Outcomes	Unit or subject name	Evaluation method
	Week		Monday (practical)	Sunday (theoretical)	
	First		Laboratory instructions	Vocabulary, importance, distribution of grades and required materials	
	Second		Preparing the frog for dissection (anesthesia, maceration, decapitation)	Temperatures, division of hot-blooded and cold-blooded organisms, and definition of some terms related to the subject	
	third		Preparing the quail muscle in the frog	Excretion and excretion systems and organelles	

fourth	Preparing the sciatic nerve in the frog	Excretion in freshwater organisms
fifth	Reflex actions	First month exam
sixteen	Preparing a blood smear and examining red blood cells and white blood cells	Excretion in salt water organisms and the predominance of terrestrial organisms On the problem of osmosis
seventh	Differential count of red blood cells	The circulatory system and blood circulation in living organisms
eighth	Total white blood cell count	Respiratory pigments and the carrying of oxygen and carbon dioxide in the red blood cell
ninth	Practical exam	Second month exam
tenth	Review and competitive exam	The digestive system and its functions
eleventh	Blood pressure measurement	The muscular system and the respiratory system
twelfth	Blood hemoglobin measurement	The nervous system, its parts and functions
thirteenth	Exam	Optional exam
fourteenth	Total red blood cell count	Completion of the physiology of the nervous system
fifteen	Review	Review
	final exam	

23. Course Evaluation

according to the tasks assigned to the student such as:
daily oral exame.
2 monthly written exams
2 reports

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal Vargah (two parts) Ministry of Higher Education and Scientific Research / University of Baghdad
Main references (sources)	- General Zoology book written
Recommended books and references (scientific journals, reports...)	General Zoology book written
Electronic References, Websites	Most References from Websites

Course Description Form

1. Course Name:	
Plant and animal production	
2. Course Code:	
3. Semester / Year: fifth/third	
Fifth semester – 2023/2024	
4. Description Preparation Date:	
5. Available Attendance Forms: yes	
6. Number of Credit Hours (Total) / Number of Units (Total)	
5 hours/4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Professor Dr. Raghad Akram Aziz Email: ragaad.edbs@uomustansiriyah.edu.iq	
8. Course Objectives	
Course Objectives	• This course aims to provide the student with basic theoretical information, develop his skills, and refine his practical abilities in the subject of plant and animal production, as the science of plant and animal production aims to increase animal productivity, but at the lowest possible cost. Livestock includes large animals, which are (cows - buffalo - sheep - goats). - Camels) in addition to poultry (chickens - ducks - geese - turkeys - pigeons and ostriches). Then poultry is followed by fish production or aquaculture, whether freshwater fish or saltwater fish. Some classify horses and donkeys as agricultural wealth.
9. Teaching and Learning Strategies	
Strategy	• The main reference for the material is relied upon in terms of PPT slides. • Use the blackboard • Relying on the model of preparing students for discussion and assigning them to explain some paragraphs of the study material
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	75	1. The student should be able to know the economic importance of agricultural animals 2. The student understands the relationship between animal production and plant production 3. The student will learn the reasons for the obstacles to livestock development 4. That the student can know the methods of producing eggs and meat 5. The student understands the characteristics of purebred dairy cattle 6. The student should be able to know the physiology of milk production 7. The student should be able to know the branches of natural production science 8. The student should be able to understand the importance and division of field crops 9. That the student understands the mechanism adopted in the scientific naming of plants 10. The student will know the methods of improving the agricultural field using technology 11. The student should know the modern methods applied in agricultures	Plant and animal production is the exploitation of agricultural lands and animals with the aim of obtaining the highest possible productivity at the lowest costs. Economic importance of agricultural animals • Definition and animal production • The relationship between animal production and plant production Obstacles to livestock development • Fodder resources • Social factors • Policies and services • Herd productivity • How can livestock production be developed? Egg and meat production • Converting feed that is unfit for human consumption into suitable foodstuffs • Efficiency and speed of production • Eggs are a continuous source of food • Poultry product licenses • By-products of the poultry industry • Poultry breeds • Ornamental chicken • Chicken egg production • Brood hens • Chickens produce table eggs • Meat chicken • Brood hens • Meat broilers • Ovary • Oviduct • Repression • Most • Isthmus • Cortical gland (uterus) • A source of calcium for the peel • Formation of the crust		

			• Porosity of the egg shell • the vagina • Eggs are laid mostly from the wide end • The egg • Components of the egg • Yolk • Whiteness • Chalaza • Cortical membranes • Cuticle • Deterioration of egg quality • Factors affecting egg quality • Ovulation • Laying eggs in chains • The time required to produce an egg • Light and spawning • Double ovulation • Spawning • Factors affecting hatching • Transporting eggs to the hatchery • Waterfowl • First: ducks • Second: Geese • Livestock (farm animals) • Purebred dairy cattle are characterized by the following formal and anatomical characteristics: • Dairy cattle judging • The external appearance of local livestock • Sexual maturity and reproduction • The most important breeds of indigenous dairy cattle • Cleaning barns • Watering the animal • Milking cows • Breastfeeding calves • Providing fodder for field animals • Grazing • Monitor animals in barns daily • Sports • Maintain records • Milking process (milking cows) The importance of the milking process 1- The cow A- Installation of the udder • General structure of the udder		
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			• Installation of the quarter B- Physiology of milk secretion • How is milk secreted from the udder? • What is residual milk? • Factors that lead to a large amount of milk remaining in the udder - The milkman - Milking machine • Basic parts of the milking machine • How the milking machine works • Mechanical factors that control robotic milking Introduction The crop • The result • Production • Horizontal expansion • Vertical expansion • Food security • Wild species • Field crop science The science of plant production includes several branches, including: 1-Crop physiology 2-Crop ecology 3-Crop improvement science 4-Crop technology 5-Crop production science Field crop • The importance of field crops • Dividing field crops First: Division according to plant families or botanical division • Seedless plants are also divided into two families: A- The monocot family: its seeds contain one cotyledon, as is the case in the wheat plant. B- Dicotyledonous family: Its seeds contain two cotyledons, as in the bean plant. Scientific nomenclature of plants 1-Crops belonging to the Poaceae family		
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			2- Crops belonging to the leguminous family 3- Crops belonging to the Solanaceae family 4-Crops belonging to the saprophytic family 5- Crops belonging to the Mallow family 6- Crops belonging to the Compositae family: 7- Crops belonging to the Cruciferous family 8- Crops belonging to the sesame family 9- Crops belonging to the flax family Second: Division according to the resulting yield and for which the crop is grown (according to use) 1- Grain crops 2-Legume crops 3-Oil crops 4-Sugar crops 5- Fodder crops 6- Fiber crops 7- Medicinal crops 8-Stimulant crops Third: Division according to the life cycle or how long the crop stays in the ground. 1- Perennial crops 2-Two-year crops 3- Annual crops Fourth: Division according to the agricultural season (planting date). 1-Winter crops 2- Summer crops Fifth: Division according to special uses. 1- Green manure crops 2-Silage crops 3-Cover crops 4-Loading crops (synonym) 5-Temporary crops 6-Emergency crops • Natural factors affecting agricultural production The most important factors that affect agriculture: 1- The economic factors that affect agriculture 2- Climatic factors that affect agriculture 3-Environmental physical factors that affect agriculture		
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			The importance of increasing crop productivity for farmers Methods of increasing agricultural production 1-Choose the appropriate time for planting 2- Seasonal agriculture 3- Planning for the growth of the agricultural field 4-Explore and follow up the fields 5-Use appropriate means for draining water 6-Use appropriate agricultural fertilizers 7-Testing suitable agricultural soil 8-Get rid of weeds early 9-Choose good seeds Ways to improve the agricultural field using technology Modern farming methods 1. Hydroponics 2. Protected agriculture 3. Smart agriculture Modern methods applied in agriculture 1. Intensive tillage 1. 2. Monoculture 2. 3. Use synthetic fertilizers 3. Irrigation techniques 4. Pest control 5. Genetic manipulation Vegetables Types of vegetable farms Conditions for successful vegetable cultivation in the Mas region The most important divisions in vegetable plants: 1- Plant division 2-Agricultural division • the fruit • Classification of fruit trees • Classification of fruit trees according to the following principles First: According to the climate suitable for its good growth and production. Second: According to the nature of the vegetative growth of trees. Third: According to its plant factors. Fourth: According to the		
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			taste of the fruits. 1- Division according to the nature of vegetative growth: A- Evergreen fruit trees B- Fruit trees with deciduous leaves Third: Division according to the plant families to which it belongs 1- Palmaceae family: It includes the date palm and the coconut palm. 2- Rutaceae family: includes citrus fruits. 3- Oleaceae: olives. 4- Musaceae: banana. 5- Pistachios: Anacardiaceae pistachios and green seeds 6- Bromeliaceae: pineapple. 7- Myrtaceae: Guava. 8- Rosaceae: apples, pears, quince, peaches, European pears, and Japanese pears. 9- Blueberry Vitaceae: European grapes and American grapes. 10- Juglandaceae: Walnut. 11- Fagaceae: chestnut. 12- Corylacra: Hazelnut. 13- Punicaceae: pomegranate. 14- Moraceae: berries and figs. Fourth: Based on the taste of the fruits The fruits are divided into the following groups 1- Apple fruit 2- Stone fruit 3- Small-fruited fruits 4- Transportation fruit 5- Citrus fruits. The most important external factors that affect tree fruits First: soil factors Second:- Weather factors		
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11. Course Evaluation

The first month is 12.5 marks, the second month is 12.5 marks, extracurricular activity with daily exams is 5 marks (the final total is 30 marks for the theoretical part, 10 marks for the practical part). The final result as a final assignment for the subject is 40 marks.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	-Liquid milk, Dr. Thabet Abdul Rahman, 1982. - Meat science and technology, Dr. Majid Bashir Al-Aswad, 1980. - Egg Chemistry and Technology, Dr. Shaalan

	Al-Mashaykhi - Dr. Saad Abdul Hussein, 1990.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Immunology–	
2. Course Code:	
3. Semester / Year: sixth /third	
– 2023/2024	
4. Description Preparation Date:	
5. Available Attendance Forms: yes	
6. Number of Credit Hours (Total) / Number of Units (Total)	
4 hours / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant Professor :Shahbaa Hameed Majeed Email : Shahbaa.edbs@uomustansiriyah.edu.iq	
8. Course Objectives	
Course Objectives	1– Definition of immunology. – Types of immunity –immune system A– Immune organs B– Cells... These include: T cells

	B cells Other cells –AntigensAg First semester exam – AntibodiesAb IgM IgG IgA The complement –The immune response includes: –A– Cellular immune response –B– Humoral immune response Some important immune diseases A– Inflammation B– Allergy C–Immune deficiency D– Member rejection. Second semester exam
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9. Teaching and Learning Strategies

Strategy	expected toYBe the student after completing The decision Academiche has the ability to: 1.RecognitionThe most important immune organs, how the body defends against pathogens, what are the immune defense mechanisms and means that the organism possesses, and what are the types of immunity present in the body. 2.Know the importance of immunology and its major roleIn t medical fields and knowing the types of immune diseases and how diagnose them.
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10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
9		1-Introduction to immunology and the main immune organs 2-Blood drawing, separation, and types of laboratory test tubes. 3-White blood cells and their types: granular and non-granular 4-Total white blood cell count. 5-Methods for detecting antigen-antigen interactions. 6-How to determine blood type laboratory. 7-Methods of detecting antibody and antigen reactions / ELISA test. 8-Immunofluorescence examination. Gel immunodiffusion reactions. 9-Studying the forms and functions of antibodies in the body.			
11. Course Evaluation					
The first month is 12.5 marks, the second month is 12.5 marks, extracurricular activity with daily exams is 5 marks (the final total is 30 marks for the theoretical part, 10 marks for the practical part). The final result as a final assignment for the subject is 40 marks.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Basic learning resources : 1-Basics of Immunology / Written by: J		

	Muhammad Abdel Aziz Sarhan 2-Al-Wajeez in Immunology / Written by: M. M. Alaa Muhammad Al-Bayati. 3-Immunology and Serology / Writt by: Dr. Tariq Saleh Al-Zubaidi
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Description Form

25. Course Name:	
Clinical Biochemistry	
26. Course Code:	
27. Semester / Year:	
Seventh Semester / fourth year	
28. Description Preparation Date:	
01/08/2024	
29. Available Attendance Forms:	
Recording the student's attendance in theoretical lectures	
30. Number of Credit Hours (Total) / Number of Units (Total)	
2 / 2 units	
31. Course administrator's name (mention all, if more than one name)	
Name: Assest Prof. majed Hassan Karbon Email: majad.hassan@uomustansiriyah.edu.iq	
32. Course Objectives	
Course Objectives	• At the end of this course, students will be able to: - Explain the basic principles of clinical biochemistry and its role in the health care of individuals. - Linking changes in protein and carbohydrate metabolism with various pathological conditions. - Interpret common clinical biochemistry tests used to evaluate both kidney and liver functions . - Explain the importance of measuring the activity of blood plasma enzymes and discuss the consequences of changes in their activity

			- Determine the clinical significance of abnormal laboratory results.		
33. Teaching and Learning Strategies					
Strategy		This course will combine lectures, and discussions, to provide students with a complete understanding of clinical biochemistry and its importance in the diagnosis and management of human diseases.			
34. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	1-Teaching students the	1- Laboratory tools, equipment, and chemicals .	Lecture	Quizzes Reports Monthly exam. Final exam.
2	2	diagnostic importance of	2- Preparing the patient and samples for laboratory tests.		
3	2	measuring essential compounds in body	3 - Urine formation, collection and composition .		
4	2	fluids,	4- changes in urine during storage, preservatives,		
5	2	(carbohydrate	5- General urine test (physical, chemical, and microscopic examination)		
6	2	proteins, enzymes,...	6 - Collecting and preparing blood samples , blood clotting, separating of plasma or serum,		
7	2	2-Understand the human biochemical reactions in normal and abnormal conditions.	7- Blood storage and precautions to prevent hemolysis .		
8	2	3-Developing students' abilities to share ideas.	8- Blood glucose measurement, glucose tolerance test, glucose tolerance curves.		
9	2		9- Importance , separation and determination of plasma proteins		
10	2		10- Abnormal proteins,		
11	2		11- Enzymes for clinical diagnosis (ALP, ACP, GOT, GPT, LDH, lipase amylase, pepsin).		
12	2				
13	2				
14	2				
15	2				
35. Course Evaluation					
Distributing the score out of 100 to: 1- 40 score: for quizzes, monthly exams, and reports. 2- 60 score: for the final exam .					
36. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Clinical Biochemistry (Lecture Notes), Peter Rae		

Main references (sources)	MA Crook. Clinical Biochemistry & Metabolic Medicine (8 th ed J. Hodder & Stoughton Ltd.2012.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Web sites in Biochemistry and Clinical Biochemistry

Course Description Form

1. Course Name:					
Biochemistry					
2. Course Code:					
3. Semester / Year:					
sixth Semester / third year					
4. Description Preparation Date:					
01/08/2024					
5. Available Attendance Forms:					
Recording the student's attendance in theoretical lectures					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30 hours / 3 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Assest Prof. majed Hassan Karbon					
Email: majad.hassan@uomustansiriyah.edu.iq					
8. Course Objectives					
Course Objectives		A general introductory course in biochemistry that aims to provide students with information about the cellular basis of life through studying the molecular components of the living cell such as carbohydrates, proteins, fats, nucleic acids, enzymes, and hormones, and clarifying the general features of the biological systems practiced by these components.			
9. Teaching and Learning Strategies					
Strategy		This course will combine lectures, discussions , quizzes and practical laboratory demonstrations to provide students with a complete understanding of biochemistry .			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	After the semester ends, the student will be able to describe : the components of a living cell and the biological processes that take place in it.	Introduction to the macromolecules in biochemistry.	Lectures, Group Discussion and Laboratory Works.	Quizzes Reports Monthly exam. Final exam.
2	2	classification of carbohydrates ,	Carbohydrates 1		

3	2	Stereochemistry of monosaccharaides.			
4	2	Physiologically important monosaccharaides, glycosides, disaccharides, polysaccharides	Carbohydrates 2		
5	2	Chemical structure and reactions of monosaccharaides, disaccharides, polysaccharides	Carbohydrates 3		
6	2	Structures of amino acids Classification, properties,	Amino acid 1		
7	2	Chemical reactions, Zwitter ions, titration curve , isoelectric point.	Amino acid 2		
8	2	Formation of Peptide bond,. Essential poly peptides in human body.	Amino acid 3		
9	2	Structure and conformations of proteins, Primary structure, Secondary structure (α helix, β sheet), tertiary structure, quaternary structure, examples.	Proteins 1		
10	2	Nomenclature, classification, mechanisms of catalysis, specificity, lock and key model, induced fit model, transition state stabilization, Biological function, cofactors, coenzymes,	Enzymes 1		
11	2	Factors effecting enzyme rates (substrate conc., pH, temperature, enzyme conc.), single-substrate reaction (Michaelis Menten equation)	Enzymes 2		
12	2	Reversible inhibition competitive and non-competitive inhibition, Irreversible inhibition .	Enzymes 3		
13	2	Introduction, classification of lipids, fatty acids (F.A),	Lipids 1		
14	2	nomenclature of F.A, saturated F.A, unsaturated F.A, physical	Lipids 2		

15	2	Nucleic acids, nucleotides, mutations, describing the structure and functions of DNA & RNA . Introducing hormones, their functions, and their endocrine glands	Nucleic acids Hormones		
11. Course Evaluation					
Distributing the score out of 100 to: 1- 40 score: for quizzes, monthly exams, and reports. 2- 60 score: for the final exam (45 for written +15 for practical)					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Tariq Younis Al-Ahmad and Louay Abdel Ali Al-Hilali (2010) Biochemistry, Part One, Mosul University Press, Iraq.		
Main references (sources)			Nelson, D.L. and Cox, M.M. (2017) Lehninger Principles of Biochemistry. 7th Edition, W.H. Freeman, New York.		
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites			Web sites in Biochemistry		

Course Description Form

13.	Course Name:
organic chemistry 1	
14.	Course Code:
15.	Semester / Year: fourth/second
2023-2024	
16.	Description Preparation Date:
17.Available Attendance Forms: yes	
18.Number of Credit Hours (Total) / Number of Units (Total)	
4/3	
19.	Course administrator's name (mention all, if more than one name)
Name: Enas Jabbar Hasan Email: enasjabbar2010@gmail.com	

20. Course Objectives					
Course Objectives		• Introduction to hydrocarbon compound • Alkanes • Alkenes • Alkynes • Cyclic hydrocarbons • Aromatic compounds • Alcohols and phenols • Aldehydes and ketones • Carboxylic acids • Ethers • Amines			
21. Teaching and Learning Strategies					
Strategy	<u>1- Policy for attending educational events:</u> <u>2-Late Attendance:</u> The policy is determined in cases of repeated lateness of student to attend educational activities Not allowing a late student to enter without a legitimate excuse <u>3-Exam controls:</u> Determine the policies followed in cases of absence from the exam and describe the policy followed in cases of a student being late to the exam. A zero is given to the student in the case of unexcused absence, and in the case of an excuse or being late for an acceptable reason, an exam date is set for them <u>4-Duties and projects:</u> Determine the controls related to the deadlines for submitting assignments or projects and the consequences of delaying or not submitting them on time, if any. Not receiving weekly reports that are late for the practical aspect <u>5-Cheating:</u> The policy followed in cases of cheating in exams or in completing assignments by any fraudulent means. The student is considered to have failed that subject if cheating is proven <u>6-Plagiarism:</u> Definition of plagiarism, its cases, and procedures to be followed if it occurs. Disposition is carried out according to the controls imposed by the Deanship of the College <u>7-Other policies:</u> Any other policies related to course privacy, or according to university regulations. nothing				
22. Course Structure					
Week	Hours	Required Learning	Unit or	Learning method	Evaluation method

		Outcomes	subject name		
1	2	Learn in general about organic chemistry and hydrocarbon compounds	Introduction to hydrocarbon compounds	Whiteboard data show a posters	Asking students about the information presented and taking a short exam on the subject
1	2	Learn how to write the formulas of alkanes - their properties - methods of preparation and reactions	Alkanes	=	=
1	2	Learn how to write the formulas of alkenes - their properties - methods of preparation and reactions	alkenes	=	=
1	2	Learn how to write the formulas of Alkynes - their properties - methods of preparation and reactions	Alkynes	=	=
1	2	Learn how to write the formulas of Cyclic hydrocarbons - their properties - methods of preparation and reactions	Cyclic hydrocarbons	=	=
1	2	Learn how to write the formulas of Aromatic compounds - their	Aromatic compounds	=	=

		properties - methods preparation and reactions			
1	2	Learn how to write the formulas of Alcohols and phenols - their properties - methods preparation and reactions	Alcohols and phenols	=	=
1	2	Learn how to write the formulas of Aldehydes and ketones - their properties - methods preparation and reactions	Aldehydes and ketones	=	=
1	2	Learn how to write the formulas of Carboxylic acids - their properties - methods of preparation and reactions	Carboxylic acids	=	=
1	2	Learn how to write the formulas of Ethers - their properties - methods of preparation and reactions	Ethers	=	=
1	2	Learn how to write the formulas of Amines - their properties - methods of preparation and reactions	Amines	=	=
23. Course Evaluation					

final exam	Semester pursuit score	Activity	Practical exam	Second exam	first exam	Exam grades
60	40	2	10	14	14	

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Organic chemistry book written by Morrison & Boyd
Main references (sources)	Book basics of organic chemistry
Recommended books and references (scientific journals, reports...)	Foundations of organic chemistry. D. Muhammad Wasif
Electronic References, Websites	https://www.masterorganicchemistry.com/

Course Description Form

25. Course Name: Organic Chemistry	
26. Course Code:	
27. Semester / Year: Chemistry Branch /Third Year – / Fifth Semester	
28. Description Preparation Date: Sectorial Committee 2013	
29. Available Attendance Forms: -----	
30. Number of Credit Hours (Total) / Number of Units (Total)	
4/3 Seminar: 30 hours Practical: 60 hours Training: Not specified Total: 120 hours	
31. Course administrator's name (mention all, if more than one name)	
Name: dr- yusra A.Mohammed Email: dr.yusra.abdulghafoor@uomustansiriyah.edu.iq	
32. Course Objectives	
Course Objectives	1. Aryl halides (general formula, physical properties, preparation, reactions, identification) 2. Phenols (general formula, chemical structure, physical properties, industrial sources, preparation)

	- Aldehydes and ketones (structure, physical properties, reactions, classification, identification) - Carboxylic acids (structure, physical properties, naming, preparation) - Derivatives of carboxylic acids (properties, naming, reactions, preparation) - Amines and diazonium salts (structure, classification, preparation, basicity of amines, reactions of amines)
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33. Teaching and Learning Strategies

Strategy	The following learning methods are used: diagrams, illustrative material, scientific films, and laboratory experiments
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34. Course Structure

- **Aryl Halides:** 2 weeks, 4 hours
- **Phenols:** 2 weeks, 4 hours
- **Aldehydes and Ketones:** 2 weeks, 4 hours
- **Carboxylic Acids:** 2 weeks, 4 hours
- **Amines and Diazonium Salts:** 2 weeks, 4 hours
- **Sulfur Compounds:** 2 weeks, 4 hours
- **Organophosphorus Compounds:** 2 weeks, 4 hours

Total: 14 weeks, 28 hours

Practical Component:

- **Alcohol Detection:** 2 weeks, 4 hours
- **Detection of Functional Groups in Organic Compounds:** 2 weeks, 4 hours
- **Carboxylic Acids Detection:** 2 weeks, 4 hours
- **Phenols Detection:** 2 weeks, 4 hours
- **Esters Detection:** 2 weeks, 4 hours
- **Distinguishing Between Aldehydes and Ketones:** 2 weeks, 4 hours
- **Preparation of Some Esters:** 2 weeks, 4 hours
- **Preparation of Some Alcohols:** 2 weeks, 4 hours

Total: 14 weeks, 28 hours

35. Course Evaluation

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

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	○ Graham Solomons, 1990, "Organic Chemistry," translated by Adel Al-Jarrah ○ Robert Morrison and Robert Boyd, 2000, "Organic Chemistry," Arabic edition translated by Dr. Saleh Al-Qadri, Dr. Farouk Qandeel, Dr. Mohammed Suleiman, and others
Main references (sources)	-----
Recommended books and references (scientific journals, reports...)	Organic Chemistry," 2nd Edition, Cl Greeves Warren
Electronic References, Websites	-----

Course Description Form

37. Course Name: Oil and Petrochemicals	
38. Course Code:	
39. Semester / Year: Chemistry Branch/ Third Year – / Sixth Semester	
40. Description Preparation Date:	
41. Available Attendance Forms: yes	
42. Number of Credit Hours (Total) / Number of Units (Total)	
4/3 Seminar: 30 hours Practical: 60 hours Training: Not specified Total: 120 hours	
43. Course administrator's name (mention all, if more than one name)	
Name: dr- yusra A.Mohammed Email: dr.yusra.abdulghafoor@uomustansiriyah.edu.iq	
44. Course Objectives	
Course Objectives	-Understand the origin of crude oil -Identify the components of oil

	-Understand the oil refining process ³ . Identify the main petrochemical industries (primary and intermediate)
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45. Teaching and Learning Strategies

Strategy	The following learning methods are used: diagrams, illustrative materials, scientific films, and laboratory experiments
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46. Course Structure

Practical Aspect:

No.	Laboratory Experiments	Weeks	Actual Hours	Learning Outcomes
1	Separation of straight-chain paraffins	2	4	Understanding main methods for separating some oil components
2	Determining water content in oil derivatives	2	4	Familiarity with some oil refining methods
3	Measuring flash point in oil 1	2	4	Understanding some components of oil
4	Measuring flash point in oil 2	2	4	Understanding some components of oil
5	Determining the residual carbon content of oil products using Conradson method	2	4	Familiarity with some oil refining methods
6	Determining the residual carbon content of oil products using Ramsbottom method	2	4	Familiarity with some oil refining methods
7	Determining the viscosity and viscosity index of oil derivatives	2	4	Understanding the purity of oil derivatives
Total Weeks and Hours	14	28		

47. Course Evaluation

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

48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Primary Textbook: <i>Chemistry of Petroleum and Organic Chemicals</i> by Younis Mohamed Al-Hassan and Sharben Saad Al-Shahri, Translation, and Publication Center, King Faisal University. Supplementary References:
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	<i>Fundamentals of Industrial Chemistry</i> by Prof. Dr. Mohamed Magdy Wasel.
Main references (sources)	-----
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----

Course Description Form

49. Course Name:	
Physical chemistry	
50. Course Code:	
51. Semester / Year: third/second	
52. Description Preparation Date:	
53. Available Attendance Forms: yes	
54. Number of Credit Hours (Total) / Number of Units (Total)	
4/3	
55. Course administrator's name (mention all, if more than one name)	
Name: Enas Jabbar Hasan Email: enasjabbar2010@gmail.com	
56. Course Objectives	
Course Objectives	• Gaseous state – Study of the properties of gases – Study of Boyle's, Charles's, Gaylusk's and Avocadro's laws. – Deriving the general equation for gases and studying the terms of the kinetic theory of ideal gases.

	• Thermodynamic concepts and terminology Study of the system and its types, processes and their classification, and terminology of energy and its types and work. • Zeroth and first law of thermodynamics The zeroth and first law of thermodynamics and calculations of q, W, ΔE for adiabatic, isochoric, isobaric and isothermal processes • Thermochemistry Calculate the enthalpy of reaction, combustion and formation. Apply Hess and Kirchhoff's laws. • Second law of thermodynamics – Calculating the entropy for adiabatic, isochoric, isobaric and isothermal processes – Calculating the entropy of evaporation and sublimation processes. • The third law of thermodynamics and the free energy function – Calculating the value of the free energy for a system that expands isothermally, at constant pressure and temperature, and for a mixture of gases and when the pressure changes.
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57. Teaching and Learning Strategies

Strategy	<u>1- Policy for attending educational events:</u> <u>2-Late Attendance:</u> The policy is determined in cases of repeated lateness of student to attend educational activities Not allowing a late student to enter without a legitimate excuse <u>3-Exam controls:</u> Determine the policies followed in cases of absence from the exam and describe the policy followed in cases of a student being late to the exam. A zero is given to the student in the case of unexcused absence, and in the case of an excuse or being late for an acceptable reason, an exam date is set for them <u>4-Duties and projects:</u> Determine the controls related to the deadlines for submitting assignments or projects and the consequences of delaying or not submitting them on time, if any. Not receiving weekly reports that are late for the practical aspect <u>5-Cheating:</u> The policy followed in cases of cheating in exams or in completing assignments by any fraudulent means.
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The student is considered to have failed that subject if cheating is proven
6-Plagiarism: Definition of plagiarism, its cases, and procedures to be followed if it occurs.
Disposition is carried out according to the controls imposed by the Deanship of the College
7-Other policies: Any other policies related to course privacy, or according to university regulations.
nothing

58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2	4	1- Developing students' knowledge of the scientific vocabulary covered in the chemical thermodynamic course.	Study of the properties of gases Study of Boyle's, Charles's, Gaylusk's and Avocadro's laws	White board, data show and poster	Asking student about the information presented and taking a short exam on the subject
2	4	2- Improving the level of comprehension and understanding of the given scientific material	Deriving the general equation for gases and studying the terms of the kinetic theory of ideal gases. Study of the system and its types, processes and the classification, and terminology of energy and its type and work	=	=
2	4	3- Improving the ability to interpret, predict and infer scientific phenomena related to chemical thermodynamic	Zeroth and first law of thermodynamics and calculations of q, W, ΔE for adiabatic, isochoric, isobaric and isothermal processes	=	=
2	4	4- Developing students' applied	Calculate the enthalpy of reaction, combustion and	=	=

		abilities for the vocabulary of the scientific subject studied.	ation. Apply Hess and Kirchhoff's laws		
2	4	5- The student acquires the ability to conduct correct scientific analysis	Calculating the entropy for adiabatic, isochoric, isobaric and isothermal processes	=	=
2	4	6- Developing the student's ability to understand ideas and information	Calculating the entropy of evaporation and sublimation processes	=	=

2	4	7- Developing the student's ability to evaluate the learned material.	Calculating the value of the free energy for a system that expands isothermally, at constant pressure and temperature and for a mixture of gases and when the pressure changes	=	=
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59. Course Evaluation

final exam	Semester pursuit score	Activity	Practical exam	Second exam	first exam	Exam grades
60	40	2	10	14	14	

60. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Physical Chemistry for Second Year Students, College Education, University of Mosul
Main references (sources)	K. K. Sharma and L. K. Sharma, 1998, translated by Al-Dulaimi, Subhi Khar and Chalabi by Nahida Saeed, University of Mosul, Mosul University Press
Recommended books and references (scientific journals, reports...)	Fundamentals of physical chemistry theoretical
Electronic References, Websites	https://inchemistry.acs.org/

Course Description Form

13. Course Name:	Educational research methods
14. Course Code:	
15. Semester / Year:	One Semester / Third Year
16. Description Preparation Date:	
17. Available Attendance Forms: yes	
18. Number of Credit Hours (Total) / Number of Units (Total)	3/3
19. Course administrator's name (mention all, if more than one name)	Name: professor Mohammed Khaleel Ibrahim Email: obaidi1965@yahoo.com

20. Course Objectives					
Course Objectives			The aim of this course is to equip students with fundamental knowledge of different types of research, providing a detailed explanation of each type in a separate unit. Additionally, the course will highlight the advantages of each research type and outline the rules for writing research papers.		
21. Teaching and Learning Strategies					
Strategy		The primary reference is relied upon. The blackboard is used. A model is used to prepare students for discussion, and they are assigned the task of explaining certain paragraphs from the course material.			
22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		1- A brief introduction to the characteristics of sciences, the development of knowledge, and the emergence of scientific research: - Scientific research vs. educational research. In detail. - The basic steps of scientific research. In detail. - The qualities of a researcher 2- Scientific Research Methodologies: Historical Research: A detailed explanation. Descriptive Research: A detailed explanation. Experimental Research: A detailed explanation with examples 3- Samples in Educational Research: - The Population and the Sample: - Types Of Sample - Data Collection Methods (Research Instruments) 4- Writing a Research Paper: Writing Style: With full details Citations and Footnotes: Appendices: Sources and References			

23. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
24. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Educational Research Methodologies by Dr. Kazem Al-Jaberi (2013)		
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

25. Course Name:
School curricula
26. Course Code:
27. Semester / Year:
One Semester / Fourth Year
28. Description Preparation Date:
29. Available Attendance Forms: yes
30. Number of Credit Hours (Total) / Number of Units (Total)
2/2
31. Course administrator's name (mention all, if more than one

name)					
Name: Professor Mohammed Khaleel Ibrahim Email: obaidi1965@yahoo.com					
32. Course Objectives					
Course Objectives			"The objective of this course is to equip students with fundamental knowledge about different types of curricula and how to construct them. This will enable them to easily study any type of curriculum after gaining a comprehensive understanding of various curriculum types, including those suitable for society, and the methods of developing them.		
33. Teaching and Learning Strategies					
Strategy		The primary course textbook is used. The blackboard is used. A model is used to prepare students for discussion by assigning them to explain specific paragraphs from the course material.			
34. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		1- Introduction to the Concept of Curriculum: - The traditional/narrow concept of curriculum. - The modern/broad concept of curriculum. - The scope of the curriculum. 2- Educational Goals: - Educational Goal Concept - Educational Goal Sources - Educational Goal Formulation - Educational Goal Levels and Classification 3- Breakdown of the components: - Philosophical foundations - Social foundations - Psychological foundations - Cognitive foundations 4- Curriculum Organization and Types: - Study Subject Curriculum - Activity Curriculum - Core Curriculum			

		Study Unit Curriculum			
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35. Course Evaluation

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

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	School Curricula (Curriculum and Textbook Analysis Dr. Uwaid Jassim Al-Tamimi. 2009
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:	
_Sustainable Development	
61. Course Code:	
62. Semester / Year : sixth/third	
: (2024-2023)	course secand
63. Description Preparation Date:	
64. Available Attendance Forms:	
65. Number of Credit Hours (Total) / Number of Units (Total)	
2hour/2unit	

66. Course administrator's name (mention all, if more than one name)					
Name: Pro.Dr. Batool Mohammed Jassim Email: Batoolaldainy@gmail.com					
67. Course Objectives					
Course Objectives			1 - Sustainable Development Principles of Sustainable Development 2- Sustainable Development Goals (SDGs) 3- Sustainable Development Goals (SDGs - 4- Iraq's vision for sustainable - 5- development goals 2030 6- Challenges and obstacles to - achieving sustainable development goals •		
68. Teaching and Learning Strategies					
Strategy		-Developed lecture -Discussion			
69. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first		The concept of sustainable development and its most important environmental, economic and social definitions.	The concept of sustainable development and its most important environmental, economic and social definitions.	- Develop lecture - Discussi	Quiz

Second		Reasons for setting sustainable development goals	Reasons for setting sustainable development goals	- Develop lecture - Discussi	Quiz
Third		Characteristics of sustainable development and its continuity	Characteristics of sustainable development and its continuity	- Develop lecture - Discussi	Quiz
Fourth		Historical development of sustainable development	Historical development of sustainable development	- Develop lecture - Discussi	Quiz
Fifth		Sustainable development requirements and its most important elements	Sustainable development requirements and its most important elements	- Develop lecture - Discussi	Quiz
Sixth		Social Dimension Economic Dimension Environmental Dimension	Social Dimension Economic Dimension Environmental Dimension	- Develop lecture - Discussi	Quiz
seventh		Sustainable	Sustainable	-	Quiz

		development trends for local communities and the most important factors affecting them.	development trends for local communities and the most important factors affecting them.	Develop lecture - Discussi	
Eighth		Sustainable development philosophy - Values and ethics of sustainable development. -The facts on which sustainable development focuses	Sustainable development philosophy - Values and ethics of sustainable development. -The facts on which sustainable development focuses	- Develop lecture - Discussi	Quiz
Ninth		Pillars of sustainable development and indicators for achieving them	Pillars of sustainable development and indicators for achieving them	- Develop lecture - Discussi	Quiz
Tenth		The role of sustainable development in achieving goals and confronting problems.	The role of sustainable development in achieving goals and confronting problems.	- Develop lecture - Discussi	Quiz
eleventh		Sustainable development goals The first goal:	Sustainable development goals The first goal:	- Develop lecture -	Quiz

		eradicating poverty The second goal: the complete elimination of hunger. Goal Three: Good health and well-being. Fourth goal: quality education. Fifth goal: gender equality. Sixth goal: clean living and healthy hygiene. Seventh goal: clean and affordable energy. Goal Eight: Decent work and economic growth. Ninth goal: Industry, innovation and infrastructure. Tenth goal: Reducing inequalities	eradicating poverty The second goal: the complete elimination of hunger. Goal Three: Good health and well-being. Fourth goal: quality education. Fifth goal: gender equality. Sixth goal: clean living and healthy hygiene. Seventh goal: clean and affordable energy. Goal Eight: Decent work and economic growth. Ninth goal: Industry, innovation and infrastructure. Tenth goal: Reducing inequalities	Discussi	
twelfth		Sustainable cities and communities Consumption and production are responsible -Life under water	Sustainable cities and communities Consumption and production are responsible -Life under water	- Develop lecture - Discussi	Quiz

		-Life in the wilderness	-Life in the wilderness		
thirteen		Iraq's vision for sustainable development goals 2030	Iraq's vision for sustainable development goals 2030	- Develop lecture - Discussi	Quiz
Fourteen		Social Safety Social Welfare Social Care Social Safety Nets Governance Economic Growth Entrepreneurial Business Sustainable Environment Waste and Recycling Sustainable Energy Water Security	Social Safety Social Welfare Social Care Social Safety Nets Governance Economic Growth Entrepreneurial Business Sustainable Environment Waste and Recycling Sustainable Energy Water Security	- Develop lecture - Discussi	Quiz
Fifteen		Challenges and obstacles to achieving sustainable development goals	Challenges and obstacles to achieving sustainable development goals	- Develop lecture - Discussi	Quiz

70. Course Evaluation

the tasks assigned to the student :
daily preparation =15
daily oral=30
monthly, or written exams=30
reports =25

71. Learning and Teaching Resources

Required textbooks (curricular books, if any)

الامم المتحدة -الجمعية العامة (2015)

	،خطة التنمية المستدامة لعام 2030 ،الامم المتحدة .
Main references (sources)	إدي ،عبد الله بن عبد الرحمن (2015) تنمية المستدامة مدخل تكاملي لمفاهيم تنمية وتطبيقاتها مع التركيز على العالم العربي، ط1، الرياض، العبيكان طاهر، قادري محمد، (2013)، التنمية المستدامة في البلدان العربية بين النظرية والتطبيق، مكتبة حسن العصرية، بيروت.
Recommended books and references (scientific journals, reports...)	-الصقال، أحمد هاشم،(2014)، "متطلبات التنمية المستدامة في العراق دور إدارة الموارد في تحقيق التنمية المستدامة"، مجلة كلية بغداد للعلوم الاقتصادية الجامعة/ العدد الخاص بالمؤتمر العلمي المشترك، ص (313-338). شنافي ،نوال ،ورابح خوني (2020) ،التنمية المستدامة فلسفتها وادوات قياسها ،مجلة المنهل الاقتصادي -جامعة الشهيد حمه لخضر بالوادي ،مجلد 3 ،العدد 1 ،ص (67-78).
Electronic References, Websites	- الحسن، عبد الرحمن محمد، (2011)، "التنمية المستدامة ومتطلبات تحقيقها"، بحث مقدم لملتقى : استراتيجيات الحكومة في القضاء على البطالة وتحقيق التنمية المستدامة، جامعة المسلية، الخرطوم.

ديب، ريدة وسليمان مهنا، (2009)، "التخطيط من أجل التنمية المستدامة"، مجلة جامعة دمشق للعلوم الهندسية، المجلد 25، العدد 1، ص(1-34).

Course Description Form

37.	Course Name:	Measurement and evaluation
38.	Course Code:	
39.	Semester / Year:	second Semester / Third Year
40.	Description Preparation Date:	
41.	Available Attendance Forms:	
42.	Number of Credit Hours (Total) / Number of Units (Total)	2/2
43.	Course administrator's name (mention all, if more than one name)	Name: Professor Mohammed Khalil Email: obaidi1965@yahoo.com
44.	Course Objectives	
	Course Objectives	<i>This course aims to provide students with a fundamental understanding of the various types of measurement and assessment, offering a detailed explanation of each type in a dedicated unit. The course will also highlight the distinctive features of each type and explore different types of assessments.</i>
45.	Teaching and Learning Strategies	
	Strategy	The main course reference will be used. The blackboard will be used. Students will be prepared for discussion and will be assigned to explain so paragraphs from the course material.

46. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		1- Introduction to Measurement and Evaluation in the Educational Process • Basic Concepts in Measurement and Evaluation • Definition of Measurement • Types of Measurement • Testing • Functions and Classification of Tests • Evaluation and Its Characteristics • Evaluation in the Educational Process • Relationship Between Measurement, Evaluation, and Testing 2- Behavioral Objectives • Bases for classification • Domains • Advantages • Characteristics • Formulation 3- Steps in constructing an achievement test 4- Personality tests • Oral exams • Essay exams • Objective tests • Types of performance tests			
47. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
48. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			"Measurement and Evaluation in the Teaching Process" by Professor Dr. Ahmed Awda (2014)		
Main references (sources)					
Recommended books and references					

(scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

72.	Course Name:		
organic Identification			
73.	Course Code:		
74.	Semester / Year:	fifth/third	
2023–2024			
75.	Description Preparation Date:		
76. Available Attendance Forms:			
77. Number of Credit Hours (Total) / Number of Units (Total)			
4/2			
78.	Course administrator's name (mention all, if more than one name)		
Name: Enas Jabbar Hasan			
Email: enasjabbar2010@gmail.com			
79.	Course Objectives		
Course Objectives		- Purification and separation - Solubility of organic compounds - Statements of functional groups (burn tumor group) - Detection of alcohol - Detection of aldehydes and ketones - Detection of esters - Detection of amides - Detection of amines - Detection of carboxylic acids - Detection of chlorides and anhydrides acids - Detection of phenols - Detection of aromatic hydrocarbon compounds	

	• Detection of alkanes • Spectra – UV spectrum • Infrared spectrum
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80. Teaching and Learning Strategies

Strategy	<u>1- Policy for attending educational events:</u> <u>2-Late Attendance:</u> The policy is determined in cases of repeated lateness of a student to attend educational activities Not allowing a late student to enter without a legitimate excuse <u>3-Exam controls:</u> Determine the policies followed in cases of absence from the exam and describe the policy followed in cases of a student being late to the exam. A zero is given to the student in the case of unexcused absence, and in the case of an excuse or being late for an acceptable reason, an exam date is set for them <u>4-Duties and projects:</u> Determine the controls related to the deadlines for submitting assignments or projects and the consequences of delaying or not submitting them on time, if any. Not receiving weekly reports that are late for the practical aspect <u>5-Cheating:</u> The policy followed in cases of cheating in exams or in completing assignments by any fraudulent means. The student is considered to have failed that subject if cheating is proven <u>6-Plagiarism:</u> Definition of plagiarism, its cases, and procedures to be followed if it occurs. Disposition is carried out according to the controls imposed by the Deanship of the College <u>7-Other policies:</u> Any other policies related to course privacy, or according to university regulations. nothing
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81. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2	4	1- Purification of various organic compounds	Purification and separation Solubility of organic compounds	Whiteboard, data show and poster	Asking students about the information presented and taking a short exam on the subject
2	4	2- Solubility of organic compounds and	Statements of functional groups (burn - tumor group)	=	=

		knowledge of functional groups			
3	6	3- Detection of different functional groups	Detection of alcohol Detection of aldehydes and ketones - Detection of esters -Detection of amides -Detection of amines	=	=
3	6	4- Using scientific methods to detect an unknown chemical substance	Detection of carboxylic acids -Detection of chlorides and anhydrides of acid Detection of phenols -Detection of aromatic hydrocarbon compounds Detection of alkanes	=	=
3	6	5- Using scientific methods of thinking to find variables for organic materials	Spectra - UV spectrum Infrared spectrum	=	=

82. Course Evaluation

final exam	Semester pursuit score	Activity	Practical exam	Second exam	first exam	Exam grades
60	40	2	10	14	14	

83. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Al-rawee . Jassim Muhammad Ali and others. 19 Diagnosis of organic compounds / chemical methods. Hig Education and Scientific Research Press. Baghdad
Main references (sources)	Atto. Amir Tobia and others, 1989. Orga and spectroscopic diagnosis. Dar Al-Kut for Printing and Publishing. Baghdad
Recommended books and references (scientific journals, reports...)	FREDERICK GEORGE MANN & BERNAR Practical organic chemistry
Electronic References, Websites	https://drive.google.com/file/d/0B4SiCji1TCPaDJMUUVdDdWVTRWs/view?resourcekey=0-6IsIFdn0PmMHgy5v2fmGgQ

Course Description Form

84. Course Name:	Electromagnetism
85. Course Code:	
86. Semester / Year: seventh/fourth	3. fourth year – seventh Semester
87. Description Preparation Date:	.
88. Available Attendance Forms: yes	
89. Number of Credit Hours (Total) / Number of Units (Total)	2/2
90. Course administrator's name (mention all, if more than one name)	Name: safaa abed salih Email: safaaabed76@gmail.com
91. Course Objectives	
Course Objectives	• General introduction

	- electromagnetic material..... . Characteristics of the electric field and its generation.... - Characteristics of the magnetic field and its generation - Lorentz's Law (Lorentz Force) .. Faraday's Law - induced current . Induced driving force and electric field . Maxwell's equations - Electric generator and electric motor - Self-induction and mutual induction. - Oscillators and wave generation - Second exam - Electromagnetic waves
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92. Teaching and Learning Strategies

Strategy

93. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		45			

94. Course Evaluation

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

95. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)	1- 2005- Raymond A. Serwa Modern Physics- Third Edition- 2- Classical Electromagne Theory- Second Edition-2004- Ja Vanderlinde
Recommended books and references (scientific journals, reports...)	1. موجات الكهرومغناطيسية you tube بواسطة افلام تعليمية من ال 2. أضرات فديوية خاصة بي أستاذ المادة
Electronic References, Websites	

Course Description Form

96.	Course Name:
Properties of materials	
97.	Course Code:
98.	Semester / Year: third/ second
Second year – third Semester	
99.	Description Preparation Date:
.	
100.	Available Attendance Forms:
101.	Number of Credit Hours (Total) / Number of Units (Total)
3x15= 45	
102.	Course administrator's name (mention all, if more than one name)
Name: safaa abed salih Email: safaaabed76@gmail.com	
103.	Course Objectives
Course Objectives	.. Density, specific Capillary property and surface

	tension Pressure in fluids • .. Solve the problems of the first chapter Mechanical properties First theoretical exam Stress and its types • Compatibility and its types Types of strain: plastic strain and elastic strain Hardness and durability Modulus of elasticity and Young's modulus Second theoretical exam Magnetic properties of matter Paramagnetism Diamagnetis.....
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104. Teaching and Learning Strategies

Strategy

105. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
	1	2	3		

106. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
107. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			كتاب خواص مواد		
Main references (sources)			9. Teaching and Learning Strategies		
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

49. Course Name	
Gravimetric analytical	
50. Course Code:	
51. Semester / Year: seventh/fourth	
52. Description Preparation Date:	
53. Available Attendance Forms:	
Lists of students' names	
54. Number of Credit Hours (Total) / Number of Units (Total)	
4 hours / 3 Units	
55. Course administrator's name (mention all, if more than one name)	
Name: Assist.PROF. Raheem Jafar Aziz Email: rahimjafar76@gmail.com raheem.edbs@uomustansiriyah.edu.iq	
56. Course Objectives	
Course Objectives	1- Definition of weight analysis 1- Introducing students to gravimetric analysis and gravimetric analysis methods 3- Introducing students to the advantages and disadvantages of gravimetric analysis 4- Identifying the most important steps of quantitative gravimetric sedimentation analysis

	5- Identifying the method of calculations in gravimetric analysis and finding the gravimetric factor 6- What is the study of the factors affecting the solubility of sediments 7- Studying the most important organic and inorganic precipitates and the advantages and disadvantages of each 8- Introducing students to the methods and classification of separation methods in analytical chemistry
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57. Teaching and Learning Strategies

Strategy	Using the theoretical aspect with the necessary means of clarification Conducting practical experiments to prepare some Gravimetric analytical Including different academic concepts in the lectures
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58. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	45	1- Definition of weight analysis 2- Identify methods of weight analysis 3- Know the advantages and disadvantages of weight analysis 4- Detailed study of the steps of quantitative sedimentation gravimetric analysis 5- Identify the method of calculations in weight analysis and find the weight factor 6- Study the factors affecting the solubility of sediments 7- Study of inorganic and inorganic precipitants and the advantages and	• Introduction to weight analysis • Calculations in weight analysis • Sediment solubility • Sedimentation in gravimetric analysis • Types of sedimentation • The first exam is semester • Types of precipitates - organic and inorganic • Separation methods • Extraction • Chromatography		

		disadvantages of each 8- Identify methods and classification of separation methods			
59. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such					
Practical aspect 10		Second exam 12.5		First exam12.5	
Final practical 15		The final exam is theoretical 45		Activities and tests 5	
60. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			1-Fundamentals of Analytical Chemistry by Dr. Muayyad Qasim Al-Abaji and Dr. Thabet Saeed Al-Ghabsha 2- The theoretical and practical foundations of quantitative and gravimetric chemistry. Mr. Dr. Inside Nasser and others - University of Babylon		
Recommended books and references (scientific journals, reports...)			1- Douglas A. Skoog, "Fundamentals of Analytical Chemistry," 4th edition, Part One, translated by Dr. Zuhair Matta Kassir, University of Basra, 1986.		
Electronic References, Websites					

Course Description Form

1. Course Name
Coordination Chemistry
2. Course Code:
3. Semester / Year: fifth/ third
4. Description Preparation Date:
5. Available Attendance Forms:
Lists of students' names
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours /3 Units
7. Course administrator's name (mention all, if more than one name)

Name: Assist.PROF. Raheem Jafar Aziz
 Email: rahimjafar76@gmail.com
 raheem.edbs@uomustansiriyah.edu.iq

8. Course Objectives

Course Objectives	1-Students study the electronic form of transition elements 2-Identify the chemical properties of transition elements 3-Students learn about coordination theories 4-Train students on the naming system used for coordination complexes 5-Identify the types of bonding theories in coordination compounds
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9. Teaching and Learning Strategies

Strategy	Using the theoretical aspect with the necessary means of clarification Conducting practical experiments to prepare some coordination complexes Including different academic concepts in the lectures
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	45	1- Study the electronic form of transition elements 2- Chemical properties of transition elements 3- Identify coordination theories 4- Naming coordination complexes 5- Identify the bonding theories in coordination compounds	Introduction coordination chemistry Chemical properties transition elements String theory Werner's theory How to write coordination complex Effective atomic number rule Types of ligands Rules for naming coordination complexes Rules for naming coordination complexes		

			Coherence theories in harmonic compounds		
			Equivalence theory		
			Equivalence theory		
			The rule of electronic par and recurrence		
			Crystal field theory		

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such

Practical aspect 10	Second exam 12.5	First exam 12.5
Final practical 15	The final exam is theoretical 45	Activities and tests 5

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Coordination Chemistry - Abdul Razzaq Muhammad - Chemistry of transition elements - Muhammad Ali
Recommended books and references (scientific journals, reports...)	Coordination Chemistry - Issam Girgis
Electronic References, Websites	

