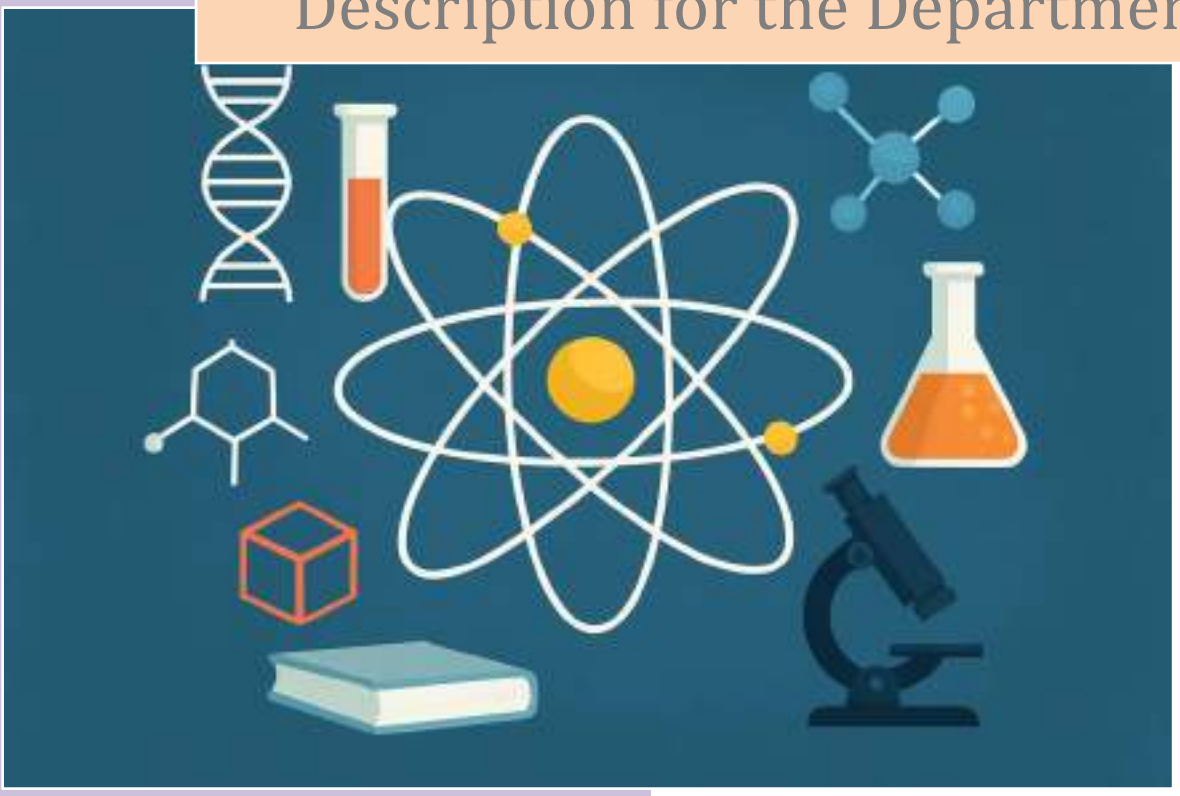
2026

Academic Program and Curriculum Description for the Department of Science



University of Babylon

College of Basic Education

Department of Science

اعداد و تصميم : م.م مروة احمد ابراهيم

كلية التربية الاساسية / قسم العلوم

وصف البرنامج الاكاديمي

Introduction

The Department of Science at the College of Basic Education is a vital department that aims to prepare qualified educational and scientific professionals who possess fundamental knowledge in the natural sciences (Physics, Chemistry, and Biology), in addition to the pedagogical skills necessary for the teaching profession. The department's academic program focuses on integrating scientific and educational training, in alignment with the curricula requirements for basic education levels, and in response to the needs of the community and the job market by preparing a generation of teachers capable of contributing to the development of the educational process.

The program also seeks to enhance students' critical thinking and scientific research abilities and develop their practical skills through field training and laboratory applications. It also aims to instill professional and ethical values that are in line with the college's mission and vision of community service. Through this program, the department aspires to graduate teachers and researchers with scientific competence, practical experience, and educational awareness, who will contribute to elevating the level of basic education and building a solid foundation of knowledge within society.

The academic program at the College of Basic Education – Department of Science aims to prepare teachers and researchers who possess high scientific rigor and educational skills to meet the requirements of basic education and keep pace with cognitive and technological developments. The program focuses on developing scientific knowledge in the fields of Physics, Chemistry, Biology, and Environmental Sciences while enhancing the pedagogical and psychological aspects to ensure the comprehensive scientific and professional preparation of graduates.

The program provides students with a balanced experience between theoretical study and practical application through teaching practice and research projects, which contributes to refining their teaching and scientific research skills and developing their abilities in critical thinking, self-learning, and the use of modern educational technology. The program also emphasizes academic values such as integrity, responsibility, and professional commitment, while guiding students toward community service and promoting sustainable development, environmental protection, and public health.

Thus, the program constitutes a comprehensive framework that combines scientific knowledge and educational application to graduate competent teachers who are capable of fulfilling their educational mission and actively contributing to building a scientific generation that will help develop and advance society.

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وصف البرنامج الاكاديمي

University Name	**University of Babylon**
College	**College of Basic Education**
Scientific Department	**Department of Science**
Name of the Academic or Professional Program	**Bachelor's Degree**
Final Degree Name	**Bachelor of Basic Education in Science**
Study System	**Semester System**
Accredited Program	**Courses and Curricula as per the Ministry**
Other External Factors	**Application in Educational Institutions**
Date of Description Preparation	**1/2/2026**

كلية التربية الاساسية
شعبة ضمان الجودة
Filed by the Quality Assurance Department manger
Prof.Dr. Ibtisam Sahib Mousa

جامعة بابل
كلية التربية الاساسية
قسم العلوم
Department liaison member
Marwa Ahmed Ibrahim

Name of the Assistant Dean for Scientific Affairs:
Prof. Dr. Arif Hatem Hadi

Head of Department:
Prof. Dr. Osama Abdul Kadh Mahdi

Approved by the Dean of the College
Prof. Dr. Ali Jabar Abdullah Al-Juhaishi

اعداد وتصميم : م.م مروة احمد ابراهيم

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وصف البرنامج الاكاديمي

1- program vision
To be a leader in preparing specialized science teachers who combine scientific competence with educational skills to contribute to the development of basic education and community service.
2- program mission
To prepare qualified science teachers with solid scientific knowledge and modern pedagogical skills, thereby enhancing the quality of basic education and serving the community.
3- program Goals
1. Prepare specialized science teachers with high scientific and educational competence. 2. Develop students' scientific research and critical thinking skills. 3. Enhance students' practical abilities through laboratories and field training. 4. Foster educational and professional values to serve education and the community.
4- Program Accreditation
The accreditation request has been accepted, and we are awaiting the visit of the ministerial committee
5- Is there a sponsor for the program?
The project for developing science curricula in Iraqi universities / two-month field training in schools, and field visits to schools and educational institutions.
6- Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institutional Requirements	11	**22**	10.5%	basic
College Requirements	17	**50**	24%	basic
Department Requirements	70	**137**	65.5%	basic
Other	Sports Activities			
Summer Training	It is in progress.			
Total	98	**209**	100%	

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7- Program Description

Credit hours		Course name	code	year	
Practical	Theoretical				
	1	Democracy and Human Rights	Huri.100	FIRST YEAR	FIRST SEMESTER
2	3	General Biology	Gebi.100		
2	1	Computer	Comp.100		
	3	Developmental Psychology	Psgr.100		
2	3	General Chemistry	Gech.110		
	2	Mathematics	Math.130		
6	14	Total			

Credit hours		Course name	code	year	
Practical	Theoretical				
2	3	General Physics	Geph.150	FIRST YEAR	SCONDE SEMESTER
	2	English Language	Engl.100		
	3	Fundamentals of Education and Teaching	Ased.100		
	2	Islamic/Civilization Education	Ised.100		
2	2	Human Biology	Hubi.160		
	2	Laboratory Safety and Security	SesaL.120		
4	14	Total			

Chemistry

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FIRST SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
	2	Arabic Language	Arab.200	SCONDE YEAR
	2	English Language	Engl.200	
	2	Crimes of the Ba'ath Party	Cbp.200	
2	2	Inorganic Chemistry	Inor.200	
2	1	Curricula and Textbooks	Cute.200	
2	2	Volumetric Analysis	Anal.210	
2	2	Physical Chemistry	Phys.240	
8	13	TOTAL		

SCONDE SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
2	1	Computer Science	Comp.200	SCONDE YEAR
2	2	Psychology of Classroom Thinking Instruction	Ptct.200	
	2	Educational Psychology	Edps.200	
2	2	Analytical Chemistry	Anal.210	
2	2	Organic Chemistry	Orgch.200	
2	2	Chemistry of Representative Elements	Inor.200	
10	13	TOTAL		

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FIRST SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
2	2	Industrial Chemistry	Indu.310	THIRED YEAR
2	2	Organic Chemistry	Orga.300	
2	2	Coordination Chemistry	Chco.330	
2	2	General Teaching Methods and Their Applications	GemeT.300	
	2	Educational Leadership and Management	Edadn.300	
	2	Measurement and Evaluation	Meev.300	
	2	Guidance and Education for Special Needs	Gesn.300	
8	14	TOTAL		

SCONDE SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
2	2	Sustainable Development	Susd.300	THIRED YEAR
2	2	The Environment and Health	Ecoh.300	
	2	Educational Technology and Its Applications	Edte.300	
2	2	Petroleum and Petrochemicals	Etrch.300	
2	2	Biochemistry	Bioc.310	
2	1	Action Research Methodology	Reme.300	
8	13	TOTAL		

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FIRST SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
2	2	Instrumental Analysis	Auan.400	FOURTH YEAR
2	2	Organic Diagnosis	Ordi.400	
	2	Clinical Chemistry	Clch.410	
	2	Professional Ethics	Preth.400	
	2	Natural Products Chemistry	Napr.400	
	2	Arabic Literature	Arab.400	
2	2	Specialized Teaching Methods	Spmet.400	
4	1	Teaching Practice 1 (Observation)	ScedV.400	
2		Graduation Research Project	ReprG.430	
12	15	TOTAL		

SCONDE SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
12		Practical Education 2 (Application)	Appl.400	FOURTH YEAR
1		Graduation Research Project	Repr.400	
13		TOTAL		

BIOLOGY

م : م.م مروة احمد ابراهيم

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وصف البرنامج الاكاديمي

FIRST SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
	2	Arabic Language	Arab.200	SCONDE YEAR
	2	English Language	Engl.200	
2	3	Microbiology	Micb.200	
2	1	Curricula and Textbooks	Cute.200	
2	2	Cytology (Cell Biology)	Cyto.200	
	2	Virology	Viro.230	
	2	Crimes of the Ba'ath Regime	Cbp.200	
6	14	Total		

SCONDE SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
2	1	Parasitology	Comp.200	SCONDE YEAR
2	2	Animal Physiology	Ptct.200	
	2	Plant and Animal Production	Edps.200	
2	2	General Teaching Methods and Their Applications	Aver.250	
2	2	Measurement and Evaluation	Hiems.200	
	2	Educational Leadership and Management	BioC.200	
2	2	Guidance and Special Needs Education	Plph.300	
10	13	Total		

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FIRST SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
2	**2**	Parasitology	**Para.300**	THIRED YEAR
2	**2**	Animal Physiology	**Anph.360**	
2	**3**	Plant and Animal Production	**Planp.300**	
2	**2**	General Teaching Methods and Their Applications	**GemeT.300**	
	2	Measurement and Evaluation	**Meev.300**	
	2	Educational Leadership and Management	**Edadn.300**	
	2	Guidance and Special Needs Education	**Gesn.300**	
8	**15**	**Total**		
SCONDE SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
	2	**Sustainable Development**	**Susd.300**	THIRED YEAR
	2	**The Environment and Health**	**Ecoh.300**	
2	**2**	**Educational Technology and Its Applications**	**Edte.300**	
2	**2**	**Immunology**	**HlvaS.370**	
2	**2**	**Entomology**	**Ento.390**	
2	**1**	**Action Research Methodology**	**Reme.300**	
	2	**Plant Classification**	**Plcl.300**	
8	**13**	**Total**		

FIRST SEMESTER

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Credit hours		Course name	code	year
Practical	Theoretical			
2	**2**	Algae and Fungi	**Alfu.400**	FOURTH YEAR
2	**2**	Genetics	**Gepa.410**	
	2	Serums and Vaccines	**Seva.400**	
4	**1**	Teaching Practice 1 (Observation)	**ScedV.400**	
	2	Professional Ethics	**Preth.400**	
	2	Endocrine Gland Physiology	**Enph.400**	
	2	Arabic Literature	**Arab.400**	
2	**2**	Specialized Teaching Methods	**Spmet.400**	
2		Graduation Research Project	**ReprG.430**	
12	**15**	**Total**		

SCONDE SEMESTER

Credit hours		Course name	code	year
Practical	Theoretical			
12		**Practical Education 2 (Application)**	**Appl.400**	FOURTH YEAR
1		**Graduation Research Project**	**Repr.400**	
13		**Total**		

PHYSICS

اعداد وتصميم : م.م مروة احمد ابراهيم

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وصف البرنامج الاكاديمي

FIRST SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
	2	Arabic Language	Arab.200	SCONDE YEAR
	2	English Language	Engl.200	
2	2	Wave Motion and Sound	Waso.210	
2	2	Classical Mechanics	Mech.260	
	2	Properties of Matter	Prma.220	
2	1	Curricula and Textbooks	Cute.200	
	2	Crimes of the Ba'ath Party	Cbp.200	
6	13	Total		

SCONDE SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
2	1	Computer	Comp.200	SCONDE YEAR
2	2	Psychology of Classroom Thinking	Ptct.200	
	2	Educational Psychology	Edps.200	
2	2	Thermodynamics	Ther.200	
2	3	Electricity and Magnetism	Elema.200	
	2	Calculus	Calc.220	
2	2	Optical Physics	Opti.250	
10	14	Total		

FIRST SEMESTER

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Credit hours		Course name	code	year
Practical	Theoretical			
	2	Educational Leadership and Management	Edadn.300	THIRED YEAR
	2	Astronomy	Astr.390	
2	3	Modern Physics	Moph.310	
	2	Measurement and Evaluation	Meev.300	
	2	Quantum Mechanics	Qume.300	
	2	Guidance and Special Needs Education	Gesn.300	
2	2	General Teaching Methods and Their Applications	GemeT.300	
4	15	Total		

SCONDE SEMESTER				
Credit hours		Course name	code	year
Practical	Theoretical			
	2	Sustainable Development	Susd.300	THIRED YEAR
	2	The Environment and Health	Ecoh.300	
2	2	Educational Technology and Its Applications	Edte.300	
2	2	Electronics	Elec.370	
	3	Solid State Physics	Soph.300	
2	1	Action Research Methodology	Reme.300	
2	2	Radioactivity	Radi.380	
8	14	Total		
FIRST SEMESTER				

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Credit hours		Course name	code	year
Practical	Theoretical			
2	**2**	**Lasers**	**Lase.400**	FOURTH YEAR
4	**1**	**Teaching Practice 1 (Observation)**	**ScedV.400**	
	2	**Plasma Physics**	**Plaph.400**	
	2	**Nuclear Physics**	**Nuph.400**	
	3	**Electromagnetism**	**Elec.420**	
	2	**Professional Ethics**	**Preth.400**	
	2	**Arabic Literature**	**Arab.400**	
2	**2**	**Specialized Teaching Methods**	**Spmet.400**	
8	**14**	**Total**		

SCONDE SEMESTER

Credit hours		Course name	code	year
Practical	Theoretical			
12		**Practical Education 2 (Application)**	**Appl.400**	FOURTH YEAR
1		**Graduation Research Project**	**Repr.400**	
13		**Total**		

8- Expected Program Learning Outcomes	
Knowledge	Learning Outcomes
• A-1. Defines basic concepts and terms in natural and educational sciences. • A-2. Explains scientific and educational theories and principles in their applied context. • A-3. Applies scientific laws and educational concepts in teaching situations. • A-4. Analyzes data and experiments to explain natural and educational phenomena.	Interpret scientific and educational concepts and principles in the field of basic education.

Skills	Learning Outcomes
• B-1. Uses modern teaching strategies in basic education. • B-2. Conducts scientific experiments accurately and utilizes their results in teaching. • B-3. Employs educational technology to design and implement lessons. • B-4. Innovates educational activities and methods that foster critical thinking and creativity.	Employ teaching strategies and educational technologies in classroom and research practices.
Values	Learning Outcomes
• C-1. Adheres to professional ethics and academic responsibility. • C-2. Promotes the values of citizenship and community service in their practices. • C-3. Supports lifelong learning and self-development. • C-4. Adheres to the values of sustainable development, environmental protection, and public health.	Commit to professional ethics and promote the values of citizenship and sustainable development.
Teaching Strategies	Learning Strategies
Interactive Lectures Problem-based learning Collaborative and group learning Blended learning Demonstrations and practical experiments	Self-directed and Independent Learning Problem-solving and critical thinking Classroom discussions and active participation Use of electronic and digital resources Learning through projects and applied activities
10-Assessment Methods	
• **Written monthly and final exams** • **Quizzes**	

- **Homework**

11- Teaching Faculity

#	Name	Academic Rank	General Specialization	Specialty	Special skills		No.Focality	
							permanent	temporary
1	Dr. Fadhil Omran Issa	Professor	Chemistry	Organic Chemistry			P	
2	Dr. Osama Abdul Kadhim	Professor	Biology	Microbiology			P	
3	Dr. Wafaa Abdul Razzaq	Professor	Science Teaching Methods	General Science Teaching Methods			P	
4	Dr. Hani Mahmoud Hussein	Professor	Physics	Materials Science (Physics)			P	
5	Amjad Murza Oda	Professor	Chemistry	Physical Chemistry			P	
6	Amna Kadhim Murad	Assistant Professor	Biology	Environmental and Pollution Biology			P	
7	Dr. Ghada Sharif	Assistant Professor	Science Teaching Methods	General Science Teaching Methods			P	
8	Dr. Mahdi Mohammed Jawad	Assistant Professor	Science Teaching Methods	General Science Teaching Methods			P	
9	Dr. Aseel Abdul Sattar	Assistant Professor	Biology	Botany			P	
10	Dr. Intisar Farhan Salman	Assistant Professor	Physics	Nuclear and Radiation Physics			P	
11	Dr. Ibtisam Jaafar Jawad	Assistant Professor	Science Teaching Methods	General Science Teaching Methods			P	
12	Dr. Intisar Rahim	Assistant Professor	Chemistry	Clinical Chemistry			P	
13	Sana Hassan Abdul Ekhwa	Assistant Professor	Agriculture	Horticulture			P	
14	Dr. Amir Ibrahim	Assistant Professor	Biology	Entomology			P	

15	Safeer Abdul Kareem	Assistant Professor	Physics	Experimental Physics			P	
16	Ali Luay Ali	Assistant Professor	Chemistry	Physical Chemistry			P	
17	Dr. Qassem Shaker	Assistant Professor	Physics	Theoretical Physics			P	
18	Dr. Hassan Khader Naji	Lecturer	Chemistry	Inorganic Chemistry			P	
19	Dr. Maher Hassan Rashid	Lecturer	Physics	Nanotechnology (Physics)			P	
20	Dr. Rafid Abdul Redha Tawfiq	Lecturer	Chemistry	Organic Chemistry			P	
21	Suhad Majeed	Lecturer	Science Teaching Methods	General Science Teaching Methods			P	
22	Dr. Tuqa Mohammed Jawad	Lecturer	Physics	Materials Science (Physics)			P	
23	Jassim Mohammed Assi	Assistant Lecturer	Science Teaching Methods	General Science Teaching Methods			P	
24	Marwa Ahmed Ibrahim	Assistant Lecturer	Chemistry	Biochemistry			P	
25	Mohammed Sabah Atiywi	Assistant Lecturer	Biology	Medical Microbiology			P	
26	Noor Al-Huda Jawad Kadhim	Assistant Lecturer	Physics	Materials Science (Physics)			P	
27	Lamia Miri Salih	Assistant Lecturer	Physics	Optics (Physics)			P	
28	Riya Ali Abdul	Assistant Lecturer	Physics	Solid State and Materials (Physics)			P	
29	Ali Mohammed Ali	Assistant Lecturer	Physics	Thin Film Physics			P	
30	Wasan Mohammed Abdul Zahra	Assistant Lecturer	Biology	Environmental Science (Biology)			P	
31	Rasha Hussein Kadhim	Assistant Lecturer	Science Teaching Methods	General Science Teaching Methods			P	
32	Suzan Kadhim Mustafa	Assistant Lecturer	Science Teaching Methods	General Science Teaching Methods			P	

33	Hawra Qusai Jawad	Assistant Lecturer	Science Teaching Methods	General Science Teaching Methods			P	
34	Nawras Kareem Alwan	Assistant Lecturer	Science Teaching Methods	General Science Teaching Methods			P	
35	Fatima Hussein Obaid	Assistant Lecturer	Chemistry	Analytical Chemistry			P	
36	Hind Jassab Karam	Assistant Lecturer	Biology	Zoology			P	
37	Sameem Abbas Hussein	Assistant Lecturer	Biology	Zoology			P	
38	Zahra Hamid Khafif	Assistant Lecturer	Science Teaching Methods	General Science Teaching Methods			P	
39	Ban Salih	Assistant Lecturer	Physics	Materials (Physics)			P	
40	Dina Mohammed Noor	Assistant Lecturer	Science Teaching Methods	General Science Teaching Methods			P	
41	Mohammed Mahdi	Assistant Lecturer	Agriculture	Animal Production (Agricultural Science)			P	
42	Shaimaa Bader Kadhim	Assistant Lecturer	Physics	Condensed Matter Physics			P	
43	Baidaa Kadhim Azzouz	Assistant Lecturer	Physics	Nanophysics				
44	Difaf Qais Jassim	Assistant Lecturer	Physics	Condensed Matter Physics				

12- Professional Development

New Faculty Orientation

The orientation program for new faculty members aims to quickly and effectively integrate them into the academic environment. It ensures they understand the college's policies and procedures. The program includes:

- An overview of the college, its departments, and academic programs.
- An introduction to university policies, teaching regulations, and research guidelines.
- Guidance on using available educational and technical resources.
- Assigning an academic mentor for support during the first year.
- Organizing meetings with senior faculty members to exchange experiences and

knowledge

Faculty Professional Development

The continuous professional development program aims to enhance faculty competence and improve the quality of teaching and research. It includes:

- Workshops and training courses to develop teaching and assessment skills.
- Encouraging participation in local and international scientific conferences and seminars.
- Supporting scientific research and innovative projects both inside and outside the university.
- Providing training programs on using modern technology and educational tools.
- Periodically evaluating academic performance and offering guidance for improvement.

13- Admission Criteria

Centralized admission.

14- Key Information Sources for the Program

- Ministry of Higher Education and Scientific Research.
- Councils of Colleges of Basic Education in Iraq.
- Arab and international Colleges of Basic Education

15- Program Development Plan

1. Reviewing Course Curricula: This involves updating content to align with modern scientific standards and adding courses that enhance both practical and theoretical skills.

2. Developing Teaching Methods: This includes introducing active and blended learning and using modern technologies like digital simulations and multimedia.

3. Evaluating Academic Performance: This involves developing comprehensive assessment tools for students and courses, along with conducting periodic program evaluations.

4. Developing Faculty Members: This is done through ongoing workshops and training courses and encouraging participation in international conferences and programs.

5. Enhancing Scientific Research and Student Projects: This includes supporting joint research projects between students and faculty and providing grants and financial support for outstanding research.

6. Improving the Educational Environment: This involves equipping modern laboratories and facilities to support practical learning and developing digital libraries with access to global resources.

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وصف البرنامج الاكاديمي

Program Skills Outline

Required program Learning outcomes

Year/Level	Course Name	Course Code	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First/First Semester	Democracy and Human Rights	Huri.100	basic	*						*			*		
	General Biology	Gebi.100	basic	*	*	*	*		*	*				*	*
	Computer	Comp.100	basic	*				*	*	*				*	*
	Developmental Psychology	Psgr.100	basic	*	*					*		*		*	
	General Chemistry	Gech.110	basic	*	*	*	*		*	*					*
	Mathematics	Math.130	basic		*	*	*	*		*				*	
	General Physics	Geph.150	basic	*	*	*	*		*	*					*
First/Second Semester	English Language	Engl.100	basic	*				*						*	
	Principles of Education	Ased.100	basic	*	*			*		*		*		*	
	Islamic Education/Civilization	Ised.100	basic	*									*	*	
	Human Biology	Hubi.160	basic	*	*	*	*		*	*					*

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	Laboratory Safety and Security	SesaL.120	basic	*	*	*	*		*	*					*
Second/Chemistry Branch/First Semester	Arabic Language	Arab.200	basic	*				*						*	
	English Language	Engl.200	basic	*				*						*	
	Crimes of the Ba'ath Party	Cbp.200	basic	*	*	*		*	*	*					*
	Inorganic Chemistry	Inor.200	basic	*	*	*		*	*	*					*
	Curricula and Textbooks	Cute.200	basic	*	*	*			*	*					*
	Volumetric Analysis	Anal.210	basic	*	*		*			*	*	*	*	*	
	Physical Chemistry	Phys.240	basic	*						*	*	*	*		
Second/Biology Branch/First Semester	Arabic Language	Arab.200	basic	*				*						*	
	English Language	Engl.200	basic	*				*						*	
	Microbiology	Micb.200	basic	*	*	*		*	*	*					*
	Curricula and Textbooks	Cute.200	basic	*	*		*	*		*	*	*	*	*	
	Cytology	Cyto.200	basic	*	*	*			*	*					*
	Virology	Viro.230	basic	*	*	*		*	*	*					*
	Crimes of the Ba'ath Party	Cbp.200	basic	*						*	*	*	*		

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Second/Physics Branch/First Semester	Arabic Language	Arab.200	basic	*										*	
	English Language	Engl.200	basic	*										*	
	Wave Motion and Sound	Waso.210	basic	*				*		*	*	*	*		
	Classical Mechanics	Mech.260	basic	*	*	*	*	*	*	*					*
	Properties of Matter	Prma.220	basic	*	*		*	*		*	*	*	*	*	
	Curricula and Textbooks	Cute.200	basic	*	*	*	*	*	*	*					*
	Crimes of the Ba'ath Party	Cbp.200	basic	*	*	*	*		*	*					*
Third/Physics Branch/First Semester	Educational Leadership and Management	Edadn.300	basic	*	*		*			*	*	*	*	*	
	Astronomy	Astr.390	basic	*	*	*	*			*					*
	Modern Physics	Moph.310	basic	*	*	*	*	*		*					*
	Measurement and Evaluation	Meev.300	basic	*	*		*	*		*	*	*	*	*	
	Quantum Mechanics	Qume.300	basic	*	*	*	*			*					*
	Guidance and Education for Special Needs	Gesn.300	basic	*	*		*	*		*	*	*	*	*	
	General Teaching Methods and Applications	GemeT.300	basic	*	*		*	*		*	*	*	*	*	

اعداد وتصميم : م.م مروة احمد ابراهيم

كلية التربية الاساسية / قسم العلوم

وصف البرنامج الاكاديمي

Third/Chemistry Branch/First Semester	Industrial Chemistry	Indu.310	basic	*	*	*	*	*	*	*					*
	Organic Chemistry	Orga.300	basic	*	*	*	*		*	*					*
	Coordination Chemistry	Chco.330	basic	*	*	*	*		*	*					*
	General Teaching Methods and Applications	GemeT.300	basic	*	*		*			*	*	*	*	*	
	Educational Leadership and Management	Edadn.300	basic	*	*		*	*		*	*	*	*	*	
	Measurement and Evaluation	Meev.300	basic	*	*		*			*	*	*	*	*	
	Guidance and Education for Special Needs	Gesn.300	basic	*	*		*	*		*	*	*	*	*	
Third/Biology Branch/First Semester	Parasitology	Para.300	basic	*	*	*	*	*	*	*					*
	Animal Physiology	Anph.360	basic	*	*	*	*	*	*	*					*
	Plant and Animal Production	Planp.300	basic	*	*	*	*	*	*	*					*
	General Teaching Methods and Applications	GemeT.300	basic	*	*		*	*		*	*	*	*	*	
	Measurement and Evaluation	Meev.300	basic	*	*		*	*		*	*	*	*	*	
	Guidance and Education for Special Needs	Gesn.300	basic	*	*		*	*		*	*	*	*	*	

اعداد وتصميم : م.م مروة احمد ابراهيم

كلية التربية الاساسية / قسم العلوم

وصف البرنامج الاكاديمي

	Educational Leadership and Management	Edadn.300	basic	*	*		*			*	*	*	*	*	
Fourth year (Physics branch / Second semester)	Practical Education 2 (Application)	Appl.400	basic	*	*	*	*		*	*				*	*
	Graduation Research Project	Repr.400	basic	*	*		*			*	*	*	*	*	
Fourth year (biology branch / Second semester	Practical Education 2 (Application(	Appl.400	basic	*	*	*	*		*	*				*	*
	Graduation Research Project	Repr.400	basic	*	*	*	*	*	*	*		*	*	*	*
Fourth year (chemistry branch / Second semester	Practical Education 2 (Application(	Appl.400	basic	*	*	*	*	*	*	*				*	*
	Graduation Research Project	Repr.400	basic	*		*		*	*			*	*		*

1. Course Name: Animal physiology

2. Course Code: BEScAP305807(2,2)

3. Semester / Year:2024-2025First Semester

4. Description Preparation Date: 20-1-2026

5. Available Attendance Forms: weekly

6. Number of Credit Hours (Total)60Hours / Number of Units (Total)3unit

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

:

Asst. Prof. Amenah Kadhim Murad Al-Mansouri
basic.amenah.kadhim@uobabylon.edu.iq

8. Course Objectives

1- Appreciate the greatness of the Creator, Glory be to Him, in His creation. 2- Appreciates the role of scientists and their efforts in this field. -3- Know the science of animal physiology and a historical overview of this science. 4- The student should know the physiological effect of temperature and thermoregulation. -5- The student should know the functional means of thermoregulation. -6- Explains how water balance occurs inside our bodies. 7- List the types of body fluids, the percentage of each type, and its importance. To know how the urinary system performs its functions The student should know how the digestive system performs its functions. 10. The student should know how the muscular system performs its functions. -11- The student should know how the respiratory system performs its functions. -12- The student should know how the circulatory system performs its functions. 13 The student should know how the nervous system	• • •

performs its functions	

9. Teaching and Learning Strategies

Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Definition of physiology and a historical overview	Introduction to physiology	lecture	Unspecified essay test
2	2	Thermoregulation	Thermal regulation of the human body	lecture	True and false test
3	2	Shivering and sweating and their effect on regulating body temperature	Functional means of thermoregulation	lecture	Unspecified essay test
4	2	Thermoregulation of some desert animals and its comparison with humans	Functional means of thermoregulation	Use of electronic whiteboard	Unspecified essay test with question
5	2	Body fluids, their types and proportions	Bodily fluids	Use of electronic whiteboard	True and false test

6	2	Water balance in the human body	Bodily fluids	Use of electronic whiteboard	True and false test
7	2	The work of the parts of the urinary system and how urine is formed	Urinary system physiology	Use of electronic whiteboard	Unspecified essay test with question
8	2	Muscle action and mechanism of muscle contraction	Muscular system	Use of electronic whiteboard	Unspecified essay test with question
9	2	Functions of the digestive system and the mechanism of action of its organs	Digestive system physiology	Use of electronic whiteboard	Unspecified essay test with question
10	2	Functions of the respiratory system parts and mechanism of action	respiratory system	Use of electronic whiteboard	Unspecified essay test with question
11	2	Respiratory movements and lung volumes and capacities	Respiratory system	Use of electronic whiteboard	True and false test
12	2	Physiology of the heart, cardiac cycle time, source of heartbeat and control of it	circulatory system	Use of electronic whiteboard	True and false test
13	2	Hormonal and nervous regulation Heartbeats, blood properties, clotting mechanism	circulatory system	Use of electronic whiteboard	True and false test
14	2	brain, spinal cord, and nerve cells)	nervous system	Use of electronic whiteboard	True and false test

15	2	How nerve impulses are generated and transmitted in nerve fibers	Physiology of the nervous system	Use of electronic whiteboard	True and false test

1. Course Name:	
Natural Product	
2. Course Code:	
3. Semester / Year:	
First semester / 2025−2026	
4. Description Preparation Date:	
01/09/2024	
5. Available Attendance Forms:	
01/09/2026	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours / 2 credits	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Rafid A. Taj-Aldeen Email: bas423.rafid.abad@uobabylon.edu.iq	
8. Course Objectives	
Course Objectives	• The course in Natural Products Chemistry aims to clarify the nature of natural products (secondary metabolites). • It covers the most important natural sources (animal, plant, marine organisms, and microorganisms) and their classification. • The study includes the most important families of chemical organic compounds representing secondary natural products, their chemical structure, biological properties, medical effects of each group, and how to distinguish each group. • It provides knowledge of methods for separating, extracting, and diagnosing them. • Information technology, communication skills, and the skills acquired from studying this course are used to gather data, prepare scientific reports, and share them with colleagues. • The course covers the study of terpenoids, alkaloi

	flavonoids, and bioflavonoids.

9. Teaching and Learning Strategies

Strategy

Incorporating Learning and Teaching Strategies in the Description of the Natural Products Course for Colleges of Education

It requires the integration of a set of modern methods that support the development of students' skills and their deep understanding of the topics they are learning. Here are some strategies that can be effective:

1. **Active Learning**
   - **Interaction and Participation**: Encouraging students to engage in classroom activities such as discussions, group work, and using open-ended questions.
   - **Experimental Activities**: Activities like simulating natural experiments or conducting practical activities that allow students to apply concepts in real-life contexts.
   - **Problem-Based Learning (PBL)**: Presenting problems that require students to think critically and research to find solutions based on scientific knowledge.
2. **Collaborative Learning**
   - **Study Groups**: Dividing students into small groups to work on group projects or solve specific problems.
   - **Participatory Learning**: Promoting the exchange of knowledge and experiences among students within the groups, enhancing collective understanding.
3. **Technology-Enhanced Learning**
   - **Multimedia Use**: Such as videos, interactive illustrations, and educational software that support both theoretical and practical explanations of natural concepts.
   - **E-Learning Platforms**: Using Learning Management Systems (LMS) to distribute content, post questions, and hold tests.
   - **Remote Learning**: Providing study materials online to facilitate self-directed learning.
4. **Continuous Assessment and Feedback**
   - **Periodic Assessments**: Such as quizzes, homework assignments, and interactive activities that measure students' understanding of natural products continuously.
   - **Immediate Feedback**: Providing immediate feedback after educational activities or tests to enhance student learning.
5. **Student-Centered Learning**
   - **Student-Oriented Activities**: Motivating students to set their own learning goals and choose projects or topics they wish to explore in more depth.
   - **Guidance and Counseling**: Offering personal guidance to help students understand their strengths and weaknesses and progress in learning natural products.
   - **Enhancing Critical Thinking**: Encouraging students to discuss ideas

	and analyze natural phenomena critically, developing strategies to solve problems. 6. **Self-Assessment and Peer Assessment** o **Self-Assessment**: Encouraging students to periodically evaluate their performance to review their learning and achieve their educational goals. o **Peer Assessment**: Involving students in evaluating the work of their peers to enhance collective understanding and knowledge sharing among students.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
one	2	It explains the nature Of natural products, Their types, and the most important source along with a historical overview of their uses and their significance i medical applications	Introduction in natural products	**Interactive Lecture:** • Written and oral presentation • Presentation using a data show (projector) • Discussion and summary of the key points of the lecture through student participation	• Monthly written exams • Final written exam at the end of the semester • Oral questions and daily quizzes •Assignments that promotes assessment
Two	2	To understand the classification of natural products	Classification natural products	Same as above	Same as above
Three	2	Identifying the main sources of natural products and learning how to obtain them through biological min	Methods to obtain natural products	=	=
Four	2	Studying the different types of methods for purifying and separatin natural products, follov by training on selecting the appropriate method for each type of secondary metabolite, a how to analyze this	Separation and purification of natural products	=	=

		information to determi the compound type and understand its chemica and molecular structure			
Five	2	identifies terpenoids, compares their different types, and understands their biological activity and sources	Terpenoids and Steroids	=	=
Six	2	learns how to extract terpenoids and the most prominent methods for purifying them, and concludes th best methods by presenting different typ of chromatographic separation techniques	Terpenoids extraction methods	=	=
Seven	2	explains methods for determining the structural composition terpenoids, discusses the best of them, distinguishes between their different techniques, and illustrates and summarizes the metho for extracting both fatty and non-fatty terpenoic	Determining the structural composition of terpenoids	=	=
Eight	2	to know alkaloids in general, understands their basic structural core, and reviews their different types	Alkaloids	=	=
Fifteen	2	explains the chemical structure of flavonoids and their biological effects, and discusses the difference between them and bioflavonoids	Flavonoids and Bioflavonoids	=	=

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	

Recommended books and references (scientific journals, reports…)	1- General, organic, and natural product chemistry. Authors: Satyajit D. Sarker,Lutfun Nahar 2- Natural Products Chemistry, Sources, Separations, and Structures Authors: Raymond Cooper George Nicola
Electronic References, Websites	

Course Description Form

1. Course Name: Organic chemistry

2. Course Code:

3. Semester / Year: First

4. Description Preparation Date:1/2/2026

5. Available Attendance Forms:

6. Number of Credit Hours (Total) / Number of Units (Total) /Number of Units (Total) Theo
Practical 2 / Number of units 3

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

Name: Fadhel Omran Essa
Email:
basic.fadhel.u@uobabylon.edu.iq

8. Course Objectives

Course Objectives	1. Make the student appreciate the g Creator Almighty 2. Develop the students' scientific ter 3. Introduce the student to the impor organic chemistry 4. Introduce the student to the mecha organic compounds 5. Introduce the student to the differ mechanics of organic compoun

	on the active groups and the ty materials 6. Train the student to prepare some compounds 7. Identify the spatial state of organic 8. Make the student distinguish betw basic organic compounds 9- Make the student conclude whethe proceeds in any mechanism

9. Teaching and Learning Strategies

Strategy	Lecture, discussion and questioning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evalua metho
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
first	4	Developing the learner to learn the cognitive, skillful and emotional aspects as a result of the learning process	Introduction to hydrocarbons	Problem solving and discussion + laboratory + brainstorming	Identify the types of organic
second			fission and reactions in organic compounds		Recrystallization of organic c
third			Alkanes name - properties - their interactions and preparation		detection of alkanes
fourth			Alkenes name - properties - their interactions and		Double bond detection

			preparation		
fifth			Alkynes name - properties - their interactions and preparation		detection of the triple bond
sixth			Aromatic compounds name - properties - their interactions and preparation		Characterization of aromatic
seventh			Aromatic compounds name - properties - their interactions and preparation		Detection of elements includ aromatic compound
eighth			Aromatic compounds name - properties - their interactions and preparation		Difference between aromatic aliphatic compounds
ninth			Alcohols name - properties - their interactions and preparation		Use a Lucas detector Distinguish ethers from alcoh
tenth			Ethers name - properties - their interactions and preparation		Distinguish ethers from alcoh
eleventh			Aldehydes and ketones name - properties - their interactions and		Reagent 2,4-Dinitrophenylhy Tollen and Fehlin

			preparation		
twelfth			Aldehydes and ketones name - properties - their interactions and preparation		Reagent, Tollen and Fehling
thirteenth			Carboxylic acid name - properties - their interactions and preparation		Acids are distinguished from compounds
fourteenth			Esters name - properties - their interactions and preparation		characterize esters
fifteenth			Amines and amides name - properties - their interactions and preparation		Detection of amines

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as dailypreparation, daily oral, monthly, or written exams, reports etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Organic Chemistry / Author / Prof. Dr. Amir Toubia
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Mechanism of organic reactions Atkins
Electronic References, Websites	Any advanced book in organic chemistry

1. Course Name: Plant Physiology
2. Course Code: 305BIPP

3. Semester / Year:2025-2026

4. Description Preparation Date:20/1/2026

5. Available Attendance Forms:

6. Number of Credit Hours (Total)60Hours / Number of Units (Total)3unit

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

Name: Aseel Abdulsattar Mahdi
Email; aseel.abdulsattar@uobabylon.edu.iq

8. Course Objectives

Through these lessons the physiological pathways and processes that occur in the plant are studied ,as wall as the study of the chemical compounds present in the plant such as hormones , enzymes and antioxident,a wall as the changes that can occure in the biochemical compounds and the apparent characteristics arranged with the change of environmental conditions .	• • •

1- Explain Plant Functions: Describe the molecular and cellular basis of plant systems, including energy conversion and nutrient cycling.
2- Analyze Stress Adaptations: Identify how plants modify their physiology and morphology to survive in diverse ecological niches.
3- Conduct Scientific Research: Design and interpret experiments using modern physiological and biotechnological tools.
4- Evaluate Agricultural Impact: Apply physiological principles to improve crop yield and sustainability in agriculture and horticulture.
5- Interpret Scientific Literature: Critically read and communicate findings from primary scientific literature in the field.

Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

Course Description Form

1. Course Name: virology	
2. Course Code:	
3. Semester / Year: first semester of the 2025-2026 academic year	
4. Description Preparation Date: 1\9\2025	
5. Available Attendance Forms:weekly	
6. Number of Credit Hours (2 Hours / Number of Units (2) unit	
7. Course administrator's name (mohammed sabah)	
Name: Email:	
8. Course Objectives	
1. Understanding what viruse are. 2. Differentiating between types of viruse. 3. Identifying different types of viruse. 4. Identifying the parts and components of viruse.	• • •
9. Teaching and Learning Strategies	
Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1		Introduction to viruse			
2		Origin and source of viruses			
3		viral structure;			
4		viral chemical composition			
5		infection and viral replication			
6		effect of physical and chemical factors on the virus;			
7		modes of transmission			
8		how pathogenesis occurs			
9		influenza virus			
10		hepatitis viruses			

11		measles and rubella;			
12		mumps and smallpox virus			
13		rabies virus			
14		HIV virus			
15					

11. Course Evaluation	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

المصادر

Viruses, A Very Short Introduction, Dorothy H. Crawford, 2014
Life Sciences, Abbas Hussein Mughair, 2020, University of Babylon
Fundamentals of Medical Virology, Ahmed Sami Salman, 2019, Dar Al-Furat for Culture and Media in Hilla

1. Course Name: Invertebrate science
2. Course Code:

3. Semester / Year: Second semester of the 2025-2026 academic year
4. Description Preparation Date: 1\2\2026
5. Available Attendance Forms:weekly
6. Number of Credit Hours (6) Hours / Number of Units (2) unit
7. Course administrator's name (mohammed sabah)
Name: Email:

8. Course Objectives	
1. Understanding what invertebrates are. 2. Differentiating between types of invertebrates. 3. Identifying different types of invertebrates. 4. Identifying the parts and components of invertebrates.	• • •

9. Teaching and Learning Strategies	
Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

10. Course Structure					
Week	**Hours**	**Required Learning**	**Unit or subject**	**Learning**	**Evaluation**

		Outcomes			method
1		Introduction to Invertebrates			
2		Classification systems			
3		Benefits and harms of invertebrates			
4		Phylum Protozoa			
5		Subphylum Sarcoptes;			
6		Subphylum Flagellates			
7		Subphylum Ciliates			
8		Subphylum Spores or Sporophytes			
9		Classification of the Animal Kingdom;			
10		Phylum Porifera			
11		Classes Sponges			
12		Phylum Cnidaria			
13		Phylum Platyhelminthes			

14		Schistosoma			
15					

11. Course Evaluation	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

المصادر

Zuhair Muhammad Abdullah Al-Sharouk and Najm Shlimon Korkis, 1983, University of Mosul
Randa Ahmed Abdelhady 2010
Atiq Al-Arabi Darawil, University Culture Foundation, 2016

1. Course Name:
Organic diagnosis
2. Course Code:
3. Semester / Year:
2025/2026
4. Description Preparation Date:
20/9/2025
5. Available Attendance Forms:
In person
6. Number of Credit Hours (Total)15Hours / Number of Units (Total)3unit

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

Marwa Ahmed Ibraheem
marwa.saood.bscle@uobabylon.edu.iq

8. Course Objectives

9. Teaching and Learning Strategies

To make the student appreciate the greatness of the Creator, may He be glorified and exalted.
- To develop students' scientific inclinations.
- To introduce the concept of organic diagnosis.
- To train the student in the diagnosis of some organic compounds.
- To explain methods of purification and separation.
- To identify the difference between different separation techniques.
- To become familiar with systematic diagnostic methods.
- To train the student in methods of detecting functional groups.
- To become familiar with methods of distinguishing between compounds.
- To introduce the student to spectroscopic diagnostic methods.
- To train the student in different spectroscopic diagnostic methods.

Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Purification and Separation	Purification and Separation		
2	4	Functional Group Tests (Burning – Aromatic Group)	Functional Group Tests (Burning – Aromatic Group)		
3	4	Alcohol Detection	Alcohol Detection		

4	4	Aldehydes and Ketones Detection	Aldehydes and Ketones Detection		
5	4	Esters Detection	Esters Detection		
6	4	Amines Detection	Amines Detection		
7	4	Examination	Examination		
8	4	Carboxylic Acids Detection	Carboxylic Acids Detection		
9	4	Phenols Detection	Phenols Detection		
10	4	Saturated Hydrocarbons Detection	Saturated Hydrocarbons Detection		
11	4	Spectroscopy	Spectroscopy		
12	4	Theoretical Examination	Theoretical Examination		
13	4	Ultraviolet Spectroscopy	Ultraviolet Spectroscopy		
14	4	Infrared Spectroscopy	Infrared Spectroscopy		
15	4	Purification and Separation	Purification and Separation		

11. Course Evaluation
Monthly Exam: 30 marks • Practical Assessment: 16 marks • Participation and

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

1. Course Name:
Histology and embryology
2. Course Code:
3. Semester / Year:
second semester of the academic year 2025-2026
4. Description Preparation Date:
21/1/2026
5. Available Attendance Forms:
My presence
6. Number of Credit Hours (Total) / Number of Units (Total) (4)/ ()
7. Course administrator's name (mention all, if more than one name)
Name: Hind chassab karam Email:bas404.hind.jsab@uobabylon.edu.iq
8. Course Objectives

Course Objectives	1. Explains the general concepts related to histology and embryology. 2. Explains the fundamental processes in embryonic development. 3. Enables the student to distinguish between normal and pathological tissues. 4. Teaches students how to use modern tools and techniques in the study of tissues and embryos. .

9. Teaching and Learning Strategies

Strategy	Interactive lecture dialogue and discussion brainstorming.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4		Introduction of Histology		
2	4		Simple epithelial tissue		
3	4		Stratified epithelial tissue		
4	4		-connective tissue		
5	4		First exam		
6	4		-specialized connective tissue (bone and cartilage)		
7	4		Blood		
8	4		Nervous tissue		
9	4		Muscular tissue		
10	4		Second exam		
11	4		Embryology		

12	4		Main Features of Embryonic Formation		
13	4		Fate Map of the Frog		
14	4		Formation of the Notochord		

11. Course Evaluation Theoretical aspect **40**points Practical aspect **20**points
12 Learning resources
Required textbooks (methodology if any)
1. Al-Rubaie, Abbas Hussein Moghair (2020). Life Sciences. Safaa Publishing and Distribution House. Hashemite Kingdom of Jordan. Dar Al-Sadiq Foundation. Iraq, Babylon. 2. Al-Hajj, Hamid Ahmed (2013). Principles of Histology. Dar Al-Maseera for Publishing, Distribution, and Printing. First Edition. Amman, Jordan.
Recommended supporting books and references (scientific journals - reports .....)
Electronic references - Internet sources

1. Course Name:
Endocrinology
2. Course Code:
3. Semester / Year:
First semester of the academic year 2025-2026
4. Description Preparation Date:
1/11/2025
5. Available Attendance Forms:
My presence
6. Number of Credit Hours (Total) / Number of Units (Total) (2)/ ()
7. Course administrator's name (mention all, if more than one name)
Name: Hind chassab karam Email:bas404.hind.jsab@uobabylon.edu.iq
8. Course Objectives

Course Objectives	1. Explains the general concepts related to endocrine and hormones. 2-Clarifies the normal vital functions of the endocrine glands in different parts of the body. 3-Explains the mechanism by which each of the endocrine hormones works. 4- Distinguishes between the function of each endocrine gland and the diseases resulting from their disorders. 5- Promotes awareness about the importance of hormones and their role in maintaining body health and preventing diseases.

9. Teaching and Learning Strategies

Strategy	Interactive lecture dialogue and discussion brainstorming.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Introduction of endocrinology		
2	2		Major endocrine glands in the human body		
3	2		Hypothalamus		
4	2		-the pituitary gland		
5	2		First exam		
6	2		-the adrenal gland		
7	2		Anatomical structure of the thyroid gland.		
8	2		Mechanism of action of thyroid hormones and diseases caused by thyroid gland disorders		
9	2		Parathyroid gland		

10	2		Second exam		
11	2		Pancreas		
12	2		Gonads gland		
13	2		Pineal gland		
14	2		Thymus gland		

11. Course Evaluation Theoretical aspect **60**points
12 Learning resources
Required textbooks (methodology if any)
Prof. Dr. Ahmed Al-Majdoub Al-Qamati (2005). United New Book House. Beirut, Lebanon
Recommended supporting books and references (scientific journals - reports .....)
Electronic references - Internet sources http://www.amazon.com>williams

1. Course Name:
Educational Research Methodologies
2. Course Code:
3. Semester / Year:
The First Semester of the 2025–2026 Academic Year
4. Description Preparation Date:
19/1/2026
5. Available Attendance Forms:
Weekly
6. Number of Credit Hours (Total)60Hours / Number of Units (Total)3unit
2 / 2
7. Course administrator's name (mention all, if more than one name)
Name: **Prof. Dr. Mahdi Mohammed Jawad**
8. Course Objectives
1) Deepening the student's knowledge of the steps of scientific research. 2) Introducing the student to the concept of research and the scientific method in research. 3) Developing the student's competence in identifying research assumptions and problems. 4) Introducing the student to the classifications of research in terms of their objectives and methodologies. 5) Introducing the student to the concept of research instruments and their role in data collection.

9. Teaching and Learning Strategies	
Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2		Science and Scientific Research		
2	2		Educational Research and Its Steps		
3	2		Ethical Considerations in Research		
4	2		Historical Research		
5	2		Descriptive Research		
6	2		Experimental Research		
7	2		Research Problem		
8	2		Research Variables		
9	2		Research Hypotheses		
10	2		Sampling Methods		
11	2		Questionnaire		
12	2		Interview		
13	2		Observation		
14	2		Preparing the Research Report		
15	2		Science and Scientific Research		

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Dr. Sfeer ubdlkreem Alsaati
Email:
Basic.safer.abd@uobabylon.edu.iq

1. Educational institution	University of Babylon
2. University department/center	College of Basic Education/Department of Science/Physics Branch
3. Course name/code	Laser
4. The programs he participates in	Bachelor's degree/fourth stage
5. Available forms of attendance	weekly
6. Semester/year	quarterly
7. Number of study hours (total)	**4**
8. Date this description was prepared	**24/9/2025**

1. Course objectives
First: the general goal

The course explains the physical concept of lasers. The student is explained what the concept of laser is scientifically and theoretically, as well as methods for its manufacture, the relationship between matter and its types, types of active medium, methods of stimulation, its composition, the difference between laser and maser, reverse rehabilitation, the basis of laser operation, feedback, threshold condition, pumping plans, spectrum of laser radiation. Wavelengths, self-emission, stimulated emission, absorption, properties of laser rays, triple pumping plans, quadruple pumping plans, optical pumping, electrical pumping, chemical pumping, types of optical resonators, uses of lasers.

Second: Behavioral objectives

After completing the course, the student must

1- To know the difference between laser and laser.
2- To know the laser.
3- To distinguish between normal light and laser light.
4- To understand the relationship between the type of material and the power of the laser.
5- To analyze the movement of the laser beam before generation until it exits.
6- To know the types of active substances.
7- To become familiar with Einstein's law regarding laser beams.
8- To use his imagination to visualize the path of generating laser beams.
9- To learn about the advantages of laser beams.
10- To learn about the applications of laser beams.
11- To study how radiation is transmitted between the resonators.
12- To recognize skepticism.
13- To study feedback.
14- To get to know the entire system.
15- To distinguish between spontaneous and stimulated emission.
16- To understand how to analyze circuits that contain types of pumping.
17- To draw a trend chart for all types.
18- To know the basics of the system.
19- To know how resonance and the shell effect occur.
20- To know the types of pumping.
21- To learn about the most important theories that explain the intensity of the laser.
22- To understand the effect of laser temperature.
23- To know the resonator.
24- To study the types of resonators.
25- To recognize the effect of current on the system.
26- To learn about the applications of some bridges in alternating current.
27- To know Maxwell's equations in their general and specific form.
28- To recognize electromagnetic waves in vacuum and material environments.
29- To know how to calculate the energy of electromagnetic waves.
30- To understand the physical meaning of experiments in the laboratory.

1. Learning outcomes, teaching, learning and assessment methods

Subject-specific skills
1 - Analyzing and interpreting the information necessary to calculate the basic transactions in the system.
2 - Apply all equations for each part and perform critical calculations.

Teaching and learning methods:

Evaluation methods

Lecture/discussion/educational application/experiential learning.
Conducting daily, monthly, practical and theoretical tests. thinking skills
1- Inference
2-Solve the problem
3-Learn the concepts

Course Name .13	
Practical education	
Course code .14	
Semester/Year .15	
First for the academic year 2025/2026	
prepared Date this description was .16	
2026/1/19	
weekly : Available attendance formats.17	
weekly	
(Number of study hours (total) / Number of units (total.18	
hours/4 60	
Name of the course coordinator (if there is more than one, .19 .(please mention it	
- Nawras Alwan Karim -M.M. Hawraa Qusay Jawad – M. Jassim Mohammed A M.M. Dina Nour Muhammad M.M. and nonsense, Hamed Khalif	
objectives Course .20	
The program aims to enable the student to: Understanding the reality of the educational process in basic .1 . education schools Observing and analyzing the methods of teaching science in a .2	**Course objectives**

. scientific and educational manner .3 Understanding the teacher's role in planning, implementing, and evaluating th e lesson . .4 Note the classroom management strategies and classroom behavior control . .5 To learn about the methods of using educational tools and modern technologies in teaching science . .6 Developing positive attitudes towards the teaching profession and commitment to its ethics . .7 Linking the educational theories studied by the student with practical applications in the classroom . Preparing students psychologically and professionally for the practic .(application phase (actual teaching	
.21 Teaching and learning strategies	
.1 Structured classroom observation strategy .2 based learning strategy-Experience .3 Discussion and dialogue strategy .4 Cooperative learning strategy .5 based learning strategy-Problem .6 learning Assessment strategy for	

			the intention of the decision By-10		
Evaluation Method	Teaching method	Unit/Course or Topic Name	Required learning outcomes	Hours	Week
Question and Answer	Discussion and dialogue	The concept of viewing	.1 Clarifying the nature of the educational process and the roles of its participants within the classroom . .2 Implementing organized classroom observations according to approved forms . .3 Recording educational observations accurately and objectively . .4 Note the use of educational tools and modern technologies in teaching science . .5 Participating in school classroom activities under the supervision of the cooperating teacher . .6 Adherence to the rules of discipline and professional conduct within the school . .7 Analyzing teacher performance within the classroom according to scientific educational principles. .8 Distinguishing between the different teaching methods used in a science lesson. .9 He linked the theoretical concepts he studied to practical applications hin the classroomwit. .10 Evaluating classroom management methods and controlling classroom behavior.	4	1
Question and Answer	Discussion and dialogue	The importance of watching		4	2
Question and Answer	Discussion and dialogue	Student viewing duties		4	3
Writing a plan	Discussion, dialogue, and skillful performance	Preparing the teaching plan		4	4
Question and Answer	Discussion, dialogue, and skillful performance	Definition of school visits		4	5
Writing a report	Observation and classroom analysis cooperative + learning	School visit		4	6
Writing a report	Observation and classroom analysis cooperative + learning	School visit		4	7
Writing a report	Observation and classroom analysis cooperative + learning	School visit		4	8
Writing a report	Observation and classroom analysis cooperative + learning	School visit		4	9
Writing a report	Observation and classroom analysis cooperative + learning	School visit		4	10
Writing a report	Observation and classroom analysis cooperative + learning	School visit		4	11
Writing a report	Observation and classroom analysis cooperative + learning	School visit		4	12

Writing a report	Observation and classroom analysis cooperative + learning	School visit	Conclusion on the strengths and weaknesses of the lessons viewed. 11	4	13
Correcting reports	Discussion and evaluation	Discussion of visit reports		4	14
Evaluation form	Evaluation form	Individual lesson delivery test		4	15

Course evaluation -11
out of 100 according to the tasks assigned to the student, such as (writing The grade is distributed the report on the topic of the visit + preparing an educational tool + writing a daily study .(handwriting + individual lesson performance test

Learning and teaching resources -12
Required textbooks
Tamimi / Sumer University-Author: Raed Ramthan Hussein Al (Practical Education) Main Referen
(Teacher's Guide) Recommended supporting books and references
Electronic references, websites

Week Hours	Required	learning outcomes	Name of unit/course or subject	Teaching method	Evaluation method
The first	3 hours	to learn about the laser	. A general idea about the origin of optical phenomena.	Lecture, discussion, and testing	Conducting tests
The second is	3 hours	to learn about lasers and masers and the differences and similarities between them.	Names of concepts and their parts.	Lecture and discussion	Conducting tests
The third	3 hours	is to analyze the movement of the laser beam before delivery until it exits.	Analysis of a charged particle under influence.	Lecture and discussion	Conducting tests
The fourth	3 hours	is to learn about the physical laws of lasers and how to calculate	generation for various purposes.	Lecture and discussion	Conducting tests
Fifth:	3 hours	to learn about the laser structure.	Draw the load curve and calculate the constants related to the subject.	Lecture and discussion	Conducting tests
Sixth:	3 hours:	To identify the types of active materials:	solid, gaseous, and semiconducting materials.	Lecture and discussion	Conducting tests
Seventh	3 hours	to learn about the most important theories that explain the phenomenon of magnetic radiation.	Cause of occurrence.	Lecture and discussion	Conducting tests
Eighth:	3 hours	understand how to	calculate resistance	Lecture and	Conducting

	to	analyze circuits that contain types of pumping, and inductance in suspended transmission .		discussion	tests lines
The ninth	3 hours	is to know how to calculate the energy of laser waves.	Calculate the energy of laser waves	Lecture and discussion	Conducting tests
Tenth	3 hours:	To understand the physical meaning of experiments in the laboratory.	Types of physical experiments in the topic:	lecture and discussion	Conducting tests
Eleventh	3 hours	The student learns about generating circuits, calculating efficiency and the voltage	regulation factor	Lecture and discussion	Conducting tests
Twelfth To	3 hours	learn how to calculate the effective values of voltage, current, and phase difference angle, how to calculate the best and greatest	transfer of electrical power.	Lecture and discussion	Conducting tests
The thirteenth	3 hours	is to learn about medium transmission lines in three basic ways efficiency and voltage	, how to calculate regulation factor in each method, and make a comparison between them.	Lecture and discussion	Conducting tests
Fourteenth	3 hours	To know how to find the impedance associated with these circuits How to calculate efficiency and voltage	regulation factor in the precise way for waves	Lecture and discussion	Conducting tests

11 . Infrastructure

▪ Required readings:	1. الكتاب المنهجي المعتمد: " فيزياء الليزر وبعض التطبيقات العملية"، سهام خليف قدال. 2. مبادىء الليزر - سعود النجيلاني- صفحة التحميل http://www.kutub.info/library/book/12469 3. Basics of Laser Physics، من باحث الكتب في موقع قوقل Google Books. رابط الكتاب https://books.google.iq/books?id=dpVDTLPvSTQC&printsec=frontcover&dq=LASER+books&hl=ar&sa=X&ved=0ahUKEwjx3MKa6IPLAhWzhZoKHV6wAxAQ6AEIHzAB 4. بالاضافة الى مقالات مختلفة من الانترنيت سيتم الاشارة اليها عند المرور بها. **-1 Raymond Serway, and John Jewett, "Physics for Scientists and Engineers with Modern Physics", Brooks/Cole, 9th ed, 2010. ISBN: 9781439048443. Chapters (29-34), Pages 829-1008.** **-2 Paul Tipler, and Gene Mosca, "Physics for Scientists and Engineers", W. H. Freeman and . 8th ed, 2006Company, New York, ISBN:9780716789642, Chapters (26-30). Pages 887-1054.** **-3 David Halliday, Robert Resnick, Jearl Walker," Fundamentals of physics", John Wiley & Sons, 9th ed, 2011. ISBN: 9780470564738. (Chapters 28-32) , Pages 735-888.** **-4 Douglas Giancoli, "Physics for Scientists and Engineers with Modern Physics", Upper Saddle River, New Jersey, 4th ed, 2009. ISBN:9780131495081, (Chapters 27-31). Pages 707-836.** **-5 Hugh Young, Roger Freedman,and Lewis Ford,"University Physics with modern Physics", Addison-Wesley , 13th ed, 2012. ISBN: 9780321696861.(Chapters 27-32). Pages 883-1079.**
▪ Basic texts	
▪ Course books	
▪ Other	
Special requirements (including, for example, workshops, periodicals, (software, and websites	**Holding a presentation workshop for the works .completed by students**
Social services (including, for example, guest lectures, vocational training, and (field studies	Do a practice

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1. Educational institution	University of Babylon
2. University department/center	College of Basic Education/Department of Science/Physics Branch
3. Course name/code	**General Physics**
4. The programs he participates in	Bachelor's degree/fourth stage
5. Available forms of attendance	weekly
6. Semester/year	quarterly
7. Number of study hours (total)	**5**
8. Date this description was prepared	**19/1/2026**

1. Course objectives
First: the general goal

This course explains the general physical concepts of physics. It demonstrates to the student how to understand general concepts theoretically and scientifically, as well as units of measurement, vector physics and its applications, abstract kinematics and particle dynamics, properties of matter such as mechanical properties, heat (types of thermometers, their advantages and disadvantages, quantity of heat, specific heat capacity of a material), sound and its properties, static electricity and methods of charging, and conducting a series of practical experiments to study some physical phenomena related to the prior knowledge.

Second: Behavioral Objectives

Upon completion of the course, the student should:
1- Be introduced to the general principles of physics, such as:
2- Become familiar with units of measurement.
3- Study vector mechanics and its applications.

4- Study abstract motion and particle dynamics.
5- Study some properties of matter, such as mechanical properties, thermal properties, and fluid mechanics.
6- Study geometric optics.
7- Study sound and its properties.
9- Study waves.
10- Speed of propagation
11- Frequency, amplitude, and wavelength
12- Elasticity
13- Strain
14- Stress
15- Force constant and Hooke's law
16- Heat
17- Methods of heat transfer
18- Heat capacity
19- Specific heat
20- Theories of light
21- The corpuscular theory
22- Refraction of light
23- Reflection of light
24- Conducting a series of practical experiments to study some physical phenomena related to the preceding knowledge

2. Learning outcomes, teaching and learning methods, and assessment
Subject-Specific Skills
1. Analyzing and interpreting the information necessary to calculate the basic coefficients in the system.
2. Applying all equations for each part and performing the necessary calculations.
Teaching and Learning Methods:

Week | Hours | Required Learning Outcomes | Unit/Course/Topic Name | Teaching Method | Assessment Method					
Week Hours	Required	learning outcomes	Name of unit/course or subject	Teaching method	
The first	3 hours	to learn about the laser	. A general idea about the origin of optical phenomena.	Lecture, discussion, and testing	Level 1 (3 hours): To understand fundamental and derived physical quantities. General overview of physical quantities. Lecture and discussion. Examination.
The second is	3 hours	to learn about lasers and masers and the differences and similarities between them.	Names of concepts and their parts.	Lecture and discussion	
The third	3 hours	is to analyze the movement of the laser beam before delivery until it exits.	Analysis of a charged particle under influence.	Lecture and discussion	Level 2 (3 hours): To complete the topic of vectors. Fundamental and derived.
The fourth	3 hours	is to learn about the physical laws of lasers and how to calculate	generation for various purposes.	Lecture and discussion	
Fifth:	3 hours	to learn about the laser structure.	Draw the load curve and calculate the constants related to the subject.	Lecture and discussion	Lecture and discussion. Examination.
Sixth:	3 hours:	To identify the types of	solid, gaseous, and	Lecture	

		active materials:	semiconducting materials.	and discussion	
Seventh	3 hours	to learn about the most important theories that explain the phenomenon of magnetic radiation.	Cause of occurrence.	Lecture and discussion	Level 3 (3 hours): To understand particle dynamics. Analysis of a charged particle under influence. Lecture and discussion. Examination.
Eighth:	3 hours to	understand how to analyze circuits that contain types of pumping, and inductance in suspended transmission .	calculate resistance	Lecture and discussion	
The ninth	3 hours	is to know how to calculate the energy of laser waves.	Calculate the energy of laser waves	Lecture and discussion	Level 4 (3 hours): To understand physical laws: Newton's First Law
Tenth	3 hours:	To understand the physical meaning of experiments in the laboratory.	Types of physical experiments in the topic:	lecture and discussion	Newton's Second Law
Eleventh	3 hours	The student learns about generating circuits, calculating efficiency and the voltage	regulation factor	Lecture and discussion	Newton's Third Law
Twelfth To	3 hours	learn how to calculate the effective values of voltage, current, and phase difference angle,	transfer of electrical power.	Lecture and discussion	Law of Universal Gravitation. How to calculate

		how to calculate the best and greatest			Newton's various laws.
The thirteenth	3 hours	is to learn about medium transmission lines in three basic ways efficiency and voltage	, how to calculate regulation factor in each method, and make a comparison between them.	Lecture and discussion	
Fourteenth	3 hours	To know how to find the impedance associated with these circuits How to calculate efficiency and voltage	regulation factor in the precise way for waves	Lecture and discussion	Lecture and discussion. Examination.

3. Infrastructure

-6 Raymond Serway, and John Jewett, "Physics for Scientists and Engineers with Modern Physics", Brooks/Cole, 9th ed, 2010. ISBN: 9781439048443. Chapters (29-34), Pages 829-1008. **-7 Paul Tipler, and Gene Mosca, "Physics for Scientists and Engineers", W. H. Freeman and . 8th ed, 2006Company, New York, ISBN:9780716789642, Chapters (26-30). Pages 887-1054.** **-8 David Halliday, Robert Resnick, Jearl Walker," Fundamentals of physics", John Wiley & Sons, 9th ed, 2011. ISBN: 9780470564738. (Chapters 28-32) , Pages 735-888.** **-9 Douglas Giancoli, "Physics for Scientists and Engineers with Modern Physics", Upper Saddle River, New Jersey, 4th ed, 2009. ISBN:9780131495081, (Chapters 27-31). Pages 707-836.** **-10 Hugh Young, Roger Freedman,and Lewis Ford,"University Physics with modern Physics", Addison-Wesley , 13th ed, 2012. ISBN: 9780321696861.(Chapters 27-32). Pages 883-1079.**	Required Readings:

Holding a presentation workshop for the works completed by students.	
Do a practice	• Core Texts

4. Admission
Prerequisites
Minimum number of students: 70 (hypothetical number)
Maximum number of students: 85 (hypothetical number)

1. Course Name: plants Taxonomy
2. Course Code:
3. Semester / Year:2026-2025 First Semester
4. Description Preparation Date:18-1-2026
5. Available Attendance Forms: WEAKLY
6. Number of Credit Hours (Total)60Hours / Number of Units (Total)3unit
7. Course administrator's name (mention all, if more than one name)

Name:
Email:
Asst. Prof.Sana Hasan abd_Alekwaa
basic.sana.hasan@uobabylon.edu.iq

8. Course Objectives

Plants Taxonomy 1-He appreciates the greatness of the Creator, Glory be to Him, in His creation. 2-He appreciates the role of scientists and their efforts in this field. 3- To know the student 4- Definition of biology and its branches 5- The origin of the Earth and theories of the origin of life and religion 6- Taxonomy, its historical stages, fields and systems 7- Scientific nomenclature and its rules 8-The modern system of dividing living things into kingdoms 9-The cell is a unit of structure and function 10- Genetic material, its duplication and reproduction, and Mendel's laws 11- The concept of evolution 12 - Animal and plant hormones 13-Immunology: a historical overview, types and organs responsible for it 14- Viruses: a brief history and characteristics 15 - Photosynthesis and cellular respiration 16- Mitosis and Meiosis	• • •

9. Teaching and Learning Strategies

Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

10. Course Structure

	Hours	Required Learning Outcomes	لا يمكن عرض هذه الصورة حاليًا. لا يمكن عرض هذه الصورة حاليًا.	لا يمكن عرض هذه الصورة حاليًا. لا يمكن عرض هذه الصورة حاليًا.	Evaluation method
1	2	Definition of biology, a historical overview, its branches, and its importance	General Biology	lecture	Unspecified essay test

2	2	The origin of the Earth and theories of the origin of life	origin of life	lecture	True and false test
3	2	Definition of taxonomy, its historical stages, fields and systems	Taxonomy	lecture	Unspecified essay test
4	2	Kingdoms (Archaea, Protista)	Modren Taxonomy	Use of Electronic screen	Unspecified essay test with question
5	2	Kingdom Protista. Fungi, Plants, Animals)	Modren Taxonomy	Use of Electronic screen	True and false test
6	2	Definition, types and contents	The Roots	Use of Electronic screen	True and false test
7	2	Organize, multiply and reproduce	The Leef	Use of Electronic screen	Unspecified essay test with question
8	2	Mendel's laws and mutations	The Steem	Use of Electronic screen	Unspecified essay test with question
9	2	Definition of the mechanisms of evolution and its evidence	Evolution	Use of Electronic screen	Unspecified essay test with question
10	2	Definition, types and effects	The Buds	Use of Electronic screen	Unspecified essay test with question
11	2	Definition, types and effects	Plant hormones	Use of Electronic screen	True and false test
12	2	Definition and types of immunity	Immunology	Use of Electronic screen	True and false test

13	2	Definition and characteristics of viruses	Virology	Use of Electronic screen	True and false test
14	2	The mechanism of photosynthesis and cellular respiration	Photosynthesis and cellular respiration	Use of Electronic screen	True and false test
15	2	Mitosis and Meiosis	The Flour	Use of Electronic screen	True and false test

1. Course Name: plant and Animal production
2. Course Code:
3. Semester / Year:2026-2025 First Semester
4. Description Preparation Date:18-1-2026
5. Available Attendance Forms: WEAKLY
6. Number of Credit Hours (Total)60Hours / Number of Units (Total)3unit
7. Course administrator's name (mention all, if more than one name)
Name: Email: **Asst. Prof.Sana Hasan abd_Alekwaa** **basic.sana.hasan@uobabylon.edu.iq**
8. Course Objectives

Plants Taxonomy 1-He appreciates the greatness of the Creator, Glory be to Him, in His creation. 2-He appreciates the role of scientists and their efforts in this	• • •

field. 3- To know the student 4- Definition of biology and its branches 5- The origin of the Earth and theories of the origin of life and religion 6- Taxonomy, its historical stages, fields and systems 7- Scientific nomenclature and its rules 8-The modern system of dividing living things into kingdoms 9-The cell is a unit of structure and function 10- Genetic material, its duplication and reproduction, and Mendel's laws 11- The concept of evolution 12 - Animal and plant hormones 13-Immunology: a historical overview, types and organs responsible for it 14- Viruses: a brief history and characteristics 15 - Photosynthesis and cellular respiration 16- Mitosis and Meiosis	

9. Teaching and Learning Strategies

Strategy	Lectures. • Discussions. • Use of electronic whiteboards.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	Definition of biology, a historical overview, its branches, and its importance	Plant production	lecture	Unspecified essay test
2	2	The origin of the Earth and theories of the origin of life	Wheat	lecture	True and false test
3	2	Definition of taxonomy, its historical stages, fields and systems	Barley	lecture	Unspecified essay test

4	2	Kingdoms (Archaea, Protista)	Rice	Use of Electronic screen	Unspecified essay test with question
5	2	Kingdom Protista. Fungi, Plants, Animals)	Yellow Corn	Use of Electronic screen	True and false test
6	2	Definition, types and contents	Potatoes	Use of Electronic screen	True and false test
7	2	Organize, multiply and reproduce	Sugar beets	Use of Electronic screen	Unspecified essay test with question
8	2	Mendel's laws and mutations	Ground pistachios	Use of Electronic screen	Unspecified essay test with question
9	2	Definition of the mechanisms of evolution and its evidence	Fish	Use of Electronic screen	Unspecified essay test with question
10	2	Definition, types and effects	Poultry	Use of Electronic screen	Unspecified essay test with question
11	2	Definition, types and effects	Sheeb	Use of Electronic screen	True and false test
12	2	Definition and types of immunity	Cows	Use of Electronic screen	True and false test
13	2	Definition and characteristics of viruses	Animal diseases	Use of Electronic screen	True and false test
14	2	The mechanism of photosynthesis and cellular respiration	Animal habitats	Use of Electronic screen	True and false test
15	2	Mitosis and	Goat	Use of Electronic screen	True and false test

		Meiosis			

1. Course Name: The environment and health
2. Course Code:EnHe.300
3. Semester / Year:2025-2026First Semester
4. Description Preparation Date: 22-9-2025
5. Available Attendance Forms: Attendance
6. Number of Credit Hours (Total) Hours 4 / Number of Units (Total) unit 2
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Amenah Kadhim Murad Al-Mansouri. basic.amenah.kadhim@uobabylon.edu.iq Wasan Mohammed Abdulzahra. Email:wasan.abdulzahra.bscle@uobabylon.edu.iq
8. Course Objectives

1-It aims to provide the student with an understanding of the environment and its relationship with the living organisms surrounding it. 2-It aims to learn about the ways and methods of health education and how to maintain health, 3-It aims to educate students about diseases resulting from eating unhealthy food and following bad health habits	• • •

9. Teaching and Learning Strategies

Strategy	The Lecture. presentation .

10. Course Structure

Wmethod	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	1	Definition of the ecology	lecture	Unspecified essay test
2	4	2	The ecosystem	lecture	True and false test
3	4	3	The public health and its fields	lecture	Unspecified essay test
4	4	4	The health education	Use of electronic whiteboard	Unspecified essay test with question
5	4	5	The first test	Use of electronic whiteboard	True and false test
6	4	6	The methods and styles of the health education	Use of electronic whiteboard	True and false test
7	4	7	The school health	Use of electronic whiteboard	Unspecified essay test with question
8	4	8	The food elements	Use of electronic whiteboard	Unspecified essay test with question

9	4	9	Some diseases of malnutrition	Use of electronic whiteboard	Unspecified essay test with question
10	4	10	The first test	Use of electronic whiteboard	Unspecified essay test with question
11	4	11	The pollination	Use of electronic whiteboard	True and false test
12	4	12	The diseases that infect the children	Use of electronic whiteboard	True and false test
13	4	13	Some harmful habits(the smoking, the alcohol, the drug addiction)	Use of electronic whiteboard	True and false test
14	4	14	The first aid	Use of electronic whiteboard	True and false test
15	4	15	The home pharmacy	Use of electronic whiteboard	True and false test

1. Course Name: **The serology and vaccines**
2. Course Code:Seva.400
3. Semester / Year:2025 -2026 semester
4. Description Preparation Date:1\9\2025
5. Available Attendance Forms: Attendance
6. Number of Credit Hours (Total) 2 / Number of Units (Total) 2
7. Course administrator's name (mention all, if more than one name)

Wasan Mohammed Abdulzahra.
wasan.abdulzahra.bscle@uobabylon.edu.iq

8. Course Objectives

Course Objectives	1-identtify preventive and therapeutic serology 2-learn about preparation methods of amino globulin 3-learn about the mechanisms of action the vaccines 4-identify the types of vaccines 5-identify the problems and symptoms of vaccines 6-learn about the serological tests 7-identify the most important vaccines used 8- learn about vaccines administration

9. Teaching and Learning Strategies

Strategy	The lecture disscutions Interrogation

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Historical overview and the most important discoveries in this field		The lecturer	
2	2	Preventive and therapeutical serums		The lecturer	
3	2	Methods for preparing of human amino globulin		The lecturer	
4	2	Mechanisms of action the vaccines		The lecturer	
5	2	The vaccines types		The lecturer	
6	2	Vaccines problems and disease symptoms		The lecturer	

7	2	The first test		The lecturer	
8	2	Serological tests		The lecturer	
9	2	The most important vaccines		The lecturer	
10	2	The viral vaccines		The lecturer	
11	2	The bacterial vaccines		The lecturer	
12	2	Vaccine administration		The lecturer	
13	2	Vaccine cold chain		The lecturer	
14	2	The substances added to vaccines		The lecturer	
15	2	Efficiency of vaccines		The lecturer	

1. Course Name: Properties of materials
Properties of materials
2. Course Code:
3. Semester / Year:2024 -2025
2025 /2024
4. Description Preparation Date:
11 -9 -2024
5. Available Attendance Forms:
Attendance in the classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
Total Hours 30 hr / 2 units
7. Course administratr's name (mention all, if more than one name)
Name: Prof.Dr.Hani Mahmood Hussien: Email:basic.hani.mahmood@uobabylon.edu.iq

8 .course objective	
course objective	1. 1- The student learns to explain many phenomena, change in density with temperature and applications of fluid pressure. 2. The student learns about the mechanism of buoyancy of objects, applications on the Bernoulli equation (Torricelli factor), 3. The student is able to understand turbulent or regular flow and some applications. 4. The student realizes the importance of physical, engineering, thermal and other properties and their relationship to our general life. 5. The student is able to know the types of mechanical stress and the stress-strain curve and its importance in determining the appropriate material for practical applications. 6. The student learns the types of materials in terms of their ability to conduct electricity, conductors, insulators and semiconductors. 7. The student realizes the importance of some phenomena such as electric polarization and magnetic polarization. 8. The student learns to interpret the piezoelectric property and understand its most important applications. 9. The student studies the concept of Magnetism and the mechanism of classifying materials according to their response to the magnetic field. 10. The student should be able to understand the most important applications of plasma, its existence, generation, types, and knowledge of plasma parameters.
9. Teaching and Learning Strategies	

Strategy	- Lecture - Electronic board - Discussion - Brainstorming strategy - Questioning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	To explain the concept of liquid properties and laws.	Density, specific gravity, bulk pressure	Lecture, discussion and interrogation	Unspecified essay test
2	3	To explain what is meant by continuity equation and its applications	Archimedes' principle, continuity equation, Torricelli	Lecture, discussion and questioning	True or false test
3	3	To clarify the condition for the occurrence of the combined or non-coordinated flow of fluids	Coordinated and non-coordinated flow	Lecture, discussion and questioning	Examples
4	3	Knowing the distinctive properties of materials	Mechanical properties, stress, types of ductility, stress-ductility curve	Lecture, discussion and questioning	Undefined essay test with questions
5	3	Explaining the mechanism for applying the calculation of mechanical properties	Examples of calculating the Young's coefficient	Lecture, discussion and questioning	True or false test
6	3	Understand the importance of electrical properties	Classify materials according to electrical conductivity	Lecture, discussion and questioning	True or false test

7	3	Understanding the importance of Ohm's law and sources of current generation such as the battery and its composition	Resistance and current, battery, Ohm's law and resistance, direct current	Lecture, discussion and questioning	Undefined essay test with questions
8	3	Identify specific resistance and the effect of temperature	Conductivity of metals, Hall effect	Lecture, discussion and questioning	Undefined essay test with questions
9	3	Explaining the meaning of piezoelectricity and ferroelectricity	Piezoelectricity, ferroelectricity and electrical breakdown	Lecture, discussion and questioning	Undefined essay test with questions
10	3	Understanding the term magnetism, a brief history and classification of magnetic materials	Magnetism, magnetic moment, electron momentum	Lecture, discussion and questioning	Undefined essay test with questions
11	3	Explaining the role of magnetism in our lives and the most important applications	Classification of magnetic materials: para, ferro and dia	Lecture, discussion and questioning	True or false test
12	3	Knowing the importance of magnetization for ferrous materials	Magnetism, magnetization methods and their advantages	Lecture, discussion and questioning	True or false test
13	3	Explanation of plasma formation	Plasma, its generation, the Earth's magnetization	Lecture, discussion and questioning	True or false test
14	3	Identify the types of hot and cold plasma	Applications of plasma types, industrial uses, cosmic plasma, plasma transactions	Lecture, discussion and questioning	Undefined essay test with questions

11 –course evaluation
- Lecture, - Electronic board, - Discussion, - Brainstorming strategy, - Questioning

12- Learning and Teaching Resources	
Required text books	
Main references	-Donald R. Askeland, The science and engineering of materials, , Sixth Edition, University of Missouri—Rolla, Emeritus,2006. -عيسى مسعود بغني، اساسيات هندسة المواد، الهيئة الليبية للبحث والعلوم، بنغازي .2014 -محمد احمد البشير، المواد الهندسية، الطبعة الاولى، 2020
Recommended books and references (scientific journals, reports, ….)	
Electronic references, Websites	https://www.alfreed-ph.com/2017/01/Physics-properties-of-the-material-pdf.html https://www.scribd.com/document/428964606

1. Course Name: Electricity and Magnetism	
2. Course Code:	
3. Semester / Year:2024 -2025	
2025 /2024	
4. Description Preparation Date:	
11 -9 -2025	
5. Available Attendance Forms:	
Attendance in the classroom	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total Hours 30 hr / 4 units	
7. Course administratr's name (mention all, if more than one name)	
Name: Prof.Dr.Hani Mahmood Hussien: Email:basic.hani.mahmood@uobabylon.edu.iq	
8 .course objective	
	interpret many phenomena, such as electrification and its applications, and understand the relationship between

course objective	charges and their interactions. 2. The student will learn how to simplify the analysis of electrical circuits, such as Kirchhoff's and Ohm's laws. 3. The student will be able to understand the phase angle between electrical waves and its effect on the operation of alternating current devices. 4. The student will understand the importance of magnetism and its relationship to electricity. 5. The student will be able to understand the properties and types of magnets, the concept of the magnetic field, and how it is distributed around a magnet. 6. The student will learn to classify materials according to their response to magnetism. 7. The student will understand the importance of the effect of the magnetic field on moving charges. 8. The student will learn to apply the effect of the electric field on wires carrying an electric current. 9. The student will study Ampère's law and Yayot's and Savaritt's laws for uniform and non-uniform magnetic fields. 10. The student will be able to

	understand the most important applications of particle motion in electric and magnetic fields

9. Teaching and Learning Strategies

Strategy	- Lecture - Electronic board - Discussion - Brainstorming strategy - Questioning

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	To explain the concept of electric charges, their types, the electroscope, and Coulomb's law.	Static Electricity, Charges, Electroscopes, Coulomb's Law and its Applications for Problem Solving	Lecture, discussion, and questioning	Unspecified essay test
2	3	To explain the meaning of an electric field and its relationship to electric charges.	Electric Field: Its Forms and Solved Examples	Lecture, discussion, and questioning	True or false test
3	3	To illustrate the shape of the electric field generated by charged objects.	The Field Generated by Charged Bodies (Wire, Disc, Ring, and Electric Dipole)	Lecture, discussion, and questioning	Examples
4	3	To understand the concept of electric flux and how it penetrates different spaces.	Electric Flux: The Three States of Flux, Examples, Gauss's Law	Lecture, discussion, and questioning	Undefined essay test with questions
5	3	To explain the concept of Gauss's law and the derivation of Coulomb's law from it.	Examples of Gauss's Law, Applications, Gauss-Coulomb Relation	Lecture, discussion, and questioning	True or false test
6	3	To recognize the importance and composition of capacitors and their main applications.	Capacitors: Capacitance, Dependable Factors, Connections, Uses, Types, Applications, Examples	Lecture, discussion, and questioning	True or false test

7	3	To understand the importance of Ohm's law and sources of current generation such as batteries and their construction.	Resistance and Current, Battery, Ohm's Law and Resistance, Direct Current and Kirchhoff's Laws	Lecture, discussion, and questioning	Undefined essay test with questions
8	3	To recognize alternating current, its types, and applications.	Alternating Current: Its Types, Phase Difference, Series Circuit Characteristics (RLC), Electrical Resonance	Lecture, discussion, and questioning	Undefined essay test with questions
9	3	To explain the meaning of total impedance and its role in affecting alternating current.	Parallel Circuit (RLC): Total Impedance, Circuit Characteristics, Resonance, Applications of Resonance in Series and Parallel Circuits	Lecture, discussion, and questioning	Undefined essay test with questions
10	3	To understand the term magnetism, its history, and the classification of magnetic materials.	Magnetism: Magnetic Field, Magnet, Earth's Magnetic Field, Van Allen Belts, Magnetization, Bar, Dia, and Ferro	Lecture, discussion, and questioning	Undefined essay test with questions
11	3	To explain the role of magnetism in our lives and its most important applications.	Effect of Magnetic Field on Moving Charges, Lorentz Force, Magnetic Field of a Wire A current passes through it;	Lecture, discussion, and questioning	True or false test
12	3	To understand the importance of the magnetic field surrounding the Earth.	Motion of charges in a uniform electric field, motion parallel or perpendicular to the field, laws, examples	Lecture, discussion, and questioning	True or false test
13	3	Explaining the motion of charged objects in an electric field	Applications of the motion of charged particles in a magnetic field, velocity filter, mass spectrometer, cyclotron	Lecture, discussion, and questioning	True or false test
14	3	Identifying key applications of particle motion in electric and magnetic fields	Applications of charged particle motion in a magnetic field include velocity filters, mass spectrometers, and cyclotrons.	Lecture, discussion, and questioning	Undefined essay test with questions

11 –course evaluation

- Lecture, - Electronic board, - Discussion, - Brainstorming strategy, - Questioning	
12- Learning and Teaching Resources	
Required text books	
Main references	1- فؤاد شاكر الجبوري, علي خلف حسن, الفيزياء العامة- ميكانيك كهربائية ومغناطيسية , ط 1. 2009. 2- د.محمد علي العكاز,الفيزياء 2 الكهربائية والمغناطيسية والبصريات, جامعة بغداد ,1990 . 3- د.محمد خليل ابو زلطة ،د.أمجد عباس ابو جزر ،د.مصباح جمعة عقل ،د.زياد عبد الكريم القاضي .،أساسيات الدارات الكهربائية :التيار المتناوب ،عمان، 2010 . 4- يحى عبد الحميد الحاج علي , أساسيات الكهربائية والمغناطيسية,جامعة الموصل ,الطبعة الأولى، 1989 .
Recommended books and references (scientific journals, reports, ….)	
Electronic references, Websites	https://www.physics-pdf.com/2018/08/Arabic-Electricity-Books-pdf.html https://www.makktaba.com/2011/06/Electricity-books.html

Course instructor	**Asst. Prof. Dr. Ameer Ibrahim Abdulzahra**
E.mail	**bsc.st.amer.ebadi@uobabylon.edu.iq**
Course title	**Entomology**
Course coordinator	**course**
Course objective	1- The student will be able to recognize the importance of invertebrates within the animal kingdom. 2- The student will acquire the skills to differentiate between invertebrate phyla.
Course description	The evolutionary relationship between invertebrate animal phyla. The importance of invertebrates. Phylum Protozoa Phylum Porifera (sponges)

	Phylum Cnidaria Phylum Platyhelminthes Phylum Nematoda Phylum Mollusca Phylum Echinodermata
Text book	
Other references	A Brief History of Invertebrates, Hussein Fadhel Hassan, 2018, University of Kirkuk.

Course assessment.	**Term tests**	**Laboratory**	**Quizzes**	**Project**	**Final exam**
	%34	**%16**	**%**	**%**	**%50**
General Notes					

Week	**Date**	**Covered topics**	**Lab. Experiments assignment**	**Note**
1	8/2/2026	Order Arthropoda	Light and Anatomical Microscopy	
2	15/2/2026	Class Insects	Insects and Their Allies	
3	22/2/2026	Factors that helped spread insects	Insect Classification	
4	1/3/2026	Parts of the insect body	The American Cockroach as a Laboratory Insect	
5	8/3/2026	Insect head	The American Cockroach as a Laboratory Insect	
6	15/3/2026	Types of head in insects	Antennas	
7	22/3/2026	Insect thorax	Types and Modifications of Mouthparts	
8	29/3/2026	Thorax appendages	Thorax	
9	5/4/2026	Wings	Thorax	
10	12/4/2026	Abdomen	Abdomen	
11	19/4/2026	Reproductive and non-reproductive appendages	Types of Eggs in Insects	

12	26/4/2026	Nutrition in insects	Types of Larvae	
13	3/5/2026	Metamorphosis	Types of Pupae	
14	10/5/2026	Oviposition and hatching	Types of Metamorphosis	

Course instructor	**Asst. Prof. Dr. Ameer Ibrahim AbdulZahra**
E.mail	**bsc.st.amer.ebadi@uobabylon.edu.iq**
Course title	**Parasitology**
Course coordinator	**course**
Course objective	1- Knowing the relationships between living organisms 2- Distinguishing between types of parasites and hosts 3- Identify the adaptations caused by parasites 4- Identify the types of intestinal parasites 5- Distinguish between intestinal ciliates and intestinal flagellates 6- Identify the pathogen and host of intestinal ciliates and flagellates 7- Distinguish between the life cycles of ciliates and intestinal flagellates 8- Study of diagnostic methods for intestinal ciliates and dinoflagellates 9- Identify blood and tissue parasites. 10- Identify the pathogen and host of blood and tissue parasites 11- Distinguish between the life cycles of blood and tissue supernatants 12- Study diagnostic methods for blood and tissue parasites
Course description	Definition of parasitology A historical overview of parasitology Types of parasites and hosts Adaptation in parasites Parasitic protozoa Intestinal parasitic protozoa Protozoa parasitizing blood and tissues Parasitic worms
Text book	
Other references	Parasitology, Ameer Ibrahim (2024), Al-Sadiq Foundation - Babylon. Parasitology, Ismail Abdel-Wahab Al-Hadithi and Abdel-Hussein Habash Awad (2000), University of Basra. Parasitism and parasites, Yahya Assani and Ghassan Abd al-Rahman (2005), University of Aleppo - Faculty of Science. Basics of Parasitology, Ismail Muslim Abdel-Al (2009),

	Academic Library, Cairo - Arab Republic of Egypt				
Course assessment.	**Term tests**	**Laboratory**	**Quizzes**	**Project**	**Final exam**
	%34	**%16**	**%**	**%**	**%50**
General Notes					

Week	Date	Covered topics	Lab. Experiments assignment	Note
1	21/9/2025	Definition of parasitology, historical overview, types of parasites and hosts	Laboratory instructions	
2	28/9/2025	Adaptation in parasites	Microscope	
3	5/10/2025	Parasitic protozoa	Parasitic protozoa	
4	12/10/2025	Intestinal parasitic protozoa	Intestinal parasitic protozoa	
5	19/10/2025	Intestinal parasitic protozoa	Intestinal parasitic protozoa	
6	26/10/2025	Intestinal parasitic protozoa	Intestinal parasitic protozoa	
7	2/11/2025	Intestinal parasitic protozoa + Theoretical exam	Intestinal parasitic protozoa	
8	9/11/2025	Intestinal parasitic protozoa	Intestinal parasitic protozoa	
9	16/11/2025	Intestinal parasitic protozoa	Protozoa parasitizing blood and tissues	
10	23/11/2025	Protozoa parasitizing blood and tissues	Protozoa parasitizing blood and tissues	
11	30/11/2025	Protozoa parasitizing blood and tissues	Protozoa parasitizing blood and tissues	
12	7/12/2025	Protozoa parasitizing blood and tissues	Protozoa parasitizing blood and tissues	
13	14/12/2025	Parasitic worms + Theoretical exam	Protozoa parasitizing blood and tissues	
14	21/12/2025	Parasitic worms	Parasitic worms	

1. Course Name: nuclear physics
2. Course Code:

3. Semester / Year: **1. Semester / Year: First semester of the academic year 2024–2025**

4. Description Preparation Date:16-9-2025

5. Available Attendance Forms:

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

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

8. Course Objectives

Course Objectives	• **First Semester Work (50%)**
	  o Daily exams: **15%**
	  o Midterm exam: **35%**
	• **Final Exam: 50%**
	• **Laboratory: 0%**

9. Teaching and Learning Strategies

Strategy	1. **Knowledge and Understanding**
	  o Identify the nuclear system and describe the components of the nucleus.
	  o Recognize the different types of nuclear radiation.
	  o Explain nuclear reactors, uranium enrichment methods, and depletion processes.
	2. **Intellectual Skills**
	  o Apply physical laws within the microscopic system, such as calculating binding energy.
	3. **Practical and Professional Skills**
	  o Describe preventive measures and apply radiation protection methods.

10. Course Structure

Week	Hours	Lecture Type / Activities	Lecture Title / Topic	Learning Objective

Week	Hours	Lecture Type / Activities	Lecture Title / Topic	Learning Objective
1	2	Lecture	Nuclear Description, Structure, and Properties	The student will understand nuclear structure and components
2	2	Lecture	Nuclear Mass and Charge	The student will understand nuclear charge and mass, and how to calculate them
3	2	Lecture	Nuclear Size and Density, Charge Distribution	The student will apply formulas to calculate nuclear size and density
4	2	Lecture	Nuclear Mass Measurement	The student will apply formulas to determine nuclear mass
5	2	Interactive Lecture	Nuclear Spin and Angular Momentum	The student will understand nuclear spin and angular momentum
6	2	Lecture	Nuclear Magnetic Moment	The student will understand the nuclear magnetic moment
7	2	Lecture	Nuclear Stability	The student will distinguish between stable and radioactive nuclei
8	2	Lecture	Nuclear Binding Energy	The student will understand binding energy and apply its formulas
9	2	Interactive Lecture	Nuclear Separation Energy	The student will understand separation energy and apply it mathematically
10	2	Lecture + Reports & Student Activities	Nuclear Forces and Their Properties	The student will understand nuclear force and its properties
11	2	Lecture + Reports	Nuclear Reactions	The student will understand nuclear reactions and their types
12	2	Interactive Lecture	Reaction Energy and Cross Section	The student will derive and calculate the cross section of reactions
13	2	Lecture + Laboratory + Field Visit	Nuclear Fission	The student will understand nuclear fission

Week	Hours	Lecture Type / Activities	Lecture Title / Topic	Learning Objective
14	2	Reports & Student Activities	Nuclear Fusion	The student will understand nuclear fusion
15		Lecture + Reports & Student Activities	Elementary Particles	The student will understand elementary particles

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as dailypreparation, daily oral, monthly, or written exams, reports etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Required Texts (if any):

- Muneeb Adel Khalil. *Nuclear Physics*. University of Mosul, 1994.

Primary References:

1. Anka. *Introduction to Nuclear Physics*. Translated by Asim Abdul Karim. University of Mosul.
2. Cohen, B. L. *Concept of Nuclear Physics*. 1971.
3. Wong, S. S. *Introduction to Nuclear Physics*. 1990.

Supplementary References (Journals, Reports, etc.):

World Scientific – Nuclear Physics

1. Course Name: radioactivity physics
2. Course Code:
3. Semester / Year: Second Semester of the Academic Year 2025-2026
4. Description Preparation Date: / 2/2026
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
7. Course administrator's name (mention all, if more than one name)
Name: Entesar Farhan Salman Email:
8. Course Objectives

Course Objectives	• 34 •16 •

9. Teaching and Learning Strategies	
Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		Lecture Type / Activities	**Lecture Title / Topic**	**Learning Objective**	
1	2	Lecture	Nuclear Structure, Binding Energy, and Force	The student will understand nuclear structure and binding energy	

		Lecture Type / Activities	Lecture Title / Topic	Learning Objective
3	2	Lecture	Radiation, Detection, and Measurement Units	The student will learn the definition of radiation and its measurement units
4	2	Lecture	Natural Radioactivity and Decay Law	The student will understand radioactivity, its types, and apply decay laws
5	2	Lecture	Half-Life and Decay Series	The student will apply formulas to calculate half-life
6	2	Interactive Lecture	Isotope Production via Nuclear Bombardment	The student will list the methods used to produce isotopes
7	2	Lecture	Alpha Particles	The student will understand the properties and spectrum of alpha particles
8	2	Lecture	Beta Particles and the Neutrino Hypothesis	The student will learn about beta radiation, its types, and spectrum
9	2	Lecture	Gamma Rays	The student will understand gamma radiation
10	2	Interactive Lecture	Biological Effects of Radiation	The student will understand the biological effects of radiation
11	2	Lecture + Reports & Student Activities	Peaceful Uses of Nuclear Energy	The student will list the peaceful uses of nuclear energy
12	2	Lecture + Reports	Uranium and Its Enrichment	The student will understand the method of uranium enrichment
13	2	Interactive Lecture	Depleted Uranium	The student will understand and differentiate between enrichment and depletion
14	2	Lecture + Laboratory + Field Visit	Nuclear Detectors	The student will list the types of detectors and their working methods
15	2	Lecture + Reports & Student Activities	Nuclear Energy Applications in Medicine	The student will list the applications of nuclear energy in medicine

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as dailypreparation, daily oral, monthly, or written exams, reports etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Mayrhoff. *Mabadi' al-fizyaa' al-nawawiya* [Principles of Nuclear Physics]. Translated by A. Abdul Karim. University of Mosul; 1982.

https://www.worldscientific.com/page/nuclear-physics?srsltid=AfmBOopSsIR-zM7M4QH0mdbOFFEoTULDE6Ws6CDxPoBRXMYByb97YDJx

1. Course Name: plasma
2. Course Code:
3. Semester / Year: first semester
4. Description Preparation Date:21/1/2026
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)
Name: Raya Ali Abed Email:

:
bsclec.ra
ya.ali@u
obabylon
.edu.iq

8. Course Objectives

Course Objectives	
-- The existence of plasma in nature 2- The ionization ratio and Saha equation 3- Comparison between gas and plasma -4 Definition of plasma -5- Quasi-neutrality 6- Collective behavior of plasma 7- The concept of plasma temperature 8- Debye envelope and its calculation 9- Plasma frequency - Conditions of ionized gas to form the plasma state 10- Plasma pressure - Applications of plasma physics 11- Plasma in space - Modern cosmic physics 12- Plasma screen - Motion of single particles 13- Lorenz force 14- Rotational motion and rotational frequency 15- Drift velocity	• • •

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
		1-understanding plasma and its existence in nature	-1- The existence of plasma in nature	lecture	Oral test
		2- understanding the ionization ratio and Saha equation	2- The ionization ratio and Saha equation	lecture (presentation and discussion)	True or falls test
		3- distinguish between gas and plasma	3- Comparison between gas and plasma	lecture (presentation and discussion)	Oral test
		4- identify plasma and its laws	-4 Definition of plasma	lecture (presentation and discussion)	Questions with short answers
		5- explaining quasi-equilibrium	-5- Quasi-neutrality		Oral test
		6- understanding the collective behavior of plasma	6- Collective behavior of plasma	lecture (presentation and discussion)	Oral test
		7- realizing the concept of plasma temperature	7- The concept of plasma temperature	lecture (presentation and discussion)	Oral test
		8- knowing the Debye envelope and calculate the thickness using mathematical equations	8- Debye envelope and its calculation	lecture presentation and discussion)	Questions with short answers
		9- understanding the plasma	9- Plasma frequency - Conditions of ionized gas to form the plasma state	lecture (presentation and discussion)	Questions with short answers
			10- Plasma pressure - Applications of plasma physics	lecture (presentation and discussion)	Questions with short answers
			11- Plasma in space		Questions with short answers

		frequency and the conditions of ionized gas to form the plasma state 10- learning plasma pressure and plasma applications 11- distinguish plasma in the field of space and modern cosmic physics 12- explaining the plasma screen and the movement of single particles 13-knowing the Lorenz force 14- calculating the rotational motion and rotational frequency 15- knowing the drift velocity	- Modern cosmic physics 12- Plasma screen - Motion of single particles 13- Lorenz force 14- Rotational motion and rotational frequency 15- Drift velocity	lecture (presentation and discussion) lecture (presentation and discussion) lecture (presentation and discussion) lecture (presentation and discussion) lecture (presentation and discussion) lecture (presentation and discussion)	Questions with short answers Questions with short answers Questions with short answers Questions with short answers

1. Course Name: Electron physics
2. Course Code:
3. Semester / Year: Courses
4. Description Preparation Date:2026-1-20
5. Available Attendance Forms:

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

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

Name: Qasim Shakir Kadhim
Email: basic.qasim.shakir@uobabylon.edu.iq

8. Course Objectives

Course Objectives	• • •

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

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

1. Course Name: Modern Physics

2. Course Code:

3. Semester / Year: Courses

4. Description Preparation Date:20-1-2026

5. Available Attendance Forms: weekly

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

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

Name: Qasim Shakir Kadhim
Email: basic.qasim.shakir@uobabylon.edu.iq

8. Course Objectives

Course Objectives	• • •

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

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

1. Course Name: Inorganic chemistry

2. Course Code:

3. Semester / Year: 2025-2026

4. Description Preparation Date: 23/1/2026

5. Available Attendance Forms: Weekly

6. Number of Credit Hours (Total) 2 Hours / Number of Units (Total)3unit

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

Name: **Hassan Khudher Naji**

basic.hasan.kder@uobabylon.edu.iq

8. Course Objectives	
	1. A comprehensive study of the atom and its components **2. Quantum numbers and how to calculate them** **3. Studying the state symbol and how to extract it chemically** **4. Hybridization and its types** **5. Studying the theory of electron pair repulsion** **6. Studying the concept of atomic theories** **7. Definition of the chemical bond and its types** **8. Definition of isotopes** **9. Nuclear chemistry** **10. Radioactivity** **11. Enriched uranium and its uses**

9. Teaching and Learning Strategies	
Strategy	Lectures. ..... • Discussions. ..... • Use of electronic whiteboards.

Course Description Form

1. Course Name: biochemsitery
2. Course Code:
3. Semester / Year: 2024-2025

4. Description Preparation Date: 1-2-2025

5. Available Attendance Forms: yes

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

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

Name:
antesar rheemobead
Email:
basic.enteasr rheemobead

8. Course Objectives

Course Objectives	• 1. Στυδεντ κνοωλεδγε οφ λιφε χομπονεντσ 2. Στυδψ τηε χονχεπτσ οφ χαρβοηψδρατεσ α νδ συγαρ χομπουνδσ 3. Υνδερστανδινγ προτειν χομπουνδσ 4. Στυδψ ενζψμεσ 5. Στυδεντ κνοωλεδγε οφ τηε ιμπορτανχε οφ λ ιφε χομπονεντσ • •

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

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

	2	Carbohydrates Carbohydrate metabolism Amino acids Proteins Fat Fat metabolism Hormones Nucleic acids Enzymes Endocrine glands Minerals Vitamins Genetic mutations	biochemsitery	a lecture	a lecture

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as dailypreparation, daily oral, monthly, or written exams, reports etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	